University of California Riverside

2005 Long Range Development Plan Amendment 2

Draft Environmental Impact Report
SCH NO. 2010111034

Volume II Appendices

Prepared for
University of California, Riverside
Office of Finance & Business Operations
Capital Resource Management

Prepared by
Impact Sciences, Inc.
555 12th Street, Suite 1650
Oakland, CA 94607

August 2011

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APPENDIX 1.0

Initial Study/Notice of Preparation, and NOP Comments

State of California
Office of Planning and Research
1400 Tenth Street
Sacramento, CA 95814

NOTICE OF PREPARATION
ENVIRONMENTAL IMPACT REPORT

Project Title: UC Riverside 2005 LRDP Amendment 2

Lead Agency: University of California

Project Location: **University of California, Riverside**
900 University Ave, Riverside, CA 92521

County: Riverside County

Contact Person: Ms. Juanita W. Bullock RLA, ASLA, AICP
Director of Physical Planning/Campus Landscape Architect
3637 Canyon Crest Drive
Bannockburn Suite F-101
Riverside, CA 92507

The University of California proposes to amend the 2005 Long Range Development Plan (LRDP) for the University of California, Riverside (UCR) campus in Riverside, California. In 2005, the University adopted the 2005 LRDP which was designed to accommodate an increase in campus enrollment through 2015/16, and included a land use map to guide the physical development of the UCR campus. The proposed 2005 LRDP Amendment 2 involves changes to the 2005 LRDP Land Use map and changes to the text of the 2005 LRDP. These changes are summarized below:

- The proposed Land Use map changes include: (1) change in the land use designation of a 38.7 acre site located at the northeast corner of Iowa Avenue and Martin Luther King, Jr. Boulevard (MLK) on the West Campus from *Family, Apartment Housing and Related Support (Including Child Care)* as well as *Parking* and *Academic* to *School of Medicine (SOM)* to allow a medical school and associated uses to support the school on the site; (2) change in the location of two future parking facilities and deletion of the location of one parking facility in the West Campus academic core; (3) modifications to the major open space areas on the West Campus, including the reconfiguration of the "Grove" concept to the "Gage Canal Mall" concept, and the inclusion of the West Campus Mall and SOM Quad; (4) extension of the 100-foot wide landscape buffer along the north side of MLK between Cranford Avenue and Chicago Avenue; (5) extension of the Northwest and Southwest Malls from Cranford Avenue to Chicago Avenue; (6) re-designation of the land uses of several parcels to accommodate land uses displaced by the major changes listed above, including the designation of the Campus Reserve site as *Family, Apartment Housing with Related Support (including Child Care)* and *Open Space*; and (7) incorporation of previously

approved land use amendments and map changes into the 2005 LRDP Land Use map, including incorporation of recently acquired housing on the East Campus, and addition of *Family, Apartment Housing with Related Support (including Child Care)* and deletion of *Athletics and Recreation* land use on the East Campus to provide new student housing at the Glen Mor 2 site which is anticipated to be approved by The Regents through the Glen Mor 2 student housing project prior to the approval of this Amendment.

- The proposed text changes include: (1) extension of the 2005 LRDP horizon year from 2015/16 to 2020/21; (2) increase in the maximum square footage accommodated in the 2005 LRDP from 11.8 million gross square feet (gsf) to 14.9 million gsf (due to the increased space requirements for the proposed uses for the SOM); (3) provide design criteria for the *SOM* precinct; (4) update of the Circulation and Parking Chapter to reflect changes to the existing and future transit service and proposed Transportation Demand Management Program; (5) update of the existing Resource Conservation and Environmental Chapter to include information on the UC Policy on Sustainable Practices, UCR Sustainability and Climate Action Plans; (6) update of the parking land use designation in the 2005 LRDP to allow for retail or office as permitted uses within all proposed parking structures on the campus; and (7) update the Resource Conservation and Environmental Stewardship section of the 2005 LRDP.

The 2005 LRDP Amendment 2 would not add to the total enrollment projected in the 2005 LRDP but would increase employment and visitors (patients) for the SOM that were not projected in the 2005 LRDP. The 2005 LRDP Amendment 2 would not change any of the existing land use designations on the East Campus except for the inclusion and designation of recently acquired housing as residential land uses under the LRDP and the replacement of *Athletic and Recreation* with *Family, Apartment Housing with Related Support (including Child Care)* land use at the northwest corner of Valencia Hill Drive and Big Springs Road.

Environmental Review and Comment

The University of California will be the Lead Agency and will prepare an EIR for the proposed project. An Initial Study has been prepared in accordance with the California Environmental Quality Act (CEQA), the CEQA Guidelines, and the University of California Guidelines for the Implementation of CEQA to identify potential environmental impacts that will be addressed in the EIR (see **Attachment A**). The attached Initial Study also includes a description of the proposed project. At this time, it is anticipated that the EIR will address environmental impacts in the following resource areas: aesthetics, agricultural resources, air quality, greenhouse gas emissions, hazards and hazardous materials, hydrology and water quality, land use and planning, noise, population and housing, public services (fire and police), transportation/circulation and traffic, and utilities and service systems.

The University will hold two public scoping meetings on November 18, 2010 for the EIR. The first meeting for the campus community will be held in the Highlander Union Building Room 367, from 12:00 PM to 1:00 PM, and the second meeting for the Riverside community will be held in Bannockburn Room J-102 located at 3637 Canyon Crest Drive, from 6:00 PM to 7:00 PM.

A copy of this NOP will be placed on the following website:

http://www.lrdp.ucr.edu/

We request your views as to the scope and contents of the EIR for the proposed project. This NOP is being circulated for 30 days from November 8, 2010 through December 6, 2010. Your response must be received no later than 5:00 PM on December 6, 2010. Your name should be included with your response. Please send your response to the attention of Juanita Bullock at the address noted above. Responses can also be submitted via email to the following address: **lrdp@ucr.edu. Email responses must also be received no later than 5:00 PM on December 6, 2010.**

If you have any questions regarding this NOP, please contact Juanita W. Bullock at the above address or via email at **lrdp@ucr.edu**.

Signature: _____ Date: 11/8/10

Juanita W. Bullock RLA, ASLA, AICP
Director of Physical Planning/Campus Landscape Architect
University of California, Riverside

Attachment A: Initial Study

UC RIVERSIDE
2005 LONG RANGE DEVELOPMENT PLAN
AMENDMENT 2

Draft Initial Study

The following Initial Study has been prepared in compliance with CEQA.

PREPARED BY:
OFFICE OF FINANCE, BUDGET AND OPERATIONS
CAPITAL AND PHYSICAL PLANNING
3637 Canyon Crest Drive
Bannockburn Suite F-101
Riverside, California 92507

•

November 2010

CONTACT: JUANITA W. BULLOCK RLA, ASLA, AICP
DIRECTOR OF PHYSICAL PLANNING/CAMPUS LANDSCAPE ARCHITECT

OFFICE OF FINANCE, BUDGET AND OPERATIONS
CAPITAL AND PHYSICAL PLANNING
951 827-7376

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INTRODUCTION

Initial Study

Pursuant to Section 15063 of the California Environmental Quality Act (CEQA) Guidelines (Title 14, California Code of Regulations, Sections 15000 et seq.), an Initial Study is a preliminary environmental analysis that is used by the lead agency as a basis for determining whether an Environmental Impact Report, a Mitigated Negative Declaration, or a Negative Declaration is required for a project. The CEQA Guidelines require that an Initial Study contain a project description, description of environmental setting, identification of environmental effects by checklist or other similar form, explanation of environmental effects, discussion of mitigation for significant environmental effects, evaluation of the project's consistency with existing, applicable land use controls, and the name of persons who prepared the study.

The purpose of this Initial Study is to evaluate the potential environmental impacts of the proposed University of California Riverside (UCR) 2005 Long Range Development Plan Amendment 2 and to determine what level of additional environmental review, if any, is appropriate. As shown in the Determination in Section IV of this document and based on the analysis contained in this Initial Study, it has been determined that the proposed 2005 Long Range Development Plan (LRDP) Amendment 2 could result in potentially significant impacts, therefore, preparation of an Environmental Impact Report (EIR) is appropriate.

Anticipated Project Approvals

The University will prepare an EIR that fully evaluates the environmental effects associated with the implementation of the proposed 2005 LRDP Amendment 2. Necessary project approvals are anticipated to include, but are not limited to, consideration of the following by The UC Board of Regents (anticipated in summer/fall 2011):

- Certification of the UCR 2005 LRDP Amendment 2 EIR, and
- Approval of the proposed UCR 2005 LRDP Amendment 2.

Public and Agency Review

The Notice of Preparation (NOP) and this Initial Study will be circulated for public and agency review from November 8, 2010 through December 6, 2010. Copies of the Initial Study are available during normal operating hours at the Office of Capital and Physical Planning, UCR and online at www.lrdp.ucr.edu. Comments on the NOP/Initial Study must be received by 5:00 PM on December 6, 2010. They may be e-mailed to lrdp@ucr.edu or sent to:

Capital and Physical Planning
3637 Canyon Crest Drive
Bannockburn Suite F-101
Riverside, California 92507

Attn: Juanita W. Bullock, RLA, ASLA, AICP

Two public scoping meetings for the 2005 LRDP Amendment 2 EIR will be held on November 18, 2010 on the UC Riverside Campus: one meeting for the campus community at the Highlander Union Building Room 367, from 12:00 PM to 1:00 PM, and one meeting for the Riverside community at Bannockburn Room J-102 located at 3637 Canyon Crest Drive, from 6:00 PM to 7:00 PM. The public and agency review period for the 2005 LRDP Amendment 2 Draft EIR is anticipated to commence sometime between January 2011 and late February 2011.

Organization of the Initial Study

This Initial Study is organized into the following sections:

Section I – Project Information: provides summary background information about the proposed project, including project location, lead agency, and contact information.

Section II –Project Location and Description: includes a description of the proposed project, including the need for the project, the project's objectives, and the elements included in the project.

Section III –Environmental Factors Potentially Affected: identifies which environmental factors, if any, involve at least one significant or potentially significant impact that cannot be reduced to a less than significant level.

Section IV – Determination: indicates whether impacts associated with the proposed project would be significant, and what, if any, additional environmental documentation is required.

Section V – Evaluation of Environmental Impacts: contains the Environmental Checklist form for each resource area. The checklist is used to assist in evaluating the potential environmental impacts of the proposed project. This section also presents an explanation of all checklist answers.

Section VI – Supporting Information Sources: lists references used in the preparation of this document.

Section VII – Initial Study Preparers: lists the names of individuals involved in the preparation of this document.

Appendix A – LRDP Planning Strategies, Programs and Practices, and Mitigation Measures: lists the Planning Strategies, Programs and Practices, and Mitigation Measures that go along with the 2005 LRDP.

Appendix B – Air Quality Worksheets: presents the worksheets from the air quality modeling analyses conducted for the project.

I. PROJECT INFORMATION

1. Project title:

   University of California, Riverside 2005 Long Range Development Plan Amendment 2

2. Lead agency name and address:

   The Board of Regents of the University of California (The Regents)
   1111 Franklin Street, 12th Floor
   Oakland, California 94607

3. Contact person and phone number:

   Juanita Bullock RLA, ASLA, AICP
   Director of Physical Planning/Campus Landscape Architect

   (951) 827-7376
   lrdp@ucr.edu

4. Project location:

   UC Riverside Campus
   Riverside, California 92507

5. Project sponsor's name and address:

   UC Riverside
   Capital and Physical Planning
   3637 Canyon Crest Dr.
   Bannockburn Suite F-101
   Riverside, California 92507

6. Custodian of the administrative record for this project (if different from response to item 3 above.):

   Same as above.

7. Identification of previous EIRs relied upon for tiering purposes (including all applicable LRDP and project EIRs) and address where a copy is available for inspection.)

   - 2005 Long Range Development Plan Final Environmental Impact Report (SCH # 2005041164)

II. PROJECT LOCATION AND DESCRIPTION

1. Description of project:

The proposed 2005 LRDP Amendment 2, which is the subject of this EIR, involves changes to the 2005 LRDP Land Use map and changes to the text of the 2005 LRDP. These changes are summarized below and described in more detail in the sections that follow.

- The proposed Land Use map changes include: (1) change in the land use designation of a 38.7 acre site located at the northeast corner of Iowa Avenue and Martin Luther King, Jr. Boulevard (MLK) on the West Campus from *Family, Apartment Housing and Related Support (Including Child Care)* as well as *Parking* and *Academic* to *School of Medicine (SOM)* to allow a medical school and associated uses to support the school on the site; (2) change in the location of two future parking facilities and deletion of the location of one parking facility in the West Campus academic core; (3) modification to the major open space configuration in the West Campus academic core to include the reconfiguration of the "Grove" concept to the "Gage Canal Mall" concept, and the inclusion of the West Campus Mall and SOM Quad; (4) the extension of the 100-foot-wide landscape buffer along the north side of MLK between Cranford Avenue and Chicago Avenue; (5) extension of the Northwest and Southwest Malls from Cranford Avenue to Chicago Avenue; (6) re-designation of the land uses of several parcels to accommodate land uses displaced by the major changes listed above, including the designation of the Campus Reserve site as *Family, Apartment Housing with Related Support (including Child Care)* and *Open Space*; and (7) incorporation of previously approved land use amendments and map changes into the 2005 LRDP Land Use map, including incorporation of recently acquired housing on the East Campus.

- The proposed text changes include: (1) extension of the 2005 LRDP horizon year from 2015/16 to 2020/21; (2) increase in the maximum square footage accommodated in the 2005 LRDP from 11.8 million gross square feet (gsf) to 14.9 million gsf (due to the increased square footage requirements for the proposed uses for the *SOM*); (3) provide design criteria for the *SOM* precinct; (4) update of the Circulation and Parking Chapter to reflect changes to the existing and future transit service and proposed Transportation Demand Management Program; (5) update of the existing Resource Conservation and Environmental Chapter to include information on the UC Policy on Sustainable Practices, UCR Sustainability and Climate Action Plans; (6) update of the parking land use designation in the 2005 LRDP to allow for retail or office as permitted uses within all proposed parking structures on the campus; and (7) update the Resource Conservation and Environmental Stewardship section of the LRDP.

The 2005 LRDP Amendment 2 would not add to the total enrollment projected in the 2005 LRDP but would increase employment and visitors (patients) for the SOM that were not projected in the 2005 LRDP. The 2005 LRDP Amendment 2 would not change any of the existing land use designations on the East Campus except for the inclusion and designation of recently acquired housing as residential land uses under the LRDP and a previously approved map change.

Location: The UCR campus is located in the City of Riverside, 3 miles east of downtown Riverside and just west of the Box Springs Mountains. The City of Riverside is located within the County of

Riverside, in a larger geographic area known as the Inland Empire, which includes western Riverside and San Bernardino counties. **Figure 1, Regional Context**, shows the location of the campus in a regional context. The campus is generally bounded by University Avenue and Blaine Street on the north, Watkins Drive and Valencia Hill Drive and its extension south on the east, a line extending east from Le Conte Drive on the south, and Chicago Avenue on the west. The campus is bisected diagonally by the I-215/SR-60 freeway. **Figure 2, Local Setting**, shows the local setting of the campus.

Existing Uses: The campus consists of approximately 1,144 acres, with approximately 614 acres east of the freeway (East Campus) serving as the undergraduate academic core and the location for the majority of existing academic, housing, and support facilities. The portion of the campus west of the freeway (West Campus comprising approximately 530 acres) is primarily occupied by agricultural teaching and research fields, the University Extension (UNEX), Highlander Hall (office facility), the International Village (third-party student housing complex), Human Resources (office building), and a large surface parking lot (Parking Lot No. 30). A City of Riverside electrical substation also occupies approximately 0.9 acre directly west of the freeway at the northern edge of Parking Lot No. 30 while a Caltrans service yard occupies a 4.1-acre triangular parcel directly west of the freeway at the eastern terminus of Everton Place. The Gage Canal, a historic citrus grove irrigation waterway, traverses the West Campus north to south. **Figure 3, Campus Map**, provides a map of the campus. **Figure 4, Campus Aerial**, provides an aerial view of the campus.

Project Features and Operations: As noted above, the proposed 2005 LRDP Amendment 2 primarily involves (1) changes to the campus's 2005 LRDP Land Use map to facilitate the development of a SOM and secondarily other land use changes, and (2) changes to the text of the 2005 LRDP. The existing 2005 LRDP Land Use map is presented in **Figure 5, 2005 LRDP Land Use Map**. The proposed 2005 LRDP Amendment 2 Land Use map depicting the proposed changes is provided in **Figure 6, Proposed 2005 LRDP Amendment 2 Land Use Map**. Each element of the 2005 LRDP Amendment 2 is described in greater detail below.

1. Proposed LRDP Land Use Map Changes

School of Medicine

In 2005, The Regents certified the 2005 UCR LRDP EIR and adopted the 2005 LRDP, a plan that would guide the development and growth of the campus through the 2015/16 academic year. The 2005 LRDP provided for the growth of the campus up to 25,000 students and associated faculty and staff, and the development of up to 7.1 million gsf of new academic buildings, support facilities, and student housing to accommodate at least 50 percent of the students on campus. The 2005 LRDP set aside a *Campus Reserve* land use designation on the far west side of the campus at the northeast corner of Chicago Avenue and MLK. This site comprises approximately 37.3 acres and was set aside to accommodate future facility needs.

In 2008, following the adoption of the 2005 LRDP, the Campus prepared a campus document called the Campus Aggregate Master Planning Study (CAMPS), the focus of which was to bring all of the neighborhood plans and planning studies together in one document in support of the 2005 LRDP and to test the ultimate capacity of the West Campus at a floor area ratio (FAR) of 1.0. CAMPS also provided a cohesive concept to guide the campus through the initial development phases of the medical school, identified as the future use of the *Campus Reserve*, and the rest of the development on the West Campus to build out.

In 2008 The Regents established a four-year medical school at UCR. This action was part of the expansion of UC's medical education programs which included increasing enrollments at existing medical schools and planning for at least one new UC school of medicine. The UCR medical school will serve the Inland Empire surrounding the Riverside campus and improve the health of the medically underserved throughout the inland Southern California region.

In 2010, after further evaluation of the pros and cons of using the *Campus Reserve* site for the medical school, the campus decided to move the school from the *Campus Reserve* site to a 38.7-acre site located at the northeast corner of Iowa Avenue and MLK so that the school could be located closer the East Campus *Academic* core.

SOM Land Use Designation

As a step towards the development of a school of medicine, the proposed 2005 LRDP Amendment 2 would change the land use designation of a 38.7 acre portion of the West Campus located at the northeast corner of Iowa Avenue and MLK from *Family, Apartment Housing with Related Support (including Child Care), Parking* and *Academic* to *School of Medicine or SOM,* a new UCR land use designation. Permitted uses within this new land use designation will include teaching, research, administration, ambulatory care, medical offices, medical school support (auditorium, library, related retail, etc.), utility infrastructure, support yard, circulation, and parking. Surface and structured parking would serve the medical school students, faculty, staff, employees, patients, and visitors. The original land uses for the *SOM* site are shown in **Figure 5**. The new *SOM* designation is shown in **Figure 6**.

SOM Development Program

As listed in **Table 1, School of Medicine Components**, a total of approximately 3.1 million gsf of development would be associated with the proposed SOM based on the 2005 and 2008 medical school proposal to The Regents. This development is in addition to the 7.1 million new gsf approved in the 2005 LRDP.

Table 1
School of Medicine Components

Land Use	Area (Gross Square Feet)
Medical Education Building	144,000
Medical Research Laboratories	482,715
Vivarium Facility	40,100
Ambulatory Care Facilities	250,000
Medical Office Buildings	775,000
Support Yard	46,000
Parking	1,323,350 (3,781 stalls)
Total	**3,061,165**

Source: UCR 2005 LRDP Amendment 2, August 2010

SOM Facilities

The *SOM* is anticipated to consist of a number of new buildings, spaces, and infrastructure that are described below. No hospital is currently planned as part of the *SOM*. The medical school would use area hospitals for its residency program. Buildout of the *SOM* would occur over time and for purposes of analysis in this EIR it is assumed that full buildout would occur by 2020.

(1) Medical Administration and Education Building*:* The medical administration and education building would total approximately 144,000 gsf. The facility would include uses such as: lecture halls, gross anatomy suite, teaching laboratories, student services, library, auditorium, clinical skills center, simulation center, administration, and building support space.

*(**2) Medical Research Laboratories**:* The medical research laboratories would total approximately 482,700 gsf and would employ up to 95 Full-Time Equivalent (FTE) principal researchers. Research components in these facilities would include: research lab space, lab support space, and lab core space. Non-research components would include: office/meeting space, conference center and other assignable space (e.g., loading, food service, etc.)

(3) Vivarium Facility*:* The vivarium facility would total approximately 40,000 gsf. The facility would include a holding area (including quarantine), core facilities, imaging, surgery and laboratory, and corridors. The facility would accommodate 55 FTE principal investigators with an average of 500 rodents per investigator for a total of 27,500 rodents.

(4) Ambulatory Care Facility*:* The ambulatory care facilities would total 250,000 gsf and employ up to 150 primary care and select specialty physicians and employ approximately 720 persons. The facilities would include general practice clinics, outpatient surgery, imaging, a pharmacy, and a laboratory.

(5) Medical Office Buildings*:* The medical offices would total 775,000 gsf and employ approximately 2,800 persons. These facilities would be constructed based on the demand for such space. For purposes of analysis in this EIR, it is assumed that all medical office building space will be built and occupied by 2020.

(6) Parking: Parking to support the uses listed above would consist of surface parking lots in the interim and ultimately two parking structures. Together the two parking structures would provide approximately 3,780 spaces.

(7) Infrastructure: Infrastructure improvements to support the uses listed above would consist of a new central plant that would be located on 4.6 acres set aside for SOM and *Academic* support. The central plant would be located adjacent to the medical school buildings and would house chillers and boilers to provide chilled water, heating hot water, and steam to *SOM* and *Academic* facilities. Other infrastructure improvements would include roadways for internal circulation, the installation of underground utilities and connections to municipal services, and incidental hardscape and landscape improvements.

SOM Circulation

Vehicular access to the *SOM* will be provided primarily by Iowa Avenue while pedestrian and campus transit access to the *SOM* will be provided via the Northwest and Southwest Malls from Iowa Avenue and the West Campus *Academic* core as well as the East Campus. Public roadways

and internal access will be used to provide service and emergency access.

Transportation strategies to be offered by the medical school to reduce vehicular traffic include:

- expand the car-sharing program to include the medical school, which will be available to students, faculty, and staff;
- expand existing UPASS program to include medical school students, faculty, and staff;
- modify and/or add to shuttle service to provide quick and direct access between the SOM and the East Campus;
- provide bicycle facilities, including bicycle racks and lockers as well as shower facilities; and
- establish preferential parking spaces for carpools and vanpools.

SOM Population

An estimated daily population of about 6,250 persons would be associated with the medical school. **Table 2, School of Medicine Population**, presents the number of students, faculty, staff, employees, patients/visitors associated with the medical school by 2020. At full development, the medical school will enroll a total of 400 medical students.

Table 2
School of Medicine Population

Type of Population	Number
Students [a]	400
Doctors	150
Principal Investigators	150
Medical Education/Research [b]	838
Medical Offices [c]	2,794
Ambulatory Care [c]	719
Patients and Visitors [d]	1,202
Total	**6,253**

Source: UCR 2005 LRDP, derived from CO Architects "Order of Magnitude Construction Costs" memorandum to UCR Capital and Physical Planning, October 2007; UCR West Campus Infrastructure Development Study, April 2008 (WCIDS); UCR SOM Infrastructure Phase 1, March 2009; comparable Medical Research, Medical Office, and Ambulatory Care data UCSD Institutional Research and Health Sciences Planning, July 2009; UCR 2005 LRDP Amendment 2, August 2010.

a Students include 400 medical students, (graduate students included in Medical Education/Research; post-docs included in faculty, staff).

b Medical Education/Research includes teaching, administration, research labs, research support, vivaria.

c Based on employees per square foot.

d Visitor and Patient population estimated to be 25% of student, faculty, and staff population, where applicable, since some facilities have neither patients nor visitors.

West Campus Parking Structures

The 2005 LRDP designated land for parking structures at four locations on the West Campus and several locations on the East Campus. The proposed 2005 LRDP Amendment 2 would not change the total number of parking spaces but it would change the location of two parking structures, it

would delete the location of one parking structure on the land use map, and it would redistribute the parking spaces from the deleted parking structure among the remaining three West Campus parking structures. The locations of the four previously planned parking structures are shown in **Figure 5**. The locations of the three newly planned parking structures are shown in **Figure 6**.

Parking Structure No. 1 was previously proposed at a site adjacent to University Avenue within the planned *Academic* area next to the existing UNEX building west of the Gage Canal. CAMPS recommended that the location of this parking structure on the West Campus be revised to a location east of the Gage Canal on the north side of Everton Place. This relocation would give the proposed conference center more frontage along University Avenue and provide the conference center with a buffer from freeway noise generated along the I-215/SR-60 freeway. The site of this parking structure is currently occupied by the Caltrans service yard. The relocation of this parking structure would also require a land use designation change from *Parking* to *Academic* west of the canal and *Academic* to *Parking* east of the canal and acquisition of the Caltrans property by UCR in the future.

A pedestrian bridge over the I-215/SR-60 freeway half way between the under-crossings at University Avenue and at Canyon Crest Drive was proposed in the 1990 LRDP and suggested in the 2005 LRDP to connect the East and West Campus areas. However, the cost of implementing the proposal and difficulties inherent in providing universal access was exorbitantly expensive.

The bridge was again considered by the Campus in CAMPS as a way of linking the East and West Campuses. Based on that evaluation, the Campus proposes as part of the proposed 2005 LRDP Amendment 2, that Parking Structure No. 2 would be relocated from frontage on MLK to a location adjacent to and west of the freeway south of Everton Place to provide the western terminus of a future pedestrian bridge over the freeway from a future parking structure on Parking Lot 1 on the east side. The relocation of this parking structure would occur on a site designated for *Campus Support* and would require the reconfiguration of the site further south and to the west.

Parking Structure No. 3 would be deleted from the LRDP Land Use map under the proposed 2005 LRDP Amendment 2 to make room for the *SOM* and its parking spaces would be reallocated to other parking structures on the West Campus. As a result, each remaining parking structure would increase in size to accommodate the spaces that were previously designated for Parking Structure No. 3.

West Campus Open Space Modification

Reconfiguration of Grove Concept to Gage Canal Mall Concept

The 2005 LRDP included a "Grove" concept for the major open space component of the West Campus *Academic* area. As described in the 2005 LRDP, the Grove concept featured a 15-acre rectangular grove centered on the Gage Canal north of MLK and included a specific *Special Academic Building Area* land use within the Grove for uses of campus-wide importance or high activity. The 2005 LRDP contemplated that these uses would be designed specifically to be compatible with the historic and agricultural heritage of the Grove, the University and the region. Overall, this concept would result in a total of 19 acres of *Open Space* on the West Campus.

The Campus revisited this concept through the CAMPS process and determined that a better and more sustainable *Open Space* concept can be developed on the West Campus as a linear north-south area. This new Gage Canal Mall concept used as an opportunity the requirement from the Gage Canal Company that any development in the proximity of the canal and/or 50-foot-wide easement would require undergrounding of the canal in dual pipes while maintaining its gravity flow from north to south. The surface treatment allows installation of hardscape and/or landscape but prohibits structures or trees in the area of the undergrounded canal. The new configuration better uses the land base as a circulation element and provides opportunities for sustainable planting scenarios in the form of a linear botanical garden, arboretum walk, or sustainable landscape demonstration garden.

The Gage Canal Mall will serve a number of roles, providing a range of gathering spaces, a curving pedestrian and bicycle spine and an organic counterpoint to the formal grid of buildings, streets, malls, and quads on the West Campus. The Gage Canal Mall would extend roughly from University Avenue on the north to MLK on the south. It would be approximately 2,900 feet in length and range from approximately 125-feet to 250-feet in width.

Overall the Gage Canal Mall concept would result in a total of 14 acres of open space on the West Campus. The previous open space plan featuring the Grove concept is shown in **Figure 7, 2005 LRDP Open Space Framework**. The new open space plan featuring the Gage Canal Mall concept is shown in **Figure 8, Proposed 2005 LRDP Amendment 2 Open Space Framework**. In addition, the proposed 2005 LRDP Amendment 2 would replace the *Special Academic Building Area* and *Open Space* land use designations under the Grove Concept with the *Open Space* and *Academic* designations under the Gage Canal Mall Concept.

The Gage Canal Mall would also be intersected by the proposed West Campus Mall and a series of traditional quads or courtyards. Building envelopes would be arranged to frame these malls, quads, and courtyards.

West Campus Mall
The 2005 LRDP Amendment 2 would add the West Campus Mall to the eastern portion of the West Campus. The mall is intended to provide open space for the West Campus *Academic* core and contribute to the *Open Space* system on the West Campus. The 3.8 acre mall would be framed by academic buildings and could host a wide variety of informal uses. The mall would 170 feet in width with a 10 foot pedestrian walk and a 25 foot transitional zone located on each side the 100-foot-wide green. **Figure 8** incorporates this new *Open Space* feature.

SOM Quad
The *SOM* would include a 1.5-acre quad that would be framed by the medical education building and the medical research lab buildings. The quad is intended for ceremonial purposes such as graduation and would contribute to the *Open Space* system on the West Campus. The quad would be surrounded with a double row formal planting of trees and a 10-foot walkway. **Figure 8** incorporates this new open space feature.

Landscape Buffer Extension
The 2005 LRDP Amendment 2 would extend the 100-foot-wide landscape buffer along the north side of MLK between Cranford Avenue and Chicago Avenue to buffer areas designated as *Family, Apartment Housing with Related Support (including Child Care)* located to the west of Iowa Avenue

from activity along MLK. **Figure 8** incorporates this new extension of *Open Space*.

Extension of Northwest and Southwest Malls

The 2005 LRDP Amendment 2 would extend the Northwest and Southwest Malls from Cranford Avenue to Chicago Avenue to connect areas designated as *Family, Apartment Housing with Related Support (including Child Care)* located to the west of Iowa Avenue to the rest of the West Campus. **Figure 8** incorporates this new extension of *Open Space*.

Other Land Use Designation Changes

The designation of the *SOM* site, the re-structuring of *Parking*, and an improved *Open Space* concept described above would trigger the need to re-designate several parcels on the West Campus so that adequate land acreage required for other programs such as *Family, Apartment Housing and Related Support (including Child Care)* and *Athletics and Recreation* are maintained. Therefore, the *Campus Reserve* designation located in the northwest corner of the West Campus would be re-designated *Family, Apartment Housing with Related Support (including Child Care)* with some areas designated *Open Space* associated with the extension of the Northwest and Southwest Malls. The *Campus Support* designation in the northwest corner of the West Campus would be changed to *Family, Apartment Housing with Related Support (including Child Care)*, and a small area designated *Family, Apartment Housing with Related Support (including Child Care)* to the east of Cranford Avenue between the Northwest and Southwest Malls would be changed to *Athletics and Recreation*. Finally, two areas located adjacent to the I-215/SR-60 freeway that are designated *Campus Support* on the existing Land Use map as well as the 5.21 acre parcel at the northeast corner of MLK and Canyon Crest Drive would be consolidated and placed south of Parking Structure No. 2.

Previously Approved Amendments and Land Use Map Changes

Minor land use changes have occurred on the campus since the approval of the 2005 LRDP. These include boundary adjustments, minor lot line adjustments, and a 3.25 acre deed restriction in the Agricultural Operations fields south of MLK (2005 LRDP Amendment 1). To date these changes have not been placed on the 2005 LRDP Land Use map. In conjunction with the 2005 LRDP Amendment 2, the Campus will update the 2005 LRDP Land Use map to reflect the previously approved map changes. In addition, in 2009 the University purchased the Highlander Ridge (now known as Falkirk) apartment complex at the northwest corner of Linden Street and Canyon Crest Drive and the Summer Ridge (now known as Oban) apartment complex located at the southwest corner of Linden and Canyon Crest, south of Falkirk, and a small parcel adjacent to Falkirk on the north. As these now University-owned parcels have not been heretofore officially assigned a LRDP land use designation, the 2005 LRDP Amendment 2 would designate these parcels as *Family, Apartment Housing and Related Support (including Child Care)* and show their location on the 2005 LRDP Land Use map. Finally, as part of a pending University action expected to be approved before this LRDP Amendment, 4.8 acres of land on the East Campus west of Valencia Hill Drive and north of Big Springs Road that are designated as *Athletics and Recreation* are expected to be re-designated as *Family, Apartment Housing and Related Support (including Child Care)* as part of the Glen Mor 2 project, a new 800 bed student housing apartment complex. This change will be incorporated into the LRDP land use map. **Figure 6** incorporates all of these changes. However, if the Glen Mor 2 project is not approved prior the Amendment 2 to the LRDP, these changes would not include the Glen Mor 2 land use map changes.

2. Proposed LRDP Text Changes

Extension of the 2005 LRDP Horizon Year

The 2005 LRDP projected a total enrollment of 25,000 students by the 2015/16 academic year. Based on a current enrollment of 19,439 (2009/10 academic year), the Campus does not expect to reach the 25,000 student enrollment level until the 2020/21 academic year. The 2020/21 horizon year is consistent with the UCR Climate Action Plan which is currently being prepared by the campus. Therefore, in order to be consistent with campus growth patterns, the proposed amendment to the 2005 LRDP would extend the horizon year of the LRDP from 2015/16 to 2020/21.

Increase Campus Development Capacity

The 2005 LRDP did not envision the development of a medical school at UCR. Therefore, the total new building space that is projected to be developed under the 2005 LRDP does not include an adequate amount of space that would allow the Campus to develop the medical school. The SOM would involve about 3.1 million gsf of building space. In order to provide for the development of the SOM, the 2005 LRDP Amendment 2 will provide for the construction of a total of 10.2 million gsf of building space (7.1 million gsf approved under the 2005 LRDP plus 3.1 million gsf for the SOM) for a total of 14.9 million gsf for 25,000 students.

The 2005 LRDP set a goal to achieve academic core density of 1.0 FAR or higher on West Campus with a three- to four-story height maximum. In order to meet future enrollment growth and academic goals and provide for the additional space required by a medical school, the density of the West Campus will be increased and greater building heights will result in new relationships with key open spaces. On the West Campus the increased FAR to 1.6 (*Academic*) to 1.9 (SOM) is due to the projected West Campus *Academic* programs and to provide an adequate land base for the *SOM*, thus resulting in five-story and six-story buildings with eight-story signature buildings for the West Campus *Academic* land use and five-story to eight-story buildings with a twelve-story signature building for the West Campus *SOM* land use. The two parking structures serving the *SOM* land use would be seven and eight levels, respectively.

Other Updates

The 2005 LRDP Amendment 2 would update the Circulation and Parking Chapter to reflect changes to the existing and future transit service and proposed Transportation Demand Management program. It would also update the existing Resource Conservation and Environmental Stewardship Chapter to include descriptions of the University's Sustainability and Climate Action Plans.

In an effort to use land and space more efficiently on campus, the 2005 LRDP Amendment 2 would modify the description of parking facilities in the 2005 LRDP to allow retail and office uses within parking structures on campus if desired. The development capacity associated with these retail and office uses was already accounted for in the previous 2005 LRDP.

2. Project objectives:

The primary objective of the proposed 2005 LRDP Amendment 2 is to make appropriate changes to the Campus's land development plan that would facilitate the development of facilities to accommodate a new school of medicine within the *SOM* land use designation.

The secondary objective is to make other changes to the 2005 LRDP that would improve the location of parking structures, allow for the development of better designed *Open Space*, and better utilize the available land base on the West Campus with the additional program needs.

3. Surrounding land uses and environmental setting:

Land uses surrounding the campus are primarily residential with some commercial uses along the major streets, and University Avenue as the primary commercial corridor between the UCR campus and downtown Riverside. Existing development east of UCR to the base of the Box Springs Mountains is predominantly single-family residential with some multi-family and limited commercial. Land to the south of the West Campus area is also largely developed with single-family residences, with a multifamily residential and commercial development in the vicinity of the intersection of Central Avenue and Canyon Crest Drive. The area west of the campus contains a mix of land uses, including single and multifamily residential, vacant land, limited agriculture, and commercial uses. The area located generally north of University Avenue and west of Canyon Crest Drive contains a mixture of mostly multi-family residential, industrial, public (i.e., churches), institutional (i.e., schools), and commercial uses, as well as vacant land.

Blaine Street generally forms the northern border of the East Campus. Land uses north of Blaine Street consist of multi-family residential and commercial uses. Watkins Drive forms the northeastern edge of the East Campus and is separated from mostly one-story single-family residential uses (to the northeast) by an active railroad line, a high pressure jet fuel line (turns south along Valencia Hill Drive) and a California Department of Water Resources pipeline and easement. Valencia Hill Drive fronts the eastern edge of the campus (north of Big Springs Road), with one-story single-family residential uses along the northern portion and two-story multi-family residential structures just north and south of Big Springs Road west of Watkins Drive. South of Big Springs Road, the campus directly abuts one-story single-family residences. Further south (e.g., south of Frost Court and Picacho Drive), the eastern campus edge is fronted by undeveloped hilly terrain, with scattered one- and two-story homes located further east along Watkins Drive. The I-215/SR-60 freeway borders the southern edge of the East Campus. In the vicinity of the campus the freeway has three mixed-flow lanes and one HOV lane in each direction. Lands to the west of the East Campus along Linden Avenue and Blaine Streets are occupied primarily by two and three-story multi-family residential uses.

Everton Place and its extension west one block south of University Avenue borders the West Campus to the north. This corridor includes a collection of retail shops, fast food outlets, and hotels and motels, with most buildings one to two stories in height, although some of the more recent development in the area is three to five stories and even six stories in height. The I-215/SR-60 freeway borders the eastern edge of the West Campus. Le Conte Drive and its extension east forms the southern boundary of the West Campus, with one-story single-family homes located across the street from and backing up to the campus. Chicago Avenue, a four-lane street, forms the western edge of the West Campus, with single-family residential uses as the predominant use on the western side of the street south of MLK and commercial uses north of MLK.

4. Discretionary approval authority and other public agencies whose approval is required:

   As the public entity principally responsible for approving or carrying out the proposed project, the University of California is the Lead Agency under CEQA and is responsible for reviewing and certifying the adequacy of the environmental document and approving the proposed project. The Regents of University of California would make the decision on project approval.

5. Consistency with the LRDP:

   No conflicts with the 2005 LRDP would occur as the proposed project would amend the existing 2005 LRDP.

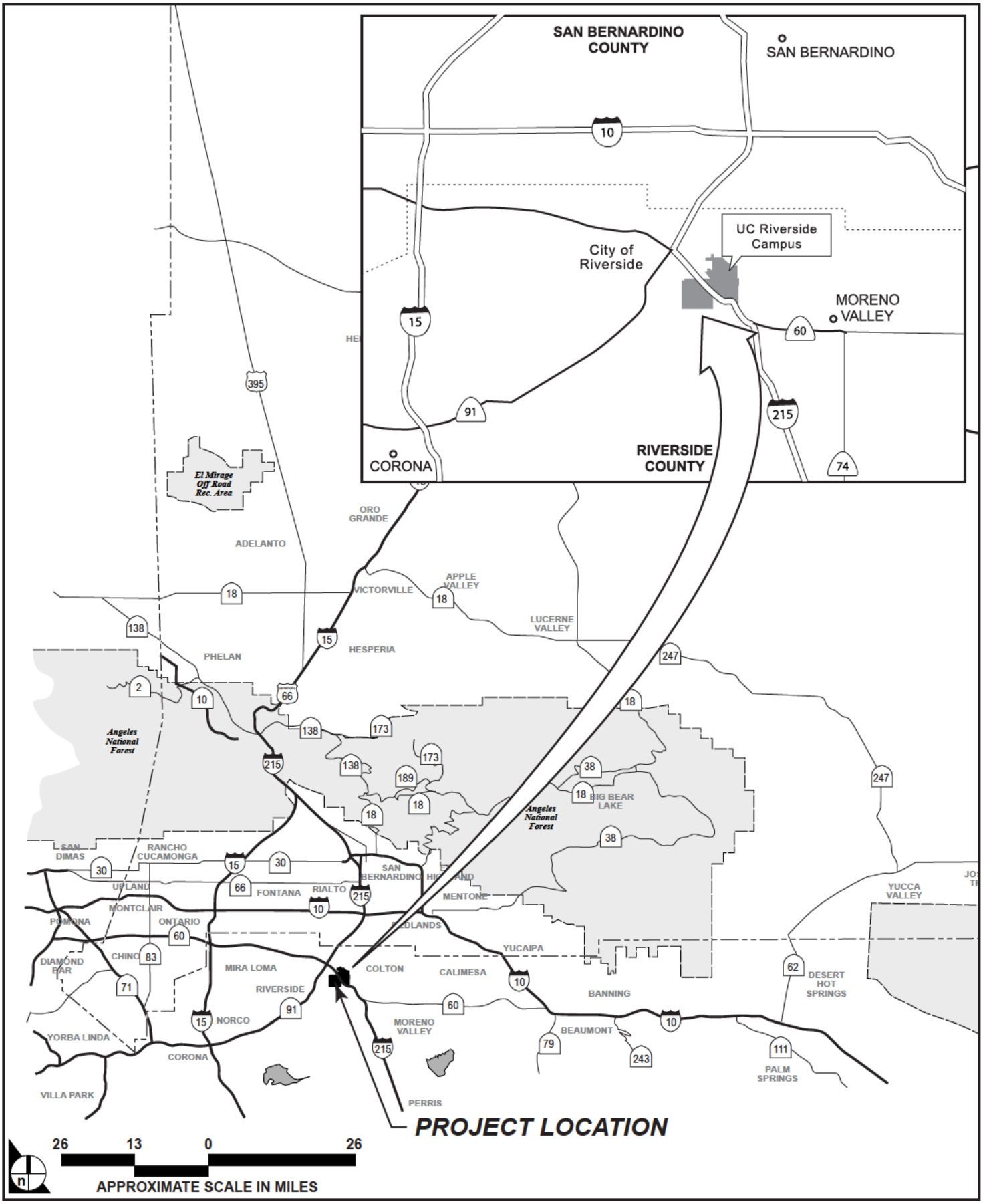
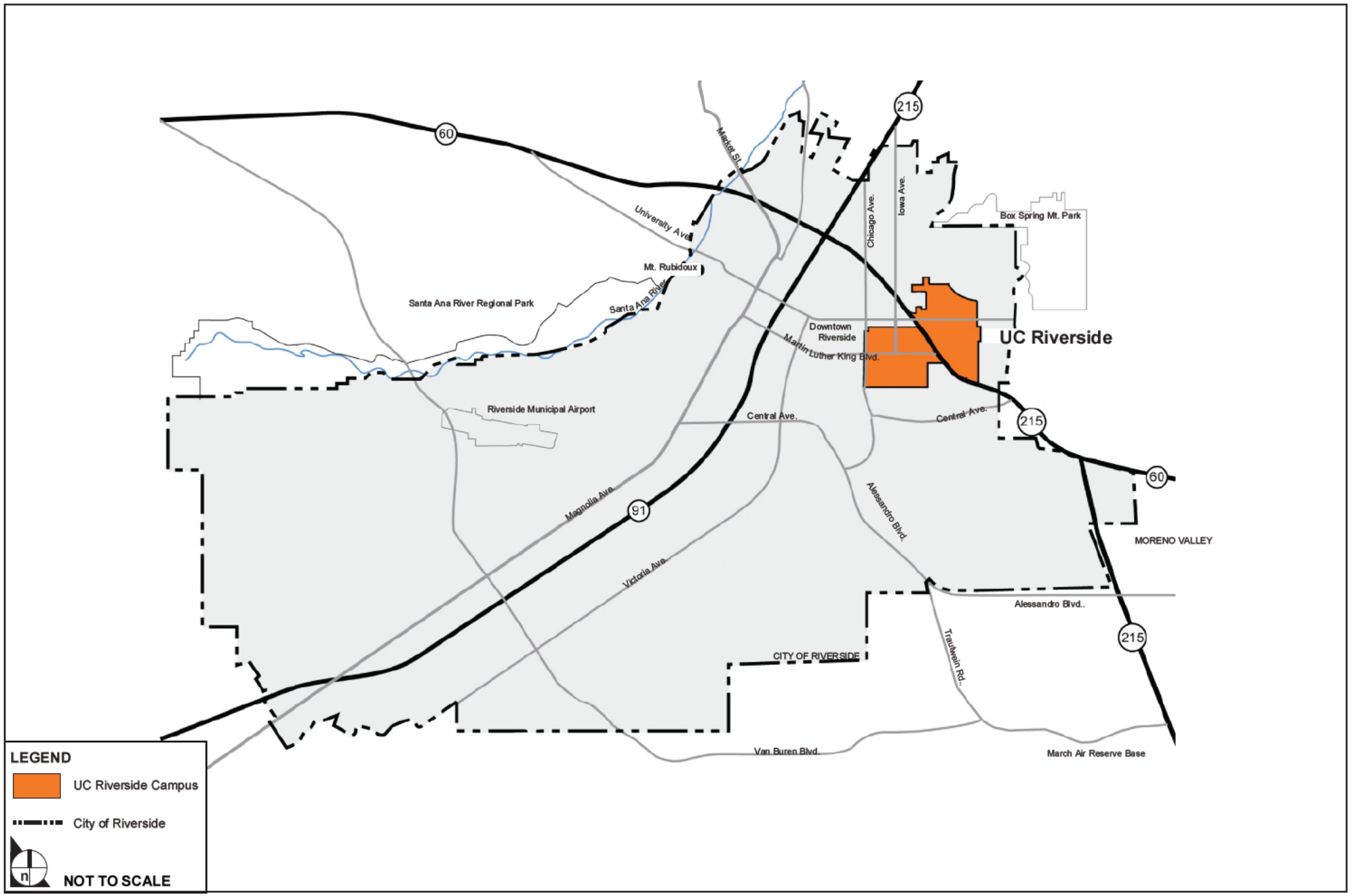


FIGURE 1

Regional Context

1031-001•11/10

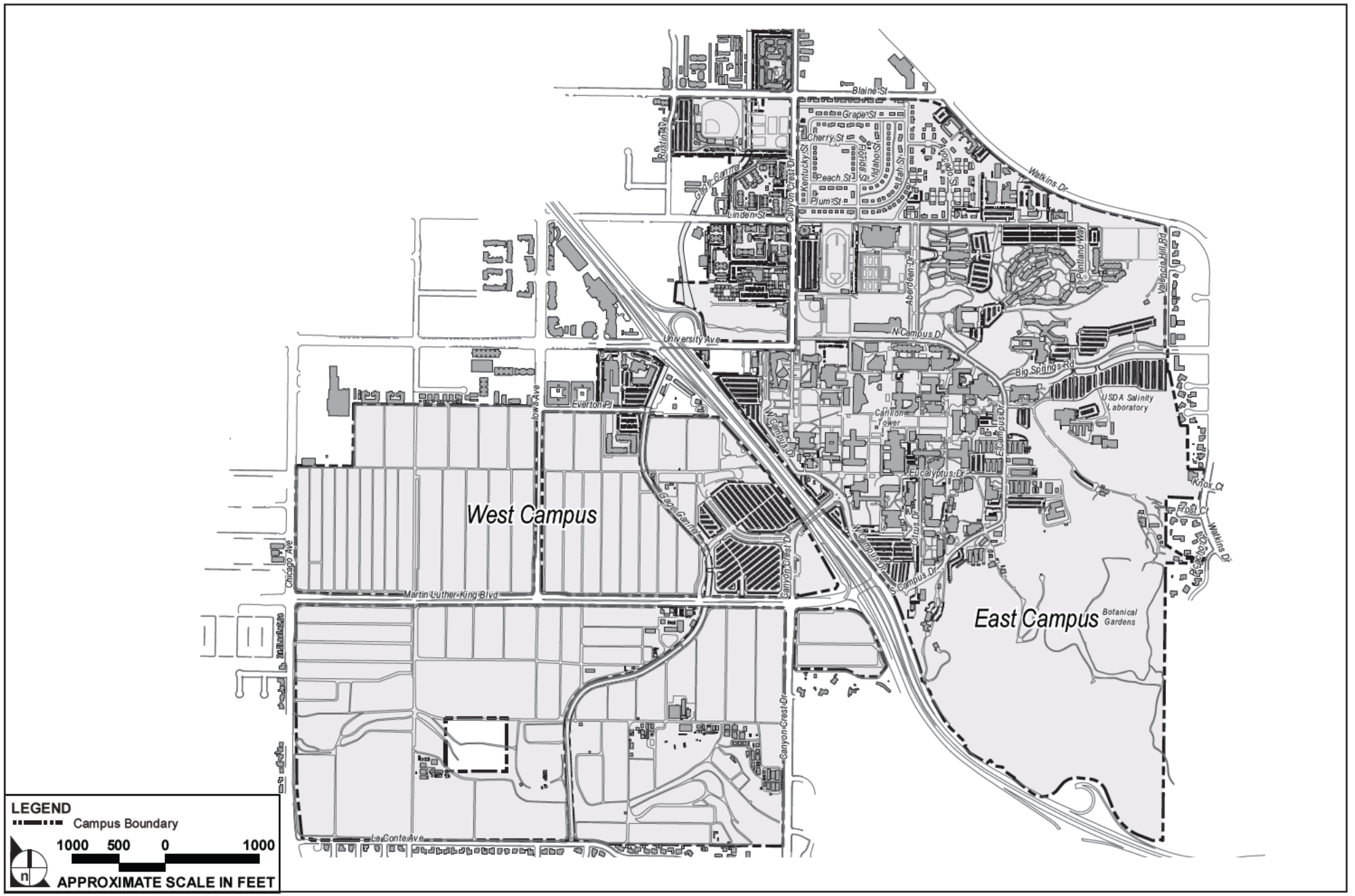


SOURCE UCR LRDP 2005

FIGURE **2**

Local Setting

1031-001•11/10

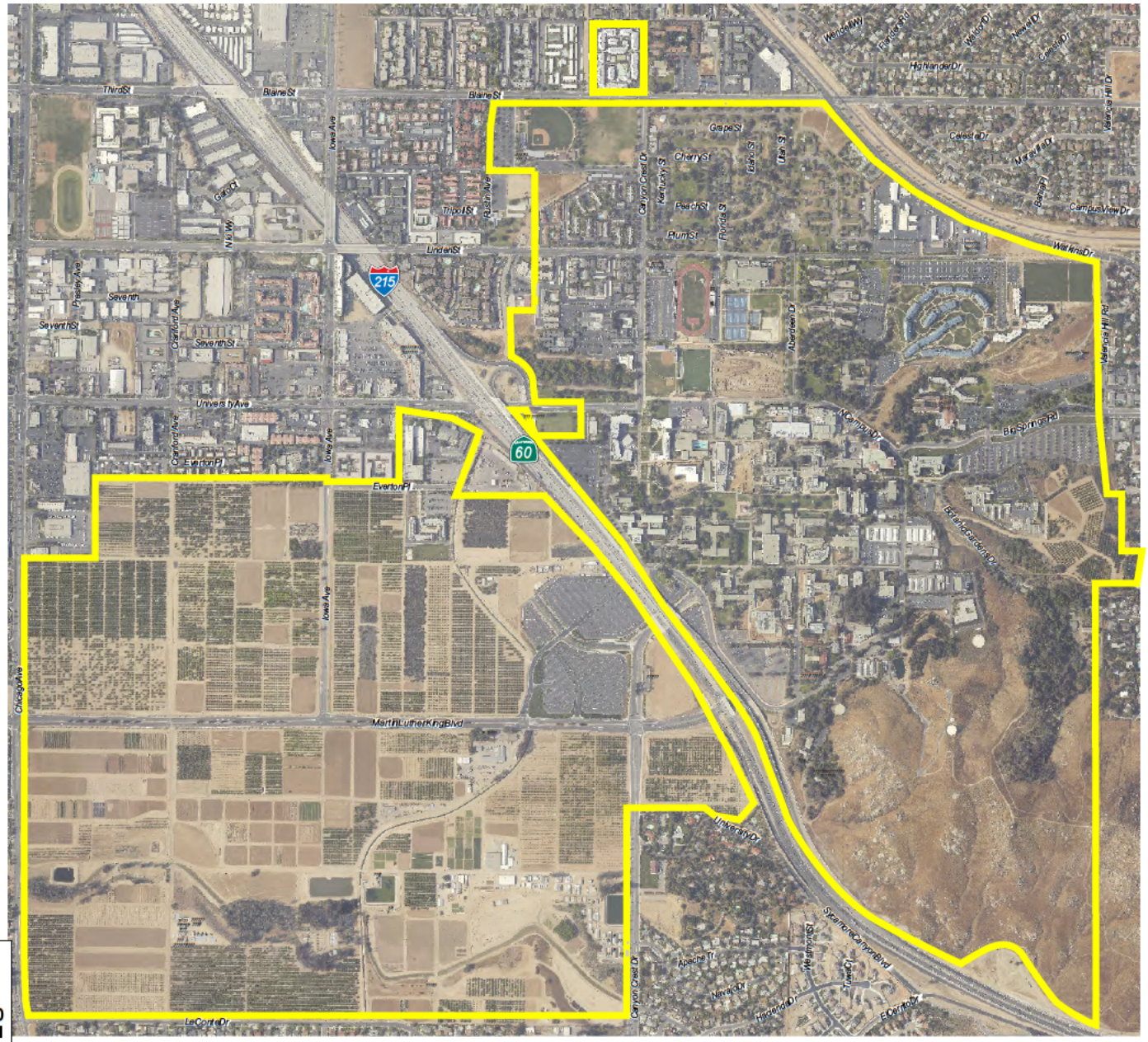


SOURCE UCR – 2010

FIGURE **3**

Campus Map

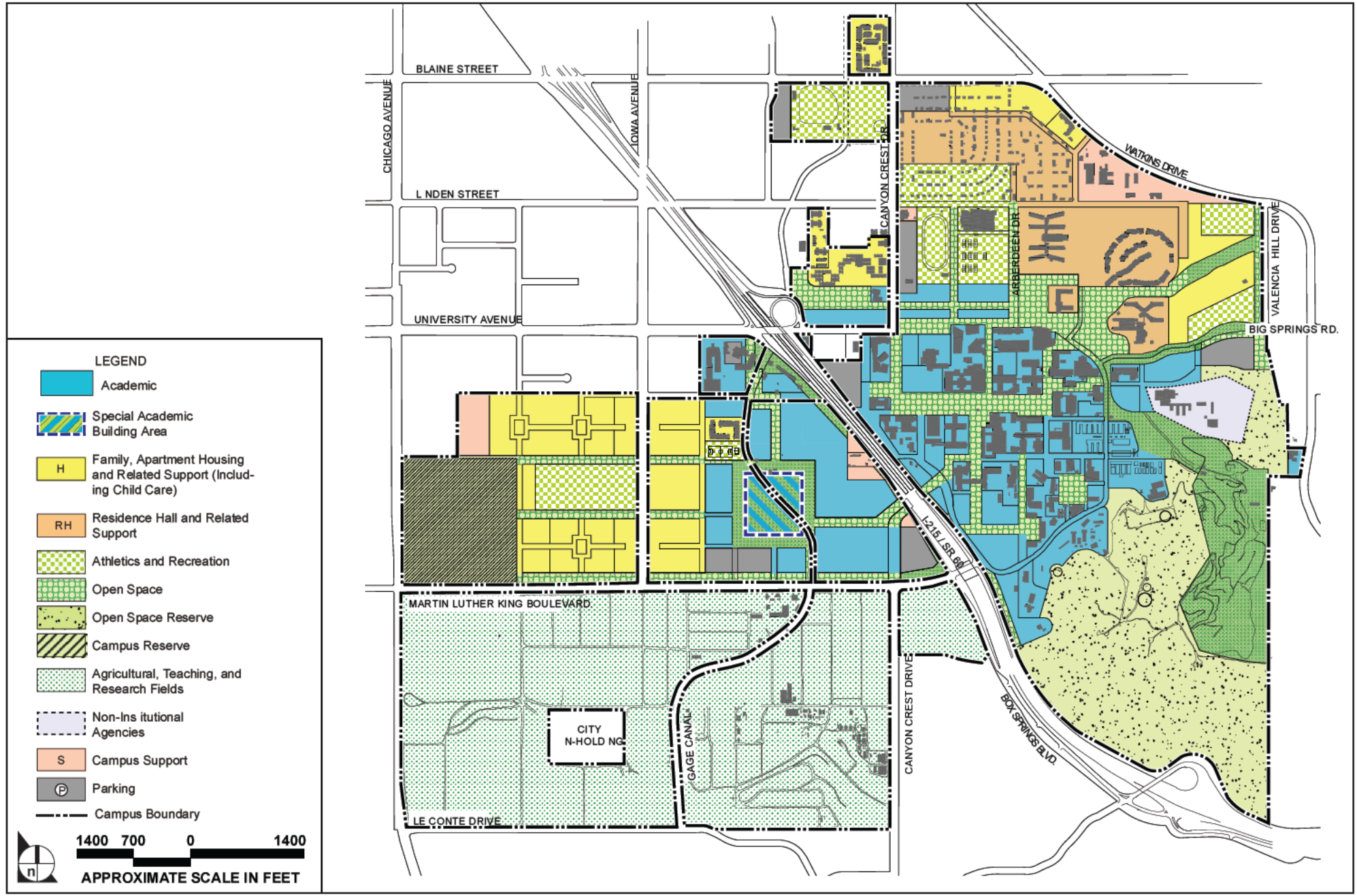
1031-001•11/10



SOURCE UCR – 2010, Impact Sciences, Inc – September 2010

FIGURE 4

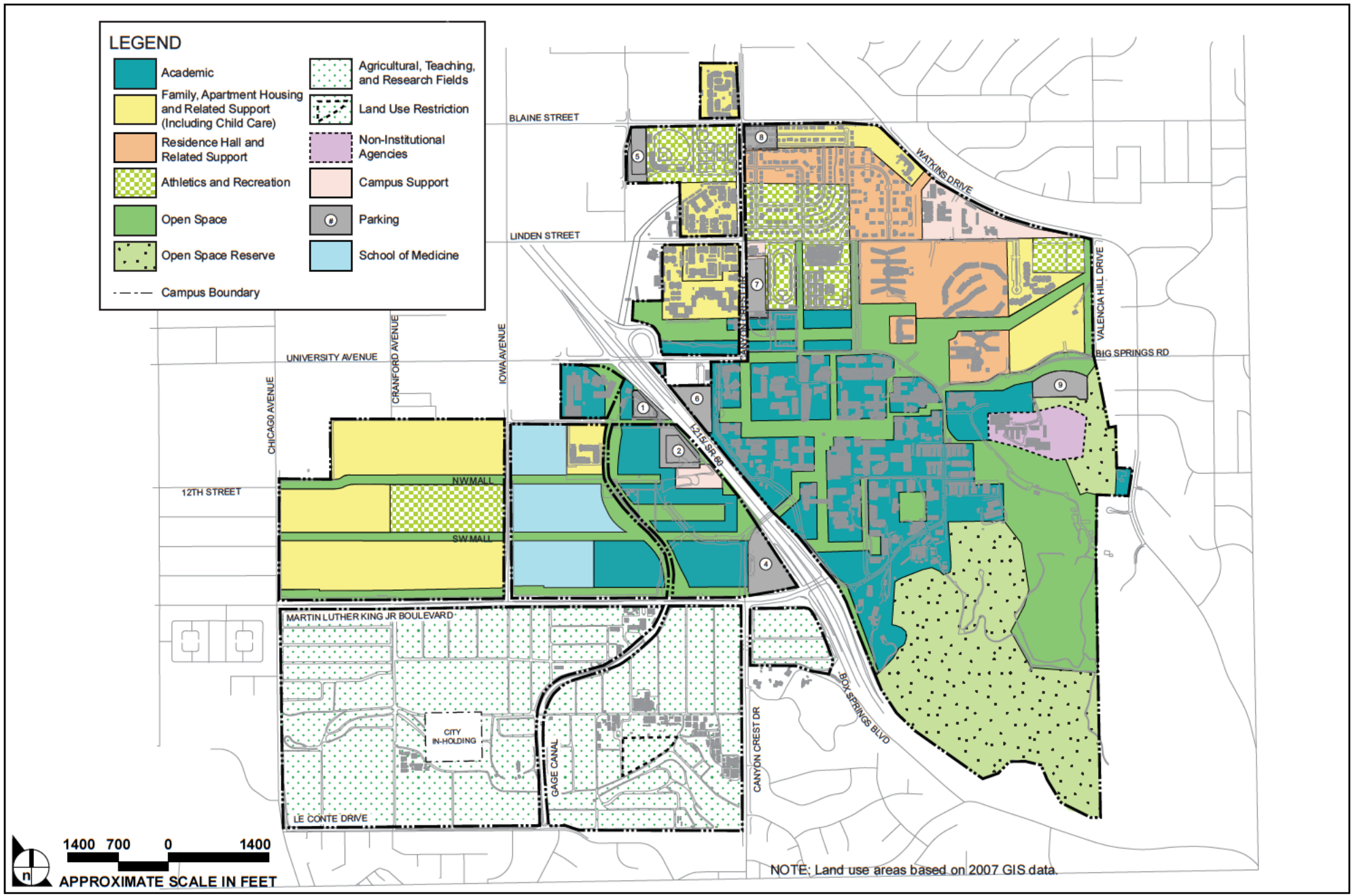
Campus Aerial



SOURCE UCR LRDP 2005

FIGURE **5**

2005 LRDP Land Use Map

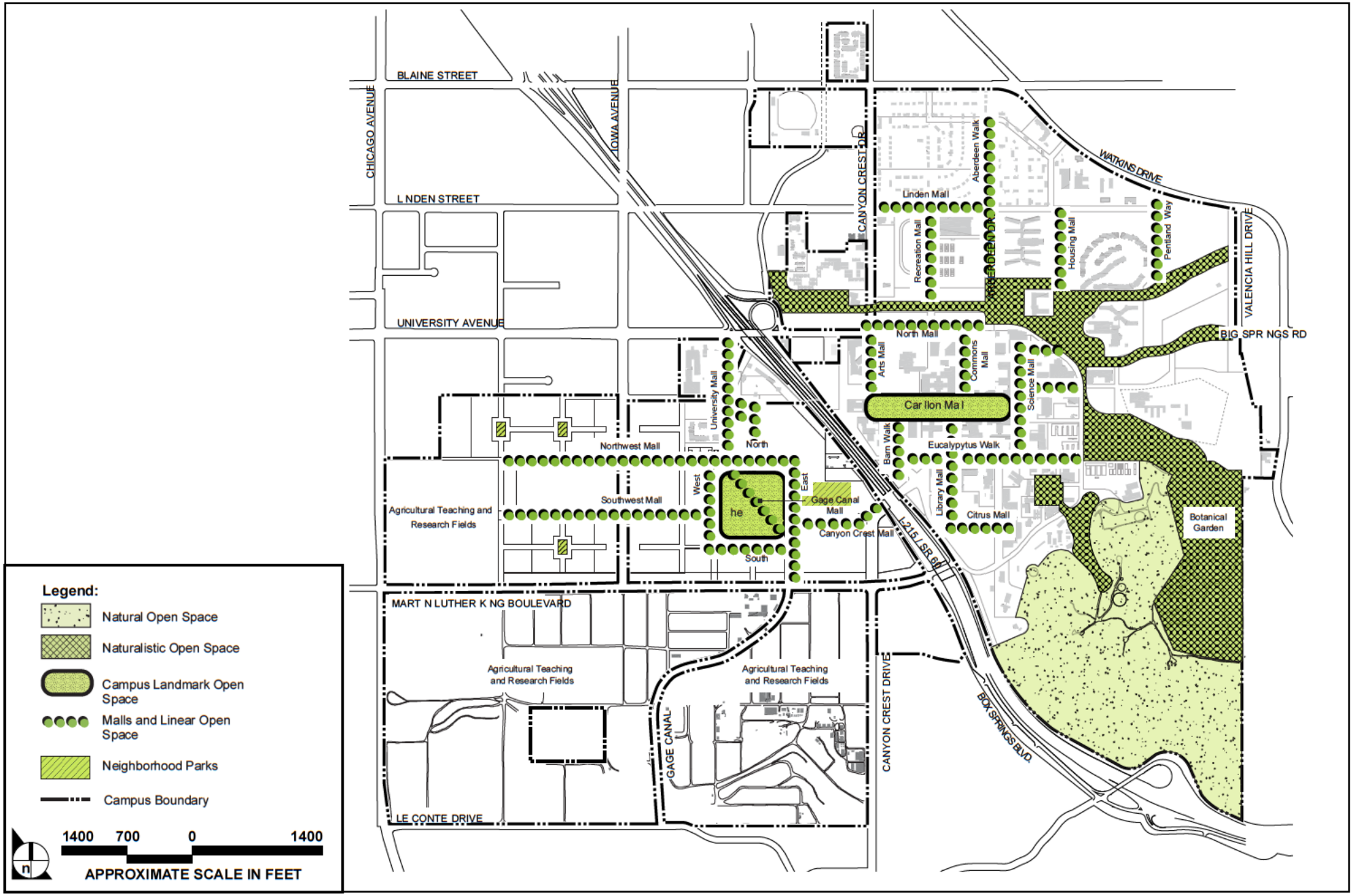


SOURCE UCR – November 2010

FIGURE **6**

Proposed 2005 LRDP Amendment 2 Land Use Map

1031-001•11/10

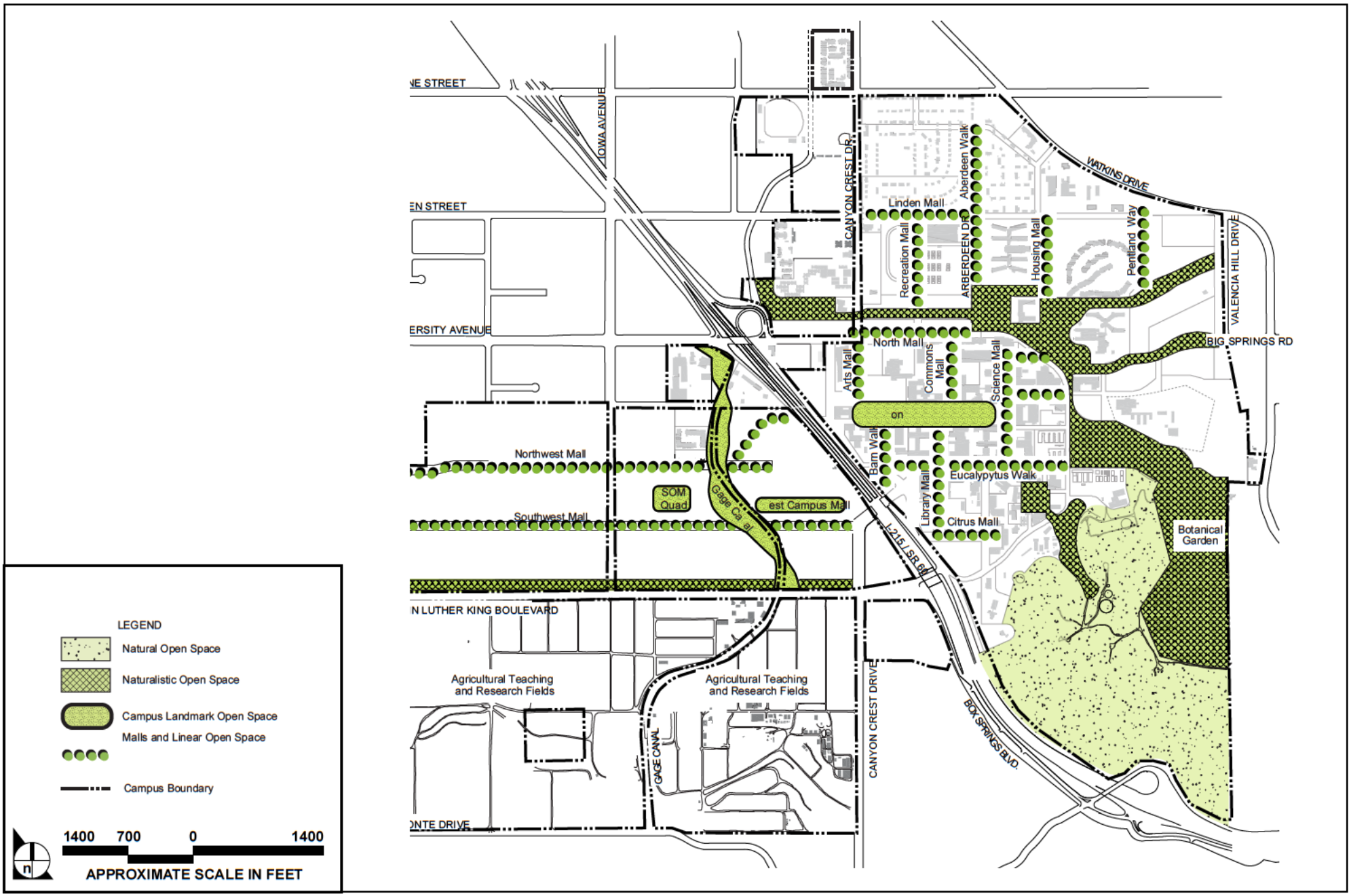


SOURCE UCR LRDP – November 2005

FIGURE 7

2005 LRDP Open Space Framework

1031-001•11/10



SOURCE UCR LRDP 2005 – November 2005

FIGURE **8**

Proposed 2005 LRDP Amendment 2 Open Space Framework

III. ENVIRONMENTAL FACTORS POTENTIALLY AFFECTED

The environmental factors checked below could be potentially affected by the implementation of the proposed amendment to the 2005 LRDP and/or by cumulative impacts resulting from implementation of the proposed 2005 LRDP Amendment 2 in conjunction with other expected developments during the anticipated LRDP implementation period of 2020/21. These factors will be evaluated in the EIR.

- ■ Aesthetics
- ■ Agriculture and Forest Resources
- ■ Air Quality
- □ Biological Resources
- □ Cultural Resources
- □ Geology and Soils
- ■ Greenhouse Gas Emissions
- ■ Hazards & Hazardous Materials
- ■ Hydrology/Water Quality
- ■ Land Use/Planning
- □ Mineral Resources
- ■ Noise
- ■ Population and Housing
- ■ Public Services
- □ Recreation
- ■ Transportation/Circulation
- ■ Utilities/Service Systems
- □ Mandatory Findings of Significance

IV. DETERMINATION:

On the basis of the initial evaluation that follows:

□ I find that the proposed project WOULD NOT have a significant effect on the environment, and a NEGATIVE DECLARATION will be prepared.

□ I find that although the proposed project could have a significant effect on the environment, there will not be a significant effect in this case because revisions in the project have been made that will avoid or reduce any potential significant effects to a less than significant level. A MITIGATED NEGATIVE DECLARATION will be prepared.

■ I find that the proposed project MAY have a significant effect on the environment. An ENVIRONMENTAL IMPACT REPORT will be prepared.

Signature	Date
Juanita Bullock	For

V. EVALUATION OF ENVIRONMENTAL IMPACTS

Appendix G of the *State CEQA Guidelines* provides a suggested format to use when preparing an Initial Study. The Environmental Checklist used in this document adopts a slightly different format with respect to response column headings, while still addressing the Appendix G checklist questions for each environmental issue area.

The following Environmental Checklist uses the following response headings to identify potential environmental effects that will be addressed in the 2005 LRDP Amendment 2 EIR:

Impact to be Analyzed in the 2005 LRDP Amendment 2 EIR: An effect that may or may not be significant that will be addressed in the 2005 LRDP Amendment 2 EIR. The effect may be a less than significant impact that will be addressed to provide a more comprehensive analysis, an impact for which further analysis is necessary or desirable before a determination about significance can be made, an impact that is potentially significant but may be reduced to a less than significant level with the adoption of mitigation measures, or an impact that may be significant and unavoidable. The EIR will address the effect in a program level analysis for the proposed amendment to the 2005 LRDP and in a cumulative-level analysis for potential effects associated with growth under the proposed 2005 LRDP Amendment 2 and other past, present, and reasonably foreseeable development in the region through 2020/21.

No Additional Analysis Required: Implementation of the proposed 2005 LRDP Amendment 2 would clearly not result in an impact or would clearly result in a less than significant impact under CEQA criteria, or was sufficiently analyzed in the 2005 LRDP EIR and no new or additional impacts have been identified, and no additional analysis beyond that provided in the Initial Study is necessary.

Impact Questions and Responses

Issues	Impact to be Analyzed in the 2005 LRDP Amendment 2 EIR	No Additional Analysis Required
1. AESTHETICS – Would the project:		
a) Have a substantial adverse effect on a scenic vista?	☐	■
b) Substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway?	☐	■
c) Substantially degrade the existing visual character or quality of the site and its surroundings?	■	☐
d) Create a new source of substantial light or glare which would adversely affect day or nighttime views in the area?	☐	■

Relevant Elements of Project

The proposed 2005 LRDP Amendment 2 involves changes to the 2005 LRDP Land Use map and changes to the text of the 2005 LRDP. The changes most relevant to the analysis of visual impacts are the designation of an area on the West Campus for the development of a School of Medicine, changes in the location of future West Campus parking structures, increased FAR of the academic area east of Iowa Avenue, and reconfiguration of the future open space areas on the West Campus.

Based on the proposed 2005 LRDP Amendment 2, the *SOM* would be located at the northeast corner of Iowa Avenue and MLK. The buildings associated with the *SOM* could be five to eight stories high with a twelve-story high signature building. The two parking structures serving the *SOM* would be seven and eight levels, respectively. The sites for the two future parking garages on the West Campus would be relocated to sites adjacent to the I-215/SR-60 freeway; one from a location along University Avenue south to a site that is presently a Caltrans maintenance yard, and the other from a location along MLK to a location south of Everton Place that is presently a vacant field. The Gage Canal Mall component of the West Campus *Open Space* reconfiguration would follow the path of the canal from University Avenue south to MLK while the remaining components would extend *Open Space* throughout the West Campus along a series of east-west axes. Residential development on the *Campus Reserve* site would consist of family housing and apartment-style units.

The remaining elements of the proposed 2005 LRDP Amendment 2 are programmatic in nature and would not result in any physical changes or new construction. As a result they would not affect visual resources.

Discussion of Potential Project Impacts

a) The 2005 LRDP EIR defines a scenic vista as an expansive view of highly valued landscape as observable from a publicly accessible vantage point. In the vicinity of the UCR campus, the Box Spring

Mountains are the most prominent visual feature from many locations, and sweeping panoramic views of the Box Springs Mountains were considered a scenic vista. Implementation of future development on the campus would be guided by a range of LRDP planning strategies, including Open Space 5, which would retain the Carillon Mall as a major campus Landmark Open Space (see **Appendix A** for a complete list of 2005 LRDP Planning Strategies, Programs and Practices, and Mitigation Measures). In addition, future development on the campus would continue existing campus programs and practices, such as PP 4.1-1, which specifies that the Campus would provide design architects with the Campus Design Guidelines and instructions to implement the guidelines, including those sections related to use of consistent scale and massing, compatible architectural style, complementary color palette, preservation of existing site features, and appropriate site and exterior lighting design. Therefore, the 2005 LRDP EIR concluded that the implementation of the 2005 LRDP would not have an adverse effect on a scenic vista, and the impact would be less than significant.

On the West Campus, panoramic views of the adjacent mountains are available from Parking Lot No. 30 and from locations within the agricultural teaching and research fields. However, while these views are long range, they include relatively few structures, and are limited to relatively clear days; they are not necessarily scenic vistas due to the existing urban development, presence of a freeway in the middle ground, and lack of unique landforms and native vegetation. In addition, these locations on the West Campus are also not readily accessible to the public as key vantage points for observing scenic vistas. Finally, while Parking Lot No. 30 is publicly accessible, it is not considered a public gathering place and therefore not considered to afford scenic views. The proposed 2005 LRDP Amendment 2 would result in the development of SOM facilities, the construction of parking garages adjacent to the west side of the freeway, the reconfiguration of open space on the West Campus, and development of the Campus Reserve site. Because the sites of these facilities are not part of a scenic vista, the development of these facilities would not have a substantial adverse effect on a scenic vista, and this impact is considered less than significant.

In addition, there have been no changes in circumstances since the certification of the 2005 LRDP EIR relative to this criterion that could alter the conclusions of the previous analysis. No further analysis of this issue is required in the EIR.

b) The campus is bisected by the I-215/SR-60 freeway, and is generally bounded by University Avenue, Canyon Crest Drive, Blaine Street, Watkins Drive, Valencia Hill Drive, Le Conte Drive, and Chicago Avenue. According the 2005 LRDP EIR, none of these roadways are officially designated or identified as eligible for designation as a State scenic highway. Although the southeast hills include rock outcroppings, the 2005 LRDP proposes to retain that area of the campus as *Open Space Reserve* and no impacts to existing rock outcroppings are anticipated. Therefore, the 2005 LRDP EIR concluded that implementation of the 2005 LRDP would not substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a State scenic highway, and no impact would occur.

The proposed 2005 LRDP Amendment 2 would affect the West Campus in that it would allow for the development of *SOM* facilities, the relocation of *Parking* (structures) to locations immediately west of the freeway, the reconfiguration of *Open Space* on the West Campus, and development of the *Campus Reserve* site. Because there are no scenic highways in the vicinity of the campus, implementation of the proposed amendment to the 2005 LRDP would not adversely affect a scenic highway, and no impact would occur.

In addition, there have been no changes in circumstances since the certification of the 2005 LRDP EIR relative to this criterion that could alter the conclusions of the previous analysis. No further analysis of this issue is required in the EIR.

c) The West Campus under existing conditions is primarily developed with citrus trees and some row crops. The 2005 LRDP EIR indicated that the introduction of new academic and residential structures on large parcels has the potential to degrade the visual character and quality of the East and West Campus. Implementation of future development on the campus would be guided by a range of LRDP planning strategies, including Land Use 1 through 3, Open Space 1 through 7, Conservation 1 through 4, Campus and Community 1, and Development Strategy 1 through 3, all of which would preserve or enhance the visual character and quality of campus. In addition, future development on the campus would continue existing campus programs and practices, such as PP 4.1-1, which is discussed above, and PP 4.1-2(a) and (b), which would require that buildings be designed to be consistent with the 2007 Campus Design Guidelines and that mature trees be relocated, whenever feasible. Therefore, the 2005 LRDP EIR concluded that implementation of the 2005 LRDP would not substantially degrade the existing visual character or quality of the site and its surroundings, and this impact would be less than significant.

Development of SOM facilities, the relocation of the two parking garages, the reconfiguration of open space on the West Campus, and development of the Campus Reserve site with housing and open space uses would alter the existing visual character of the West Campus and its surroundings. Future development associated with the proposed 2005 LRDP Amendment 2 would be guided by the LRDP planning strategies and would continue existing campus programs and practices, such as PP 4.1-1, and PP 4.1-2(a) and (b), which are discussed above. In addition, development of the proposed SOM would be guided by design criteria, architectural guidelines, and landscape design guidelines specific to the *SOM* land use designation. However, even with these measures, the alteration of the West Campus is considered a potentially significant impact, and this issue will be further analyzed in the EIR.

d) According to the 2005 LRDP EIR, development in areas with little or no sources of illumination could result in the creation of new sources of substantial light or glare on the campus or the immediate vicinity that could adversely affect day or nighttime views in the area. Implementation of future development on the campus would be guided by a range of LRDP planning strategies that are discussed above. In addition, future development on the campus would continue existing campus programs and practices, such as PP 4.1-1, and PP 4.1-2(a) and (b), which are discussed above. Finally, future development on the campus would be required to implement LRDP mitigation measure MM 4.1-3(a), which would require incorporation of design features that would minimize glare; LRDP mitigation measure MM 4.1-3(b), which would require that lighting be directed to the intended illumination site to reduce spill onto adjacent areas; and LRDP mitigation measure MM 4.1-3(c), which would require structural or other barriers on parking structures to reduce light and/or glare impacts from headlights on vehicles entering or exiting the parking structure. Therefore, the 2005 LRDP EIR concluded that implementation of the 2005 LRDP would not create a new source of substantial light or glare that would adversely affect daytime or nighttime views in the area, and this impact would be reduced to a less than significant level.

The development of the Campus Reserve site with housing would introduce new sources of light and glare to this area of the campus where the addition of new light and glare sources was not anticipated at the time that the 2005 LRDP was prepared. The development of SOM facilities, the relocation of the two West Campus parking garages, and the reconfiguration of open space on the West Campus would also introduce new sources of light and glare to the West Campus, but in areas that were previously designated for development in the 2005 LRDP. According to the 2005 LRDP EIR, future development on

the campus would be required to adhere to LRDP mitigation measures MM 4.1-3(a) through (c), which are discussed above. Therefore, although implementation of the proposed 2005 LRDP Amendment 2 would create new sources of substantial light or glare on the Campus Reserve site, and the development of SOM facilities, relocation of parking structures, and reconfiguration of open space would move the light sources to new locations on the West Campus, the impact of the proposed land use changes related to light and glare would be reduced to a less than significant level with the implementation of mitigation measures previously adopted by the University in conjunction with its adoption of the 2005 LRDP.

In addition, there are no changes in circumstances relative to this criterion since the certification of the 2005 LRDP EIR that could alter the conclusions of the previous analysis. No further analysis of this issue is required in the EIR.

Discussion of Potential Cumulative Impacts

The 2005 LRDP EIR found that implementation of the 2005 LRDP would not result in significant impact on scenic vistas, including the availability or quality of panoramic views of natural landforms, such as the southeastern hills, Box Spring Mountains, Mount Rubidoux, or the San Bernardino Mountains. The contribution of the 2005 LRDP to cumulative impacts on scenic vistas was determined not to be cumulatively considerable. The proposed 2005 LRDP Amendment 2 would not result in development that could affect a scenic vista. Therefore the proposed amendment to the 2005 LRDP would not change the conclusion of the 2005 LRDP EIR with respect to a cumulative impact on scenic vistas. In addition, there are no changes in circumstances since the certification of the 2005 LRDP EIR that would alter the conclusions of the previous cumulative impact analysis. No further evaluation in the EIR is required.

The 2005 LRDP EIR stated that the anticipated development in the campus vicinity would not result in significant cumulative impacts related to scenic resources within a State scenic route. The proposed 2005 LRDP Amendment 2 would not result in development that would affect scenic resources within a state scenic route. Therefore the proposed amendment to the 2005 LRDP would not change the conclusion of the 2005 LRDP EIR with respect to a cumulative impact on scenic resources. In addition, there are no changes in circumstances since the certification of the 2005 LRDP EIR that would alter the conclusions of the previous cumulative impact analysis. No further evaluation in the EIR is required.

The 2005 LRDP EIR concluded that impacts associated with visual character and/or quality would not to be cumulatively considerable on a regional scale, as reflected in both the City of Riverside and the County of Riverside General Plan EIRs. Development under the 2005 LRDP would be visually consistent with the surroundings and would not result in a cumulative impact to visual character and/or quality. Although the development under the proposed 2005 LRDP Amendment 2 would also be expected to be visually consistent with the surroundings, this issue will be evaluated further in the EIR.

As stated in the 2005 LRDP EIR, related projects could result in the creation of new sources of substantial light or glare that could affect day or nighttime views. Consequently, a significant cumulative impact could occur. However, the contribution of campus development under the 2005 LRDP to a cumulative light and glare impact would not be cumulatively considerable with implementation of appropriate LRDP planning strategies, programs and practices, and mitigation measures. The proposed 2005 LRDP Amendment 2 would also add new sources of light and glare to the campus but for the same reasons presented in the 2005 LRDP EIR, the contribution due to the proposed amendment to the 2005 LRDP would not be cumulatively considerable. The proposed 2005 LRDP Amendment 2 would not change the conclusion of the 2005 LRDP EIR with respect to cumulative light and glare impacts. In addition, there

are no changes in circumstances since the certification of the 2005 LRDP EIR that would alter the conclusions of the previous cumulative impact analysis. No further evaluation in the EIR is required.

Issues	Impact to be Analyzed in the 2005 LRDP Amendment 2 EIR	No Additional Analysis Required
2. AGRICULTURAL AND FOREST RESOURCES – Would the project:		
a) Convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland), as shown on the maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency, to non-agricultural use?	■	□
b) Conflict with existing zoning for agricultural use, or a Williamson Act contract?	□	■
c) Conflict with existing zoning for, or cause rezoning of, forest land (as defined in Public Resources Code section 12220(g)) or timberland (as defined in Public Resources Code section 4526)?	□	■
d) Result in the loss of forest land or conversion of forest land to non-forest use?	□	■
e) Involve other changes in the existing environment, which, due to their location or nature, could result in conversion of Farmland to non-agricultural use or conversion of forest land to non-forest use?	□	■

Relevant Elements of Project

The proposed 2005 LRDP Amendment 2 involves changes to the 2005 LRDP Land Use map and changes to the text of the 2005 LRDP. The key changes are the designation of an area on the West Campus for the development of a School of Medicine, changes in the location of future West Campus parking structures, and reconfiguration of the future open space areas on the West Campus. All of these changes in land use designations are proposed for West Campus lands north of MLK and were slated for development in the 2005 LRDP and addressed in such. However, Amendment 2 will also require that the *Campus Reserve* parcel be changed from an *Agricultural, Teaching and Research Fields* land use to *Family, Apartment Housing with Related Support (including Child Care),* and *Open Space,* and these land use changes will need to be addressed.

According to UCR's Agricultural Operations Department (Ag Ops), the UCR campus currently has a total of 481.7 acres of Prime Farmland and Farmland of Statewide Importance, which are primarily located on the West Campus, both north and south of MLK but most of the Ag Ops lands are located south of MLK. The campus does not contain any forest land or timber land.

Discussion of Potential Project Impacts

a) According to the 2005 LRDP EIR, development of the West Campus would result in the conversion of Prime Farmland to non-agricultural uses. Future development on the campus would be guided by a range of LRDP planning strategies, including Land Use 2, which seeks to maintain a compact and contiguous core, and Land Use 3, which would maintain fields on the West Campus south of MLK for agricultural uses (see **Appendix A** for a complete list of 2005 LRDP Planning Strategies, Programs and Practices, and Mitigation Measures). However, even with implementation of these planning strategies, no feasible mitigation is available to compensate for the loss of farmland. Therefore, the 2005 LRDP EIR concluded that the implementation of the 2005 LRDP would result in the conversion of Prime Farmland, Unique Farmland, or Farmland of Statewide Importance to non-agricultural use, and this impact would be considered significant and unavoidable.

Lands affected by the proposed 2005 LRDP Amendment 2, including the SOM site, the sites of the two relocated parking structures, land designated for West Campus open space, and the Campus Reserve site, are designated Prime Farmland on the maps prepared pursuant to the Farmland Mapping and Monitoring Program by the California Resources Agency. The remaining elements of the proposed amendment to the 2005 LRDP are programmatic in nature and would not affect farmland.

Although the conversion of some of West Campus Prime Farmland to non-agricultural uses was anticipated and evaluated in the 2005 LRDP EIR, the conversion of the *Campus Reserve* site was not included in that evaluation. Development of the 37.3-acre *Campus Reserve* site with *Family, Apartment Housing with Related Support (including Child Care)* that would be facilitated by the proposed 2005 LRDP Amendment 2 would result in the conversion of Prime Farmland, Unique Farmland, or Farmland of Statewide Importance to non-agricultural use. This loss of farmland is considered a potentially significant impact, and this issue will be further analyzed in the EIR.

b-c) The UCR campus is zoned O ("Official" Zone) by the City of Riverside Zoning Code, which is intended for official and public uses of property and related activities, including civic center, public schools, public buildings, parks and recreation areas, waterworks and drainage facilities and highways (City of Riverside Zoning Code, Chapter 19.6). The 2005 LRDP EIR indicated that, although agricultural uses and related activities are permitted in the Official Zone, no portion of the UCR campus is specifically zoned for agricultural use. Further, the University of California is constitutionally exempt from local zoning and land use plan/element requirements. No portion of the UCR campus is under a Williamson Act contract. Therefore, the 2005 LRDP EIR concluded that the implementation of the 2005 LRDP would not conflict with existing zoning for agricultural use, or a Williamson Act contract, and no impact would occur. While the 2005 LRDP EIR did not address zoning for forest or timberland use, no portion of the campus is specifically zoned for these uses. Therefore, implementation of the 2005 LRDP would not conflict with existing zoning for forest land and timberland uses, and no impact would occur.

Lands affected by the proposed 2005 LRDP Amendment 2, including the SOM site, the sites of the two relocated parking structures, land designated for West Campus open space, and the Campus Reserve site, are not zoned for forest, timber land, or agricultural use. In addition these lands are not under a Williamson Act contract. Therefore, implementation of the proposed amendment to the 2005 LRDP would not conflict with existing zoning for forest land, timber land or agricultural use, or a Williamson Act contract. No impact would occur.

In addition, there have been no changes in circumstances since the certification of the 2005 LRDP EIR relative to this criterion that could alter the conclusions of the previous analysis and no further analysis of this issue is required in the EIR.

d) The 2005 LRDP EIR did not address the loss of forest land or conversion of forest land to non-forest use. However, no part of the campus is under forests. Furthermore, the project site and surrounding area does not include any forest land or timber land. Therefore, implementation of the proposed 2005 LRDP Amendment 2 would not result in the loss of forest land or timber land. No impact would occur, and no further analysis of this issue is required in the EIR.

e) According to the 2005 LRDP EIR, implementation of the 2005 LRDP would not result in the conversion of off-campus agricultural lands. Implementation of future development on the campus would be guided by a range of LRDP planning strategies, including Land Use 2 and 3, which are discussed above. Therefore, the 2005 LRDP EIR concluded that the implementation of the 2005 LRDP would not involve other changes in the existing environment, which, due to their location or nature, could result in conversion of off-campus farmland to non-agricultural use, and the impact would be less than significant.

Future development associated with the proposed 2005 LRDP Amendment 2 would not result in the conversion of off-campus agricultural lands. The nearest agricultural lands to the project site are located on campus south of MLK. The University controls these lands and would have the final say about its conversion. In addition, if the University considered converting these lands to non-agricultural use, a separate LRDP amendment would be required. Finally, future development associated with the proposed amendment to the 2005 LRDP would be guided by LRDP planning strategies, including Land Use 2 and 3, which are discussed above. Therefore, implementation of the proposed 2005 LRDP Amendment 2 would not involve other changes in the existing environment, which, due to their location or nature, could result in conversion of farmland or forest land to non-agricultural use or non-forest use, and this impact would be less than significant.

In addition, there have been no changes in circumstances since the certification of the 2005 LRDP EIR relative to this criterion that could alter the conclusions of the previous analysis. No further analysis of this issue is required in the EIR.

Discussion of Potential Cumulative Impacts

As stated in the 2005 LRDP EIR, implementation of the 2005 LRDP would convert on-campus agricultural research fields to non-agricultural uses, which in conjunction with other reasonably foreseeable development that involves the conversion of farmland in the region to urban uses, would result in a significant cumulative impact associated with the loss of Prime Farmland. The 2005 LRDP EIR found that the contribution of the 2005 LRDP to cumulative impacts on Prime Farmland would be cumulatively considerable, and the cumulative impact would be significant and unavoidable. The proposed 2005 LRDP Amendment 2 would further increase the amount of prime farmland on the campus that would be converted to non-agricultural uses by 37.3 acres (*Campus Reserve* site). The proposed amendment to the 2005 LRDP would increase the severity of the cumulative impact. This issue will be further evaluated in the EIR.

According to the 2005 LRDP EIR, implementation of the 2005 LRDP would not result in a cumulatively considerable contribution to cumulative impacts regarding conflicts with existing agricultural zoning or Williamson Act contracts. In addition, the loss of farmland on the UCR campus associated with the 2005 LRDP would not put pressure on adjacent, off-campus lands to be converted to non-agricultural uses and

the impact would not be cumulatively considerable. The proposed 2005 LRDP Amendment 2 would also not result in conflicts with agricultural zoning or Williamson Act contracts. In addition, the proposed amendment to the 2005 LRDP would affect lands in the northern portion of the West Campus and would not put pressure on off-campus agricultural lands to convert to other uses as off-campus agricultural lands are not near the campus sites affected by the proposed 2005 LRDP Amendment 2. The proposed amendment to the 2005 LRDP would not change the conclusion in the 2005 LRDP EIR with respect to these cumulative impacts. In addition, there are no changes in circumstances since the certification of the 2005 LRDP EIR related to conflicts with agricultural zoning, Williamson Act contracts, or agricultural lands near the campus that could affect the conclusions of the previous cumulative analysis. Further analysis of these cumulative impacts in the EIR is not required.

Issues	Impact to be Analyzed in the 2005 LRDP Amendment 2 EIR	No Additional Analysis Required
3. AIR QUALITY - Where available, the significance criteria established by the applicable air quality management or air pollution control district may be relied upon to make the following determinations. Would the project*:*		
a) Conflict with or obstruct implementation of the applicable air quality plan?	☐	■
b) Violate any air quality standard or contribute substantially to an existing or projected air quality violation?	■	☐
c) Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable federal or state ambient air quality standard (including releasing emissions which exceed quantitative thresholds for ozone precursors)?	■	☐
d) Expose sensitive receptors to substantial pollutant concentrations?	■	☐
e) Create objectionable odors affecting a substantial number of people?	☐	■

Relevant Elements of Project

The proposed 2005 LRDP Amendment 2 involves changes to the 2005 LRDP Land Use map and changes to the text of the 2005 LRDP. The key changes are the designation of an area on the West Campus for the development of a School of Medicine, designation of the *Campus Reserve* to *Family, Apartment Housing with Related Support (including Child Care)* and *Open Space,* changes in the location of future West Campus *Parking* structures, and reconfiguration of the future *Open Space* areas on the West Campus.

Construction-related and operational emissions associated with the parking structures, West Campus open space, and housing were estimated and reported in the 2005 LRDP. The addition of the SOM on the West Campus would result in new construction-related and operational emissions and development of the *Campus Reserve*. The remaining elements of the proposed 2005 LRDP Amendment 2 are programmatic in nature and might result in new construction-related and operational emissions.

Discussion of Potential Project Impacts

a) The UCR campus is located within the South Coast Air Basin (Basin) and the agency principally responsible for comprehensive air pollution control in the Basin is the South Coast Air Quality Management District (SCAQMD). The SCAQMD is directly responsible for reducing emissions from

stationary (area and point), mobile, and indirect sources. It has responded to this requirement by preparing a series of Air Quality Management Plans (AQMPs). The most recent of these was adopted by the Governing Board of the SCAQMD on June 1, 2007. This AQMP, referred to as the 2007 AQMP, was prepared to comply with the federal and State Clean Air Acts and amendments, to accommodate growth, to reduce the high levels of pollutants in the Basin, to meet federal and State air quality standards, and to minimize the fiscal impact that pollution control measures have on the local economy. According to the 2005 LRDP EIR, development of the 2005 LRDP would not conflict or obstruct implementation of the 2003 AQMP, the adopted plan in place at the time the EIR was prepared.

The development of land uses permitted by the proposed 2005 LRDP Amendment 2 are subject to the provisions of the 2007 AQMP, and projects that are consistent with the projections of employment and population forecasts identified in the Growth Management Chapter of the Regional Comprehensive Plan prepared by the Southern California Association of Governments (SCAG) are considered consistent with the AQMP growth projections, since the Growth Management Chapter forms the basis of the land use and transportation control portions of the AQMP. As discussed in Section 12, Population and Housing, the projected growth in campus population is consistent with SCAG projections through 2020. Therefore, the implementation of the proposed amendment to the 2005 LRDP would not conflict with or obstruct the implementation of the 2007 AQMP. The impact of the project would be less than significant, and no further analysis of this issue is required in the EIR.

b) The analysis in the 2005 LRDP EIR indicated that during development of land uses permitted by the 2005 LRDP, daily emissions would exceed SCAQMD significance thresholds for oxides of nitrogen (NO_x) during the site excavation and grading phase and the peak construction phase. Future development on the campus would continue to implement existing programs and practices, such as PP 4.3-2(a) through (c), which list measures to be taken to reduce emissions during construction (see **Appendix A** for a complete list of 2005 LRDP Planning Strategies, Programs and Practices, and Mitigation Measures). In addition, LRDP mitigation measure MM 4.3-2 would require PP 4.3-2(a) through (c) to be included in construction contract specifications. However, the 2005 LRDP EIR concluded that even with implementation of programs and practices and mitigation, constructions emissions from some campus projects would still exceed the applicable threshold for NOx, and this impact would be significant and unavoidable.

The construction of 3.1 million gsf of additional building space associated with the medical school would result in additional construction–related emissions on the West Campus. As indicated in **Table 3, Estimated Daily Construction Emissions (Unmitigated)**, the emissions associated with the construction of the SOM would also exceed SCAQMD significance thresholds for NOx during the site excavation and grading phase and the peak construction phase. In addition, future development associated with the proposed SOM would continue to implement existing programs and practices, such as PP 4.3-2(a) through (c) and LRDP mitigation measure MM 4.3-2, which are discussed above. The construction of the two parking garages, the West Campus open space, and the housing and open space now designated on the Campus Reserve site represent land uses that were previously considered under the 2005 LRDP and would not generate increased construction-related emissions.

Table 3
Estimated Daily Construction Emissions (Unmitigated)

Construction Year	Emissions in Pounds per Day					
	VOC	NOx	CO	SOx	PM_{10}	$PM_{2.5}$
2011	28.12	218.82	352.82	0.54	48.14	17.72
2012	58.23	216.04	340.91	0.55	48.66	18.19
2013	55.95	195.63	318.22	0.55	47.60	17.21
2014	53.80	176.32	297.57	0.55	46.62	16.31
2015	51.75	157.75	278.34	0.55	45.80	15.55
2016	49.99	141.88	261.64	0.55	44.98	14.80
2017	48.44	128.07	246.06	0.55	44.29	14.16
2018	46.96	115.92	231.81	0.55	43.69	13.61
2019	45.66	105.28	218.69	0.55	43.13	13.09
2020	42.16	80.83	192.84	0.54	6.53	4.66
Maximum Emissions in Any Year	**58.23**	**218.82**	**352.82**	**0.55**	**48.66**	**18.19**
SCAQMD Threshold	75	100	550	150	150	55
Exceeds Threshold?	NO	**YES**	NO	NO	NO	NO

Source: Impact Sciences, Inc. Emissions calculations are provided in ***Appendix B.***

The analysis in the 2005 LRDP EIR also indicated that during operation of land uses permitted by the 2005 LRDP, daily emissions of carbon monoxide (CO) would be reduced and would not exceed SCAQMD significance thresholds for CO. However, the net increase in daily campus emissions associated with the 2005 LRDP would exceed the thresholds of significance recommended by the SCAQMD for volatile organic compounds (VOC), NOx, and particulate matter 10 microns or less in diameter (PM_{10}). Future development on the campus would continue to implement existing programs and practices, such PP 4.3-1, and PP 4.3-2(a) through (c), which are discussed above. In addition, LRDP mitigation measure MM 4.3-3 would require that development reduce energy consumption and area-wide emission of criteria pollutants. However, the 2005 LRDP EIR concluded that even with implementation of programs and practices and mitigation, operational emissions would still exceed the applicable threshold for VOC, NOx, and PM_{10}, and this impact would be significant and unavoidable.

The addition of about 3.1 million gsf of building space associated with the SOM would result in additional operational emissions on the West Campus. As indicated in **Table 4, Estimated Unmitigated Operational Emissions (2020 buildout year)**, emissions associated with the operation of the SOM at buildout would exceed SCAQMD significance thresholds for VOC, NOx, CO, PM_{10}, and $PM_{2.5}$. In addition, future development associated with the proposed SOM would continue to implement existing programs and practices, such as PP 4.3-2(a) through (c) and LRDP mitigation measure MM 4.3-3, which are discussed above. The operation of the two parking garages, the West Campus open space, and the housing and open space now designated on the Campus Reserve site represent land uses that were previously considered under the 2005 LRDP and would not generate increased operational emissions.

The remaining elements of the proposed 2005 LRDP Amendment 2 are programmatic in nature and would not generate emissions during operation.

Table 4
Estimated Unmitigated Operational Emissions (2020 buildout year)

Emissions Source	Emissions in Pounds per Day					
	VOC	NO_X	CO	SO_X	PM_{10}	$PM_{2.5}$
Summertime Emissions[1]						
Operational (Mobile) Sources	148.14	157.53	1,517.76	3.05	500.28	97.31
Area/Stationary Sources	18.79	12.39	18.05	0.00	0.05	0.05
Summertime Emissions Total	**166.93**	**169.92**	**1,535.81**	**3.05**	**500.33**	**97.36**
SCAQMD Threshold	**55**	**55**	**550**	**150**	**150**	**55**
Exceeds Threshold?	**YES**	**YES**	**YES**	NO	**YES**	**YES**
Wintertime Emissions[2]						
Operational (Mobile) Sources	161.24	188.92	1,453.77	2.54	500.28	97.31
Area/Stationary Sources	18.18	12.29	10.32	0.00	0.02	0.02
Wintertime Emissions Total	**179.42**	**201.21**	**1,464.09**	**2.54**	**500.30**	**97.33**
SCAQMD Threshold	**55**	**55**	**550**	**150**	**150**	**55**
Exceeds Threshold?	**YES**	**YES**	**YES**	NO	**YES**	**YES**

*Source: Impact Sciences, Inc. Emissions calculations are provided in **Appendix B**.*
Totals in table may not appear to add exactly due to rounding in the computer model calculations.
[1] *"Summertime Emissions" are representative of the conditions that may occur during the ozone season (May 1 to October 31).*
[2] *"Wintertime Emissions" are representative of the conditions that may occur during the balance of the year (November 1 to April 30).*

Given these findings, daily emissions of criteria pollutants generated by the proposed SOM and new uses allowed in the parking structures would exceed the significance thresholds established by the SCAQMD. This impact is considered potentially significant, and this issue will be further analyzed in the EIR.

c) According to the 2005 LRDP EIR, construction-related or operational emissions that exceed the thresholds of significance for an individual project would also cause a cumulatively considerable net increase in pollutants in the South Coast Air Basin. As discussed above in item 3b), construction-related daily emissions due to the implementation of the 2005 LRDP would exceed SCAQMD significance thresholds for NOx during the site excavation and grading phase and the peak construction phase. Likewise, the net increase in daily campus operational emissions associated with the 2005 LRDP would exceed the thresholds of significance recommended by the SCAQMD for VOC, NOx, and PM_{10}. Implementation of PP 4.3-1, PP 4.3-2(a) through (c), and LRDP mitigation measures MM 4.3-2 and MM 4.3-3, would ensure that construction-related air quality impacts are minimized and the number of motor vehicle trips and area source emissions are reduced to the maximum extent feasible. They would not, however, reduce the net increase in daily construction-related and operational emissions to below the thresholds of significance recommended by the SCAQMD. Therefore, the 2005 LRDP EIR concluded that the implementation of the 2005 LRDP would generate a cumulatively considerable net increase in daily

construction-related and operational campus emissions that would contribute to an existing or projected air quality exceedance.

As discussed above in item 3b), the construction and operational emissions associated with the proposed SOM would exceed the significance thresholds established by the SCAQMD. This impact is considered potentially significant, and this issue will be further analyzed in the EIR.

d) The 2005 LRDP EIR indicated that future CO concentrations near study area intersections would not exceed the national 35.0 parts per million (ppm) and state 20.0 ppm 1-hour ambient air quality standards or the national 9.5 ppm and State 9.1 ppm 8-hour ambient air quality standards when the 2005 LRDP is fully implemented. The 2005 LRDP EIR also indicated that implementation of the 2005 LRDP would not generate toxic air emissions from stationary sources that would result in excess human cancer risk. Therefore, the EIR concluded that implementation of the 2005 LRDP would not expose sensitive receptors to substantial pollutant concentrations, and this impact would be less than significant.

The addition of about 3.1 million feet of building space associated with the SOM would result in additional daily and peak hour vehicle trips that were not previously accounted for in the 2005 LRDP EIR. As a result, these vehicle trips could combine with future vehicle trips to generate CO concentrations at study area intersections. All of the remaining elements of the proposed 2005 LRDP Amendment 2 were either considered in the previous EIR or are programmatic in nature and would not result in additional vehicle trips. CO concentrations associated with the SOM represent a potentially significant impact and this issue will be further analyzed in the EIR. In addition, a Health Risk Assessment (HRA) will be prepared to analyze the human health risk to nearby receptors from exposure to the emissions of toxic air contaminants associated with the proposed SOM. This issue will also be further analyzed in the EIR.

e) The analysis in the 2005 LRDP EIR indicated that the operation of construction vehicles (i.e., diesel exhaust) and the application of architectural coatings could result in potential airborne odors. However, these emissions would occur during daytime hours only and would occur in the immediate vicinity of the construction site and activity. As such, they would not affect a substantial number of people. In addition, the analysis found that cooking activities associated with the new residential buildings could result in potential airborne odors. However, these odors would be similar to existing housing and food services uses on the campus and would be confined to the immediate vicinity of the new buildings. Finally, another source of potential odors would be new trash receptacles within the campus. The receptacles would have lids and would be emptied on a regular basis, before potentially substantial odors have a chance to develop. Therefore, the 2005 LRDP EIR concluded that the implementation of the 2005 LRDP would not create objectionable odors affecting a substantial number of people.

Development of the proposed medical school would also result in the operation of construction vehicles (i.e., diesel exhaust) and the application of architectural coatings, both of which would emit airborne odors. Similarly, these emissions would occur during daytime hours only and would be isolated to the immediate vicinity of the construction site and activity. As such, they would not affect a substantial number of people. No new odor sources would be associated with the parking structures, West Campus open space, and housing and open space located on the Campus Reserve site that were not previously evaluated in the 2005 LRDP EIR. The remaining elements of the proposed 2005 LRDP Amendment 2 are programmatic in nature and would not result in new odor sources. Finally, trash receptacles associated with the proposed SOM and new uses allowed in the parking structures could result in new odors. However, the receptacles would have lids and would be emptied on a regular basis, before potentially substantial odors have a chance to develop. Therefore, the implementation of the proposed amendment

to the 2005 LRDP would not create objectionable odors affecting a substantial number of people. The impact of the project would be less than significant.

In addition, there have been no changes in circumstances since the certification of the 2005 LRDP EIR relative to this criterion that could alter the conclusions of the previous analysis. No further analysis of this issue is required in the EIR.

Discussion of Potential Cumulative Impacts

The 2005 LRDP EIR concluded that the 2005 LRDP would not have a significant cumulative impact related to, conflicting with, or obstructing implementation of, the AQMP and Amendment for Ozone. The proposed 2005 LRDP Amendment 2 would also not conflict with the 2007 AQMP and would therefore not change the conclusion in the 2005 LRDP EIR with respect to this impact. In addition, there are no changes in circumstances since the certification of the 2005 LRDP EIR that could alter the conclusions of the previous analysis. No further evaluation in the EIR is required.

The 2005 LRDP EIR found that construction activities occurring within the campus could cause a net increase in daily construction related emissions of VOC and NOx that exceed the thresholds of significance recommended by the SCAQMD during peak construction scenarios. While the Basin is currently in attainment for nitrogen dioxide (NO_2) levels (NO_2 is a pure form of NOx), because VOC and NOx are precursors of ozone, for which the Basin is in nonattainment, construction under the 2005 LRDP would make a cumulatively considerable contribution to this impact. The proposed 2005 LRDP Amendment 2 would result in increased emissions of nonattainment pollutants and could therefore increase the severity of the cumulative impact. This issue will be further evaluated in the EIR.

The 2005 LRDP EIR noted that with regard to daily operational emissions and the cumulative net increase of any criteria pollutant for which the region is in nonattainment, there is a significant cumulative impact, due to nonattainment of ozone, CO, and PM_{10} standards in the Basin. With regard to the contribution of the 2005 LRDP, the net increase in daily campus operational emissions associated with the 2005 LRDP would exceed the thresholds of significance recommended by the South Coast Air Quality Management District (SCAQMD) for VOC, NOx, and PM_{10}. Therefore, implementation of the 2005 LRDP would generate a cumulatively considerable net increase in daily construction-related and operational campus emissions that contribute to an existing or projected air quality exceedance. The proposed 2005 LRDP Amendment 2 would result in increased emissions of nonattainment pollutants and could therefore increase the severity of the cumulative impact. This issue will be further evaluated in the EIR.

The 2005 LRDP EIR concluded that future growth in the campus vicinity would not expose sensitive receptors to substantial pollutant concentrations. The 2005 LRDP contribution to this impact would not be cumulatively considerable. The proposed 2005 LRDP Amendment 2 could result in increases in CO emissions at congested intersections, and thereby result in a significant cumulative impact. This issue will be further evaluated in the EIR.

With regard to operations of future development resulting in the exposure of sensitive receptors to substantial toxic pollutant concentrations, the 2005 LRDP EIR concluded that there would not be significant cumulative impact. Operation and construction under the 2005 LRDP would not result in a cumulatively considerable contribution. Because the proposed 2005 LRDP Amendment 2 includes new sources of toxic air contaminants, this issue will be further evaluated in the EIR.

The 2005 LRDP EIR found that related projects would not have a significant cumulative impact in terms of the creation of objectionable odors affecting a substantial number of people. Development under the 2005 LRDP would not result in a cumulatively considerable contribution to odor impacts. The proposed 2005 LRDP Amendment 2 does not include any major sources of odors and would therefore not alter the conclusion in the 2005 LRDP with respect to this cumulative impact. In addition, there are no changes in circumstances since the certification of the 2005 LRDP EIR that could alter the conclusions of the previous analysis. No further evaluation in the EIR is required.

Issues	Impact to be Analyzed in the 2005 LRDP Amendment 2 EIR	No Additional Analysis Required
4. BIOLOGICAL RESOURCES -- Would the project:		
a) Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Game or U.S. Fish and Wildlife Service?	☐	■
b) Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations, or by the California Department of Fish and Game or US Fish and Wildlife Service?	☐	■
c) Have a substantial adverse effect on federally protected wetlands as defined by Section 404 of the Clean Water Act (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means?	☐	■
d) Interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites?	☐	■
e) Conflict with any applicable policies protecting biological resources?	☐	■
f) Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other applicable habitat conservation plan?	☐	■

Relevant Elements of Project

The proposed 2005 LRDP Amendment 2 involves changes to the 2005 LRDP Land Use map and changes to the text of the 2005 LRDP. The key change relevant to the analysis of impacts on biological resources is the designation of the *Campus Reserve* site for *Family, Apartment Housing and Related Support (including Child Care)* and *Open Space* uses. All of the other areas affected by the proposed amendment to the 2005 LRDP were previously considered for future development under the 2005 LRDP and the impacts on biological resources from the development of those lands were evaluated in the 2005 LRDP EIR.

According to the 2005 LRDP EIR, on-campus biological resources can be described in the following manner: natural, naturalistic, landscaped, and agricultural areas. Natural areas are defined as

undeveloped open space areas that are composed of native and naturally occurring plant species while naturalistic areas are defined as mostly undeveloped areas that have been subject to modification and/or the introduction of ornamental trees and shrubs. Landscaped areas on the campus are considered open spaces that have been developed with turf-covered lawn areas or groundcover, mature trees, and shrubs. Agricultural areas on the campus are used for agricultural teaching and research and are dominated by row crops and orchards.

The majority of the West Campus consists of agricultural areas, which are mostly occupied by row crops and orchards. The landscaped areas on the West Campus are limited to the area around Highlander Hall, Human Resources, UNEX, and more recent development, including the International Village and Parking Lot No. 30. Natural communities present on the West Campus include a small stand of coastal sage scrub located along the northern bank of the Box Springs Arroyo, south of MLK. Naturalistic communities on the West Campus are limited and consist of riparian, annual grassland and ruderal habitats. Riparian and annual grassland habitats are located along or adjacent to the Box Springs Arroyo south of MLK. Small pockets of ruderal habitat are found along the edges of dirt roads and cultivated plots throughout the West Campus.

Discussion of Potential Project Impacts

a) According to the 2005 LRDP EIR, a search of the California Natural Diversity Data Base (and other sources) revealed that both rare and endangered plants and animals designated by the California Department of Fish and Game might occur within natural and naturalistic areas of the campus. Development within landscaped and agricultural areas, however, is unlikely to affect any candidate, sensitive, or special-status plant and wildlife species, although removal of mature trees and native and non-native grasslands, which provide roosting and foraging opportunities for special status avian species, could adversely impact protected bird species within these areas. Implementation of future development on the campus would be guided by a range of LRDP planning strategies, including Open Space 1 through 4 and Conservation 1 through 3, all of which are relevant to the protection of candidate, sensitive, or special-status plant and wildlife species (see **Appendix A** for a complete list of 2005 LRDP Planning Strategies, Programs and Practices, and Mitigation Measures). In addition, future development on the campus would continue existing campus programs and procedures, such as PP 4.4-1(a), which lists measures to protect sensitive biological resources in Natural Open Space Reserve areas, and PP 4.4-1(b) which lists measures to protect sensitive biological resources in Natural and Naturalistic Open Space Reserve areas. However, even with implementation of these planning strategies and continued implementation of existing programs and practices, implementation of the 2005 LRDP could result in substantial adverse effects to candidate, sensitive, or special status plant and wildlife species, depending on the extent and location of development. To reduce potential impacts, future development would be required to implement LRDP mitigation measures MM 4.4-1(a) and (b), which require pre-construction surveys for special status species and methods to follow if special status species are discovered. Therefore, the 2005 LRDP EIR concluded that the implementation of the 2005 LRDP would not have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Game or U.S. Fish and Wildlife Service, and this impact would be reduced to a less than significant level.

Lands affected by the proposed 2005 LRDP Amendment 2, including the SOM site, the sites of the two relocated parking structures, land designated for West Campus open space, and the Campus Reserve site are currently in agricultural use as experimental orchards or row crops, or are vacant, and development of these sites would result in loss of these agricultural areas. Development within agricultural areas is

unlikely to affect any candidate, sensitive, or special-status plant and wildlife species, although removal of mature trees, which provide roosting and foraging opportunities for special status avian species, could adversely impact protected nesting bird species within these areas. To reduce potential impacts, future development associated with the proposed amendment to the 2005 LRDP would be required to implement LRDP mitigation measures MM 4.4-1(a) and (b), which are discussed above. Therefore, implementation of the proposed 2005 LRDP Amendment 2 would not have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Game or U.S. Fish and Wildlife Service, and this impact would be reduced to a less than significant level with the implementation of mitigation measures previously adopted by the University in conjunction with its adoption of the 2005 LRDP.

In addition, there have been no changes in circumstances since the certification of the 2005 LRDP EIR relative to this criterion that could alter the conclusions of the previous analysis. No further analysis of this issue is required in the EIR.

b) According to the 2005 LRDP EIR, development associated with the 2005 LRDP could result in adverse effects to California gnatcatcher habitat in the southeast hills as a result of limited development within that area. Implementation of future development on the campus would be guided by a range of LRDP planning strategies, including Open Space 1 through 4 and Conservation 1 through 3, all of which are relevant to the protection of candidate, sensitive, or special-status plant and wildlife species. In addition, future development on the campus would continue existing campus programs and procedures, such as PP 4.4-1(a) and (b), which are discussed above. Finally, future development would also be required to implement LRDP mitigation measures MM 4.4-1(a) and (b), which are discussed above.

Development associated with the 2005 LRDP could result in adverse impacts to riparian habitat in arroyos. In addition to implementing the above mentioned planning strategies and continuing the above mentioned programs and practices, future development would also be required to continue existing campus programs and practices, such as PP 4.4-2(a), which would reduce or avoid impacts to riparian habitats whenever feasible, and PP 4.4-2(b), which would continue the implementation of Best Management Practices as identified in the Draft UCR Stormwater Management Plan.

For the reasons given above, the 2005 LRDP EIR concluded that the implementation of the 2005 LRDP would not have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations, or by the California Department of Fish and Game or US Fish and Wildlife Service.

Lands affected by the proposed 2005 LRDP Amendment 2, including the SOM site, the sites of the two relocated parking structures, land designated for West Campus open space, and the Campus Reserve site, are currently in agricultural use as experimental orchards or row crops or are vacant. No riparian habitat or other sensitive natural community exists on these sites. As such, the proposed amendment to the 2005 LRDP would not have any direct effect on any riparian habitat or other sensitive natural communities. No impact would occur.

In addition, there have been no changes in circumstances since the certification of the 2005 LRDP EIR relative to this criterion that could change the conclusions of the previous analysis. Therefore, no further analysis of this issue is required in the EIR.

c) The 2005 LRDP EIR indicated that development allowed under the 2005 LRDP could adversely affect federally protected wetlands on the campus. Implementation of future development on the campus would be guided by a range of LRDP planning strategies relevant to preservation of candidate, sensitive, or special-status plant and wildlife species, including Open Space 1 through 4 and Conservation 1 through 3, as well as the continuation of existing campus programs and practices related to protecting sensitive biological species, such as PP 4.4-1(a) and (b) and PP 4.4-2(a) and (b), which are discussed above. However, even with implementation of the identified planning strategies and continued implementation of existing programs and practices, implementation of the 2005 LRDP could result in substantial adverse effects on federally protected wetlands. However, future development on the campus would require the implementation of LRDP mitigation measures MM 4.4-3(a) through (c), which would require a delineation of potentially jurisdictional areas, and if jurisdictional wetlands are present would require a 1:1 replacement of removed wetland habitat, and implementation of measures to ensure that wetland-dependent species are introduced into the replacement habitat. Therefore, the 2005 LRDP EIR concluded that the implementation of the 2005 LRDP would not have a substantial adverse effect on federally protected wetlands as defined by Section 404 of the Clean Water Act (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means, and this impact would be reduced to a less than significant level.

Lands affected by the proposed 2005 LRDP Amendment 2, including the SOM site, the sites of the two relocated parking structures, land designated for West Campus open space, and the Campus Reserve site, are currently in agricultural use as experimental orchards or row crops or are vacant. No wetlands, as defined by the Clean Water Act or the Fish and Game Code of California, exist on the sites. No impact to wetlands would occur.

In addition, there have been no changes in circumstances since the certification of the 2005 LRDP EIR relative to this criterion that could alter the conclusions of the previous analysis. Therefore, no further analysis of this issue is required in the EIR.

d) According to the 2005 LRDP EIR, future development on the campus would not construct physical barriers to movement along wildlife corridors that exist on campus. However, future development on the campus would result in the removal of mature trees, which may serve as perching or nesting sites of migratory birds or raptors. Implementation of future development on the campus would be guided by a range of LRDP planning strategies relevant to the protection of mature trees, including Conservation 1 and 2, and Open Space 3 and 5. While implementation of these LRDP planning strategies would reduce potential impacts to mature trees; the 2005 LRDP could still result in the removal of mature trees. However, implementation of LRDP mitigation measures MM 4.4-4(a) and (b), which requires pre-construction surveys for migratory avian species of special concern or raptors and methods to follow if migratory avian species of special concern or raptors are discovered, would ensure that migratory birds or raptors are protected. Thus, the 2005 LRDP EIR concluded that the implementation of the 2005 LRDP would not interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites, and this impact would be reduced to a less than significant level.

Lands affected by the proposed 2005 LRDP Amendment 2, including the SOM site, the sites of the two relocated parking structures, land designated for West Campus open space, and the Campus Reserve site, are currently in agricultural use as experimental orchards or row crops or are vacant, and development of these sites would result in the loss of mature trees, which may serve as perching or nesting sites of migratory birds or raptors. However, future development associated with the proposed amendment to

the 2005 LRDP would be required to implement LRDP mitigation measures MM 4.4-4(a) and (b), which are discussed above. Furthermore, the SOM site, the sites of the two relocated parking structures, land designated for West Campus open space, and the Campus Reserve site, are adjacent to or surrounded by existing development, and thus they are not part of any wildlife corridors. Therefore, the proposed 2005 LRDP Amendment 2 would not interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites, and the impact to nesting birds would be reduced to a less than significant level with the implementation of mitigation measures previously adopted by the University in conjunction with its adoption of the 2005 LRDP.

In addition, there have been no changes in circumstances since the certification of the 2005 LRDP EIR relative to this criterion that could alter the conclusions of the previous analysis. No further analysis of this issue is required in the EIR.

e) The University is not subject to municipal plans, policies, and regulations, such as the County and City General Plans or local ordinances. As indicated in the 2005 LRDP EIR, while not subject to local jurisdiction, UCR does values biological resources such as mature trees and native habitat, and the 2005 LRDP includes a range of LRDP planning strategies, such as Open Space 1 and 2, which would ensure that the area be preserved as a Natural Open Space Reserve, no major facilities be allowed (except for sensitively sited utility projects), vehicular and pedestrian access be limited, and that native plant materials be used for erosion, screening, and restoration; Open Space 3, which would ensure that existing landforms, native plant materials, and trees are preserved when feasible and where appropriate, habitat values be restored; and Conservation 1, which specifies that native habitat, remnant arroyos, and mature trees be preserved to the extent feasible. Therefore, the 2005 LRDP EIR concluded that the implementation of the 2005 LRDP would meet the intent of local policies protecting biological resources, and this impact would be less than significant.

Lands affected by the proposed 2005 LRDP Amendment 2, including the SOM site, the sites of the two relocated parking structures, land designated for West Campus open space, and the Campus Reserve site, are currently in agricultural use as experimental orchards or row crops or are vacant. Some biological resources, such as mature trees, do exist on the sites. However, future development associated with the proposed amendment to the 2005 LRDP would be guided by LRDP planning strategies, including Open Space 1 through 3 and Conservation 1, which are discussed above. Therefore, projects constructed as a result of the proposed 2005 LRDP Amendment 2 would meet the intent of local policies protecting biological resources. This impact would be less than significant.

In addition, there have been no changes in circumstances since the certification of the 2005 LRDP EIR relative to this criterion that could alter the conclusions of the previous analysis. Therefore, no further analysis of this issue is required in the EIR.

f) A portion of the campus is located within the boundaries of the Western Riverside County Multi-Species Habitat Conservation Plan (MSHCP). The MSHCP is a comprehensive, multi-jurisdictional plan focusing on conservation of both species and associated habitats to address biological and ecological diversity conservation needs in western Riverside County. According to the 2005 LRDP EIR, implementation of the 2005 LRDP would not conflict with the MSHCP. In addition, implementation of future development on the campus would be guided by a range of LRDP planning strategies, including Open Space 1 through 4 and Conservation 1 through 3, which would ensure the preservation of the coastal sage habitat in the southeast hills as an *Open Space Reserve* and protect the Naturalistic open space

areas on the campus, which include riparian habitat in on-campus arroyos. Thus, the 2005 LRDP EIR concluded that implementation of the 2005 LRDP would not conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other applicable habitat conservation plan, and no impact would occur.

Lands affected by the proposed 2005 LRDP Amendment 2, including the SOM site, the sites of the two relocated parking structures, land designated for West Campus open space, and the Campus Reserve site, are not located within the boundaries of the western Riverside County MSCHP. Therefore, development of the campus under the proposed amendment to the 2005 LRDP would not conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other applicable habitat conservation plan. No impact would occur.

In addition, there have been no changes in circumstances since the certification of the 2005 LRDP EIR relative to this criterion that could alter the conclusions of the previous analysis. Therefore, no further analysis of this issue is required in the EIR.

Discussion of Potential Cumulative Impacts

The 2005 LRDP EIR concluded the 2005 LRDP would contribute to the significant unavoidable cumulative impacts to special status species and habitats in the County. Because the proposed 2005 LRDP Amendment 2 would not result in impacts on special status species or their habitat, it would not alter the conclusion in the 2005 LRDP EIR with respect to this cumulative impact. Furthermore, there have been no changes in circumstances since the certification of the 2005 LRDP EIR that could alter the conclusions of the previous analysis. No further evaluation in the EIR is required.

As stated in the 2005 LRDP EIR, the 2005 LRDP would not contribute to significant cumulative impacts related to wildlife movement. The proposed 2005 LRDP Amendment 2 would also not affect wildlife movement and therefore would not alter the conclusion in the 2005 LRDP EIR with respect to this cumulative impact. Furthermore, there have been no changes in circumstances since the certification of the 2005 LRDP EIR that could alter the conclusions of the previous analysis. No further evaluation in the EIR is required.

Issues	Impact to be Analyzed in the 2005 LRDP Amendment 2 EIR	No Additional Analysis Required
5. CULTURAL RESOURCES -- Would the project:		
a) Cause a substantial adverse change in the significance of a historical resource as defined in Section 15064.5?	☐	■
b) Cause a substantial adverse change in the significance of an archaeological resource pursuant to Section 15064.5?	☐	■
c) Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?	☐	■
d) Disturb any human remains, including those interred outside of formal cemeteries?	☐	■

Relevant Elements of Project

The proposed 2005 LRDP Amendment 2 involves changes to the 2005 LRDP Land Use map and changes to the text of the 2005 LRDP. The key change relevant to the analysis of impacts on cultural resources is the designation of the Campus Reserve site for housing and open space uses. All of the other areas affected by the proposed land use map changes were previously considered for future development under the 2005 LRDP and the impacts on cultural resources from the development of those lands were evaluated in the 2005 LRDP EIR.

The only historic resources located on the West Campus are the Workman's Cottages No. 2 and 3, located on the southern edge of MLK approximately 0.25 mile west of Canyon Crest Drive. Archaeological resources located on the West Campus include Site CA-RIV-4768H, the historic Gage Canal, which traverses the West Campus from north to south, and remnants from historic human activities encountered in the agricultural teaching and research fields south of MLK, which date approximately to or prior to the early years of the Citrus Experiment Station.

Discussion of Potential Project Impacts

a) According to the 2005 LRDP EIR, several structures on the East Campus and West Campus have been identified as historic or potentially historic, and the development of new structures and facilities could result in a substantial adverse change in the significance of these historical resources on the UCR campus. During the planning horizon of the 2005 LRDP, seismic, life safety or utility system retrofits or upgrades could result in modification of potentially historic structures. These modifications could adversely affect the historical significance of a structure by altering the character or setting of the structure. Implementation of future development on the campus would be guided by a range of LRDP planning strategies, including Conservation 4, which would require future development to preserve historic buildings to the extent feasible (see **Appendix A** for a complete list of 2005 LRDP Planning Strategies, Programs and Practices, and Mitigation Measures). In addition, the implementation of LRDP mitigation measure MM 4.5-1(a) would ensure that structures that could qualify as historic would be identified prior

to modification, and LRDP mitigation measure MM 4.5-1(b) would require that any modification to a historic structure be undertaken in compliance with the Secretary of the Interior's Standards for Treatment of Historic Properties or the State Historical Building Code, as appropriate. Therefore, the 2005 LRDP EIR concluded that with mitigation the implementation of the 2005 LRDP would not cause a substantial adverse change in the significance of a historical resource pursuant to Section 15064.5, and this impact would be less than significant.

In addition, according to the 2005 LRDP EIR, infill development on the East Campus could result the relocation or demolition of historic-era buildings. Implementation of future development on the campus would be guided by a range of LRDP planning strategies, including Land Use 3, which would maintain the teaching and research fields on the West Campus south of MLK, Open Space 5, which would retain the Carillon Mall as open space, and Conservation 4, which would require future development to preserve historic buildings to the extent feasible. In addition, future development on campus would continue existing campus programs and practices, such as PP 4.5-2, which would require documentation of a historic structure prior to demolition. Finally, implementation of LRDP mitigation measure MM 4.5-1(a), discussed above, and LRDP mitigation measure MM 4.5-2, which would require documentation of the historic structure prior to demolition, would reduce potential impacts from the demolition of historic structures. However, the 2005 LRDP EIR concluded that even with the implementation of planning strategies, existing campus programs and practices, and mitigation measures, demolition, or relocation of historic structures would still result in adverse effects, and this impact would be significant and unavoidable.

As part of the proposed 2005 LRDP Amendment 2, the Campus proposes to extend the horizon year of the 2005 LRDP from 2015/16 to 2020/21. This extension of the horizon year to 2020/21 would add campus buildings (those built between 1966 and 1971) that are of age for evaluation as potentially historic. However, each potentially historic building would be evaluated as it came of age and future development on the campus would continue to be guided by a range of LRDP planning strategies, such as Conservation 4, programs and practices, such as PP 4.5-2, and mitigation measures, such as MM 4.5-1(a) and (b) and MM 4.5-2, which are discussed above.

Lands affected by the proposed 2005 LRDP Amendment 2, including the SOM site, the sites of the two relocated parking structures, land designated for West Campus open space, and the Campus Reserve site, are currently in agricultural use as experimental orchards or row crops or are vacant. According to the 2005 LRDP EIR and based on a site visit in 2009, there are no historical structures present on these sites. As such, the proposed amendment to the 2005 LRDP would not cause a substantial adverse change in the significance of a historical resource as defined in Section 15064.5. No impact would occur.

In addition, there have been no changes in circumstances since the certification of the 2005 LRDP EIR relative to this criterion that could alter the conclusions of the previous analysis. Therefore, no further analysis of this issue is required in the EIR.

b) The 2005 LRDP EIR indicated that several recorded archaeological sites are located on the UCR campus. The development of new buildings and facilities involving excavation activities (for building foundations, utility improvements, etc.) could result in potential damage or destruction of unknown archaeological resources. However, implementation of future development on the campus would be guided by a range of LRDP planning strategies, including Land Use 2 and 3 and Open Space 1 through 3, and 5, and Conservation 1 through 3, all of which would minimize the area of campus subject to disturbance. In addition, future development on the campus would continue existing campus programs

and practices, such as PP 4.5-3, which would also require the preparation of site-specific analysis and provisional measures in the event that archeological resources are identified. Thus, the 2005 LRDP EIR concluded that the implementation of the 2005 LRDP would not cause a substantial adverse change in the significance of an archaeological resource pursuant to Section 15064.5, and this impact would be less than significant.

Lands affected by the proposed 2005 LRDP Amendment 2, including the SOM site, the sites of the two relocated parking structures, land designated for West Campus open space, and the Campus Reserve site, are currently in agricultural use as experimental orchards or row crops or are vacant. According to the 2005 LRDP EIR, the Gage Canal is listed as an archaeological resource by the California Historical Resource Information System. No other known archaeological resources are located on sites that would be developed if the proposed amendment to the 2005 LRDP is adopted and implemented. The Grove concept that was included in the 2005 LRDP required the undergrounding of the Gage Canal between University Avenue and MLK. The 2005 LRDP EIR determined that undergrounding the canal would not result in a significant adverse impact on the canal. The proposed Gage Canal Mall concept listed in the proposed 2005 LRDP Amendment 2 proposes a linear open space feature centered on the Gage Canal right-of-way. Similar to the Grove concept that was included in the 2005 LRDP, the Gage Canal Mall concept would require the canal to be covered to assure public safety and maintain water quality. Because the proposal with respect to undergrounding the canal remains the same, the proposed amendment to the 2005 LRDP would not result in a significant adverse impact on the canal.

According to the 2005 LRDP EIR, remnants from historic human activities have been encountered in the agricultural teaching and research fields south of MLK, which date approximately to or prior to the early years of the Citrus Experiment Station. The possibility exists that more undisturbed historic-era archaeological remains have not yet been detected in that area, including the campus lands to north of MLK. Therefore, ground disturbing activities associated with the development of land uses facilitated by the proposed 2005 LRDP Amendment 2, such as grading or excavation to build the SOM, parking structures, the West Campus open space or housing and open space on the Campus Reserve site, could affect unknown archaeological resources. Future development on the campus, including elements included in the proposed amendment to the 2005 LRDP, would continue to implement existing campus programs and practices, such as PP 4.5-3, which is discussed above. Based on the above, implementation of the proposed 2005 LRDP Amendment 2 would not cause a substantial adverse change in the significance of an archaeological resource pursuant to Section 15064.5, and the impact would be less than significant.

In addition, there have been no changes in circumstances since the certification of the 2005 LRDP EIR relative to this criterion that could alter the conclusions of the previous analysis. Therefore, no further analysis of this issue is required in the EIR.

c) According to the 2005 LRDP EIR, paleontological resources are not anticipated to be located on the campus, as the campus is not in an area of paleontological sensitivity. However, ground disturbing activities such as grading or excavation associated with the development of land uses permitted by the 2005 LRDP, could affect known or unknown paleontological resources. Future development on the campus would continue existing campus programs and practices, such as PP 4.5-4, which would require the preparation of site-specific analysis and provisional measures in the event that paleontological resources are uncovered during construction activities. Therefore, the 2005 LRDP EIR concluded that the implementation of the 2005 LRDP would not directly or indirectly destroy a unique paleontological resource or site or unique geologic feature, and this impact would be less than significant.

Lands affected by the proposed 2005 LRDP Amendment 2, including the SOM site, the sites of the two relocated parking structures, land designated for West Campus open space, and the Campus Reserve site, are currently in agricultural use as experimental orchards or row crops or vacant. While paleontological resources are not anticipated to be located on the campus, ground disturbing activities associated with the development of land uses permitted by the proposed amendment to the 2005 LRDP, such as grading or excavation to build the SOM, parking structures, the West Campus open space or housing and open space on the Campus Reserve site, could affect unknown paleontological resources. However, future development on the campus associated with the proposed 2005 LRDP Amendment 2 would continue existing campus programs and practices, such as PP 4.5-4, which is discussed above. Therefore, implementation of the proposed amendment to the 2005 LRDP would not directly or indirectly destroy a unique paleontological resource or site or unique geologic feature, and this impact would be less than significant. No further analysis of this issue is required in the EIR.

d) The 2005 LRDP EIR indicated that, given the presence of archeological resources on the campus, ground disturbing activities associated with development could affect unknown buried human remains. However, implementation of future development on the campus would be guided by a range of LRDP planning strategies, including Land Use 2 and 3 and Open Space 1 through 3, and 5, and Conservation 1 through 3, which would minimize the area of the campus subject to disturbance. In addition, future development on the campus would continue implementing existing campus programs and practices, such as PP 4.5-5, which establishes procedures to be followed in the event that human remains are encountered. Therefore, the 2005 LRDP EIR concluded that the implementation of the 2005 LRDP would not adversely affect any human remains, including those interred outside of formal cemeteries, and this impact would be less than significant.

Lands affected by the proposed 2005 LRDP Amendment 2, including the SOM site, the sites of the two relocated parking structures, land designated for West Campus open space, and the Campus Reserve site, are currently in agricultural use as experimental orchards or row crops or are vacant. Given the presence of archaeological resources on the campus, ground disturbing activities associated with elements included in the proposed amendment to the 2005 LRDP could affect unknown buried human remains. However, future development associated with the proposed 2005 LRDP Amendment 2 would continue existing campus programs and practices, such as PP 4.5-5, which is discussed above. Therefore, implementation of the proposed amendment to the 2005 LRDP would not adversely affect human remains, including those interred outside of formal cemeteries, and this impact would be less than significant.

In addition, there have been no changes in circumstances since the certification of the 2005 LRDP EIR relative to this criterion that could alter the conclusions of the previous analysis. Therefore, no further analysis of this issue is required in the EIR.

Discussion of Potential Cumulative Impacts

The 2005 LRDP EIR identified a significant cumulative impact related to the loss of historic resources. However, it concluded that the 2005 LRDP would not make a cumulatively considerable contribution to this effect. The proposed 2005 LRDP Amendment 2 would also not affect any historic resources and would therefore not alter the conclusion of the 2005 LRDP EIR regarding this impact. In addition, there have been no changes in circumstances since the certification of the 2005 LRDP EIR that could alter the conclusions of the previous analysis. Therefore, no further evaluation in the EIR is required.

The 2005 LRDP EIR determined that the contribution of potential impacts from campus development to the cumulative destruction of subsurface cultural resources throughout Riverside would not be cumulatively considerable. The proposed 2005 LRDP Amendment 2 would also not significantly affect any subsurface cultural resources and would therefore not alter the conclusion of the 2005 LRDP EIR regarding this impact. In addition, there have been no changes in circumstances since the certification of the 2005 LRDP EIR that could alter the conclusions of the previous analysis. Therefore, no further evaluation in the EIR is required.

Issues	Impact to be Analyzed in the 2005 LRDP Amendment 2 EIR	No Additional Analysis Required
6. GEOLOGY AND SOILS -- Would the project:		
a) Expose people or structures to potential substantial adverse effects, including the risk of loss, injury, or death involving*:*		
i) Rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area or based on other substantial evidence of a known fault? Refer to Division of Mines and Geology Special Publication 42.	☐	■
ii) Strong seismic ground shaking?	☐	■
iii) Seismic-related ground failure, including liquefaction?	☐	■
iv) Landslides?	☐	■
b) Result in substantial soil erosion or the loss of topsoil?	☐	■
c) Be located on a geologic unit or soil that is unstable, or that would become unstable as a result of the project, and potentially result in on- or off-site landslide, lateral spreading, subsidence, liquefaction or collapse?	☐	■
d) Be located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code (1994), creating substantial risks to life or property?	☐	■
e) Have soils incapable of adequately supporting the use of septic tanks or alternative wastewater disposal systems where sewers are not available for the disposal of wastewater?	☐	■

Relevant Elements of Project

The proposed 2005 LRDP Amendment 2 involves changes to the 2005 LRDP Land Use map and changes to the text of the 2005 LRDP. The key changes are the designation of an area on the West Campus for the development of a School of Medicine, changes to the location of future West Campus parking structures, reconfiguration of the future open space areas on the West Campus, and designation of the Campus Reserve site for housing and open space uses.

The West Campus is relatively flat. According to the 2005 LRDP EIR, soils on the western portion of the campus consist of Arlington and Hanford soils. These soils consist of silty fine to coarse sands, with deeper layers of silt and relatively clean sand. These soils have low shrink-swell potential and slight to moderate erosion potential.

Discussion of Potential Project Impacts

a) According to the 2005 LRDP EIR, the UCR campus is not located within an Earthquake Fault Zone as defined by the Alquist-Priolo Earthquake Fault Zoning Act of 1994 and no known active or potentially active faults traverse the campus. Because ground rupture occurrences are generally limited to the location of faults, and no active or potentially active faults are known on the campus, the campus would not be subject to a substantial risk of fault (ground surface) rupture. However, the campus lies within a seismically active area that includes faults that are expected to produce maximum credible earthquakes of magnitude 5.0 or greater. As a result, people and structures on the campus could be subject to seismically induced ground shaking, which could result in damage to structures and risk to building occupants. Future development on the campus would continue existing campus programs and practices, such as PP 4.6-1(a) through (c), which would require preparation of site-specific geotechnical studies, continued implementation of the campus' seismic upgrade program, and compliance with the University of California's Policy for Seismic Safety (see **Appendix A** for a complete list of 2005 LRDP Planning Strategies, Programs and Practices, and Mitigation Measures). Therefore, the 2005 LRDP EIR concluded that implementation of the 2005 LRDP would not expose people or structures to potential substantial adverse effects involving the rupture of a known earthquake fault, strong seismic ground shaking, seismic related ground failure, including liquefaction, and landslides and this impact would be less than significant.

Lands affected by the proposed 2005 LRDP Amendment 2, including the SOM site, the sites of the two relocated parking structures, land designated for West Campus open space, and the Campus Reserve site, are not located within an Earthquake Fault Zone and no active or potentially active faults are known on the campus. However, because these lands could be subject to seismically induced ground shaking, the development of land uses associated with elements of the proposed amendment to the 2005 LRDP would continue existing campus programs and practices, such as PP 4.6-1(a) through (c), which are discussed above. Therefore, implementation of the proposed 2005 LRDP Amendment 2 would not expose people or structures to potential substantial adverse effects involving the rupture of a known earthquake fault, strong seismic ground shaking, seismic related ground failure, including liquefaction, and landslides and this impact would be less than significant.

In addition, there have been no changes in circumstances since the certification of the 2005 LRDP EIR relative to this criterion that could alter the conclusions of the previous analysis. Therefore, no further analysis of this issue is required in the EIR.

b) The 2005 LRDP EIR indicated that the development of new facilities would involve site clearance, grading, and other earthmoving activities, which could subject exposed soils to erosion by water or wind. Future development on the campus would be guided by a range of LRDP planning strategies, including Land Use 2 and 3, Open Space 1 through 5, and Conservation 1 through 3, which would minimize the area of the campus subject to disturbance. In addition, future development on the campus would continue existing campus programs and practices, such as PP 4.6-2(a), which establishes procedures to be followed in order to reduce erosion at construction sites, and PP 4.6-2(b), which states that, in compliance with the National Pollution Discharge Elimination System, the Campus would continue to implement Best Management Practices, as identified in the Draft UCR Stormwater Management Plan (UCR 2003), to control erosion. Thus, implementation of the 2005 LRDP would not result in substantial soil erosion or the loss of topsoil, and this impact would be less than significant.

Lands affected by the proposed 2005 LRDP Amendment 2, including the SOM site, the sites of the two relocated parking structures, land designated for West Campus open space, and the Campus Reserve site, would require site clearance, grading, and other earthmoving activities, which could subject exposed soils to erosion by water or wind. However, with the implementation of LRDP planning strategies, such as Land Use 2 and 3, Open Space 1 through 5, and Conservation 1 through 3, and the continuance of existing campus programs and practices, such as PP 4.6-2(a) and (b), which are discussed above, implementation of the proposed amendment to the 2005 LRDP would not result in substantial soil erosion or the loss of topsoil. This impact would be less than significant.

In addition, there have been no changes in circumstances since the certification of the 2005 LRDP EIR relative to this criterion that could alter the conclusions of the previous analysis. Therefore, no further analysis of this issue is required in the EIR.

c) According to the 2005 LRDP EIR, future development on the campus could occur in areas of varying soil and slope stability. To address slope instability, future development on the campus would be guided by a range of LRDP planning strategies, including Open Space 1 and 2, which limits development on the steep and natural hillsides on the southeast campus and within the Natural Open Space Reserve, and Conservation 2, which specifies that buildings and site development be planned to minimize site disturbance and to reduce erosion and sedimentation. In addition, future development on the campus would continue existing campus programs and practices, such as PP 4.6-1(a), which is discussed above. Therefore, the 2005 LRDP EIR concluded that future development under the 2005 LRDP would not be located on a geologic unit or soil that is unstable, or that would become unstable as a result of the project, and potentially result in on- or off-site landslide, lateral spreading, subsidence, liquefaction or collapse, and this impact would be less than significant.

The land on the West Campus is flat. Future development on the West Campus, including the elements listed in the proposed 2005 LRDP Amendment 2, would be guided by a range of LRDP planning strategies, including Conservation 2, and would continue existing campus programs and practices, such as PP 4.6-1(a), which are discussed above. Therefore, implementation of the proposed amendment to the 2005 LRDP would not result in structures that are located on a geologic unit or soil that is unstable, or that would become unstable as a result of the project, and potentially result in on- or off-site landslide, lateral spreading, subsidence, liquefaction, or collapse, and this impact would be less than significant.

In addition, there have been no changes in circumstances since the certification of the 2005 LRDP EIR relative to this criterion that could alter the conclusions of the previous analysis. Therefore, no further analysis of this issue is required in the EIR.

d) The 2005 LRDP EIR indicated that as most of the soils on the campus have low to moderate shrink-swell characteristics, the potential for water uptake after rainfall to cause soils to expand and damage building foundations is considered low. Future development on the campus would continue existing campus programs and practices, such as PP 4.6-1(a), which is discussed above. In addition, all development would be required to comply with applicable provisions of Chapter 19 (applies to concrete construction) and Chapter 22 (applies to steel construction) of the California Building Code (CBC) or construction standards of Zone 4 of the CBC. Thus, implementation of the 2005 LRDP would not result in structures that are located on expansive soil, as defined in the building code, creating substantial risks to life or property, and this impact would be less than significant.

Soils on the West Campus have low shrink-swell potential. Future development on the West Campus, including the elements listed in the proposed 2005 LRDP Amendment 2, would continue existing campus programs and practices, such as PP 4.6-1(a), which is discussed above. In addition, all development would be required to comply with applicable provisions of Chapter 19 and Chapter 22 of the CBC or construction standards of Zone 4 of the CBC. Thus, implementation of the proposed amendment to the 2005 LRDP would not result in structures being located on expansive soil, creating substantial risks to life or property, and this impact would be less than significant.

In addition, there have been no changes in circumstances since the certification of the 2005 LRDP EIR relative to this criterion that could alter the conclusions of the previous analysis. Therefore, no further analysis of this issue is required in the EIR.

e) According to the 2005 LRDP EIR, future development on the campus would not include the use of septic tanks or alternative wastewater systems. Therefore, implementation of the 2005 LRDP would not place septic systems in soils incapable of adequately supporting the use of septic tanks or alternative wastewater disposal systems, and no impact would occur.

Elements listed in the proposed 2005 LRDP Amendment 2 do not propose to use septic tanks or alternative wastewater systems. Therefore, implementation of the proposed amendment to the 2005 LRDP would not place septic systems in soils incapable of adequately supporting the use of septic tanks or alternative wastewater disposal systems, and no impact would occur. No further analysis of this issue is required in the EIR.

Discussion of Potential Cumulative Impacts

The 2005 LRDP EIR found that the contribution of the 2005 LRDP to the cumulative impacts associated with exposing people and property to ground shaking effects, as well as the effects of soil characteristics associated with differential settlement, liquefaction, and unstable soils would not be significant. The proposed 2005 LRDP Amendment 2 would not alter the conclusion of the 2005 LRDP EIR with respect to this cumulative impact. In addition, there have been no changes in circumstances since the certification of the 2005 LRDP EIR that could alter the conclusions of the previous analysis. Therefore, no further analysis in the EIR is required.

According to the 2005 LRDP EIR, the contribution of campus development under the 2005 LRDP to cumulative erosion impacts would not be cumulatively considerable due to the implementation of measures to reduce erosion and safeguard water quality. Because the development under the proposed 2005 LRDP Amendment 2 would also be required to implement the same programs and measures, it would not alter the conclusion of the 2005 LRDP EIR with respect to this cumulative impact. In addition, there have been no changes in circumstances since the certification of the 2005 LRDP EIR that could alter the conclusions of the previous analysis. Therefore, no further evaluation in the EIR is required.

Issues	Impact to be Analyzed in the 2005 LRDP Amendment 2 EIR	No Additional Analysis Required
7. GREENHOUSE GAS EMISSIONS - Would the project:		
a) Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment?	■	□
b) Conflict with any applicable plan, policy, or regulation of an agency adopted for the purpose of reducing the emissions of greenhouse gases?	■	□

Relevant Elements of Project

The proposed 2005 LRDP Amendment 2 involves changes to the 2005 LRDP Land Use map and changes to the text of the 2005 LRDP. The key changes are the designation of an area on the West Campus for the development of a School of Medicine, changes in the locations of future West Campus parking structures, and reconfiguration of the future open space areas on the West Campus, and designation of the Campus Reserve site for housing and open space uses.

Discussion of Potential Project and Cumulative Impacts

a-b) The 2005 LRDP EIR did not address greenhouse gas (GHG) emissions. Future development associated with the proposed 2005 LRDP Amendment 2 would generate GHG emissions associated with construction, mobile and area sources. Additional GHG emissions would result from the development of the campus under the previously approved 2005 LRDP. All development on the campus would incorporate all of the goals contained in the UC Policy on Sustainable Practices. However, this impact is still considered potentially significant, and this issue will be further analyzed in the EIR. In addition, the EIR will evaluate the potential for the future development on the campus, including that resulting from the proposed amendment to the 2005 LRDP, to conflict with any applicable plan, policy or regulation adopted for the purpose of reducing GHG emissions.

Issues	Impact to be Analyzed in the 2005 LRDP Amendment 2 EIR	No Additional Analysis Required
8. HAZARDS AND HAZARDOUS MATERIALS – Would the project:		
a) Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials?	■	□
b) Create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment?	■	□
c) Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school?	□	■
d) Be located on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, as a result, would it create a significant hazard to the public or the environment?	□	■
e) For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project result in a safety hazard for people residing or working in the project area?	□	■
f) For a project within the vicinity of a private airstrip, would the project result in a safety hazard for people residing or working in the project area?	□	■
g) Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?	□	■
h) Expose people or structures to a significant risk of loss, injury, or death involving wildland fires, including where wildlands are adjacent to urbanized areas or where residences are intermixed with wildlands?	□	■

Relevant Elements of Project

The proposed 2005 LRDP Amendment 2 involves changes to the 2005 LRDP Land Use map and changes to the text of the 2005 LRDP. The key changes are the designation of an area on the West Campus for the development of a School of Medicine, changes in the locations of future West Campus parking structures,

and reconfiguration of the future open space areas on the West Campus, and the designation of the Campus Reserve site for housing and open space uses.

The campus is listed on the CORTESE list due to contamination that was identified on the West Campus, south of MLK. The campus is not, however, identified as a "border zone" property. An approximately 1-acre area referred to as "the pits" was used in the past for the disposal of pesticides from agricultural operations. Pesticide disposal included glass and can containers, which remained intact until removed during remediation. As a result, the contamination was highly localized. As part of the remediation effort and consistent with State requirements, soil was excavated and tested until contamination levels were below thresholds. No groundwater contamination has been detected, due to the depth of groundwater at the site and the localized nature of the contamination. Remediation of the area was completed in December 2002.

Other areas on the West Campus where contamination may have occurred are associated with oil storage. These locations are all south of MLK and include (1) two former 1,500-gallon, double-wall diesel and gasoline fueling underground storage tanks located at the farm and vehicle equipment maintenance shop; (2) one 5,000-gallon, double-wall, aboveground diesel fuel storage tank (AST) in the southern part of this area; and (3) one 5,000-gallon, double-wall diesel fuel AST in the western part of this area.

Discussion of Potential Project Impacts

a) According to the 2005 LRDP EIR, while the amount and type of hazardous materials may vary over time with the evolution of instruction and research activities and changes or additions to hazardous materials lists, the general range and type of hazardous materials used on the campus is not expected to substantially change with implementation of the 2005 LRDP. UCR will continue to use materials, some of which are considered hazardous, during the course of daily operations. These hazardous materials may include inorganic and organic chemicals, chemical reagents and reaction products, solvents, mercury, radioisotopes, biohazards, fuels, oils, paints, cleansers, and pesticides that are currently used in laboratory research, building and grounds maintenance, vehicle maintenance, and fine arts. Future development on the campus would continue existing campus programs and practices, such as PP 4.7-1, which would continue the implementation of current (or equivalent) health and safety plans, programs, and practices related to the use, storage, disposal, or transportation of hazardous materials (see **Appendix A** for a complete list of 2005 LRDP Planning Strategies, Programs and Practices, and Mitigation Measures). Therefore, the 2005 LRDP EIR concluded that the implementation of the 2005 LRDP would not create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials, and this impact would be less than significant.

In addition, the 2005 LRDP EIR indicated that implementation of the 2005 LRDP could result in the demolition of structures, and the extension and/or relocation of underground utility systems. In addition, existing buildings on the UCR campus would continue to be subject to maintenance, renovation, or expansion. Renovation or demolition of existing buildings, and relocation or modification of underground utility systems could expose construction workers and campus occupants to hazardous materials and wastes, such as lead-based paints and asbestos-containing materials that may be present in existing buildings or in underground utilities. Future development on the campus would continue existing campus programs and practices, such as PP 4.7-1 (or equivalent measures), which is discussed above, and PP 4.7-2, which requires the campus to perform hazardous materials surveys on buildings and soils, if applicable, prior to demolition, and if hazardous materials are present, identify handling and disposal practices.

The proposed 2005 LRDP Amendment 2 would facilitate the establishment of a new SOM on the West Campus. The operation of the proposed SOM would involve the use of hazardous materials in clinical activities, laboratory research, and building and grounds maintenance. These hazardous materials may include inorganic and organic chemicals, chemical reagents and reaction products, solvents, mercury, radioisotopes, biohazardous materials, fuels, oils, paints, cleansers, and pesticides. Operation of the relocated parking garages, the West Campus open space, and housing and open space on the Campus Reserve site, would also involve use of hazardous materials for building and grounds maintenance, but to a lesser degree. The remaining elements of the proposed amendment to the 2005 LRDP are programmatic in nature and would not involve the routine transport, use, or disposal of hazardous materials. Future development associated with the proposed 2005 LRDP Amendment 2 would continue existing campus programs and practices, such as PP 4.7-1, which is discussed above, to avoid and reduce impacts from hazardous materials use.

Construction of the proposed SOM along with the two relocated parking garages, the West Campus open space, and housing and open space on the Campus Reserve site, would not require extensive use of materials that would create a significant hazard. Some examples of hazardous materials handling include fueling and servicing construction equipment on-site and the transport of fuels, lubricating fluids, and solvents. These materials are generally disposed of at non-hazardous Class II and III landfills (along with municipal solid waste). The remaining elements of the proposed 2005 LRDP Amendment 2 are programmatic in nature and would not involve hazardous materials handling and use.

While implementation of the proposed 2005 LRDP Amendment 2 is not expected to create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials, given the specialized land uses associated with the proposed SOM, this impact will be further addressed in the EIR to provide a more comprehensive analysis.

b) The 2005 LRDP EIR indicated that future development on the campus would result in an increase in the amount of hazardous materials that are used, stored, transported and disposed of by the Campus, and could increase the potential for an accident or accidental release of hazardous materials or wastes. Future development on the campus would continue existing campus programs and practices, such as PP 4.7-3, which would inform employees and students of hazardous materials minimization strategies applicable to research, maintenance, and instructional activities, and require the implementation of these strategies where feasible, as well as PP 4.7-1 (or equivalent measures) which is discussed above.

The operation of the proposed SOM would involve the use of hazardous materials during the course of daily operations, thus resulting in the possibility of an accident or accidental release of hazardous materials or wastes. Operation of the relocated parking garages, the West Campus open space, and housing and open space on the Campus Reserve site would involve the use of hazardous materials, but to a lesser degree. The remaining elements of the proposed 2005 LRDP Amendment 2 are programmatic in nature and would not result in the use of hazardous materials. Future development associated with the proposed amendment to the 2005 LRDP, including the proposed SOM, would continue existing campus programs and practices, such as PP 4.7-3 and PP 4.7-1 (or equivalent measures), which are discussed above, which would minimize the potential for impacts related to accidental release of hazardous materials or wastes.

According to the 2005 LRDP EIR, construction activities could occur in areas that contain contaminated soil or groundwater, which could expose construction workers or campus occupants to hazardous substances. However, future development on the campus would continue existing campus programs and

practices, such as PP 4.7-1 (or equivalent measures), which is discussed above, and PP 4.7-4, which would require the Campus to complete a Phase I environmental site assessment to determine the potential for soil or groundwater contamination prior to the demolition of structures on campus or new construction on former agricultural fields, and provide remediation if necessary. Because the presence of any such agricultural chemical residues may not result in discolored soil (which might be readily detected by visual inspection) or may not result in a detectable odor, continued implementation of PP 4.7-4 may not result in detection of these residues, nor the development of remediation plans for any such contamination. Therefore, future development on the campus would require the implementation of LRDP mitigation measure MM 4.7-4, which would require the Campus to perform appropriate soil testing prior to development on former agricultural lands to determine whether contaminants are present at concentrations that would pose health hazards to campus occupants and construction workers.

Lands affected by the proposed 2005 LRDP Amendment 2, including the SOM site, the sites of the two relocated parking structures, land designated for West Campus open space, and the Campus Reserve site, are currently in agricultural use as experimental orchards or row crops or are vacant, and it is possible that these lands could contain contaminated soil or groundwater, which when disturbed during construction, could expose construction workers or campus occupants to hazardous substances. Future development associated with the proposed amendment to the 2005 LRDP would continue existing campus programs and practices, such as PP 4.7-1 (or equivalent measures) and PP 4.7-4, which are discussed above. In addition, future development on the campus would be required to adhere to LRDP mitigation measure MM 4.7-4, which would avoid or reduce potential impacts from exposure to contaminated soil or groundwater

While implementation of the proposed 2005 LRDP Amendment 2 is not expected to create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment, given the specialized land uses associated with the proposed SOM, this impact will be further addressed in the EIR to provide a more comprehensive analysis.

c) The 2005 LRDP EIR indicated that while some hazardous materials and waste generated by future development on the campus could be handled within 0.25 mile of an existing or proposed school, these materials would not exist in quantities significant enough to pose a risk to occupants of the school or the campus community, as established by Items 8(a) and 8(b) above. Compliance with federal, state, and local regulations pertaining to hazardous wastes, as well as with existing campus programs and practices, such as PP 4.7-1, which is discussed above, would ensure that risks associated with hazardous emissions or materials to existing or proposed schools located within 0.25 mile of the campus would be eliminated or reduced through proper handling techniques, disposal practices, and/or clean-up procedures. Therefore, the 2005 LRDP EIR concluded that implementation of the 2005 LRDP would result in a less than significant impact associated with hazardous emissions or handling of hazardous or acutely hazardous materials, substances, or waste within 0.25 mile of an existing or proposed school.

While the proposed SOM, relocated parking garages, and remaining West Campus open space would handle hazardous materials and generate hazardous waste, they are not located within 0.25 mile of an existing or proposed school. Although the Campus Reserve site is located within 0.25 mile of an existing or proposed school, the maintenance and upkeep of residential and opens space uses on the Campus Reserve site would not involve substantial amounts of hazardous materials and future development on the site would comply with federal, state, and local regulations pertaining to hazardous wastes, as well as with existing campus programs and practices, such as PP 4.7-1, which is discussed above. The remaining

elements of the proposed 2005 LRDP Amendment 2 are programmatic in nature and would not handle hazardous materials and generate hazardous waste within one-quarter mile of an existing or proposed school. Therefore, implementation of the proposed amendment to the 2005 LRDP would not emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school, and this impact would be less than significant.

In addition, there have been no changes in circumstances since the certification of the 2005 LRDP EIR relative to this criterion that could alter the conclusions of the previous analysis. Therefore, no further analysis in the EIR is required.

d) According to the 2005 LRDP EIR, the campus is listed on a list of hazardous materials sites, due in part to former pesticide disposal pits located in the agricultural teaching and research fields on the West Campus south of MLK. Remediation for these pits was completed over an approximately 1-acre area. Since remediation has been completed and no construction is planned in this area, it would not present a risk of exposure to hazardous materials. Contamination associated with areas of oil storage has also occurred on the campus in the past. All of these storage sites have either been fully remediated or are undergoing remediation. Thus, the 2005 LRDP EIR concluded that the implementation of the 2005 LRDP would not create a significant hazard to the public or the environment, and this impact would be less than significant.

Elements of the proposed 2005 LRDP Amendment 2 are situated on lands north of MLK. These sites are located north of known or suspected contamination sites identified south of MLK. Thus, implementation of the proposed amendment to the 2005 LRDP would not create a significant hazard to the public or the environment, and this impact would be less than significant.

In addition, there have been no changes in circumstances since the certification of the 2005 LRDP EIR relative to this criterion that could alter the conclusions of the previous analysis. Therefore, no further analysis of this issue is required in the EIR.

e-f) According to the 2005 LRDP EIR, the UCR campus is not located within 2 miles of a public airport or public use airport, and has not been included in an airport land use plan. In addition, the UCR campus is not located within the vicinity of a private airstrip. Therefore, the 2005 LRDP EIR concluded that the implementation of the 2005 LRDP would not result in a safety hazard for people residing or working in the project area, and no impact would occur.

The closest airports to the UCR campus are Flabob Airport, which is located approximately 4 miles to the west, and March Joint Air Reserve Base, which is located approximately 6 miles to the southeast. Lands associated with the proposed 2005 LRDP Amendment 2, including the SOM site, the sites of the two relocated parking structures, land designated for West Campus open space, and the Campus Reserve site, are not located within 2 miles of a public airport, public use airport, or a private airstrip and are not included within the airport land use plan for either the Flabob Airport or the March Joint Air Reserve Base. As a result, implementation of the proposed amendment to the 2005 LRDP would not result in a safety hazard for people residing or working in the project area. No impact would occur. In addition, there have been no changes in circumstances since the certification of the 2005 LRDP EIR relative to this criterion that could alter the conclusions of the previous analysis. Therefore, no further analysis of this issue is required in the EIR.

g) As indicated in the 2005 LRDP EIR, construction of future development on the campus could result in lane or roadway closures. In addition, future development could occur within areas that are currently identified as emergency assembly areas. Implementation of future development on the campus would be guided by a range of LRDP planning strategies, including Land Use 3, Open Space 1, 4 through 7, and Transportation 4, which would limit areas of the campus subject to development, preserve and/or create open space, and preserve emergency access. In addition, future development on the campus would continue existing campus programs and practices, such as PP 4.7-7(a) and (b), which require the Campus to maintain at least one unobstructed lane in both directions on campus roadways and maintain adequate access for emergency vehicles when construction projects would result in roadway closures. Finally, future development on the campus would require the implementation of LRDP mitigation measure MM 4.7-7(a), which requires the avoidance of evacuation assembly areas, as designated under the Emergency Operations Plan, for the siting of construction staging areas, and LRDP mitigation measure MM 4.7-7(b), which requires an annual review of the Campus Emergency Operations Plan to determine whether an update of the plan is needed to accommodate new on-campus development. The 2005 LRDP EIR therefore concluded that implementation of the 2005 LRDP would not impair the implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan, and the impact would be reduced to a less than significant level.

The construction of facilities associated with the proposed 2005 LRDP Amendment 2 could result in lane or roadway closures. In addition, future development could affect areas that are currently identified as emergency assembly areas. Implementation of future development associated with the proposed amendment to the 2005 LRDP would be guided by a range of LRDP planning strategies, including Transportation 4, and would continue existing campus programs and practices, such as PP 4.7-7(a) and (b), which are discussed above. In addition, future development on the campus would require the implementation of LRDP mitigation measures MM 4.7-7(a) and (b), which are also discussed above. Thus, implementation of the proposed 2005 LRDP Amendment 2 would not impair the implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan, and the impact would be reduced to a less than significant level with the implementation of mitigation measures previously adopted by the University in conjunction with its adoption of the 2005 LRDP. Furthermore, there have been no changes in circumstances since the certification of the 2005 LRDP EIR relative to this criterion that could alter the conclusions of the previous analysis. Therefore, no further analysis of this issue is required in the EIR.

h) The 2005 LRDP EIR indicated that future development on the campus could expose people or structures to a risk of loss, injury, or death involving wildland fires. However, future development on the campus would require the implementation of LRDP mitigation measure MM 4.7-8(a), which would require landscaping with appropriate plant materials, and LRDP mitigation measure MM 4.7-8(b), which would require implementation of annual fuel management procedures. Therefore, the 2005 LRDP EIR concluded that with mitigation, the implementation of the 2005 LRDP would not expose people or structures to a significant risk of loss, injury, or death involving wildland fires, including where wildlands are adjacent to urbanized areas or where residences are intermixed with wildlands. The impact would be reduced to a less than significant level.

Lands associated with the proposed 2005 LRDP Amendment 2, including the SOM site, the sites of the two relocated parking structures, land designated for West Campus open space, and the Campus Reserve site, are not located in a Fire Hazard Zone on the maps prepared by Cal Fire. Therefore, implementation of the proposed amendment to the 2005 LRDP would not expose people or structures to a significant risk of loss, injury, or death involving wildland fires, including where wildlands are adjacent to urbanized

areas or where residences are intermixed with wildlands, and no impact would occur. No further analysis of this issue is required in the EIR.

Discussion of Potential Cumulative Impacts

As stated in the 2005 LRDP EIR, cumulative impacts from campus development under the 2005 LRDP resulting from the use, transport, and disposal of hazardous materials, or risk of upset from a release of hazardous materials, would not be significant. According to the 2005 LRDP EIR, implementation of the 2005 LRDP would not result in a significant cumulative impact as a result of hazardous materials use, transport, or disposal, or as a result of accidental release of hazardous materials. The proposed 2005 LRDP Amendment 2 would result in an increase in the amount of hazardous materials used and transported on campus. Because of the potential increase in hazardous materials use due to the proposed amendment to the 2005 LRDP, this issue will be further evaluated in the EIR.

The 2005 LRDP EIR found that the 2005 LRDP's contribution to cumulative impacts associated with potential exposure of construction workers to hazardous materials would not be cumulatively considerable. The proposed 2005 LRDP Amendment 2 would not increase worker exposure to contamination and therefore would not alter the conclusion of the 2005 LRDP EIR with respect to this cumulative impact. Furthermore, there have been no changes in circumstances since the certification of the 2005 LRDP EIR that could alter the conclusions of the previous analysis. Therefore, no further evaluation of this issue in the EIR is required.

The 2005 LRDP EIR found that the 2005 LRDP's contribution to cumulative impacts associated with public exposure to contaminated soil or groundwater would not be cumulatively considerable. The proposed 2005 LRDP Amendment 2 could increase public exposure to soil or groundwater contamination and could therefore alter the conclusion of the 2005 LRDP EIR with respect to this cumulative impact. This issue will be further evaluated in the EIR.

The 2005 LRDP EIR found that the 2005 LRDP's contribution to cumulative impacts on schools associated with hazardous emissions or handling of hazardous materials within a quarter mile of an existing or proposed school would not be cumulatively considerable. The proposed 2005 LRDP Amendment 2 would not involve land uses that would generate emissions of toxic air contaminants within a quarter mile of an existing or proposed school and therefore would not change this conclusion of the 2005 LRDP EIR. Furthermore, there have been no changes in circumstances since the certification of the 2005 LRDP EIR that could alter the conclusions of the previous analysis. Therefore, no further evaluation of this issue in the EIR is required.

The 2005 LRDP EIR found that the 2005 LRDP's contribution to cumulative impacts associated with development on or near hazardous material sites would not be cumulatively considerable. The proposed 2005 LRDP Amendment 2 would not involve development on or near hazardous materials sites and would therefore not alter the conclusion of the 2005 LRDP EIR with respect to this cumulative impact. Furthermore, there have been no changes in circumstances since the certification of the 2005 LRDP EIR that could alter the conclusions of the previous analysis. Therefore, no further evaluation of this issue in the EIR is required.

The 2005 LRDP EIR determined that the 2005 LRDP's contribution to cumulative impacts associated with inference with adopted emergency response or evacuation plans would not be cumulatively considerable. The proposed 2005 LRDP Amendment 2 would not involve development that would interfere with emergency response plans and would therefore not alter the conclusion of the 2005 LRDP EIR with

respect to this cumulative impact. Furthermore, there have been no changes in circumstances since the certification of the 2005 LRDP EIR that could alter the conclusions of the previous analysis. Therefore, no further evaluation of this issue in the EIR is required.

The 2005 LRDP EIR determined that the 2005 LRDP's contribution to cumulative impacts related to wildland fires would not be cumulatively considerable. The proposed 2005 LRDP Amendment 2 would not involve development in areas susceptible to wildland fire and would therefore not alter the conclusion of the 2005 LRDP EIR with respect to this cumulative impact. Furthermore, there have been no changes in circumstances since the certification of the 2005 LRDP EIR that could alter the conclusions of the previous analysis. Therefore, no further evaluation of this issue in the EIR is required.

Issues	Impact to be Analyzed in the 2005 LRDP Amendment 2 EIR	No Additional Analysis Required
9. HYDROLOGY AND WATER QUALITY -- Would the project:		
a) Violate any water quality standards or waste discharge requirements?	☐	■
b) Substantially deplete groundwater supplies or interfere substantially with groundwater recharge such that there would be a net deficit in aquifer volume or a lowering of the local groundwater table level (e.g., the production rate of pre-existing nearby wells would drop to a level which would not support existing land uses or planned uses for which permits have been granted)?	■	☐
c) Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, in a manner which would result in substantial erosion or siltation on- or off-site?	☐	■
d) Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, or substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or off-site?	☐	■
e) Create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff?	☐	■
f) Otherwise substantially degrade water quality?	☐	■
g) Place housing within a 100-year flood hazard area as mapped on a federal Flood Hazard Boundary or Flood Insurance Rate Map or other flood hazard delineation map?	☐	■
h) Place within a 100-year flood hazard area structures which would impede or redirect flood flows?	☐	■

Issues	Impact to be Analyzed in the 2005 LRDP Amendment 2 EIR	No Additional Analysis Required
i) Expose people or structures to a significant risk of loss, injury or death involving flooding, including flooding as a result of the failure of a levee or dam?	☐	■
j) Inundation by seiche, tsunami, or mudflow?	☐	■

Relevant Elements of Project

The proposed 2005 LRDP Amendment 2 involves changes to the 2005 LRDP Land Use map and changes to the text of the 2005 LRDP. The key changes are the designation of an area on the West Campus for the development of a SOM, changes in the locations of future West Campus parking structures, reconfiguration of the future open space areas on the West Campus, and designation of the Campus Reserve site for housing and open space uses.

The City of Riverside is located within the Upper Santa Ana River Watershed. The campus is located within two sub-watersheds, generally divided by the I-215/SR-60 freeway. Most of the East Campus drains to the University Arroyo Watershed, while portions of the West Campus drain to the Box Springs Arroyo Watershed. Campus arroyos within the two sub-watersheds are subject to 100-year flooding (2005 UCR LRDP EIR).

The Riverside area is located within the Upper Santa Ana Valley Groundwater Basin. The UCR campus is located near the southeastern edge of the Riverside-Arlington sub-basin, which is bound by impermeable rocks of Box Springs Mountains on the southeast, Arlington Mountain on the south, La Sierra Heights and Mount Rubidoux on the northwest, and the Jurupa Mountains on the north (2005 LRDP EIR).

The Soil Conservation Service classifies soils into four hydrological groupings, based on their relative permeability. Class A soil types represent the most permeable soil types, Class B and C are intermediate, and Class D soils are the least permeable. In general, the East Campus is underlain with Class C and D soils, which have intermediate to low permeability, and the West Campus is underlain with Class C soils, with intermediate permeability. Therefore, the campus is not considered a significant regional groundwater recharge area (2005 UCR LRDP EIR).

Discussion of Potential Project Impacts

a) According to the 2005 LRDP EIR, future development on the campus would result in an increase of impermeable surface area associated with new buildings and additional pavement, which would result in additional runoff (e.g., stormwater) that may contain contaminants that are typical of urbanized areas. Future development on the campus would be guided by a range of LRDP planning strategies, including Conservation 2, which would site buildings and plan site development to minimize site disturbance, reduce erosion and sedimentation, reduce stormwater runoff, and maintain existing landscapes, including healthy mature trees whenever possible (see **Appendix A** for a complete list of 2005 LRDP Planning Strategies, Programs and Practices, and Mitigation Measures). In addition, future development on the campus would continue existing campus programs and practices, such as PP 4.8-1, which would

require the Campus to continue to comply with all applicable water quality requirements established by the Santa Ana Regional Water Quality Control Board. The constituent pollutants entering the campus and City storm drain systems during the planning horizon of the 2005 LRDP would not change in character as a result of implementation of the 2005 LRDP. In addition, the Campus currently complies with National Pollutant Discharge Elimination System (NPDES) Phase I requirements (general construction permit) and Phase II requirements through preparation and implementation of a campus stormwater management plan. Therefore, the 2005 LRDP EIR concluded that the implementation of the 2005 LRDP would not violate any water quality standards or waste discharge requirements, and this impact would be less than significant.

Development of the sites of the SOM and two relocated parking structures would not increase the extent of impervious surfaces on the campus as these sites were previously designated for development in the 2005 LRDP and thus would not increase stormwater runoff on campus compared to the amount analyzed in the 2005 LRDP EIR. The development of the Campus Reserve site would result in new runoff from approximately 37.3 acres of land; this land area was not previously included in the 2005 LRDP EIR in the area to be developed with impervious surfaces. However, a substantial increase in runoff from the Campus Reserve site is not anticipated, as existing soil conditions (intermediate permeability) currently result in runoff from the site. The increased runoff (e.g., stormwater) could contain a variety of urban pollutants that could adversely affect water quality. However, implementation of the proposed 2005 LRDP Amendment 2 would be guided by a range of LRDP planning strategies, including Conservation 2, and would continue existing campus programs and practices, such as PP 4.8-1, which is discussed above. In addition, projects that would be developed as a result of the proposed amendment to the 2005 LRDP would comply with NPDES Phase I construction requirements and would be incorporated into the campus stormwater management plan as required by Phase II requirements. Therefore, implementation of the proposed 2005 LRDP Amendment 2 would not violate any water quality standards or waste discharge requirements, and this impact would be less than significant.

Furthermore, there have been no changes in circumstances since the certification of the 2005 LRDP EIR relative to this criterion that could alter the conclusions of the previous analysis. Although a new NPDES construction general permit, which contains more stringent storm water control and monitoring requirements than before, has become effective in the State of California as of June 2010, all construction projects on the campus are required by law to comply with the new permit. Compliance with the construction general permit would ensure that water quality is not adversely affected by the construction of campus projects. No further analysis of this issue is required in the EIR.

b) As indicated in the 2005 LRDP EIR, future development on the campus would increase demand for potable water and increase the land area covered by impervious surfaces on the campus. The increase in occupied building space would increase demand for potable water that could indirectly increase demand for groundwater, as the campus is supplied domestic water by the City of Riverside, which utilizes groundwater wells for potable water. The analysis in the 2005 LRDP EIR showed that the provision of additional water to the UCR campus, which could include groundwater, would not require water supplies in excess of existing entitlements and resources, or result in the need for new or expanded entitlements, as existing and future water supply sources would exceed demand. In addition, future development on the campus would be guided by a range of LRDP planning strategies, including Conservation 5, which would continue adherence to the conservation requirements of Title 24 of the California Code of Regulations and would comply with any future conservation goals or programs enacted by the University of California. In addition, future development on the campus would continue

existing campus programs and practices, such as PP 4.8-2 (a) through (c), which provide measures promoting water conservation.

As discussed above, the UCR campus is also located near the southeastern edge of the Riverside-Arlington groundwater sub-basin. The campus is not designated as a groundwater recharge area, nor does the campus serve as a primary source of groundwater recharge within the sub-basin. The soils underlying the West Campus are Class C, which have intermediate permeability. Therefore, the 2005 LRDP EIR concluded that the addition of impervious surfaces as a result of the 2005 LRDP would not substantially interfere with groundwater recharge.

For the reasons presented above, implementation of the 2005 LRDP would not substantially deplete groundwater supplies or interfere substantially with groundwater recharge such that there would be a net deficit in aquifer volume or a lowering of the local groundwater table level, and this impact would be less than significant.

Development of land uses associated with the proposed 2005 LRDP Amendment 2 would increase demand for potable water, which in turn would increase demand for groundwater. Implementation of the proposed amendment to the 2005 LRDP would be guided by a range of LRDP planning strategies, including Conservation 5, and would continue existing campus programs and practices, such as PP 4.8-2 (a) through (c), which are discussed above. However, the provision of additional water to land uses associated with the proposed 2005 LRDP Amendment 2, which could include groundwater, could require water supplies in excess of existing entitlements and resources or result in the need for new or expanded entitlements.

Development of land uses associated with the proposed 2005 LRDP Amendment 2 would increase the land area covered by impervious surfaces. As discussed above, the UCR campus is located near the southeastern edge of the Riverside-Arlington groundwater sub-basin. The campus is not designated as a groundwater recharge area, nor does the campus serve as a primary source of groundwater recharge within the sub basin. The soils underlying the West Campus are Class C, which has intermediate permeability. Therefore, the addition of impervious surfaces as a result of the proposed amendment to the 2005 LRDP would not substantially interfere with groundwater recharge.

For the reasons presented above, implementation of the proposed 2005 LRDP Amendment 2 could substantially deplete groundwater supplies such that there could be a net deficit in aquifer volume or a lowering of the local groundwater table level. This is considered a potentially significant impact, and this issue will be further analyzed in the EIR.

c) According to the 2005 LRDP EIR, future development on the campus could alter drainage patterns and expose soils to erosion during construction, which could result in siltation on or off site. However, new development would be served by the existing or a new drainage system and all construction activities would comply with Chapter 29 of the CBC, which regulates excavation activities and the construction of foundations and retaining walls, and Chapter 70 of the CBC, which regulates grading activities, including drainage and erosion control. Future development on the campus would be guided by a range of LRDP planning strategies, including Land Use 2 and 3, Open Space 1 through 5, and Conservation 1 through 3, which would preserve and protect Natural and Naturalistic open spaces areas, and reduce the potential changes in drainage patterns in these areas. In addition, future development on the campus would continue existing campus programs and practices, such as PP 4.8-3 (a) through (e), which, while initially designed to address biological resources, hydrology, and air quality, would also limit development in

potentially erosive areas and reduce dust, thereby minimizing site erosion. Therefore, the 2005 LRDP EIR concluded that the implementation of the 2005 LRDP would not substantially alter the existing drainage pattern of the site or area in a manner that would result in substantial erosion or siltation on or off site, and this impact would be less than significant.

Development of lands associated with the proposed 2005 LRDP Amendment 2, including the SOM site, the sites of the two relocated parking structures, land designated for West Campus open space, and the Campus Reserve site, could locally alter drainage patterns and expose soils to erosion during construction, which could result in siltation on or off site. However, all construction activities would comply with Chapters 29 and 70 of the CBC, which are discussed above. In addition, projects developed under the proposed amendment to the 2005 LRDP would continue existing campus programs and practices, such as PP 4.8-3 (a) through (e), which are discussed above. Therefore, implementation of the proposed 2005 LRDP Amendment 2 would not substantially alter the existing drainage pattern of the site or area in a manner that would result in substantial erosion or siltation on or off site, and this impact would be less than significant.

Furthermore, there have been no changes in circumstances since the certification of the 2005 LRDP EIR relative to this criterion that could alter the conclusions of the previous analysis. Therefore, no further analysis of this issue is required in the EIR.

d) The 2005 LRDP EIR indicated that future development on the campus would increase the extent of impervious surfaces on the campus and thus increase stormwater runoff. However, a substantial increase in runoff is not anticipated, as existing soil conditions (intermediate permeability) currently result in runoff from undeveloped sites. In addition, future development on the campus would continue existing campus programs and practices, such as PP 4.8-3(e), which is discussed above. Therefore, implementation of the 2005 LRDP would not substantially alter the existing drainage pattern of the campus or substantially increase the rate or amount of surface runoff in a manner that would result in flooding on or off site, and this impact would be less than significant.

Development of the sites of the SOM and two relocated parking structures would not increase the extent of impervious surfaces on the campus as these sites were previously designated for development in the 2005 LRDP and thus would not increase stormwater runoff on campus compared to the amount analyzed in the 2005 LRDP EIR. The West Campus open space component would not increase the amount of impervious surface on the West Campus. The development of the Campus Reserve site would result in new runoff from approximately 37.3 acres of land; this land area was not previously included in the 2005 LRDP EIR in the area to be developed with impervious surfaces. However, a substantial increase in runoff from the Campus Reserve site is not anticipated, as existing soil conditions (intermediate permeability) currently result in runoff from the site. Furthermore, according to the 2005 LRDP EIR, flooding is not an issue with the development on the West Campus. Therefore, implementation of the proposed 2005 LRDP Amendment 2 would not substantially alter the existing drainage pattern of the campus or substantially increase the rate or amount of surface runoff in a manner that would result in flooding on or off site, and this impact would be less than significant.

Furthermore, there have been no changes in circumstances since the certification of the 2005 LRDP EIR relative to this criterion that could alter the conclusions of the previous analysis. Therefore, no further analysis of this issue is required in the EIR.

e) According to the 2005 LRDP EIR, future development on the campus would increase the extent of impervious surfaces and increase stormwater runoff on the campus. To handle the increase in storm water runoff, future development would continue to be guided by PP 4.8-3(e), which would evaluate each specific project to determine if the project runoff would exceed the capacity of the existing storm drain system, and if capacity is exceeded, take measures to minimize local flooding. In addition, the 2005 LRDP identifies design criteria to retain the flows from a 10-year storm event (greater than 287 cubic feet per second) in drainage swales.

Concerning stormwater pollution, the 2005 LRDP EIR noted that the development of new impervious surfaces associated with the 2005 LRDP would contribute runoff that contains urban stormwater contaminants, including grease, oils, heavy metals, fertilizers, and pesticides. To reduce the amount of pollutants in the runoff, future development on campus would be guided by PP 4.8-3(c), which would require continued compliance with SCAQMD Rule 403—Fugitive Dust during construction, and PP 4.8-3(d), which would require compliance with the Draft UCR Stormwater Management Plan. Therefore, the 2005 LRDP EIR concluded that the implementation of the 2005 LRDP would not create or contribute runoff water that would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff, and this impact would be less than significant.

Development of the sites of the SOM and two relocated parking structures would not increase the extent of impervious surfaces on the campus as these sites were previously designated for development in the 2005 LRDP and thus would not increase campus stormwater runoff compared to the amount analyzed in the 2005 LRDP EIR. The West Campus open space component would not increase the amount of impervious surface on the West Campus. Development of the Campus Reserve site would increase the extent of impervious surfaces on the West Campus and thus increase stormwater runoff generated on the campus. To handle the increase in storm water runoff, future development associated with the proposed 2005 LRDP Amendment 2 would continue to be guided by PP 4.8-3(e), which is discussed above, and adhere to design criteria to retain the flows from a 10-year storm event, as discussed above.

Concerning stormwater pollution, the development of new impervious surfaces associated with the elements listed in the 2005 LRDP Amendment 2 would contribute runoff that contains urban stormwater contaminants, including grease, oils, heavy metals, fertilizers, and pesticides. However, to reduce the amount of pollutants in the runoff, future development associated with the proposed amendment to the 2005 LRDP would also be guided by PP 4.8-3(c) and (d), which are discussed above.

Therefore, implementation of the proposed 2005 LRDP Amendment 2 would not create or contribute stormwater runoff that would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff, and this impact would be less than significant.

Furthermore, there have been no changes in circumstances since the certification of the 2005 LRDP EIR relative to this criterion that could alter the conclusions of the previous analysis. Therefore, no further analysis of this issue is required in the EIR.

f) See items 9(a) through (d) above. No other potential impacts to water quality were identified.

g) According to the 2005 LRDP EIR, portions of the campus are currently located within a 100-year flood hazard zone. However, none of the areas proposed for the development of new housing or redevelopment of existing housing sites under the 2005 LRDP are located within a 100-year flood hazard

zone. Therefore, the 2005 LRDP EIR concluded that the implementation of the 2005 LRDP would not place housing within a 100-year flood hazard area, and no impact would occur.

The 2005 LRDP EIR assumed that the Campus Reserve site would remain in agricultural use as a research orchard and/or row crops, and did not consider the site for housing. However, according to the 2005 LRDP EIR, the Campus Reserve site is not located within the area of a 100-year flood hazard zone. Therefore implementation of the proposed 2005 LRDP Amendment 2 would not place housing units within a 100-year flood hazard, and no impact would occur.

Furthermore, there have been no changes in circumstances since the certification of the 2005 LRDP EIR relative to this criterion that could alter the conclusions of the previous analysis. Therefore, no further analysis of this issue is required in the EIR.

h) See item 9(g) above. As discussed above, portions of the campus are currently located within a 100-year flood hazard zone. The 2005 LRDP EIR indicated that without future control improvements, structures planned for these areas could be exposed to flooding during 100-year or greater storm events. Future development on the campus would continue existing campus programs and practices, such as PP 4.8-3(e), which is discussed above. In addition, future development on the campus would require the implementation of LRDP mitigation measure MM 4.7-9(a) and (b), which would place requirements on structures within the 100-year flood hazard zone if flood control improvements have not been implemented. Thus, the 2005 LRDP EIR concluded that while implementation of the 2005 LRDP would place structures within a 100-year flood hazard area, measures have been designed to reduce the effects of structures with regards to impeding or redirecting flood flows, and this impact would be reduced to a less than significant level.

Lands associated with the proposed 2005 LRDP Amendment 2, including the SOM site, the sites of the two relocated parking structures, land designated for West Campus open space, and the Campus Reserve site, are not located within a 100-year flood hazard zone. Thus, implementation of the proposed amendment to the 2005 LRDP would not place structures within a 100-year flood hazard area, and no impact would occur. Furthermore, there have been no changes in circumstances since the certification of the 2005 LRDP EIR relative to this criterion that could alter the conclusions of the previous analysis. Therefore, no further analysis of this issue is required in the EIR.

i) See item 9(g) above. According to the 2005 LRDP EIR, the potential for flooding to occur on the UCR campus as the result of a catastrophic dam failure is remote. In addition, the potential for catastrophic failure of the Santa Ana Pipeline, which is operated by the California State Department of Water Resources and is located north and east of the campus along Watkins Drive at the base of the Box Springs Mountains, is also considered remote. Future development on the campus would continue existing campus programs and practices, such as PP 4.8-10, which requires the implementation of the Emergency Operations Plan in the event of an emergency, including catastrophic failure of the Santa Ana Pipeline. Therefore, the 2005 LRDP EIR concluded that implementation of the 2005 LRDP would not expose people or structures to a significant risk of loss, injury or death involving flooding; including flooding as a result of the failure of a levee or dam, and this impact would be less than significant.

The potential for lands associated with the proposed 2005 LRDP Amendment 2, including the SOM site, the sites of the two relocated parking structures, land designated for West Campus open space, and the Campus Reserve site, to be affected by a catastrophic dam failure is remote. Future development associated with the proposed amendment to the 2005 LRDP would continue existing campus programs

and practices, such as PP 4.8-10, which is discussed above. Therefore, implementation of the proposed 2005 LRDP Amendment 2 would not expose people or structures to a significant risk of loss, injury or death involving flooding, including flooding as a result of the failure of a levee or dam, and no impact would occur. Furthermore, there have been no changes in circumstances since the certification of the 2005 LRDP EIR relative to this criterion that could alter the conclusions of the previous analysis. Therefore, no further analysis of this issue is required in the EIR.

j) The 2005 LRDP EIR indicated that the potential for on-campus development to be affected by a seiche or tsunami is considered extremely remote, given the inland location of the campus and distance to any open water bodies. The campus is relatively flat and therefore would not be susceptible to mudflows. Implementation of future development on campus would be guided by a range of LRDP planning strategies, including Open Space 1 and 2, which would require that the southeast hills be preserved, no major facilities be allowed (except for sensitively sited utility projects), vehicular and pedestrian access be limited, and that native plant materials be used for erosion, screening, and restoration, and Conservation 1, which specifies that native habitat, remnant arroyos, and mature trees be preserved to the extent feasible. In addition, future development on the campus would continue existing campus programs and practices, such as PP 4.8-3(a) and (b), which would further protect and reduce disturbance of Natural and Naturalistic open space areas, including the southeast hills and arroyos. Therefore, the 2005 LRDP EIR concluded that implementation of the 2005 LRDP would not result in land uses being inundated by a seiche, tsunami, or mudflow, and this impact would be less than significant.

The potential for lands associated with the proposed 2005 LRDP Amendment 2, including the SOM site, the sites of the two relocated parking structures, land designated for West Campus open space, and the Campus Reserve site, to be affected by a seiche or tsunami is considered extremely remote. In addition, these sites are relatively flat and therefore would not be susceptible to mudflows. Therefore, implementation of the proposed amendment to the 2005 LRDP would not result in land uses being inundated by a seiche, tsunami, or mudflow, and no impact would occur. Furthermore, there have been no changes in circumstances since the certification of the 2005 LRDP EIR relative to this criterion that could alter the conclusions of the previous analysis. Therefore, no further analysis of this issue is required in the EIR.

Discussion of Potential Cumulative Impacts

As stated in the 2005 LRDP EIR, the construction of new development in the vicinity of the campus could result in the erosion of soil, thereby cumulatively degrading water quality within the watershed. The 2005 LRDP EIR determined that campus development under the 2005 LRDP would not make a cumulatively considerable contribution to the cumulative effect related to water quality degradation. Campus development that would be facilitated by the proposed 2005 LRDP Amendment 2 would also comply with campus programs and practices as well as State and federal laws concerning water quality. Therefore the proposed amendment to the 2005 LRDP would not change the conclusion of the 2005 LRDP EIR regarding this cumulative impact. Furthermore, there have been no changes in circumstances since the certification of the 2005 LRDP EIR that could alter the conclusions of the previous analysis. Therefore, no further evaluation in the EIR is required.

The 2005 LRDP EIR concluded that development under the 2005 LRDP would not result in a substantial interference with groundwater recharge in an area (the campus) that does not substantially recharge the groundwater basin it overlies and that the 2005 LRDP's contribution to groundwater impacts would not be cumulatively considerable. Campus development facilitated by the proposed 2005 LRDP Amendment 2 would also not interfere with groundwater recharge. However, the additional development facilitated

by the proposed amendment to the 2005 LRDP would place an increased demand on groundwater resources and therefore could increase the severity of the previously analyzed cumulative impact on groundwater resources from the withdrawal of groundwater. This issue will be further evaluated in the EIR.

The 2005 LRDP EIR concluded that development under the 2005 LRDP would not make a cumulatively considerable contribution to cumulative effects from changes to drainage patterns that could result in substantial erosion, siltation, or flooding. The development facilitated by the proposed 2005 LRDP Amendment 2 would also not substantially change drainage patterns. Therefore the proposed amendment to the 2005 LRDP would not change the conclusion of the 2005 LRDP EIR regarding this cumulative impact. Furthermore, there have been no changes in circumstances since the certification of the 2005 LRDP EIR that could alter the conclusions of the previous analysis. Therefore, no further evaluation in the EIR is required.

The 2005 LRDP EIR stated that implementation of the 2005 LRDP would not result in a cumulatively considerable contribution to stormwater drainage system capacity. The development facilitated by the proposed 2005 LRDP Amendment 2 would not substantially increase storm water runoff from the campus site compared to the runoff evaluated in the 2005 LRDP EIR. Therefore, the proposed amendment to the 2005 LRDP would not change the conclusion of the 2005 LRDP EIR regarding this cumulative impact. Furthermore, there have been no changes in circumstances since the certification of the 2005 LRDP EIR that could alter the conclusions of the previous analysis. Therefore, no further evaluation in the EIR is required.

The 2005 LRDP EIR found that implementation of the 2005 LRDP would not make a cumulatively considerable contribution to cumulative environmental effects related to construction of new stormwater drainage facilities or the expansion of existing facilities. The development facilitated by the proposed 2005 LRDP Amendment 2 would not substantially increase storm water runoff from the campus site compared to the runoff evaluated in the 2005 LRDP EIR. Therefore the proposed amendment to the 2005 LRDP would not change the conclusion of the 2005 LRDP EIR regarding this cumulative impact. Furthermore, there have been no changes in circumstances since the certification of the 2005 LRDP EIR that could alter the conclusions of the previous analysis. Therefore, no further evaluation in the EIR is required.

The 2005 LRDP EIR found that cumulative impacts related to flooding would not be significant, and the 2005 LRDP would not result in a cumulatively considerable contribution to this impact. The development facilitated by the proposed 2005 LRDP Amendment 2 would not substantially increase the amount of storm water runoff from the campus site compared to the runoff evaluated in the 2005 LRDP EIR, thereby not substantially increase flows that could result in flooding. Therefore the proposed amendment to the 2005 LRDP would not change the conclusion of the 2005 LRDP EIR regarding this cumulative impact. Furthermore, there have been no changes in circumstances since the certification of the 2005 LRDP EIR that could alter the conclusions of the previous analysis. Therefore, no further evaluation in the EIR is required.

According to the 2005 LRDP EIR, the cumulative impacts associated with a failure of the Seven Oaks Dam or the Santa Ana Valley Pipeline would not be significant and implementation of the 2005 LRDP would not make a considerable contribution to these effects. As noted above, implementation of the proposed 2005 LRDP Amendment 2 would not expose people or structures to a significant risk of loss, injury or death involving flooding, including flooding as a result of the failure of a levee or dam, and no

impact would occur. Therefore the proposed amendment to the 2005 LRDP would not change the conclusion of the 2005 LRDP EIR regarding this cumulative impact. Furthermore, there have been no changes in circumstances since the certification of the 2005 LRDP EIR that could alter the conclusions of the previous analysis. Therefore, no further evaluation in the EIR is required.

The 2005 LRDP EIR concluded that cumulative impacts related to exposure of people to seiche, tsunami or mudflow would not be significant and the 2005 LRDP would not make a cumulatively considerable contribution to these effects. As noted above, implementation of the proposed 2005 LRDP Amendment 2 would not result in land uses being inundated by a seiche, tsunami, or mudflow, and no impact would occur. Therefore the proposed amendment to the 2005 LRDP would not change the conclusion of the 2005 LRDP EIR regarding this cumulative impact. Furthermore, there have been no changes in circumstances since the certification of the 2005 LRDP EIR that could alter the conclusions of the previous analysis. Therefore, no further evaluation in the EIR is required.

Issues	Impact to be Analyzed in the 2005 LRDP Amendment 2 EIR	No Additional Analysis Required
10. LAND USE AND PLANNING -- Would the project:		
a) Physically divide an established community?	☐	■
b) Result in the development of land uses that are substantially incompatible with existing adjacent land uses or planned land uses?	■	☐
c) Conflict with any applicable land use plan, policy, or regulation of an agency with jurisdiction over the project (including, but not limited to the LRDP, general plan, specific plan, local coastal program, or zoning ordinance) adopted for the purpose of avoiding or mitigating an environmental effect?	■	☐
d) Conflict with any applicable habitat conservation plan or natural community conservation plan?	☐	■
e) Create other land use impacts?	☐	■

Relevant Elements of Project

The proposed 2005 LRDP Amendment 2 involves changes to the 2005 LRDP Land Use map and changes to the text of the 2005 LRDP. The key changes are designation of a site on the West Campus for the development of a SOM; reconfiguration of the West Campus open space areas; changes in the locations of future West Campus parking structures, and the designation of the Campus Reserve site for housing and open space uses.

Land uses on the West Campus are governed by the 2005 LRDP, which designates the land for *Academic, Special Academic Building Area, Family, Apartment Housing and Related Support (Including Child Care), Open Space, Athletics and Recreation, Parking, Campus Support* and *Campus Reserve* land use designations. Other regional plans that have bearing on the UCR campus include the Regional Comprehensive Plan (SCAG 2008a), the Regional Transportation Plan (SCAG 2008b), the Water Quality Control Plan for the Santa Ana River Basin (RWQCB-SA, 1995 and 2008), and the Air Quality Management Plan (SCAQMD, 2007).

Discussion of Potential Project Impacts

a) According to the 2005 LRDP EIR, future development on the campus would not include any development outside of established campus boundaries, and no incursion into, or division of, the surrounding residential communities would occur. Therefore, the 2005 LRDP EIR concluded that implementation of the 2005 LRDP would not physically divide an established community, and no impact would occur.

As development associated with the proposed 2005 LRDP Amendment would also occur within established campus boundaries, and no incursion into, or division of, the surrounding residential

communities would occur, implementation of the proposed amendment to the 2005 LRDP would not physically divide an established community. Although one element of the proposed 2005 LRDP Amendment 2 is a revision to the campus boundary to include existing housing developments that have been acquired by the Campus since 2005, these changes to the campus boundary and the designation of the acquired areas as *Family, Apartment Housing and Related Support (including Child Care)* in the LRDP Land Use map would not result in the division of an existing residential community. The housing acquired by the Campus is adjacent to and contiguous with the existing campus and was primarily occupied by students even before acquisition by the Campus. Therefore, no impact would occur, and no further analysis of this issue is required in the EIR.

b) The 2005 LRDP EIR indicated that change in on-campus land uses associated with the 2005 LRDP could be substantially incompatible with existing adjacent land uses. However, implementation of future development on the campus would be guided by a range of LRDP planning strategies, including Land Use 1 through 7, Open Space 1 through 7, Campus and Community 1 through 3, Transportation 1 through 6, Conservation 1 through 4, and Development Strategy 1 through 3, all of which would influence land use decision throughout the campus (see **Appendix A** for a complete list of 2005 LRDP Planning Strategies, Programs and Practices, and Mitigation Measures). In addition, implementation of the 2005 LRDP would result in the continued implementation of several programs and practices, such as PP 4.9-1(a) through (c), which would reduce potential land use incompatibilities. Thus, the 2005 LRDP EIR concluded that implementation of the 2005 LRDP would not result in the development of land uses that are substantially incompatible with existing adjacent land uses or planned land uses, and this impact would be less than significant.

The addition of about 3.1 million gross square feet of building space associated with the SOM represents a change from land uses that were considered under the 2005 LRDP. The two parking garages, the West Campus open space, and the housing and open space now proposed for the Campus Reserve site represent land uses that were previously considered under the 2005 LRDP although their locations on the West Campus as proposed now differs from the previous LRDP Land Use map. The remaining elements of the proposed 2005 LRDP Amendment 2 are programmatic in nature and would not result in land uses that are substantially incompatible with existing adjacent land uses or planned land uses. The departure from the 2005 LRDP associated with the additional building space required by the SOM, could result in potential conflicts with existing or planned adjacent land uses. These conflicts are considered a potentially significant impact, and this issue will be further analyzed in the EIR.

c) The University of California is not subject to municipal land use plans, policies, or regulations including, the County and City General Plans. However, UCR is required by Section 15125(d) of the CEQA Guidelines to address inconsistencies between its plans and the applicable regional plans. As indicated in the 2005 LRDP EIR, future development of the East and West Campus would not conflict with the applicable plans. Thus, the 2005 LRDP EIR concluded that implementation of the 2005 LRDP would not conflict with any applicable land use plan, policy, or regulation of an agency with jurisdiction over the project adopted for the purpose of avoiding or mitigating an environmental effect and this impact would be less than significant.

The addition of about 3.1 million gross square feet of building space associated with the SOM represents a change from land uses that were considered under the 2005 LRDP. The relocation of the two parking garages, the reconfiguration of West Campus open space, and the housing and open space now designated on the Campus Reserve site represent land uses that were previously considered under the 2005 LRDP although their locations on the West Campus as proposed now differs from the previous

LRDP Land Use map. The remaining elements of the proposed amendment are programmatic in nature and would not conflict with any applicable land use plan, policy, or regulation. The departure from the 2005 LRDP associated with the additional building space associated with the SOM could result in potential conflicts with applicable regional plans. These conflicts are considered a potentially significant impact, and this issue will be further analyzed in the EIR.

d) As discussed in Item 4 f), the 2005 LRDP EIR indicated that implementation of the 2005 LRDP would not conflict with any applicable habitat conservation plan or natural community conservation plan, and no impact would occur.

No new HCP or NCCP have been adopted for the area of the campus since 2005. Furthermore, elements listed in the proposed 2005 LRDP Amendment 2 would not conflict with any applicable habitat conservation plan or natural community conservation plan, and no impact would occur. No further analysis of this issue is required in the EIR.

e) No other land use impacts were identified.

Discussion of Potential Cumulative Impacts

The 2005 LRDP EIR stated that cumulative impacts related to land use compatibility could occur with respect to cumulative growth in the campus vicinity. The 2005 LRDP EIR found that the land use impact associated with development under the 2005 LRDP would not result in a cumulatively considerable contribution to the cumulative impact. The proposed 2005 LRDP Amendment 2 would introduce a new land use on the West Campus as well as designate the Campus Reserve site for student housing which could potentially result in land use conflicts and thereby alter the conclusion of the 2005 LRDP EIR with respect to this cumulative impact. This issue will be further analyzed in the EIR.

The 2005 LRDP EIR stated that future off campus development would be reviewed for consistency with adopted land use plans and policies by the City of Riverside. As a result, the 2005 LRDP EIR found that impacts associated with inconsistency of future development with adopted plans and policies would not be significant. Even if the cumulative land use impact of these projects would be significant, the 2005 LRDP EIR states that the contribution of the 2005 LRDP to such impacts would not be cumulatively considerable as development under the 2005 LRDP would be compatible with land uses that surround it. Because the proposed 2005 LRDP Amendment 2 would introduce a new land use to the West Campus, it could potentially alter the conclusion of the 2005 LRDP EIR with respect to this impact. This issue will be further analyzed in the EIR.

Issues	Impact to be Analyzed in the 2005 LRDP Amendment 2 EIR	No Additional Analysis Required
11. MINERAL RESOURCES – Would the project:		
a) Result in the loss of availability of a known mineral resource that would be of value to the region and the residents of the state?	☐	■
b) Result in the loss of availability of a locally-important mineral resource recovery site delineated on a local general plan, specific plan or other land use plan?	☐	■

Relevant Elements of Project

The proposed 2005 LRDP Amendment 2 involves changes to the 2005 LRDP Land Use map and changes to the text of the 2005 LRDP. The key changes are designation of a site on the West Campus for the development of a SOM; reconfiguration of the West Campus open space areas; changes in the locations of two future West Campus parking structures, and the designation of the Campus Reserve site for housing and open space uses.

The state has designated a majority of the land within the City of Riverside, including the UCR campus, as mineral classification MRZ-4, which is defined as an area that has available geologic information that indicates that mineral deposits exist or are likely to exist, but the significance of the deposits are undetermined (Riverside, 2007).

Discussion of Potential Project and Cumulative Impacts

a) According to the initial study prepared for the 2005 LRDP EIR, no mineral resources of regional or State-wide importance are known to exist on the UC Riverside campus, and no such activities have been associated with development of the campus. Therefore, the 2005 LRDP EIR concluded that implementation of the 2005 LRDP would not result in the loss of availability of a known mineral resource that would be of value to the region and the residents of the state, and no impact would occur.

As no mineral resources of regional or statewide importance are known to exist on the UC Riverside campus, implementation of the proposed 2005 LRDP Amendment 2 would not result in the loss of availability of a known mineral resource that would be of value to the region and the residents of the state. No impacts would occur. Furthermore, there have been no changes in circumstances since the certification of the 2005 LRDP EIR relative to this criterion that could alter the conclusions of the previous analysis. Therefore, no further analysis of this issue is required in the EIR.

b) According to the initial study prepared for the 2005 LRDP EIR, no mineral resource recovery activities occur on the UCR campus, and no such sites are delineated in the General Plan for the County and City of Riverside, or the University Community Plan, which covers the area around the campus. Refer to Item 11(a) above. Thus, implementation of the 2005 LRDP would not result in the loss of availability of a locally important mineral resource recovery site delineated on a local general plan, specific plan, or other land use plan, and no impact would occur.

As no mineral resource recovery activities occur on the UCR campus, and no such sites are delineated in the General Plans for the County and City of Riverside, or the University Community Plan, which covers the area around the campus, implementation of the proposed 2005 LRDP Amendment 2 would not result in the loss of availability of a locally important mineral resource recovery site delineated on a local general plan, specific plan or other land use plan. No impact would occur. Furthermore, there have been no changes in circumstances since the certification of the 2005 LRDP EIR that could alter the conclusions of the previous analysis. Therefore, no further analysis of this issue is required in the EIR.

Issues	Impact to be Analyzed in the 2005 LRDP Amendment 2 EIR	No Additional Analysis Required
12. NOISE -- Would the project result in:		
a) Exposure of persons to or generation of noise levels in excess of standards established in any applicable plan or noise ordinance, or applicable standards of other agencies?	■	□
b) Exposure of persons to or generation of excessive groundborne vibration or groundborne noise levels?	■	□
c) A substantial permanent increase in ambient noise levels in the project vicinity above levels existing without the project?	■	□
d) A substantial temporary or periodic increase in ambient noise levels in the project vicinity above levels existing without the project (including construction)?	■	□
e) For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project expose people residing or working in the project area to excessive noise levels?	□	■
f) For a project within the vicinity of a private airstrip, would the project expose people residing or working in the project area to excessive noise levels?	□	■

Relevant Elements of Project

The proposed 2005 LRDP Amendment 2 involves changes to the 2005 LRDP Land Use map and changes to the text of the 2005 LRDP. The key changes are designation of a site on the West Campus for the development of a SOM; reconfiguration of the West Campus open space areas; changes in the locations of future two West Campus parking structures, and the designation of the Campus Reserve site for housing and open space uses.

Vehicular traffic is the primary source of noise within and around the campus. The greatest source of groundborne vibration at the UCR campus and within the immediate vicinity is construction traffic and roadway truck traffic.

Discussion of Potential Project Impacts

a) According to the 2005 LRDP EIR, the increase in population associated with the 2005 LRDP would result in additional vehicular traffic on and around the campus, which in turn would generate increased noise levels. Other sources of noise would include new stationary sources (such as rooftop heating, ventilation, and air conditioning equipment) and increased human activity throughout the campus. The

analysis in the 2005 LRDP EIR determined that these sources of noise would not result in the exposure of persons to or generation of noise levels in excess of established standards. In addition, future development on the campus would be guided by a range of LRDP planning strategies, including Open Space 4, which provides landscaped buffers along area roadways, and by existing programs and practices, such as PP 4.10-1(a) and (b), which would reduce potential impacts associated with construction and building design (see **Appendix A** for a complete list of 2005 LRDP Planning Strategies, Programs and Practices, and Mitigation Measures). Therefore, the 2005 LRDP EIR concluded that the implementation of the 2005 LRDP EIR would not result in the exposure of persons to or generation of noise levels in excess of standards established in any applicable plan or noise ordinance, or applicable standards of other agencies, and this impact would be less than significant.

The addition of about 3.1 million gsf of building space associated with the SOM would result in additional vehicular traffic on and around the campus, which in turn would generate increased noise levels. Other sources of noise would include new stationary sources (such as rooftop heating, ventilation, and air conditioning equipment) and increased human activity throughout the West Campus. The relocation of the two parking garages, the reconfiguration of West Campus open space, and the housing and open space now designated on the Campus Reserve site represent land uses that were previously considered under the 2005 LRDP and would not generate increased traffic and traffic related noise levels above levels analyzed in the 2005 LRDP EIR. However, the development of student housing on the Campus Reserve site could result in increased traffic near that site. The remaining elements of the proposed 2005 LRDP Amendment 2 are programmatic in nature and would not generate increased traffic and traffic related noise levels. Implementation of future development associated with the proposed amendment to the 2005 LRDP would be guided by a range of LRDP planning strategies, including Open Space 4, and existing programs and practices, such as PP 4.10-1(a) and (b), which are discussed above. However, even with these measures in place, additional building space associated with the SOM and development of student housing on the Campus Reserve site could result in the exposure of persons to or generation of noise levels in excess of established standards. A substantial increase in noise is considered a potentially significant impact, and this issue will be further analyzed in the EIR.

b) The 2005 LRDP EIR indicated that construction equipment would be the primary sources of vibration and vibration levels on the campus would primarily affect campus buildings located in close proximity of construction sites. The EIR concluded that as long as construction occurs more than 50 feet from campus classroom buildings, office buildings, and student housing, the impact would be less than significant. In order for construction activities to not potentially impact sensitive research buildings, the activities would need to occur at least 300 feet from the sensitive research building. Future development on the campus would continue to implement existing programs and practices, such PP 4.10-2, which limits the hours of exterior construction from 7:00 AM to 9:00 PM Monday through Friday and 8:00 AM to 6:00 PM on Saturday when necessary. In an effort to reduce vibration during construction, future development would also be required to implement LRDP mitigation measure MM 4.10-2(a), which would require the notification of all academic and residential facilities within 300 feet of approved construction of the pending construction schedule. While LRDP mitigation measure MM 4.10-2(a) represents the best management practice to minimize the impact of groundborne vibration near on-campus facilities during construction, it would not ensure that groundborne vibration does not exceed the identified thresholds of significance for sensitive buildings located in close proximity of the construction sites. Therefore, the 2005 LRDP EIR concluded that implementation of the 2005 LRDP would expose persons to or generate excessive groundborne vibration or groundborne noise levels, and this impact would be significant and unavoidable.

The locations of the SOM facilities, the two parking garages, and the West Campus open space were previously considered under the 2005 LRDP and would not result in vibration levels during construction that were previously not considered. The location of the proposed housing and open space on the Campus Reserve site was not previously considered under the 2005 LRDP and would result in vibration levels that were not previously considered. The remaining elements of the proposed 2005 LRDP Amendment 2 are programmatic in nature and would not increase vibration levels. Future development associated with the proposed amendment to the 2005 LRDP would continue to implement existing programs and practices, such PP 4.10-2, which is discussed above. In addition, future development associated with the proposed amendment to the 2005 LRDP would also be required to implement mitigation measure MM 4.10-2(a), which is discussed above. However, construction on the Campus Reserve site would be phased over time, and construction could occur immediately adjacent to newly constructed residential buildings on campus. An increase in vibration affecting these on-site uses during construction is considered a potentially significant impact, and this issue will be further analyzed in the EIR.

According to the 2005 LRDP EIR, vibration levels from on-campus sources could affect nearby off-campus residential uses during construction. In addition, heavy trucks transporting material to and from campus during construction could also generate vibration levels that could affect nearby off-campus residential uses. However, in both instances, the resulting groundborne vibration velocity levels would be less than the Federal Railway Administration's vibration impact threshold for residences. Therefore, the 2005 LRDP EIR concluded that construction resulting from the implementation of the 2005 LRDP would not expose off-campus persons to excessive groundborne vibration or groundborne noise levels, and this impact would be less than significant.

Lands associated with the proposed 2005 LRDP Amendment 2, including the SOM site, the sites of the two relocated parking structures, land designated for West Campus open space, and the Campus Reserve site, are located near existing residential uses and noise sensitive commercial uses. The nearest existing residences to the SOM site and the West Campus academic core are private apartment complexes located along the north side of Everton Place and UCR International Village, a student apartment complex on the south side of Everton Place. The nearest existing residences to the Campus Reserve site, which is the site of proposed housing, are located off-campus to the west and southwest across Chicago Avenue. The nearest existing noise sensitive commercial use to the SOM site, West Campus academic core, and Campus Reserve site are multi-family housing and a motel located to the north along University Avenue. Construction associated with the proposed amendment to the 2005 LRDP could generate vibration levels that could affect these off-site uses. This is considered a potentially significant impact, and this issue will be further analyzed in the EIR.

Concerning operational vibration, the 2005 LRDP EIR indicated that campus operational activities under the 2005 LRDP would not expose on- or off-campus persons to excessive groundborne vibration or groundborne noise levels, and this impact would be less than significant.

Activities associated with the addition of about 3.1 million gsf of building space associated with the SOM would not expose on- or off-campus persons to excessive groundborne vibration or groundborne noise levels. The relocation of the two parking garages, the reconfiguration of West Campus open space, and the housing and open space now designated on the Campus Reserve site represent land uses that were previously considered under the 2005 LRDP and would not result in increased vibration levels during operation. Activities associated with the retail or office uses within the proposed parking structures would also not expose on- or off-campus persons to excessive groundborne vibration or groundborne

noise levels. The remaining elements of the proposed 2005 LRDP Amendment 2 are all programmatic in nature and would not result in an increase in vibration levels during operation. For these reasons, this impact would be less than significant during operation. No further analysis of this issue is required in the EIR.

c) According to the 2005 LRDP EIR, the increase in population generated by the 2005 LRDP would result in additional vehicular traffic on and around the campus, which in turn would generate increased noise levels. The analysis in the 2005 LRDP EIR determined that these sources of noise would not result in a substantial permanent increase in ambient noise levels in the project vicinity above levels existing without the 2005 LRDP. In addition, implementation of the 2005 LRDP would continue existing programs and practices, such as PP 4.10-5(a) and (b), which would continue the campus' policy of providing on-campus housing in an effort to reduce trips and continue to implement an Alternative Transportation program that facilitates the use of alternative modes of transportation. Therefore, the 2005 LRDP EIR concluded that implementation of the 2005 LRDP would not result in a substantial permanent increase in ambient noise levels in the project vicinity above levels existing without the project, and this impact would be less than significant.

The addition of about 3.1 million gsf of building space associated with the SOM would result in additional vehicular traffic on and around the campus, which in turn would generate increased noise levels. The relocation of the two parking garages, the reconfiguration of the West Campus open space, and the housing and open space now designated on the Campus Reserve site represent land uses that were previously considered under the 2005 LRDP and would not generate increased noise levels. The remaining elements of the proposed 2005 LRDP Amendment 2 are programmatic in nature and would not generate increased noise levels. Future development associated with the proposed amendment to the 2005 LRDP would continue to implement existing programs and practices, such as PP 4.10-5(a) and (b), which are described above. However, even with these measures in place, additional building space associated with the SOM and development of student housing on the Campus Reserve site could result in a substantial permanent increase in ambient noise levels in the project vicinity above levels existing without the project. A substantial permanent increase in noise is considered a potentially significant impact, and this issue will be further analyzed in the EIR.

Concerning stationary sources of noise (such as rooftop heating, ventilation, and air conditioning equipment) and increased human activity throughout the campus, according to the 2005 LRDP EIR, noise levels generated by these types of equipment are not expected to cause a substantial permanent noise increase. In addition, future development on the campus would be guided by a range of LRDP planning strategies, including Open Space 4, which is discussed above, and Campus and Community 1, which would provide sensitive land use transitions and landscaped buffers where off-campus residential neighborhoods might experience noise or light from UCR activities. Finally, implementation of the 2005 LRDP would continue existing programs and practices, such as PP 4.10-6, which would shield all new stationary sources of noise. Therefore, the 2005 LRDP EIR concluded that implementation of the 2005 LRDP would not result in a substantial permanent increase in ambient noise levels in the project vicinity above levels existing without the project, and this impact would be less than significant.

Buildings associated with the proposed SOM would include stationary sources of noise. The relocated parking structures and the housing and open space now designated on the Campus Reserve site would also represent noise sources; however, the reconfiguration of West Campus open space would not involve any new noise sources. The housing now designated on the Campus Reserve site was previously considered under the 2005 LRDP and would not generate increased noise levels from stationary sources.

The remaining elements of the proposed 2005 LRDP Amendment 2 are programmatic in nature and would not generate increased noise levels from stationary sources. Implementation of future development associated with the proposed amendment to the 2005 LRDP would be guided by a range of LRDP planning strategies, including Open Space 4 and Campus and Community 1, and would continue existing programs and practices, such as PP 4.10-6, which are discussed above. However, even with these planning strategies and existing programs and practices, additional building space associated with the SOM could still result in a substantial permanent increase in ambient noise levels in the project vicinity above levels existing without the project. A permanent increase in noise is considered a potentially significant impact, and this issue will be further analyzed in the EIR.

d) The 2005 LRDP EIR indicated that construction activities associated with on-campus construction projects under the 2005 LRDP could result in substantial increases in ambient noise levels experienced by both on-campus and off-campus sensitive receptors. Future development on the campus would continue to implement existing programs and practices, such as PP 4.10-7(a) through (d), which would minimize construction noise impacts to on-campus locations, and PP 4.10-8, which requires the Campus to conduct meetings with off-campus constituents that are affected by campus construction. However, even the continued implementation of these programs and practices would not ensure that construction noise levels would be substantially reduced at noise sensitive land uses located in close proximity of the construction sites. Therefore, the 2005 LRDP concluded that implementation of the 2005 LRDP would result in a substantial temporary or periodic increase in ambient noise levels in the project vicinity above levels existing without the project during construction of campus projects, and this impact would be significant and unavoidable.

Although the locations of the SOM facilities, the two parking garages, and the West Campus open space were not previously considered under the 2005 LRDP, these sites were considered for development in the 2005 LRDP evaluation. Therefore, development at these sites would not result in an increase in ambient noise levels that were previously not considered. The location of the proposed housing and open space on the Campus Reserve site was not previously considered under the 2005 LRDP and would result in an increase in ambient noise levels that were previously not considered. The remaining elements of the proposed 2005 LRDP Amendment 2 are programmatic in nature and would not increase vibration levels. Future development associated with the proposed amendment to the 2005 LRDP would continue to implement existing programs and practices, such as PP 4.10-7(a) through (d) and PP 4.10-8, which are discussed above. However, even the continued implementation of these programs and practices would not ensure that construction noise levels would be substantially reduced at noise sensitive land uses located in close proximity of the Campus Reserve site. Construction of student housing and opens space on the Campus Reserve site could result in a substantial temporary or periodic increase in ambient noise levels in the project vicinity above levels existing without the project. A substantial temporary increase in noise is considered a potentially significant impact, and this issue will be further analyzed in the EIR.

According to the 2005 LRDP EIR, under the 2005 LRDP, noise would continue to be generated by occasional special events at the UCR campus, such as athletic meets at the campus track and outdoor concerts within the center and recreational areas of the campus. The loudest of these would continue to be the outdoor concerts. These special events are no different than those that occur under the existing baseline conditions. Implementation of the 2005 LRDP would increase the number of students living on the campus and, therefore, could increase the annual number of these events. However, the actual noise levels generated by these events would be similar to existing conditions. Noise generated by additional numbers of persons assembled at an event would typically not be the primary source of noise, in particular when compared to noise from amplified systems. In addition, special events on interior

portions of the campus would be screened from adjacent locations by campus buildings. As such, these events would not result in substantial temporary or periodic increases in ambient noise levels, although events could occur on more days per year. Therefore, the 2005 LRDP EIR concluded that implementation of the 2005 LRDP would result in a substantial temporary or periodic increase in ambient noise levels in the project vicinity above levels existing without the project; however this impact would be less than significant.

Some of the land uses associated with the proposed 2005 LRDP Amendment 2, especially the West Campus open space areas, could provide space for holding occasional special events. As discussed in the 2005 LRDP EIR, actual noise levels generated by these events would be similar to existing conditions. In addition, intervening buildings would screen these events from off-campus residential uses. Noise would also be attenuated by the distance between the locations where the events are held and the nearest off-campus residences to the north, west, and south of the West Campus. Therefore, implementation of the proposed amendment to the 2005 LRDP would result in a substantial temporary or periodic increase in ambient noise levels in the project vicinity above levels existing without the project; however this impact would be less than significant. No further analysis of this issue is required in the EIR.

e-f) The closest airports to the campus are Flabob Airport, which is located approximately 4 miles to the west, and March Joint Air Reserve Base, which is located approximately 6 miles to the southeast. The UCR campus is not located within 2 miles of a public airport, public use airport, or private airstrip or within the airport land use plan study area for either the Flabob Airport or the March Joint Air Reserve Base. Therefore, the 2005 LRDP EIR concluded that implementation of the 2005 LRDP would not expose people residing or working in the project area to excessive noise levels, and no impact would occur.

As lands associated with the proposed 2005 LRDP Amendment 2, including the SOM site, the sites of the two relocated parking structures, land designated for West Campus open space, and the Campus Reserve site, are not located within an airport land use plan study area, or within 2 miles of a public airport, public use airport, or private airstrip, the proposed amendment to the 2005 LRDP would not expose people to excessive noise from airports. No impact would occur. Furthermore, there have been no changes in circumstances since the certification of the 2005 LRDP EIR that could alter the conclusions of the previous analysis. Therefore, no further analysis of this issue is required in the EIR.

Discussion of Potential Cumulative Impacts

The 2005 LRDP found that implementation of the 2005 LRDP would not have a cumulatively considerable contribution to the impact associated with exposure of persons to noise levels in excess of applicable standards. Campus development facilitated by the proposed 2005 LRDP Amendment 2 would involve additional traffic and stationary sources of noise. Furthermore ambient noise conditions on and around the campus may have changed since 2005. Therefore the proposed amendment to the 2005 LRDP has the potential to increase the cumulative noise levels in the project area compared to the levels estimated and analyzed in the 2005 LRDP EIR and potentially increase the severity of the previously analyzed cumulative impact. This issue will be further evaluated in the EIR.

The 2005 LRDP EIR concluded that implementation of the 2005 LRDP would not result in a cumulatively considerable contribution with respect to groundborne vibration from construction. With regard to cumulative groundborne vibration due to operations, the 2005 LRDP EIR also concluded that 2005 LRDP contribution to the cumulative effect would not be cumulatively considerable. Campus development facilitated by the proposed 2005 LRDP Amendment 2 would involve additional construction vibration sources. As a result, the proposed amendment to the 2005 LRDP has the potential to increase the

cumulative vibration levels in the project area compared to the levels estimated and analyzed in the 2005 LRDP EIR and potentially increase the severity of the previously analyzed cumulative impact. This issue will be further evaluated in the EIR.

The 2005 LRDP EIR concluded that the study area roadway segments for the 2005 LRDP would result in significant cumulative impacts related to a substantial permanent increase in ambient noise levels. Campus development facilitated by the proposed 2005 LRDP Amendment 2 would involve additional traffic to study area roadways. Furthermore, ambient noise conditions on and around the campus may have changed since 2005. As a result, the proposed amendment to the 2005 LRDP has the potential to increase the cumulative noise levels in the project area compared to the levels estimated and analyzed in the 2005 LRDP EIR and potentially increase the severity of the previously analyzed cumulative impact. This issue will be further evaluated in the EIR.

The 2005 LRDP EIR concluded that the 2005 LRDP would not result in a cumulatively considerable contribution to a substantial permanent increase in ambient noise levels from stationary sources. Campus development facilitated by the proposed 2005 LRDP Amendment 2 would involve additional stationary sources of noise. Furthermore, ambient noise conditions on and around the campus may have changed since 2005. As a result, the proposed amendment to the 2005 LRDP has the potential to increase the cumulative noise levels in the project area compared to the levels estimated and analyzed in the 2005 LRDP EIR and potentially increase the severity of the previously analyzed cumulative impact. This issue will be further evaluated in the EIR.

The 2005 LRDP EIR concluded that construction activities associated with the 2005 LRDP would not result in a significant cumulative impact from substantial temporary or periodic increases in ambient noise levels at locations both on and off campus. Campus development facilitated by the proposed 2005 LRDP Amendment 2 would involve additional sources of temporary or periodic noise associated with the construction of the SOM facilities and the proposed amendment to the 2005 LRDP would cause the relocation of some of the West Campus housing to the Campus Reserve site where it would be closer to off-campus sensitive receptors. As a result, the proposed 2005 LRDP Amendment 2 has the potential to change the cumulative noise levels in the project area compared to the levels estimated and analyzed in the 2005 LRDP EIR. This issue will be further evaluated in the EIR.

Issues	Impact to be Analyzed in the 2005 LRDP Amendment 2 EIR	No Additional Analysis Required
13. POPULATION AND HOUSING -- Would the project:		
a) Induce substantial population growth in an area, either directly (for example, by proposing new homes and businesses) or indirectly (for example, through extension of roads or other infrastructure)?	■	□
b) Would the project create a demand for housing that could not be accommodated by the local jurisdiction?	■	□
c) Displace substantial numbers of existing housing, necessitating the construction of replacement housing elsewhere?	□	■
d) Displace substantial numbers of people, necessitating the construction of replacement housing elsewhere?	□	■

Relevant Elements of Project

The proposed 2005 LRDP Amendment 2 involves changes to the 2005 LRDP Land Use map and changes to the text of the 2005 LRDP. Although the proposed changes would not increase the student and faculty and staff population above the enrollment and employment numbers analyzed in the 2005 LRDP EIR, the development of an SOM, especially the SOM medical office building space, would increase employee and visitor population on the campus compared to the numbers in the 2005 LRDP.

The current population on campus is 27,080. This population consists of 19,439 students (three-quarter average headcount), 928 faculty and academic staff, 4,877 non-academic staff, and 1,836 other individuals. A total of 6,314 students are housed in University-owned housing (not including a future Glen Mor 2 housing complex under design development in 2010/11).

Discussion of Potential Project Impacts

a) According to the 2005 LRDP EIR, while implementation of the 2005 LRDP would induce substantial population growth within the City of Riverside, this growth has been anticipated by the local and regional planning agencies, and would not result in population or housing effects that would lead to a significant impact on the environment. In addition, the implementation of future development on the campus would be guided by a range of LRDP planning strategies, including Land Use 4, which states that the Campus will pursue a goal of housing 50 percent of student enrollment in on-campus or Campus-controlled housing (see **Appendix A** for a complete list of 2005 LRDP Planning Strategies, Programs and Practices, and Mitigation Measures). Therefore, the 2005 LRDP EIR concluded that implementation of the 2005 LRDP would not induce substantial population growth in the area, either directly or indirectly, and this impact would be less than significant.

Implementation of the proposed 2005 LRDP Amendment 2 could substantially increase the overall population on campus considered in the 2005 LRDP. While the student population and faculty/staff population were considered in the 2005 LRDP, the number of employees and visitors associated with the proposed SOM medical offices were not. This increase in campus affiliated population could induce substantial population growth in the City of Riverside and the surrounding area. This increase in population is considered a potentially significant impact, and this issue will be further analyzed in the EIR. In addition, the EIR will evaluate the increase in campus population on population growth relative to 2020/21 conditions as the change in horizon year is an element of the proposed amendment to the 2005 LRDP.

b) According to the 2005 LRDP EIR, the increase in student enrollment and corresponding increase in on-campus employment and campus population associated with the 2005 LRDP would result in an increased demand for housing in the City of Riverside and the surrounding three-county area of Los Angeles, Orange, and San Bernardino counties. The 2005 EIR indicated that enough future housing supply would exist in the City of Riverside and the surrounding area to accommodate growth through the planning horizon. In addition, the implementation of future development on the campus would be guided by a range of LRDP planning strategies, including Land Use 4, which is described above. Therefore, the 2005 LRDP EIR concluded that implementation of the 2005 LRDP would not create a demand for housing that could not be accommodated by the local jurisdiction, and this impact would be less than significant.

Implementation of the proposed 2005 LRDP Amendment 2 would increase the overall population on campus as the SOM medical office building employees and visitors were not considered in the 2005 LRDP. This increase in campus affiliated population could create a demand for housing in the City of Riverside and the surrounding areas. This increase in housing demand is considered a potentially significant impact, and this issue will be further analyzed in the EIR. In addition, the EIR will evaluate the increase in campus population on housing demand relative to 2020/21 conditions as the change in horizon year is an element of the proposed amendment to the 2005 LRDP.

c-d) The 2005 LRDP EIR indicated that implementation of the 2005 LRDP would result in the removal of family housing on the East Campus and the replacement of family housing on the West Campus. However, prior to demolition replacement housing would be constructed. As a result, no student families would be displaced. In addition, the implementation of future development on the campus would be guided by a range of LRDP planning strategies, including Land Use 5, which states that the Campus would remove existing family housing units on the East Campus, and provide replacement and additional units of family housing on the West Campus. Thus, the 2005 LRDP EIR concluded that implementation of the 2005 LRDP would not displace substantial numbers of existing housing or people, necessitating the construction of replacement housing elsewhere, and this impact would be less than significant.

Development of elements listed in the proposed 2005 LRDP Amendment 2 would not require existing housing units to be demolished or removed. As a result, no student families would be displaced. Thus, implementation of the proposed amendment to the 2005 LRDP would not displace substantial numbers of existing housing or people, necessitating the construction of replacement housing elsewhere, and no impact would occur. No further analysis of this issue is required in the EIR.

Discussion of Potential Cumulative Impacts

The 2005 LRDP EIR stated that cumulative impacts related to demand for housing would not be significant, and the 2005 LRDP would not make a cumulatively considerable contribution to this demand.

The proposed 2005 LRDP Amendment 2 would increase campus-affiliated population compared to the population analyzed in the 2005 LRDP EIR. Therefore, the proposed amendment to the 2005 LRDP has the potential to alter the conclusion in the 2005 LRDP EIR with respect to this impact. This issue will be further evaluated in the EIR.

The 2005 LRDP EIR concluded that the 2005 LRDP would not contribute to any cumulative effects related to the displacement of housing or people. As stated above, the proposed 2005 LRDP Amendment 2 would also not result in displacement of housing or people and therefore would not alter the conclusion of the 2005 LRDP EIR with respect to this cumulative impact. No further analysis in the EIR is required.

Issues	Impact to be Analyzed in the 2005 LRDP Amendment 2 EIR	No Additional Analysis Required
14. PUBLIC SERVICES		
Would the project result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times or other performance objectives for any of the public services:		
a) Fire protection?	■	□
b) Police protection?	■	□
c) Schools?	□	■
d) Parks?	□	■
e) Other public facilities?	□	■
f) Create other public service impacts?	□	■

Relevant Elements of Project

The proposed 2005 LRDP Amendment 2 involves changes to the 2005 LRDP Land Use map and changes to the text of the 2005 LRDP. Although the proposed changes would not increase the student and faculty and staff population above the enrollment and employment numbers analyzed in the 2005 LRDP EIR, the development of an SOM, especially the SOM medical building office space, would increase affiliated employee and visitor population on the campus compared to the numbers in the 2005 LRDP, thereby increasing the demand for public services required at the campus.

The City of Riverside Fire Department (RFD) in conjunction with the UCR Environmental Health and Safety Department (EH&S) provides fire protection service for the UCR campus, based on an unwritten agreement between these departments. This agreement identifies the City of Riverside Fire Department as responsible for fire suppression, while EH&S is responsible for inspection, fire protection engineering, and fire prevention. The UC Police Department is responsible for providing police services to the UCR campus. The Riverside Unified School District (RUSD) is responsible for providing public elementary, middle and high school education within the City of Riverside. UCR currently has four libraries distributed among the academic centers of the central campus, which serve students, faculty, staff, and the general public while the City of Riverside maintains six libraries (UCR, 2005 LRDP EIR).

Discussion of Potential Project Impacts

a) The 2005 LRDP EIR indicated that all fire stations serving the campus currently meet the City's response time standard of an engine company arriving on scene within 5 minutes, 90 percent of the time. As all future development facilitated by the proposed 2005 LRDP Amendment 2 would be within the campus boundaries, there would not be an increase in distance between the existing fire stations and the campus. Assuming that City of Riverside maintains and staffs the existing fire stations near the campus, future development on the West Campus would continue to be served with a 5-minute response time by the RFD and no increase in service response time is anticipated. In addition, future development on the campus would be guided by a range of LRDP planning strategies, including Transportation 4, which would limit vehicular circulation in the central campus, but allow transit, service and emergency vehicle access, thus giving priority to emergency responders (see **Appendix A** for a complete list of 2005 LRDP Planning Strategies, Programs and Practices, and Mitigation Measures).

The 2005 LRDP EIR also indicated that the development of land uses permitted by the 2005 LRDP would also increase demands on fire prevention programs provided by EH&S, including design consultation services, formal plan review and approval, testing and inspection of new construction and renovations, periodic fire safety inspections, and service, maintenance, and testing of fire and life safety equipment.

According to the 2005 LRDP EIR, current water storage on campus is adequate to provide the required fire flows for existing development on campus. Increases in fire water supply will be required to maintain adequate water pressure and volume for fire fighting purposes. For example, the 2005 LRDP proposes an additional 7 million gallon (MG) storage tank adjacent to the existing 1 MG and 50,000 gallon reservoir on the East Campus. Other improvements include, but are not limited to, the establishment of a higher capacity for the current 5 MG City reservoir and additional linkages between the campus and City water distribution system. The potential environmental effects associated with these improvements were evaluated in the 2005 LRDP EIR at a program level.

The development of land uses facilitated by the proposed 2005 LRDP Amendment 2, including the addition of about 3.1 million gsf of building space associated with the SOM, would add to the demand for fire services. Land uses associated with the proposed amendment to the 2005 LRDP could increase the fire flow demands that would be required to maintain adequate water pressure. The effect on fire services, including the potential to result in substantial adverse physical impacts associated with the provision of new or physically altered fire facilities, will be evaluated in the EIR. In addition, the EIR will evaluate the increase in campus population on fire protection services relative to 2020/21 conditions as the change in horizon year is an element of the proposed 2005 LRDP Amendment 2.

b) The 2005 LRDP EIR indicated that the incremental increase in the campus population as a result of the 2005 LRDP may result in increased response times by the UC Police Department, which in turn would require additional officers and support staff. To maintain the current ratio of 1.4 sworn officers per 1,000 persons, the 2005 LRDP EIR estimated that 21 additional sworn officers would be needed. However, estimated staffing to population ratios for 2001 at all University of California campuses ranged from 0.7 to 1.6 sworn officers per 1,000 persons. Thus, adequate service could be provided to the campus with a lower ratio of officers to population with the addition of more Community Service Officers (CSOs) and parking patrol officers and other measures. While increased patrols may be necessary due to the increased number of students residing on the campus, the 2005 LRDP does not include any features that would make it inherently susceptible to criminal activity. Persons on the campus would not be exposed to increased risks as a result of the additional demands on the UC Police Department. In addition,

continued implementation of existing programs and practices, such as PP 4.12-2(a), would assure the hiring of additional officers as needed to maintain adequate service levels.

The 2005 LRDP EIR also indicated that the provision of additional space to accommodate the additional staff would be required. The potential environmental effects associated with expanding the existing police facility or providing a satellite facility were evaluated in the 2005 LRDP EIR at a program level. The 2005 LRDP EIR indicated that LRDP planning strategies, existing programs and practices, mitigation measures provided in the EIR would address impacts to the extent feasible. With the incorporation of mitigation discussed in other sections of the 2005 LRDP EIR and due to the relatively small amount of space that might be constructed or small areas that could be disturbed, the construction of these facilities would not individually result in significant environmental impacts.

The 2005 LRDP EIR also stated that an increase in the on-campus population would increase activity along University Avenue, such as use of restaurants, and other retail services in the campus vicinity. This could result in an increase in calls for police services in the community surrounding UCR.

Finally, the 2005 LRDP EIR indicated that no increase in off-campus student residential population is anticipated to result and all 2005 LRDP development would occur with campus boundaries. Therefore, implementation of the 2005 LRDP would not directly increase the need for patrols in off-campus residential areas. In addition, the 2005 LRDP EIR indicated that the increase in campus-affiliated population within the City that would be served by the Riverside Police Department would be nominal.

Implementation of the proposed 2005 LRDP Amendment 2 would increase the overall population on campus as employees who would occupy the medical office building space in the SOM and SOM visitors were not considered in the 2005 LRDP. Thus, an increase in staffing of the UCR Police Department may be required to maintain an adequate ratio of sworn officers per 1,000 persons. While the continued implementation of PP 4.12-2(a), discussed above, would require the Campus to hire more police officers and support staff to maintain adequate levels of service, the hiring of additional officers and staff could also require the need for expanded or additional facilities. The potential environmental effects associated with the construction of these improvements will be evaluated in the EIR for the proposed amendment to the 2005 LRDP.

Future development associated with the proposed 2005 LRDP Amendment 2 would continue existing programs and practices, such as PP 4.12-2(b), which would assure continued participation in a cooperative program between the UC Police Department and the City of Riverside Police Department (UNET program), which would result in the UC Police Department sharing responsibility for response to near-campus service calls and incidents. In turn, the Riverside Police Department would continue to provide emergency back-up to UCR Police Department.

As lands associated with the proposed 2005 LRDP Amendment 2, including the SOM site, the sites of the two relocated parking structures, land designated for West Campus open space, and the Campus Reserve site, are located within campus boundaries, there would not be a need to increase patrols in off-campus residential areas. However, as implementation of the proposed amendment to the 2005 LRDP would increase the overall population on campus, an increase in calls for service to the Riverside Police Department could occur.

For the reasons presented above, implementation of the proposed 2005 LRDP Amendment 2 could result in substantial adverse physical impacts associated with the provision of new or physically altered police

facilities. This impact is considered potentially significant, and this issue will be further analyzed in the EIR.

c) According to the 2005 LRDP EIR, the RUSD has made plans to increase capacity in anticipation of planned growth, and this expansion would occur independently from the 2005 LRDP. The Campus is exempt from payment of school impact fees in connection with campus-controlled residential facilities constructed pursuant to the 2005 LRDP. As such, impact fees associated with the development of residential uses on the campus would not be available to local school districts. However, it is assumed that new development of private residential and commercial projects off campus resulting from increased housing demand from overall growth in the Riverside area would be subject to school impact fees. Payment of these fees would partially reduce impacts on local schools. In addition, school districts have a variety of options available to respond to the issue of University projects contributing more students to them. These options include opening a previously closed school, providing new or temporary classrooms, building a new school, modifying school district boundaries or enrollment areas (thereby freeing up capacity), and modifying which grade levels attend elementary, middle, and high schools. Therefore, because building a new school is only one of several options available for addressing the contribution of more school-age children to the local school districts, it would be unduly speculative to assume that a new building would be necessary. Based on the above, the 2005 LRDP EIR concluded that implementation of the 2005 LRDP would not result in substantial adverse physical impacts associated with the provision of new or physically altered school facilities, and this impact would be less than significant.

Implementation of the proposed 2005 LRDP Amendment 2 would increase the overall population on campus as some of the SOM employees were not considered in the 2005 LRDP. The families of these employees associated with the SOM would include school age children. Although this population would result in new students in the City of Riverside and surrounding areas, funds would be available from private residential and commercial development to pay for new facilities. In addition, as discussed above, the RUSD and neighboring school districts have a number of options available to accommodate new students. Therefore, implementation of the proposed amendment to the 2005 LRDP would not result in substantial adverse physical impacts associated with the provision of new or physically altered school facilities, and this impact would be less than significant. No further analysis of this issue is required in the EIR.

d) See Section 15, Recreation, below.

e) The 2005 LRDP EIR indicated that the implementation of the 20005 LRDP would increase the demand on each of the four existing libraries on campus. In addition, satellite libraries may also be developed as part of professional school development. The potential environmental effects associated with the development of satellite libraries were evaluated in the 2005 LRDP EIR at a program level. With the incorporation of mitigation discussed in other sections of the EIR and due to the relatively small amounts of library space that might be constructed or small areas that could be disturbed to construct library facilities, the 2005 LRDP EIR concluded that the construction of these facilities would not individually result in significant environmental impacts.

In addition, the 2005 LRDP EIR stated that the increase in campus-affiliated population in the City of Riverside would contribute to demand for library services within the City of Riverside. According to the 2005 LRDP EIR, the City of Riverside provides library services from the Main Library, three branch libraries, one learning center and two "cybrary" satellite facilities that serve the existing population of

approximately 259,738 persons. The 2005 LRDP EIR indicated that the increased service population due to implementation of the 2005 LRDP is not anticipated to require new or altered library facilities to meet this relatively small increase in service demand.

The SOM would include library facilities on site as needed to serve the medical school programs. The other elements of the proposed 2005 LRDP Amendment 2 would not increase the need for additional library space. Even though the campus-affiliated population that would live in the City would increase as a result of the proposed amendment for the 2005 LRDP, it would not increase sufficiently to affect the conclusion in the 2005 LRDP EIR with respect to the effect of campus-affiliated population in the City of Riverside on public libraries.

Therefore, for the reasons provided above, implementation of the proposed 2005 LRDP Amendment 2 would not result in substantial adverse physical impacts associated with the provision of new or physically altered library facilities, and this impact would be less than significant. In addition, there have been no changes in circumstances since the certification of the 2005 LRDP EIR that would alter the conclusions of the previous analysis. No further analysis of this issue is required in the EIR.

f) No other public service impacts were identified.

Discussion of Potential Cumulative Impacts

The 2005 LRDP EIR determined that the 2005 LRDP's proposed project's contribution to cumulative impacts on police and fire protection services would not be significant. As discussed under items 14 a) and b) above, the proposed 2005 LRDP Amendment 2 could result in an increase in demand for police and/or fire services which could require the construction of new facilities and associated environmental impacts. Therefore the proposed amendment to the 2005 LRDP could potentially increase the severity of the previously evaluated cumulative impact. This issue will be further analyzed in the EIR.

The 2005 LRDP concluded that the cumulative impacts to demand for public school classroom seating capacity would not be significant, and the 2005 LRDP would not make a cumulatively considerable contribution to this impact. The proposed 2005 LRDP Amendment 2 would increase the number of campus-affiliated school-age children in the study area but for the same reasons that are presented in the 2005 LRDP EIR, the proposed amendment to the 2005 LRDP would not make a cumulatively considerable contribution to the impact. Furthermore there have been no changes in circumstances since the certification of the 2005 LRDP EIR that would alter the conclusions of the previous analysis. No further evaluation in the EIR is required.

The 2005 LRDP EIR concluded that the cumulative impact related to the demand for library services would not be significant and that the 2005 LRDP would not result in a cumulatively considerable contribution to this impact. For the same reasons that are presented in the 2005 LRDP EIR, the proposed 2005 LRDP Amendment 2 would not make a cumulatively considerable contribution to the impact. Furthermore there have been no changes in circumstances since the certification of the 2005 LRDP EIR that would alter the conclusions of the previous analysis. No further evaluation in the EIR is required.

Issues	Impact to be Analyzed in the 2005 LRDP Amendment 2 EIR	No Additional Analysis Required
15. RECREATION --		
a) Would the project increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated?	☐	■
b) Does the project include recreational facilities or require the construction or expansion of recreational facilities, which might have an adverse physical effect on the environment?	☐	■
c) Would the project affect existing recreational opportunities?	☐	■

Relevant Elements of Project

The proposed 2005 LRDP Amendment 2 involves changes to the 2005 LRDP Land Use map and changes to the text of the 2005 LRDP. The key changes are designation of a site on the West Campus for the development of a SOM; reconfiguration of the West Campus open space areas; changes in the locations of two future West Campus parking structures, and the designation of the Campus Reserve site for housing and open space uses.

The UCR campus currently provides approximately 46.1 acres of active recreational space and approximately 98,269 gsf of developed recreational facilities (e.g., recreation buildings) that are used for physical education, intercollegiate athletics, intramural sports, sports clubs, and general recreation. There are also 18 public parks maintained by the City of Riverside within approximately 2 miles of the campus. The total combined area of these parks is about 1,000 acres. The 2,389-acre Box Springs Mountain Park, which is maintained by the County of Riverside Open Space and Recreation Department, is the closest regional park to the campus (UCR, 2005 LRDP EIR).

Discussion of Potential Project Impacts

a) According to the 2005 LRDP EIR, implementation of the 2005 LRDP would meet the recreational needs of the UCR campus population. In addition, future development on the campus would be guided by a range of LRDP planning strategies, including Open Space 7, which requires development to provide neighborhood parks and tot lots in the family housing areas as neighborhood open space (see **Appendix A** for a complete list of 2005 LRDP Planning Strategies, Programs and Practices, and Mitigation Measures). Therefore, the 2005 LRDP EIR concluded that implementation of the 2005 LRDP would not increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facilities would occur or be accelerated, and this impact would be less than significant.

Implementation of the proposed 2005 LRDP Amendment 2 would not increase the use of existing neighborhood and regional parks or other recreational facilities. Although the on-campus population would be greater as result of the implementation of the proposed amendment to the 2005 LRDP compared to overall population on campus considered in the 2005 LRDP EIR, future development associated with the proposed 2005 LRDP Amendment 2 would be guided by a range of LRDP planning strategies, including Open Space 7, which is discussed above. In addition, the proposed amendment to the 2005 LRDP includes a greatly improved open space concept for the West Campus. Therefore, implementation of the proposed 2005 LRDP Amendment 2 would not increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facilities would occur or be accelerated, and this impact would be less than significant. Furthermore, there have been no changes in circumstances since the certification of the 2005 LRDP EIR that would alter the conclusions of the previous analysis with respect to this criterion. No further analysis of this issue is required in the EIR.

b) The 2005 LRDP EIR indicated that the construction of new recreational facilities has the potential to result in disturbance to the on-site environment. The potential environmental effects associated with these new recreational facilities were evaluated in the 2005 LRDP EIR at a program level. The 2005 LRDP EIR indicated that LRDP planning strategies, existing programs and practices, and mitigation measures provided in the EIR would address impacts to the extent feasible. Therefore, the 2005 LRDP EIR concluded that the impacts associated with the construction of new recreational facilities or the expansion of existing recreational facilities on the campus would not have an adverse physical effect on the environment, beyond those identified elsewhere in the EIR. Impacts of construction or expansion of recreational facilities would be less than significant.

The proposed 2005 LRDP Amendment 2 does not include new recreational facilities (i.e., parks) although it does provide for more open space than was provided on the West Campus under the 2005 LRDP. Therefore, no impact with regard to the construction of new recreational facilities or the expansion of existing facilities would occur. Furthermore there have been no changes in circumstances since the certification of the 2005 LRDP EIR that would alter the conclusions of the previous analysis. No further analysis of this issue is required in the EIR.

c) According to the 2005 EIR, implementation of the 2005 LRDP would result in displacement of existing recreational facilities on the lower intramural fields to provide sites for academic and support facilities but the fields would be replaced at other locations over time. In addition, future development would be guided by a range of LRDP planning strategies, including Open Space 7, which is discussed above. Therefore, as implementation of the 2005 LRDP would compensate for the loss of existing recreational fields on campus by replacing these recreational opportunities elsewhere on the campus, this impact would be less than significant.

Lands affected by the proposed 2005 LRDP Amendment 2, including the SOM site, the sites of the two relocated parking structures, land designated for West Campus open space, and the Campus Reserve site, are currently in agricultural use as experimental orchards or row crops or vacant. No recreational facilities exist on the site and no impact would occur. Furthermore there have been no changes in circumstances since the certification of the 2005 LRDP EIR that would alter the conclusions of the previous analysis. No further analysis of this issue is required in the EIR.

Discussion of Potential Cumulative Impacts

The 2005 LRDP found that implementation of the 2005 LRDP would not increase demand for parkland and recreational facilities in the City or County of Riverside, and thus the contribution of the 2005 LRDP to cumulative impacts would not be cumulatively considerable. For the same reasons that are presented in the 2005 LRDP EIR, the proposed 2005 LRDP Amendment 2 would not make a cumulatively considerable contribution to the impact. There have been no changes in circumstances since the certification of the 2005 LRDP EIR that would alter the conclusions of the previous analysis. Further evaluation in the EIR is not required.

In addition, the 2005 LRDP concluded that the cumulative impacts from construction of park and recreational facilities associated with the 2005 LRDP and elsewhere in the City or County of Riverside would not be significant. For the same reasons that are presented in the 2005 LRDP EIR, the proposed 2005 LRDP Amendment 2 would not alter the significance of this cumulative impact. There have been no changes in circumstances since the certification of the 2005 LRDP EIR that would alter the conclusions of the previous analysis. Further evaluation in the EIR is not required.

Issues	Impact to be Analyzed in the 2005 LRDP Amendment 2 EIR	No Additional Analysis Required
16. TRANSPORTATION/TRAFFIC -- Would the project:		
a) Exceed the capacity of the existing circulation system, based on an applicable measure of effectiveness (as designated in a general plan policy, ordinance, etc.), taking into account all relevant components of the circulation system, including but not limited to intersections, streets, highways and freeways, pedestrian and bicycle paths, and mass transit?	■	□
b) Conflict with an applicable congestion management program, including, but not limited to level of service standards and travel demand measures, or other standards established by the county congestion management agency for designated roads or highways?	■	□
c) Result in a change in air traffic patterns, including either an increase in traffic levels or a change in location that result in substantial safety risks?	□	■
d) Substantially increase hazards due to a design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)?	□	■
e) Result in inadequate emergency access?	□	■
f) Result in inadequate parking capacity?	■	□
g) Conflict with applicable policies, plans, or programs supporting alternative transportation (e.g., bus turnouts, bicycle racks)?	□	■

Relevant Elements of Project

The proposed 2005 LRDP Amendment 2 involves changes to the 2005 LRDP Land Use map and changes to the text of the 2005 LRDP. The key changes are designation of a site on the West Campus for the development of a SOM; reconfiguration of the West Campus open space areas; changes in the locations of two future West Campus parking structures, and the designation of the Campus Reserve site for housing and open space uses.

Major east-west roadways that serve campus include Blaine Street, 3rd Street, Linden Street, University Avenue, Big Springs Road, Martin Luther King Boulevard, Le Conte Drive, and Central Avenue. Major north-south roadways that serve the campus include Chicago Avenue, Iowa Avenue, Canyon Crest Drive, and Watkins Drive. Major freeways in the area include Interstate 215/State Route 60, and State Route 91. Public transportation to and from the campus is provided by the Riverside Transit Authority. The Campus also operates a free campus shuttle that serves various points in and around the campus.

Discussion of Potential Project Impacts

a) The traffic impact analysis for the 2005 LRDP evaluated traffic impacts at 35 intersections under two scenarios: the configuration of Iowa Avenue as a two lane roadway between University Avenue and MLK and the configuration of Iowa Avenue as a four lane roadway between University Avenue and MLK. Under both scenarios, the 2005 LRDP EIR indicated that implementation of the 2005 LRDP would result in additional vehicular trips, which would increase traffic volumes and degrade intersection levels of service. However, future development on campus would require the implementation of LRDP mitigation measures MM 4.14-1(a) through (g) under the two-lane scenario and implementation of LRDP mitigation measures MM 4.14-1(h) through (l) under the four-lane scenario, which would result in all study intersections operating at an acceptable level of service, although these service levels after mitigation are conditioned on the City of Riverside making improvements to local roadways independent of the 2005 LRDP (see **Appendix A** for a complete list of 2005 LRDP Planning Strategies, Programs and Practices, and Mitigation Measures). Development on the campus would also be guided by a range of LRDP planning strategies, including Land Use 4 and 7, and Transportation 1 through 3, 5, and 6, which would reduce the number of trips generated by new development. In addition, future development on the campus would continue existing campus programs and practices, such as PP 4.14-1, which would result in the continued implementation of the Transportation Demand Management program. However, even with the implementation of mitigation measures, relevant planning strategies, and the programs and practices, the 2005 LRDP EIR determined that the impacts to intersections would be significant and unavoidable as the Campus has no control over when the City of Riverside will make the required improvements.

Implementation of the proposed 2005 LRDP Amendment 2 would result in additional vehicular trips, which would increase traffic volumes and degrade intersection levels of service. Future development associated with the proposed amendment to the 2005 LRDP would be guided by a range of LRDP planning strategies, including, Land Use 4 and 7, Transportation 1 through 3, 5, and 6, and would continue existing campus programs and practices, such as PP 4.14-1, which are described above. However, even with implementation of relevant planning strategies and existing programs and procedures, trips generated by elements of the proposed 2005 LRDP Amendment 2 when added to the trips generated by the rest of the development under the 2005 LRDP could exceed the capacity of the existing circulation system. This is considered a potentially significant impact, and this issue will be further analyzed in the EIR.

The 2005 LRDP EIR also indicated that the generation of construction-related vehicle trips could temporarily impact traffic conditions along area roadway segments and at individual intersections. However, future development on the campus would continue existing campus programs and practices, such as PP 4.14-2, which would reduce potential impacts by requiring coordination of construction activities, in particular to avoid overlap of activities with heavy truck traffic, such as excavation, or demolition of large structures. However, because of the imprecise nature of construction schedules, and the need to accommodate the anticipated enrollment increases and program growth identified in the 2005 LRDP, construction vehicle traffic may still result in localized impacts. Therefore, the 2005 LRDP EIR

concluded that implementation of the 2005 LRDP would cause an increase in traffic, which is substantial in relation to the existing traffic load and capacity of the street system during construction, and this impact would be significant and unavoidable.

Implementation of the proposed 2005 LRDP Amendment 2 would generate additional construction-related vehicle trips beyond those evaluated in the 2005 LRDP EIR that could temporarily impact traffic conditions along area roadway segments and at individual intersections. Although future development associated with the proposed amendment to the 2005 LRDP would continue existing campus programs and practices, such as PP 4.14-2, which is discussed above, because of the imprecise nature of construction schedules, construction vehicle traffic may still result in localized impacts. Therefore, construction vehicle trips generated by elements of the proposed 2005 LRDP Amendment 2 could exceed the capacity of the existing circulation system during construction. This is considered a potentially significant impact, and this issue will be further analyzed in the EIR.

b) The 2005 LRDP EIR indicated that implementation of the 2005 LRDP would result in additional vehicular traffic volumes, which would exceed established service levels on roadways (I-215/SR-60) designated by the Riverside County Congestion Management Program. This impact was determined to be significant and unavoidable.

Implementation of the proposed 2005 LRDP Amendment 2 would also result in additional vehicular traffic volumes, which could exceed established service levels on roadways (I-215/SR-60) designated by the Riverside County Congestion Management Program. This is considered a potentially significant impact, and this issue will be further analyzed in the EIR.

c) According to the 2005 LRDP EIR, implementation of the 2005 LRDP would not result in a change in air traffic patterns or an increase in air traffic levels, and no impact would occur. The closest airports to the campus are Flabob Airport, which is located approximately 4 miles to the west, and March Joint Air Reserve Base, which is located approximately 6 miles to the southeast. Implementation of the proposed 2005 LRDP Amendment 2 would also not result in a change in air traffic patterns or an increase in air traffic levels, as the campus is not located within 2 miles of the nearest air port, or within the airport land use plan study area for either the Flabob Airport or the March Joint Air Reserve Base, and no impact would occur. No further analysis of this issue is required in the EIR.

d) According to the 2005 LRDP EIR, it is anticipated that any new roadway segments associated with the implementation of the 2005 LRDP would employ the use of standard engineering practices (e.g., use of standard road and driveway widths, provision of adequate sight lines, and avoidance of sharp turning radii) and traffic mitigation strategies (e.g., installation of control devices such as stop signs or signal lights as needed) to avoid design elements that could result in hazards due to features such as sharp curves or dangerous intersections. In addition, as discussed in Item 10 b) Land Use, the 2005 LRDP EIR indicated that implementation of the 2005 LRDP would not result in any land use incompatibilities with either on-campus or off-campus uses as future development on the campus would be guided by a number of LRDP planning strategies and existing programs and practices that are designed to reduce potential land use incompatibilities. Finally, future development on the campus would continue existing campus programs and practices, such as PP 4.14-4, which would result in the consideration of Campus Design Guidelines in the design of roadways. Therefore, the 2005 LRDP EIR concluded that implementation of the 2005 LRDP would not substantially increase hazards due to a design feature or incompatible uses during operation, and this impact would be less than significant.

It is anticipated that any new roadways (internal roadways and driveways) associated with the implementation of the proposed 2005 LRDP Amendment 2 would also employ the use of standard engineering practices and traffic mitigation strategies to avoid design elements that could result in hazards due to features such as sharp curves or dangerous intersections. In addition, future development associated with the proposed amendment to the 2005 LRDP would continue existing campus programs and practices, such as PP 4.14-4, which is discussed above. Therefore, implementation of the proposed 2005 LRDP Amendment 2 would not substantially increase hazards due to a design feature or incompatible uses during operation, and this impact would be less than significant. Furthermore there have been no changes in circumstances since the certification of the 2005 LRDP EIR that would alter the conclusions of the previous analysis. No further analysis of this issue is required in the EIR.

The analysis in the 2005 LRDP EIR also determined that short-term closure of traffic lanes or roadway segments during construction associated with the 2005 LRDP could result in short-term traffic hazards. Furthermore, the 2005 LRDP EIR indicated that construction activities associated with the 2005 LRDP could result in temporary closure of on-campus pedestrian sidewalks and paths. However, future development on the campus would continue existing campus programs and practices, such as PP 4.14-4, which is discussed above, PP 4.14-5, which would preserve a single traffic lane on campus roadways whenever feasible, and PP 4.14-6, which would provide alternative routes for pedestrians, that would reduce the potential for hazards. Therefore, the 2005 LRDP EIR concluded that implementation of the 2005 LRDP would not substantially increase hazards due to a design feature or incompatible uses during construction, and this impact would be less than significant.

Construction associated with the proposed 2005 LRDP Amendment 2 could also result in short-term closure of traffic lanes or roadway segments that could pose hazards on the campus. In addition, construction could result in the temporary closure of on-campus sidewalks and paths, which could pose hazards to pedestrians. However, future development associated with the proposed amendment to the 2005 LRDP would continue existing campus programs and practices, such as PP 4.14-3, PP 4.14-5, and PP 4.14-6, which are described above. Therefore, implementation of the proposed 2005 LRDP Amendment 2 would not substantially increase hazards due to a design feature or incompatible uses during construction, and this impact would be less than significant. No further analysis of this issue is required in the EIR.

e) According to the 2005 LRDP EIR, emergency vehicles are not anticipated to experience any substantial delays as a result of the significant traffic impacts that could occur at some intersections as a result of the implementation of the 2005 LRDP in the long-term. Implementation of future development on campus would be guided by a range of LRDP planning strategies, including Transportation 4, which would limit general vehicular circulation in the central campus, but allow transit, service, and emergency vehicle access. In the short-term, the 2005 LRDP EIR indicated that construction activity could require the closure of traffic lanes or roadway segments, which could result in impaired emergency access. To address this, future development on the campus would continue existing campus programs and practices, such as PP 4.14-5, which is discussed above, and PP 4.14-8, which would require consultation with emergency service providers regarding roadway closures. Therefore, the 2005 LRDP EIR concluded that the implementation of the 2005 LRDP would not impair emergency access, in the long- or short-term, and this impact would be less than significant.

While unlikely, emergency vehicles could experience delays as a result of the traffic impacts that could occur at some intersections as a result of implementation of the proposed 2005 LRDP Amendment 2 in the long-term. Implementation of future development associated with the proposed amendment to the 2005

LRDP would be guided by a range of LRDP planning strategies, including Transportation 4, which is discussed above. In the short-term, construction activity associated with the proposed 2005 LRDP Amendment 2 could require the closure of traffic lanes or roadway segments, which could result in impaired emergency access. Implementation of future development associated with the proposed amendment to the 2005 LRDP would continue existing campus programs and practices, such as PP 4.14-5 and PP 4.14-8, which are discussed above. Therefore, the implementation of the proposed 2005 LRDP Amendment 2 would not impair emergency access, and this impact would be less than significant. Furthermore, there have been no changes in circumstances since the certification of the 2005 LRDP EIR that would alter the conclusions of the previous analysis. No further analysis of this issue is required in the EIR.

f) According to the 2005 LRDP EIR, the increase in campus population would result in an increased demand for parking. Implementation of future development on campus would be guided by a range of LRDP planning strategies, including Land Use 4, which states that the Campus will pursue a goal of housing 50 percent of the student enrollment in on-campus or campus-controlled housing, Land Use 7, which would relocate parking from central campus locations to the periphery of the academic core and replace surface parking with structures, where appropriate, and Transportation 1 through 3, 5, and 6, which promote alternative modes of travel such as walking, bicycling, and public transit. In addition, future development on the campus would continue existing campus programs and practices, such as PP 4.14-1, which is discussed above. As a result, the 2005 EIR concluded that implementation of the 2005 LRDP would not result in inadequate parking supply, and this impact would be less than significant.

Implementation of the proposed 2005 LRDP Amendment 2 would increase campus population above levels that were considered under the 2005 LRDP thus increasing demand for parking. Future development associated with the proposed amendment to the 2005 LRDP would be guided by a range of LRDP planning strategies, including, Land Use 4 and 7, Transportation 1 through 3, 5, and 6, and would continue existing campus programs and practices, such as PP 4.14-1, which are discussed above. However, even with implementation of relevant planning strategies and existing programs and procedures, parking demand generated by elements of the proposed 2005 LRDP Amendment 2 could exceed the parking demand previously considered under the 2005 LRDP EIR. This is considered a potentially significant impact, and this issue will be further analyzed in the EIR.

g) According to the 2005 LRDP EIR, implementation of the 2005 LRDP would result in the generation of additional vehicle trips. In addition, the 2005 LRDP EIR also indicated that the 2005 LRDP would increase demand for public transit. Implementation of future development on campus would be guided by a range of LRDP planning strategies, including Land Use 4, and Transportation 1 through 3, 5, and 6, which are discussed above. In addition, future development on the campus would continue existing campus programs and practices, such as PP 4.14-1, which is discussed above. Finally, the implementation of LRDP mitigation measure MM 4.14-13 would ensure that the Campus work with service providers to provide adequate public transit service to the campus. Thus, the 2005 LRDP EIR concluded that implementation of the 2005 LRDP would not conflict with applicable policies, plans, or programs supporting alternative transportation, and this impact would be reduced to a less than significant level.

Implementation of the proposed 2005 LRDP Amendment 2 would result in additional vehicle trips beyond those evaluated in the 2005 LRDP EIR. In addition, the proposed amendment to the 2005 LRDP would also increase demand for public transit. However, implementation of future development associated with the proposed 2005 LRDP Amendment 2 would be guided by a range of LRDP planning strategies, including Land Use 4, and Transportation 1 through 3, 5, and 6, and would continue existing

campus programs and practices, such as PP 4.14-1, which are discussed above. In addition, future development associated with the proposed amendment to the 2005 LRDP would also implement LRDP mitigation measure MM 4.14-13, which is discussed above. Thus, implementation of the proposed 2005 LRDP Amendment 2 would not conflict with applicable policies, plans, or programs supporting alternative transportation, and this impact would be reduced to less than significant with implementation of the mitigation measures previously adopted by the University in conjunction with its adoption of the 2005 LRDP. Furthermore, there have been no changes in circumstances since the certification of the 2005 LRDP EIR that would alter the conclusions of the previous analysis. No further analysis of this issue is required in the EIR.

Discussion of Potential Cumulative Impacts

The analysis in the 2005 LRDP EIR concluded that cumulative traffic growth, including campus growth under the 2005 LRDP, would result in significant cumulative impacts at a total of 12 intersections under the two-lane Iowa Avenue scenario, and at a total of 10 intersections under the four-lane Iowa Avenue scenario. The contribution of the 2005 LRDP to the cumulative traffic impacts would be cumulatively considerable. The proposed 2005 LRDP Amendment 2 would potentially increase the number of daily and peak hour vehicle trips associated with the campus and extend the horizon year of the campus LRDP to 2020/21. Furthermore, the existing and projected background traffic volumes in the study area may have increased or decreased since 2005. Therefore, the proposed amendment to the 2005 LRDP could increase or decrease the severity of the previously analyzed cumulative traffic impacts. This issue will be further analyzed in the EIR.

The 2005 LRDP EIR concluded that the impact of the 2005 LRDP on the Riverside County Congestion Management Program (CMP) roadways would be cumulatively considerable. The proposed 2005 LRDP Amendment 2 would potentially increase the number of daily and peak hour vehicle trips associated with the campus. Furthermore, the existing and projected background traffic volumes in the study area may have increased or decreased since 2005. Therefore the proposed amendment to the 2005 LRDP could increase or decrease the severity of the previously analyzed cumulative traffic impacts on CMP facilities. This issue will be further analyzed in the EIR.

The 2005 LRDP EIR identified significant cumulative impacts related to periods of heavy truck traffic off-campus as a result of the delivery of construction materials and equipment and the hauling of demolition waste and earth materials. The 2005 LRDP EIR found that the contribution of the 2005 LRDP to impacts would be cumulatively considerable. The proposed 2005 LRDP Amendment 2 would potentially increase the number of daily and peak hour construction truck trips associated with the campus. Furthermore, the existing and projected background traffic volumes in the study area may have increased or decreased since 2005. Therefore the proposed amendment to the 2005 LRDP could increase or decrease the severity of the previously analyzed cumulative traffic impacts related to delivery of construction materials. This issue will be further analyzed in the EIR.

The 2005 LRDP EIR determined that the 2005 LRDP would not result in hazards due to design features or land use incompatibilities and the contribution of the 2005 LRDP to any cumulative impacts from traffic hazards would not be cumulatively considerable. As discussed under Item 16 d) above, for the same reasons that were presented in the 2005 LRDP EIR, the proposed 2005 LRDP Amendment 2 would not result in hazards due to design features. The proposed amendment to the 2005 LRDP would therefore not alter the conclusion of the previously analyzed cumulative impact. In addition, there have been no changes in circumstances since the certification of the 2005 LRDP EIR that would alter the conclusions of the previous analysis. Further evaluation in the EIR is not required.

The 2005 LRDP EIR found that the 2005 LRDP's contribution to the cumulative construction impacts related to localized pedestrian hazards would not be considerable and that the contribution of the 2005 LRDP to cumulative impacts on emergency access would not be cumulatively considerable. As discussed under Items 16 d) and e) above, for the same reasons that were presented in the 2005 LRDP EIR, the proposed 2005 LRDP Amendment 2 would not result in significant cumulative impacts related to pedestrian hazards and emergency access. The proposed amendment to the 2005 LRDP would therefore not alter the conclusions of the previously analyzed cumulative impacts. In addition, there have been no changes in circumstances since the certification of the 2005 LRDP EIR that would alter the conclusions of the previous analysis. Further evaluation in the EIR is not required.

The 2005 LRDP EIR determined that the contribution of the 2005 LRDP to parking supply impacts would not be cumulatively considerable. In addition, it found that the contribution of the 2005 LRDP to cumulative impacts associated with construction worker parking would not be cumulatively considerable. The proposed 2005 LRDP Amendment 2 would increase demand for parking on campus. Therefore, the proposed amendment to the 2005 LRDP could increase or decrease the severity of the previously analyzed cumulative traffic impacts. This issue will be further analyzed in the EIR.

The 2005 LRDP EIR concluded that the contribution of the 2005 LRDP to cumulative impacts on alternative transportation would not be considerable. As discussed under Item 16 (g) above, for the same reasons that were presented in the 2005 LRDP EIR, the proposed 2005 LRDP Amendment 2 would not result in impacts related to alternative transportation. The proposed amendment to the 2005 LRDP would therefore not alter the conclusions of the previously analyzed cumulative impacts. In addition, there have been no changes in circumstances since the certification of the 2005 LRDP EIR that would alter the conclusions of the previous analysis. Further evaluation in the EIR is not required.

Issues	Impact to be Analyzed in the 2005 LRDP Amendment 2 EIR	No Additional Analysis Required
17. UTILITIES AND SERVICE SYSTEMS – Would the project:		
a) Exceed wastewater treatment requirements of the applicable Regional Water Quality Control Board?	■	☐
b) Require or result in the construction of new water or wastewater treatment facilities or expansion of existing facilities, the construction of which could cause significant environmental effects?	■	☐
c) Require or result in the construction of new storm water drainage facilities or expansion of existing facilities, the construction of which could cause significant environmental effects?	■	☐
d) Have sufficient water supplies available to serve the project from existing entitlements and resources, or are new or expanded entitlements needed?	■	☐
e) Result in a determination by the wastewater treatment provider, which serves or may serve the project that it has adequate capacity to serve the project's projected demand in addition to the provider's existing commitments?	■	☐
f) Be served by a landfill with sufficient permitted capacity to accommodate the project's solid waste disposal needs?	■	☐
g) Comply with applicable federal, State, and local statutes and regulations related to solid waste?	■	☐
h) Create other utility and service system impacts?	■	☐

Relevant Elements of Project

The proposed 2005 LRDP Amendment 2 involves changes to the 2005 LRDP Land Use map and changes to the text of the 2005 LRDP. The key changes are designation of a site on the West Campus for the development of a SOM; reconfiguration of the West Campus open space areas; changes in the locations of two future West Campus parking structures, and the designation of the Campus Reserve site for housing and open space uses.

The City of Riverside supplies domestic water to UCR. The City receives approximately 99 percent of its water from nearby groundwater resources, while receiving less than 1 percent from imported water sources. Wastewater generated on campus is treated by the City of Riverside wastewater treatment plant. The Campus operates its own on-site wastewater collection system that connects to the City's wastewater

collection system. The Campus collects and handles its own solid waste. The City of Riverside Public Utilities Department (PUD) currently provides electricity to the UCR campus while natural gas is provided by the Southern California Gas Company.

Discussion of Potential Project Impacts

a) According to the 2005 LRDP EIR, the City of Riverside Regional Water Quality Control Plant, which serves land uses on campus, has adequate capacity to treat wastewater generated by campus growth under the 2005 LRDP, and thus is anticipated to continue to comply with all wastewater treatment requirements of the Santa Ana Regional Water Quality Control Board (SARWQB). Future development on the campus would be guided by a range of LRDP planning strategies, including Conservation 5, which would require continued adherence to the conservation requirements of Title 24 of the California Code of Regulations and comply with any future conservation goals or programs enacted by the University of California (see **Appendix A** for a complete list of 2005 LRDP Planning Strategies, Programs and Practices, and Mitigation Measures). In addition, future development on the campus would continue existing campus programs and practices, such as PP 4.15-5, which requires the Campus to comply with all applicable water quality requirements established by the SARWQB. Therefore, implementation of the 2005 LRDP would not cause an exceedance of wastewater treatment requirements of the applicable Regional Water Quality Control Board, and this impact would be less than significant.

The addition of about 3.1 million gsf of building space associated with the SOM would result in an increase in wastewater generation that was not previously considered in the 2005 LRDP EIR. The relocation of the two parking garages, the reconfiguration of West Campus open space, and the housing and open space now designated on the Campus Reserve site represent land uses that were previously considered under the 2005 LRDP and would not result in an increase in wastewater that was not previously considered. Although the proposal to allow retail or office uses within all proposed parking structures on the campus was not considered in the 2005 LRDP, the building space associated with these uses was encompassed within the total new building space that was considered in the 2005 LRDP EIR and evaluated for its impact on wastewater facilities. The remaining elements of the proposed 2005 LRDP Amendment 2 are programmatic in nature and would not increase the total amount of wastewater generated on the campus. Future development associated with the proposed amendment to the 2005 LRDP would be guided by a range of LRDP planning strategies, including Conservation 5, and would continue existing campus programs and practices, such as PP 4.15-5, which are discussed above. However, even with these measures in place, additional building space associated with the SOM, could increase discharge of wastewater from the campus such that wastewater treatment requirements of the applicable Regional Water Quality Control Board for the City's treatment plant could potentially be exceeded. This is considered a potentially significant impact, and this issue will be further analyzed in the EIR.

b) The 2005 LRDP EIR indicated that the City of Riverside would have enough water treatment capacity to serve development proposed in the 2005 LRDP. In addition, the 2005 LRDP indicated that the City of Riverside Regional Water Quality Control Plant has adequate capacity to treat wastewater generated by the implementation of the 2005 LRDP. Implementation of future development on campus would be guided by a range of LRDP planning strategies, including Conservation 5, which is discussed above. In addition, future development on campus would continue existing campus programs and procedures, such as PP 4.15-1(a) and (d), which are designed to conserve water.

Concerning wastewater conveyance, while the Campus routinely monitors the capacity of sewer lines on campus in order to ensure that they are capable of supporting new development, City-maintained sewer

lines outside the campus boundaries may not have enough capacity in the future to handle both City-generated and campus-generated wastewater from new development. Implementation of future development on the campus would be guided by a range of LRDP planning strategies, including Conservation 5, which is discussed above. In addition, implementation of LRDP mitigation measures MM 4.15-6(a) and (b) would reduce potential impacts on City-maintained wastewater conveyance systems by ensuring that upgrades are identified and implemented as required. Therefore, the 2005 LRDP EIR concluded that implementation of the 2005 LRDP would not require or result in the construction of new water or wastewater treatment facilities or expansion of existing facilities, the construction of which could cause significant environmental effects, and this impact would reduced to a less than significant level.

The addition of about 3.1 million gsf of building space associated with the SOM would result in an increased demand for water and an increase in wastewater generation that was not previously considered in the 2005 LRDP EIR. For reasons presented above, all of the other elements of the proposed 2005 LRDP Amendment 2 would not result in an increase demand for water and an increase in wastewater generation above the amount that was considered in the 2005 LRDP EIR. Implementation of future development associated with the proposed amendment to the 2005 LRDP would be guided by a range of LRDP planning strategies, including Conservation 5, and would continue existing campus programs and procedures, such as PP 4.15-1(a) and (d), which are discussed above. However, even with these measures in place, additional building space associated with the SOM could require or result in the construction of new water treatment facilities or expansion of existing facilities, the construction of which could cause significant environmental effects. The potential environmental effects associated with the construction of the new water and wastewater conveyance systems could be potentially significant and will be evaluated in the EIR for the proposed 2005 LRDP Amendment 2.

c) According to the 2005 LRDP EIR, future development of the West Campus would require the installation of a new storm drain system. The potential environmental effects associated with construction and operation of the expanded and new storm drain facilities were evaluated in the 2005 LRDP EIR at a program level. The 2005 LRDP EIR concluded that with the incorporation of existing campus programs and practices and mitigation measures discussed in the EIR and due to the relatively small amount of physical improvements that would be constructed or small areas that could be disturbed, the construction of these facilities would not individually result in significant environmental impacts. Therefore, the 2005 LRDP EIR concluded that while implementation of the 2005 LRDP would require or result in the construction of new stormwater drainage facilities or expansion of existing facilities, the construction of these facilities would not cause significant environmental effects, and this impact would be less than significant.

The addition of about 3.1 million gsf of building space associated with the SOM would require the installation of additional storm drain improvements that was not previously considered in the 2005 LRDP EIR. The relocation of the two parking garages, the reconfiguration of West Campus open space, and the housing and open space now designated on the Campus Reserve site represent land uses that were previously considered under the 2005 LRDP and would not result in the installation of a new storm drain system that was not previously considered. The retail or office uses within the proposed parking structures would not require a new storm drain system as they would be served by storm drain systems serving each parking structure. The remaining elements of the proposed 2005 LRDP Amendment 2 are all programmatic in nature and would not require a new storm drain system. The potential environmental effects associated with the construction of the new storm drain systems could be potentially significant and will be evaluated in the EIR.

d) According to the 2005 LRDP EIR, the City of Riverside's total projected water supplies (including groundwater) available during normal, single dry, and multiple dry years during a 20-year period, are adequate to meet the projected water demand resulting from implementation of the 2005 LRDP. Future development on the campus would be guided by a range of LRDP planning strategies, including Conservation 5, which is discussed above. In addition, future development on the campus would continue existing campus programs and practices, such as PP 4.15-1(a) and (d), which are discussed above. Therefore, the 2005 LRDP EIR concluded that the City would have sufficient water supplies available to serve campus growth under 2005 LRDP from existing entitlements and resources, and this impact would be less than significant.

The addition of about 3.1 million gsf of building space associated with the SOM would result in an increased demand for water that was not previously considered in the 2005 LRDP EIR. For reasons presented in the sections above, all of the other elements of the proposed 2005 LRDP Amendment 2 would not increase the campus water demand above the volume that was considered in the 2005 LRDP EIR. Implementation of future development associated with the proposed amendment to the 2005 LRDP would be guided by a range of LRDP planning strategies, including Conservation 5, and would continue existing campus programs and practices, such as PP 4.15-1(a) (d), which are discussed above. However, even with these measures in place, sufficient water supplies may not be available to serve the additional building space associated with the SOM from existing entitlements and resources. This is considered a potentially significant impact, and this issue will be further analyzed in the EIR.

e) According to the 2005 LRDP EIR, the City of Riverside Regional Water Quality Control Plant has adequate capacity to treat wastewater generated by the implementation of the 2005 LRDP. Implementation of future development on the campus would be guided by a range of LRDP planning strategies, including Conservation 5, which is discussed above. Thus, the 2005 LRDP EIR concluded that implementation of the 2005 LRDP would not result in a determination by the wastewater treatment provider, which serves or may serve the project that it has inadequate capacity to serve the project's projected demand in addition to the provider's existing commitments, and this impact would be less than significant.

The addition of about 3.1 million gsf of building space associated with the SOM would result in an increase in wastewater generation that was not previously considered in the 2005 LRDP EIR. For reasons presented in the sections above, all of the other elements of the proposed 2005 LRDP Amendment 2 would not increase the total amount of wastewater generated on the campus above the amount that was considered in the 2005 LRDP EIR. Future development associated with the proposed amendment to the 2005 LRDP would be guided by a range of LRDP planning strategies, including Conservation 5, which is discussed above. However, even with these measures in place, additional building space associated with the SOM, and retail or office uses within the proposed parking structures could result in a determination by the wastewater treatment provider, that it has inadequate capacity to serve the project's projected demand in addition to the provider's existing commitments. This is considered a potentially significant impact, and this issue will be further analyzed in the EIR.

f) According to the 2005 LRDP EIR, solid waste generated by the implementation of the 2005 LRDP could be accommodated within the remaining capacity of the Badlands Landfill, which currently serves land uses on campus. Therefore, the 2005 LRDP EIR concluded that implementation of the 2005 LRDP would be served by a landfill with sufficient permitted capacity to accommodate the project's solid waste disposal needs, and this impact would be less than significant.

The addition of about 3.1 million gsf of building space associated with the SOM would result in an increase in solid waste generated on campus that was not previously considered in the 2005 LRDP EIR. For reasons presented in the sections above, all of the other elements of the proposed 2005 LRDP Amendment 2 would not increase the total amount of solid waste generated on the campus above the amount that was considered in the 2005 LRDP EIR. Solid waste generated on campus is currently deposited in the Badlands Landfill, which may not have enough capacity to serve additional building space associated with the SOM, as well as other land uses in Riverside County. This is considered a potentially significant impact, and this issue will be further analyzed in the EIR.

g) The University of California is not subject to AB 939 but voluntarily applies its standards as a goal. According to the 2005 LRDP EIR, the Campus met the AB 939 solid waste reduction goal of 50 percent in 2002-03 with a 51 percent diversion rate from the solid waste stream through recycling, diverting, composting, or reuse on the campus. Therefore, the 2005 LRDP EIR concluded that implementation of the 2005 LRDP would comply with applicable federal, State, and local statutes and regulations related to solid waste, and this impact would be less than significant.

The addition of about 3.1 million gsf of building space associated with the SOM would result in an increase in solid waste generated on the campus that was not previously considered in the 2005 LRDP EIR. All of the other elements of the proposed 2005 LRDP Amendment 2 would not result in increased solid waste generation above the amount that was considered in the 2005 LRDP EIR. In 2008-09, the campus failed to meet the AB 939 solid waste reduction goal of 50 percent by only achieving a 46 percent diversion rate.[1] While additional building space associated with the SOM would continue to comply with applicable federal, State, and local statutes and regulations related to solid waste, the additional solid waste generated by this land use could hamper efforts by the Campus to reach the 50 percent diversion goal set by AB 939. This is considered a potentially significant impact, and this issue will be further analyzed in the EIR.

h) According to the 2005 LRDP EIR, the existing transformers at the electrical substation serving the campus have enough capacity to serve the 2005 LRDP and additional electrical improvements would not be needed. However, modifications and extensions of existing natural gas distribution infrastructure would be required to serve new development, particularly on the West Campus. The environmental impacts of constructing these improvements were addressed on a programmatic basis in the 2005 LRDP EIR. With the incorporation of existing programs and practices and mitigation measures listed in the 2005 LRDP and due to the relatively small amount of physical improvements that would be constructed or small areas that could be disturbed, the construction of these facilities would not individually result in significant environmental impacts. In addition, future development on the campus would be guided by a range of LRDP planning strategies, including Conservation 5, which is discussed above. Therefore, implementation of the 2005 LRDP would not require or result in the construction or expansion of electrical and natural gas facilities, the construction of which could cause significant environmental effects, and this impact would be less than significant.

The addition of about 3.1 million gsf of building space associated with the SOM would result in an increase in energy demand. This increase in demand would require the extension of existing electrical and natural gas distribution infrastructure that was not previously considered for development. The

1 University of California Annual Waste Reduction and Recycling Report and Integrated Waste Management Plan, Fiscal Year 2008-2009.

relocation of the two parking garages, the reconfiguration of West Campus open space, and the housing and open space now designated on the Campus Reserve site represent land uses that were previously considered under the 2005 LRDP and would not result in an increase in energy use or require the extension of new electrical and natural gas infrastructure that was not previously considered in the 2005 LRDP EIR. Other elements of the proposed 2005 LRDP Amendment 2 would not increase on-campus energy demand Implementation of future development associated with the proposed amendment to the 2005 LRDP, would be guided by a range of LRDP planning strategies, including Conservation 5, which is discussed above. The potential environmental effects associated with the construction of the extension of new electrical and natural gas infrastructure could be potentially significant and will be evaluated in the EIR for the proposed 2005 LRDP Amendment 2.

Discussion of Potential Cumulative Impacts

Water Supply

The 2005 LRDP EIR concluded that cumulative water supply impacts for the City of Riverside service area would not be significant. The contribution of the 2005 LRDP development would not be cumulatively considerable. Campus development facilitated by the proposed 2005 LRDP Amendment 2 would result in an increased demand for water that was not previously considered in the 2005 LRDP EIR. Therefore, the proposed amendment to the 2005 LRDP has the potential to increase cumulative demand for water in the City compared to the cumulative water demand estimated and analyzed in the 2005 LRDP EIR. The proposed 2005 LRDP Amendment 2 could therefore potentially increase the severity of the previously analyzed cumulative impact. This issue will be further evaluated in the EIR.

The 2005 LRDP EIR concluded that the cumulative impact to water treatment facilities would not be significant, and the contribution of the 2005 LRDP would not be cumulatively considerable. Development associated with the proposed 2005 LRDP Amendment 2 could require or result in the construction of new water treatment facilities or expansion of existing facilities, for land uses that were not previously considered for development in the 2005 LRDP EIR. Therefore, the proposed amendment to the 2005 LRDP has the potential to result in an increase in cumulative environmental effects associated with the construction of new water treatment facilities compared to the environmental effects estimated and analyzed in the 2005 LRDP EIR. The proposed 2005 LRDP Amendment 2 could therefore potentially increase the severity of the previously analyzed cumulative impact. This issue will be further evaluated in the EIR.

Wastewater

As stated in the 2005 LRDP EIR, cumulative projects would not exceed the capacity of the wastewater treatment system and the cumulative impact would not be significant. Additionally, under the 2005 LRDP, the Campus would continue to implement water conservation measures that would result in a concomitant decrease in wastewater generation. Therefore, as the RRWQCP retains excess capacity, the individual contribution of the campus development under the 2005 LRDP to wastewater generation on a regional basis would not be cumulatively considerable. Campus development facilitated by the proposed 2005 LRDP Amendment 2 would result in an increase in wastewater generation from additional building space that was not previously considered in the 2005 LRDP EIR. Therefore, the proposed amendment to the 2005 LRDP has the potential to increase cumulative wastewater generation in the City compared to the wastewater generation estimated and analyzed in the 2005 LRDP EIR. The proposed 2005 LRDP

Amendment 2 could therefore potentially increase the severity of the previously analyzed cumulative impact. This issue will be further evaluated in the EIR.

The 2005 LRDP EIR found that impacts related to the need for additional conveyance infrastructure would not result in significant cumulative effects. Development associated with the proposed 2005 LRDP Amendment 2 would require or result in the construction of new wastewater conveyance facilities or expansion of existing facilities on the Campus Reserve site, which was not previously considered for development in the 2005 LRDP EIR. Therefore, the proposed amendment to the 2005 LRDP has the potential to result in an increase in cumulative environmental effects associated with the construction of new wastewater conveyance facilities compared to the cumulative environmental effects estimated and analyzed in the 2005 LRDP EIR. The proposed 2005 LRDP Amendment 2 could therefore potentially increase the severity of the previously analyzed cumulative impact. This issue will be further evaluated in the EIR.

The 2005 LRDP EIR stated that the cumulative impact related to exceedance of RWQCB wastewater treatment requirements would not be significant. The contribution of the 2005 LRDP would not be cumulatively considerable. Campus development facilitated by the proposed 2005 LRDP Amendment 2 would result in an increase in wastewater generation that was not previously considered in the 2005 LRDP EIR. Therefore, the proposed amendment to the 2005 LRDP has the potential to result in an increase in cumulative wastewater generation that in conjunction with flows from other future development could exceed wastewater treatment requirements of the applicable Regional Water Quality Control Board compared to cumulative wastewater generation that could exceed wastewater treatment requirements of the applicable Regional Water Quality Control Board analyzed in the 2005 LRDP EIR. The proposed 2005 LRDP Amendment 2 could therefore potentially increase the severity of the previously analyzed cumulative impact. This issue will be further evaluated in the EIR.

Solid Waste

The 2005 LRDP EIR concluded that considering the existing capacity within the disposal and recycling system and the extent of campus efforts to decrease solid waste generation, the impact of the 2005 LRDP with regard to solid waste generation (at build year of 2015) would not be cumulatively considerable. Campus development facilitated by the proposed 2005 LRDP Amendment 2 would result in an increase in solid waste generated on campus that was not previously considered in the 2005 LRDP EIR. Therefore, the proposed amendment to the 2005 LRDP has the potential to result in an increase in cumulative solid waste generation compared to the cumulative solid waste generation estimated and analyzed in the 2005 LRDP EIR (at build year of 2020). The proposed 2005 LRDP Amendment 2 could therefore potentially increase the severity of the previously analyzed cumulative impact. This issue will be further evaluated in the EIR.

The 2005 LRDP EIR found that the cumulative impact with regard to solid waste diversion requirements required under AB 939 would not be significant and the 2005 LRDP contribution to this impact will not be cumulatively considerable. While development associated with the proposed 2005 LRDP Amendment 2 would continue to comply with applicable federal, State, and local statutes and regulations related to solid waste, the additional solid waste generated by this development could hamper efforts by the Campus to reach the 50 percent diversion goal set by AB 939. The proposed amendment to the 2005 LRDP could therefore potentially increase the severity of the previously analyzed cumulative impact. This issue will be further evaluated in the EIR.

Energy

The 2005 LRDP EIR concluded that the overall cumulative impact to electricity supplies would not be significant and the contribution of the 2005 LRDP with respect to demand for electricity supplies or the need for additional facilities would not be cumulatively considerable.

The 2005 LRDP EIR concluded that the cumulative impact related to the supply of natural gas and to the need for additional or expanded facilities would not be significant, and the contribution from implementation of the 2005 LRDP would not cumulatively considerable.

Campus development facilitated by the proposed 2005 LRDP Amendment 2 would result in an increase in energy demand and would require the extension of existing electrical and natural gas distribution infrastructure on the Campus Reserve site, which was not previously considered for development in the 2005 LRDP EIR. Therefore, the proposed amendment to the 2005 LRDP has the potential to result in an increase in cumulative environmental effects associated with the construction of new electrical and natural gas infrastructure compared to the environmental effects associated with the construction of new electrical and natural gas infrastructure estimated and analyzed in the 2005 LRDP EIR. The proposed 2005 LRDP Amendment 2 could therefore potentially increase the severity of the previously analyzed cumulative impact. This issue will be further evaluated in the EIR.

Issues	Impact to be Analyzed in the 2005 LRDP Amendment 2 EIR	No Additional Analysis Required
18. MANDATORY FINDINGS OF SIGNIFICANCE – The lead agency shall find that a project may have a significant effect on the environment and thereby require an EIR to be prepared for the project where there is substantial evidence, in light of the whole record, that any of the following conditions may occur. Where prior to commencement of the environmental analysis a project proponent agrees to mitigation measures or project modifications that would avoid any significant effect on the environment or would mitigate the significant environmental effect, a lead agency need not prepare an EIR solely because without mitigation the environmental effects would have been significant (per Section 15065 of the State CEQA Guidelines):		
a) Does the project have the potential to degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, substantially reduce the number or restrict the range of a rare or endangered plant or animal or eliminate important examples of the major periods of California history or prehistory?	■	□
b) Does the project have impacts that are individually limited, but cumulatively considerable? ("Cumulatively considerable" means that the incremental effects of a project are significant when viewed in connection with the effects of past projects, the effects of other current projects, and the effects of past, present and probable future projects)?	■	□
c) Does the project have environmental effects which will cause substantial adverse effects on human beings, either directly or indirectly?	■	□

Relevant Elements of Project

The proposed 2005 LRDP Amendment 2 involves changes to the 2005 LRDP Land Use map and changes to the text of the 2005 LRDP. The key changes are designation of a site on the West Campus for the development of a SOM; reconfiguration of the West Campus open space areas; changes in the locations of two future West Campus parking structures, and the designation of the Campus Reserve site for housing and open space uses.

Discussion of Potential Project Impacts

a) As indicated in the preceding discussion, implementation of the proposed 2005 LRDP Amendment 2 could have the potential to degrade the quality of the environment. However, the proposed amendment

to the 2005 LRDP would not substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, or substantially reduce the number or restrict the range of a rare or endangered plant with mitigation. In addition, implementation of the proposed 2005 LRDP Amendment 2 would not eliminate important examples of the major periods of California history or prehistory. The potential of the proposed amendment to the 2005 LRDP to degrade the quality of the environment will be further analyzed in the EIR.

b) An analysis of whether the potential impacts of the proposed 2005 LRDP Amendment 2 combined with other current projects and probable future projects and projected regional growth in the surrounding area would result in significant cumulative impacts will be included in the EIR.

c) As indicated in the preceding discussion, implementation of the proposed 2005 LRDP Amendment 2 has the potential to result in potentially significant impacts. An evaluation of whether any of those impacts would have the potential to result in substantial effects to human beings will be included in the EIR.

VI. SUPPORTING INFORMATION SOURCES

California Regional Water Quality Control Board, Santa Ana Region. 1995 and 2008. Water Quality Control Plan for the Santa Ana River Basin. (RWQCB-SA, 1995 and 2008)

City of Riverside. 2007. *City of Riverside General Plan 2025* (Riverside, 2007)

South Coast Air Quality Management District. 2007. Air Quality Management Plan. (SCAQMD, 2007)

Southern California Association of Governments. 2008. Regional Comprehensive Plan. (SCAG, 2008a)

Southern California Association of Governments. 2008. Regional Transportation Plan. (SCAG, 2008b)

University of California, Riverside. 2005. Long Range Development Plan Final Environmental Impact Report. SCH No. 2005041164. (UCR, 2005 LRDP EIR)

University of California, Riverside. 2003. *Stormwater Management Plan*. (UCR, 2003)

VII. INITIAL STUDY PREPARERS

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APPENDIX A

LRDP Planning Strategies, Programs and Practices, and Mitigation Measures

LRDP Planning Strategies

Land Use

1. Achieve academic core densities of 1.0 FAR[1] or higher on both the East and West Campuses in order to achieve a balance of academic land area versus other required uses.

2. In order to achieve densities of 1.0 FAR, infill sites in the partially developed East Campus academic core and expand to the West Campus academic zone immediately adjacent to the I-215/SR-60 freeway, maintaining a compact and contiguous academic core.

3. Maintain the teaching and research fields on the West Campus south of Martin Luther King Boulevard.

4. Pursue a goal of housing 50 percent of student enrollment in on-campus or campus-controlled housing.

5. Remove existing family housing units on the East Campus, and provide replacement and additional units of family housing on the West Campus.

6. Provide expanded athletics and recreational facilities and fields on the East and West Campuses, adjacent to concentrations of student housing.

7. Over time, relocate parking from central campus locations to the periphery of the academic core and replace surface parking with structures, where appropriate.

Open Space

1. Protect the steep and natural hillsides on the southeast campus designated as a Natural Open Space Reserve, to protect wildlife habitat, provide a visual backdrop to the campus, and protect against erosion.

2. Within the Natural Open Space Reserve, no major facilities are allowed (except for sensitively sited utility projects), vehicular and pedestrian access will be limited, and native plant materials will be used, where needed, for erosion, screening, and restoration.

3. In Naturalistic Open Space areas, where arroyos and other natural features exist, preserve wherever feasible, existing landforms, native plant materials, and trees. Where appropriate, restore habitat value.

4. Provide landscaped buffers and setbacks along campus edges, such as Valencia Hills Drive, and its extension south of Big Springs Road, Martin Luther King Boulevard, and the I-215/SR-60 freeway.

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[1] Floor Area Ratio is a commonly used term to measure development density that indicated the ration of building gross square footage (floor) to the land area associated with the building area. Thus a 1.0 FAR indicates that a 10,000 sq. ft. building on a 10,000 sq. ft. site. A two story building would occupy ½ of the site.

5. Retain the Carillon Mall as a major Campus Landmark Open Space, respecting its existing dominant width of approximately 200 feet throughout its length. Other named malls and walks will be 100 feet wide.

6. Provide a new Campus Landmark Open Space on the West Campus, The Grove, to reflect the campus citrus heritage and provide a gathering/activity space.

7. Provide neighborhood parks and tot lots in the family housing areas as neighborhood open space.

Campus and Community

1. Provide sensitive land use transitions and landscaped buffers where residential off-campus neighborhoods might experience noise or light from UCR activities.

2. Encourage a "permeable" edge with the community where interaction is desirable, especially along University Avenue and in areas where a high proportion of students live in close proximity to the campus.

3. Discourage vehicular traffic originating off campus from moving through the campus as a short cut.

4. Provide strong connections within the campus and its edges to promote walking, bicycling, and transit use, rather than vehicular traffic.

5. Continue to improve campus signage and wayfinding to provide easy access for visitors and to discourage impacts in neighboring residential areas.

6. Locate public-oriented uses, such as performance facilities, galleries and major sports venues, where they can easily be accessed and where they can contribute to the vitality and economic health of businesses along University Avenue.

7. Work cooperatively with the City of Riverside to effect the redevelopment of University Avenue between the campus and Chicago Avenue as a high intensity mixed use district, with an abundance of campus/community service businesses and uses.

8. Encourage the City to explore the opportunity for student housing in a mixed use configuration along University Avenue.

9. Strongly encourage private developers to provide a variety of housing types that target both current and future needs of the overall community and the campus.

10. Use City/UCR/RCC enhancement of Downtown cultural arts and entertainment resources and the campus need for off-campus housing as the foundation of revitalization program.

11. Support the City in their coordination of Block Grant Redevelopment set-aside and other funds for the upgrading of Neighborhood Reinvestment Areas adjacent to University Avenue.

12. Support the City in creating design guidelines for community, student, faculty, staff, and visitor housing along University Avenue that has a friendly street presence.

13. Support the City in amending the Eastside Community Plan to update housing strategies and action plans for rehabilitation of existing housing stock and new construction. This should be done in conjunction with modification of the University Avenue Specific Plan.

14. Support the City in creating a "town/gown square" at the southwest corner of the intersection of University and Chicago Avenues to provide retail and services for the community and campus.

15. Support the City in developing design guidelines for mixed use housing and retail along University Avenue.

16. Partner with the City to create a Riverside/UCR Entrepreneurial Program at the "town/gown square" related to minority business opportunities in the University Avenue and Hunter Business Park areas.

17. Work with the City to link the open spaces of UCR, University Avenue, the Marketplace, and the Downtown with enhanced streetscape treatments for University to Market and from Market to Santa Fe Street along Mission Inn Avenue/7th Street.

18. Work with the City to link the open spaces of UCR with the Citywide Trail Network.

19. Work with the City to develop streetscape concepts with banners, lighting, street furniture, and public art that celebrates the linkages between the University and Downtown. Banners should highlight cultural and artistic events in Downtown and UCR when appropriate.

20. Work with the City to evaluate the conversion of University Avenue from Iowa Avenue to the I-215/SR-60 freeway from an auto emphasis street to a biking, pedestrian, transit street with localized auto access. Consider Martin Luther King Boulevard/14th Street and Blaine/3rd Street as primary freeway connection streets.

21. Work with the City to emphasize University Avenue as the link between the UCR campus and Downtown rather than as the link to the freeways.

22. Work with the City to encourage bicycle and pedestrian use and safety, including minimizing the number of curb cuts for residential and retail improvements along University Avenue to Chicago Avenue and then to the Downtown.

Transportation

1. Develop an integrated multi-modal transportation plan to encourage walking, biking, and transit use.

2. Expand shuttle or tram service connecting major parking lots and campus destinations, and linking the East and West Campuses. Coordinate this system with RTA routes and schedules.

3. Provide a continuous network of bicycle lanes and paths throughout the campus, connecting to off-campus bicycle routes.

4. Over time, limit general vehicular circulation in the central campus, but allow transit, service, and emergency vehicle access, and provide access for persons with mobility impairments.

5. Provide bicycle parking at convenient locations.

6. Implement parking management measures that may include

    - Restricted permit availability
    - Restricted permit mobility
    - Differential permit pricing

Conservation

1. Protect natural resources, including native habitat; remnant arroyos; and mature trees, identified as in good health as determined by a qualified arborist, to the extent feasible.

2. Site buildings and plan site development to minimize site disturbance, reduce erosion and sedimentation, reduce storm water runoff, and maintain existing landscapes, including healthy mature trees whenever possible.

3. Continue with the increase in building densities on campus, particularly in academic zones, in order to preserve open space and conserve limited land resources and the agricultural fields.

4. Preserve historic buildings to the extent feasible.

5. Continue to adhere to the conservation requirements of Title 24 of the California Code of Regulations.

6. Comply with any future conservation goals or programs enacted by the University of California.

Development Strategies

1. Establish a design review process to provide regular review of building and landscape development on campus.

2. Review and update, as needed the Campus Design Guidelines and the Campus Landscape Design Guidelines to ensure conformity with LRDP Planning Strategies.

3. Review other plans that may be prepared, such as district, sub-area plans, or transportation plans, for conformity with the goals and design intent of the 2005 LRDP.

LRDP Programs and Practices

Aesthetics

PP 4.1-1 The campus shall provide design architects with the Campus Design Guidelines and instructions to implement the guidelines, including those sections related to use of consistent scale and massing, compatible architectural style, complementary color palette, preservation of existing site features, and appropriate site and exterior lighting design.

PP 4.1-2(a) The campus shall continue to provide design architects with the Campus Landscape Master Plan and instructions to develop project-specific landscape plans that are consistent with the Master Plan with respect to the selection of plants, retention of existing trees, and use of water conserving plants, where feasible.

(This is identical to Land Use PP 4.4-1(b).)

PP 4.1-2(b) The campus shall continue to relocate, where feasible, mature "specimen" trees that would be removed as a result of construction activities on the campus.

(This is identical to Land Use PP 4.9-1(c).)

PP 4.1-2(c) To reduce impacts to the Natural Open Space Reserve area:

(i) If any construction is proposed within the Open Space Reserve, conduct surveys for threatened and endangered species at an appropriate time of year. If these species are located in this area, the site or sites shall be protected from damage by either protective fencing or some other means of restricting access.

(ii) Landscaping around development areas adjacent to the Open Space Reserve shall emphasize native or historically significant plant material that provide wildlife value and a sensitive transition from developed areas to natural open spaces. A qualified native landscape specialist shall be retained to develop an appropriate native landscape plan for the development areas.

(This is identical to Biological Resources PP 4.4-1(a) and Hydrology PP 4.8- 3(a).)

PP 4.1-2(d) To reduce disturbance of Natural and Naturalistic Open Space areas:

(i) Unnecessary driving in sensitive or otherwise undisturbed areas shall be avoided. New roads or construction access roads would not be created where adequate access already exists.

(ii) Removal of native shrub or brush shall be avoided, except where necessary.

(iii) Drainages shall be avoided, except where required for construction. Limit activity to crossing drainages rather than using the lengths of drainage courses for access.

(iv) Excess fill or construction waste shall not be dumped in washes.

(v) Vehicles or other equipment shall not be parked in washes or other drainages.

(vi) Overwatering shall be avoided in washes and other drainages.

(vii) Wildlife including species such as fox, coyote, snakes, etc. shall not be harassed. Harassment includes shooting, throwing rocks, etc.

(This is identical to Biological Resources PP 4.4-1(b) and Hydrology 4.8-3(b).)

Air Quality

PP 4.3-1 The campus shall continue to implement a Transportation Demand Management program that meets or exceeds all trip reduction and AVR requirements of the SCAQMD. The TDM program may be subject to modification as new technologies are developed or alternate program elements are found to be more effective.

(This is identical to Transportation and Traffic PP 4.14-1.)

PP 4.3-2(a) Construction contract specifications shall include the following:

(i) Compliance with all SCAQMD rules and regulations

(ii) Maintenance programs to assure vehicles remain in good operating condition

(iii) Avoid unnecessary idling of construction vehicles and equipment

(iv) Use of alternative fuel construction vehicles

(v) Provision of electrical power to the site, to eliminate the need for on-site generators

PP 4.3-2(b) The campus shall continue to implement dust control measures consistent with SCAQMD Rule 403—Fugitive Dust during the construction phases of new project development. The following actions are currently recommended to implement Rule 403 and have been quantified by the SCAQMD as being able to reduce dust generation between 30 and 85 percent depending on the source of the dust generation. The Campus shall implement these measures as necessary to reduce fugitive dust. Individual measures shall be specified in construction documents and require implementation by construction contractor:

(i) Apply water and/or approved non-toxic chemical soil stabilizers according to manufacturer's specification to all inactive construction areas (previously graded areas that have been inactive for 10 or more days)

(ii) Replace ground cover in disturbed areas as quickly as possible

(iii) Enclose, cover, water twice daily, or apply approved chemical soil binders to exposed piles with 5 percent or greater silt content

(iv) Water active grading sites at least twice daily

(ix) Apply water three times daily or chemical soil stabilizers according to manufacturers' specifications to all unpaved parking or staging areas or unpaved road surfaces

(x) Post and enforce traffic speed limits of 15 miles per hour or less on all unpaved roads

(v) Suspend all excavating and grading operations when wind speeds (as instantaneous gusts) exceed 25 miles per hour over a 30-minute period

(vi) All trucks hauling dirt, sand, soil, or other loose materials shall be covered or maintain at least two feet of freeboard (i.e., minimum vertical distance between top of the load and the top of the trailer), in accordance with Section 23114 of the California Vehicle Code

(vii) Sweep streets at the end of the day if visible soil material is carried over to adjacent roads (viii) Install wheel washers where vehicles enter and exit unpaved roads onto paved roads, or wash off trucks and any equipment leaving the site each trip

(This is identical to Geology PP 4.6-2(a) and Hydrology PP 4.8-3(c).)

PP 4.3-2(c) The campus shall continue to implement SCAQMD Rule 1403—Asbestos when demolishing existing buildings on the campus.

Biological Resources

PP 4.4-1(a) To reduce impacts to the Natural Open Space Reserve area:

(i) If any construction is proposed within the Open Space Reserve, conduct surveys for threatened and endangered species at an appropriate time of year. If these species are located in this area, the site or sites shall be protected from damage by either protective fencing or some other means of restricting access.

(ii) Landscaping around development areas adjacent to the Open Space Reserve shall emphasize native or historically significant plant material that provides wildlife value and a sensitive transition from developed areas to natural open spaces. A qualified native landscape specialist shall be retained to develop an appropriate native landscape plan for the development areas.

(This is identical to Aesthetics PP 4.1-2(c) and Hydrology PP 4.8-3(a).)

PP 4.4-1(b) To reduce disturbance of Natural and Naturalistic Open Space areas:

(i) Unnecessary driving in sensitive or otherwise undisturbed areas shall be avoided. New roads or construction access roads would not be created where adequate access already exists.

(ii) Removal of native shrub or brush shall be avoided, except where necessary.

(iii) Drainages shall be avoided, except where required for construction. Limit activity to crossing drainages rather than using the lengths of drainage courses for access.

(iv) Excess fill or construction waste shall not be dumped in washes.

(v) Vehicles or other equipment shall not be parked in washes or other drainages.

(vi) Overwatering shall be avoided in washes and other drainages.

(vii) Wildlife including species such as fox, coyote, snakes, etc. shall not be harassed. Harassment includes shooting, throwing rocks, etc.

(This is identical to Aesthetics PP 4.1-2(d) and Hydrology 4.8-3(b).)

PP 4.4-2(a) Impacts to riparian and wetland habitats shall be avoided, wherever feasible. If avoidance is not feasible, then the impacts will be evaluated as part of the Clean Water Act section 404 and California Fish and Game Code section 1602 permit application process. If mitigation is required, the University of California will develop and implement a resource mitigation program to be reviewed and approved by the ACOE and CDFG through the state and federal permit process. The permit shall mitigate the habitats such that they are consistent with the Clean Water Act and CDFG policy of "no net loss" of wetland. Furthermore, impacted wetlands and/or riparian vegetation that cannot be avoided would be replaced at a ratio approved by the ACOE and CDFG. If replacement within the area is not feasible, then an approved mitigation bank or other off-site area will be used. The revegetation of impacted areas or mitigation parcels will be performed by a qualified restoration specialist and shall be conducted only on sites where soils, hydrology, and microclimate conditions are suitable for riparian habitat. First priority will be given to areas that are adjacent to existing patches of native habitat.

PP 4.4-2(b) In compliance with NPDES, the campus would continue to implement Best Management Practices, as identified in the UCR Stormwater Management Plan (UCR 2003):

(i) Public education and outreach on stormwater impacts

(ii) Public involvement/participation

(iii) Illicit discharge detection and elimination

(iv) Pollution prevention/good housekeeping for facilities

(v) Construction site stormwater runoff control

(vi) Post-construction stormwater management in new development and redevelopment

(This is identical to Geology and Soils PP 4.6-2(b) and Hydrology PP 4.8-3(d).)

Cultural Resources

PP 4.5-2 If any project is proposed that would require or result in the relocation or demolition of a historic structure, the campus shall prepare a project-specific CEQA analysis, pursuant to Section 15064.5 et seq. of the CEQA Guidelines.

PP 4.5-3 If construction would occur within the southeast hills or within the portion of the West Campus north of Martin Luther King Boulevard, a surface field survey shall be conducted in conjunction with a project specific environmental analysis in accordance with CEQA. Depending on the results of the survey, the following measures shall be implemented:

(i) If no evidence of surface archaeological resources is discovered, or if development would occur in areas not designated as sensitive for archaeological resources:

- Prior to site preparation or grading activities, construction personnel shall be informed of the potential for encountering unique archaeological resources and taught how to identify these resources if encountered. This shall include the provision of written materials to familiarize personnel with the range of resources that might be expected, the type of activities that may result in impacts, and the legal framework of cultural resources protection. Construction specifications shall require that all construction personnel shall be instructed to stop work in the vicinity of a potential discovery until a qualified, non-University archaeologist assesses the significance of the find and implements appropriate measures to protect or scientifically remove the find. Construction personnel shall also be informed that unauthorized collection of archaeological resources is prohibited.

- The campus shall require the site project contractor to report any evidence of archaeological resources unearthed during development excavation to the campus.

- The archaeologist shall then be present during the grading and shall have the authority to halt disturbance of any archaeological resources long enough to assess the situation, conduct testing, and implement mitigation measures that would reduce impacts in accordance with Section 21083.2 of CEQA.

(ii) If any evidence of archaeological materials is discovered on the surface during field survey, then:

- A qualified archaeologist shall prepare a recovery plan for the resources.

- An archaeologist shall also be present during grading and shall have the authority to halt disturbance of any archaeological resources long enough to assess the situation, conduct testing, and implement mitigation measures that would reduce impacts in accordance with Section 21083.2 of CEQA.

PP 4.5-4 Construction specifications shall require that if a paleontological resource is uncovered during construction activities:

(i) A qualified paleontologist shall determine the significance of the find.

(ii) The campus shall make an effort to preserve the find intact through feasible project design measures.

(iii) If it cannot be preserved intact, then the University shall retain a qualified non-University paleontologist to design and implement a treatment plan to document and evaluate the data and/or preserve appropriate scientific samples.

(iv) The paleontologist shall prepare a report of the results of the study, following accepted professional practice.

(v) Copies of the report shall be submitted to the University and the Riverside County Museum.

PP 4.5-5 In the event of the discovery of a burial, human bone, or suspected human bone, all excavation or grading in the vicinity of the find shall halt immediately and the area of the find shall be protected and the University immediately shall notify the Riverside County Coroner of the find and comply with the provisions of P.R.C. Section 5097 with respect to Native American involvement, burial treatment, and re-burial, if necessary.

Geology and Soils

PP 4.6-1(a) During project-specific building design, a site-specific geotechnical study shall be conducted under the direct supervision of a California Registered Engineering Geologist or licensed geotechnical engineer to assess seismic, geological, soil, and groundwater conditions at each construction site and develop recommendations to prevent or abate any identified hazards. The study shall follow applicable recommendations of CDMG Special Publication 117 and shall include, but not necessarily be limited to

- Determination of the locations of any suspected fault traces and anticipated ground acceleration at the building site

- Potential for displacement caused by seismically induced shaking, fault/ground surface rupture, liquefaction, differential soil settlement, expansive and compressible soils, landsliding, or other earth movements or soil constraints

- Evaluation of depth to groundwater The structural engineer shall incorporate the recommendations made by the geotechnical report when designing building foundations

PP 4.6-1(b) The campus shall continue to implement its current seismic upgrade program.

PP 4.6-1(c) The campus will continue to fully comply with the University of California's Policy for Seismic Safety, as amended. The intent of this policy is to ensure that the design and construction of new buildings and other facilities shall, as a minimum, comply with seismic provisions of California Code of Regulations, Title 24, California Administrative Code, the California State Building Code, or local seismic requirements, whichever requirements are most stringent.

PP 4.6-2(a) The campus shall continue to implement dust control measures consistent with SCAQMD Rule 403—Fugitive Dust during the construction phases of new project development. The following actions are currently recommended to implement Rule 403 and have been quantified by the SCAQMD as being able to reduce dust generation between 30 and 85 percent depending on the source of the dust generation. The Campus shall implement these measures as necessary to reduce fugitive dust. Individual measures shall be specified in construction documents and require implementation by construction contractor:

(i) Apply water and/or approved nontoxic chemical soil stabilizers according to manufacturer's specification to all inactive construction areas (previously graded areas that have been inactive for 10 or more days)

(ii) Replace ground cover in disturbed areas as quickly as possible

(iii) Enclose, cover, water twice daily, or apply approved chemical soil binders to exposed piles with 5 percent or greater silt content

(iv) Water active grading sites at least twice daily

(v) Suspend all excavating and grading operations when wind speeds (as instantaneous gusts) exceed 25 miles per hour over a 30-minute period

(vi) All trucks hauling dirt, sand, soil, or other loose materials are to be covered or should maintain at least two feet of freeboard (i.e., minimum vertical distance between top of the load and the top of the trailer), in accordance with Section 23114 of the California Vehicle Code

(vii) Sweep streets at the end of the day if visible soil material is carried over to adjacent roads

(viii) Install wheel washers where vehicles enter and exit unpaved roads onto paved roads, or wash off trucks and any equipment leaving the site each trip

(ix) Apply water three times daily or chemical soil stabilizers according to manufacturers' specifications to all unpaved parking or staging areas or unpaved road surfaces

(x) Post and enforce traffic speed limits of 15 miles per hour or less on all unpaved roads

(This is identical to Air Quality PP 4.3-2(b) and Hydrology PP 4.8-3(c).)

PP 4.6-2(b) In compliance with National Pollution Discharge Elimination System (NPDES), the campus would continue to implement Best Management Practices, as identified in the UCR Stormwater Management Plan (UCR 2003):

(i) Public education and outreach on stormwater impacts

(ii) Public involvement/participation

(iii) Illicit discharge detection and elimination

(iv) Pollution prevention/good housekeeping for facilities

(v) Construction site stormwater runoff control

(vi) Post-construction stormwater management in new development and redevelopment

(This is identical to Biological Resources PP 4.4-2(b) and Hydrology PP 4.8- 3(d).)

Hazards and Hazardous Materials

PP 4.7-1 The campus shall continue to implement the current (or equivalent) health and safety plans, programs, and practices related to the use, storage, disposal, or transportation of hazardous materials, including, but not necessarily limited to, the Business Plan, the Broadscope Radioactive Materials License, and the following programs: Biosafety, Emergency Management, Environmental Health, Hazardous Materials, Industrial Hygiene and Safety, Laboratory/Research Safety, Radiation Safety, and Integrated Waste Management. These programs may be subject to modification as more stringent standards are developed or if the programs are replaced by other programs that incorporate similar health and safety protection measures.

PP 4.7-2 The campus shall perform hazardous materials surveys on buildings and soils, if applicable, prior to demolition. When remediation is deemed necessary, surveys shall identify all potential hazardous

materials within the structure to be demolished, and identify handling and disposal practices. The campus shall follow the practices during building demolition to ensure construction worker and public safety.

PP 4.7-3 The campus will inform employees and students of hazardous materials minimization strategies applicable to research, maintenance, and instructional activities, and require the implementation of these strategies where feasible. Strategies include but are not limited to the following:

(i) Maintenance of online database by EH&S of available surplus chemicals retrieved from laboratories to minimize ordering or new chemicals.

(ii) Shifting from chemical usage to micro techniques as standard practice for instruction and research, as better technology becomes available.

PP 4.7-4 Prior to demolition of structures on the campus or new construction on former agricultural teaching and research fields, the campus shall complete a Phase I environmental site assessment to determine the potential for soil or groundwater contamination on a project site. If the assessment determines that a substantial potential exists on the site, the campus shall develop and implement an appropriate testing and, if needed, develop a remediation strategy prior to demolition or construction activities. If contaminated soil and/or groundwater is encountered during the removal of on-site debris or during excavation and/or grading activities

(i) The construction contractor(s) shall stop work and immediately inform EH&S.

(ii) An on-site assessment shall be conducted to determine if the discovered materials pose a significant risk to the public or construction workers.

(iii) If the materials are determined to pose such a risk, a remediation plan shall be prepared and submitted to EH&S to comply with all federal and State regulations necessary to clean and/or remove the contaminated soil and/or groundwater.

(iv) Soil remediation methods could include, but are not necessarily limited to, excavation and on-site treatment, excavation and off-site treatment or disposal, and/or treatment without excavation.

(v) Remediation alternatives for cleanup of contaminated groundwater could include, but are not necessarily limited to, on-site treatment, extraction and off-site treatment, and/or disposal.

(vi) The construction schedule shall be modified or delayed to ensure that construction will not inhibit remediation activities and will not expose the public or construction workers to significant risks associated with hazardous conditions.

PP 4.7-7(a) To the extent feasible, the campus shall maintain at least one unobstructed lane in both directions on campus roadways. At any time only a single lane is available, the campus shall provide a temporary traffic signal, signal carriers (i.e., flagpersons), or other appropriate traffic controls to allow travel in both directions. If construction activities require the complete closure of a roadway segment, the campus shall provide appropriate signage indicating alternative routes.

(This is identical to Transportation and Traffic PP 4.14-5.)

PP 4.7-7(b) To maintain adequate access for emergency vehicles when construction projects would result in roadway closures, the Office of Design and Construction shall consult with the UCPD, EH&S, and the RFD to disclose roadway closures and identify alternative travel routes.

(This is identical to Transportation and Traffic PP 4.14-8.)

Hydrology and Water Quality

PP 4.8-1 The campus will continue to comply with all applicable water quality requirements established by the SARWQCB.

(This is identical to Utilities PP 4.15-5.)

PP 4.8-2(a) To further reduce the campus' impact on domestic water resources, to the extent feasible, UCR will

(i) Install hot water recirculation devices (to reduce water waste)

(ii) Continue to require all new construction to comply with applicable State laws requiring water-efficient plumbing fixtures, including but not limited to the Health and Safety Code and Title 24, California Code of Regulations, Part 5 (California Plumbing Code)

(iii) Retrofit existing plumbing fixtures that do not meet current standards on a phased basis over time

(iv) Install recovery systems for losses attributable to existing and proposed steam- and chilled-water systems over time

(v) Prohibit using water as a means of cleaning impervious surfaces (vi) Install water-efficient irrigation equipment to local evaporation rates to maximize water savings for landscaping and retrofit existing systems over time

(This is identical to Utilities PP 4.15-1(b).)

PP 4.8-2(b) The campus shall promptly detect and repair leaks in water and irrigation pipes.

(This is identical to Utilities PP 4.15-1(c).)

PP 4.8-2(c) The campus shall avoid serving water at food service facilities except upon request.

(This is identical to Utilities PP 4.15-1(d).)

PP 4.8-3(a) To reduce impacts to the Natural Open Space Reserve area:

(i) If any construction is proposed within the Open Space Reserve, conduct surveys for threatened and endangered species at an appropriate time of year. If these species are located in this area, the site or sites shall be protected from damage by either protective fencing or some other means of restricting access.

(ii) Landscaping around development areas adjacent to the Open Space Reserve shall emphasize native or historically significant plant material that provides wildlife value and a sensitive transition from developed areas to Natural open spaces. A qualified native landscape specialist shall be retained to develop an appropriate native landscape plan for the development areas.

(This is identical to Biological Resources PP 4.4-1(a) and Aesthetics PP 4.1-2(c).)

PP 4.8-3(b) To reduce disturbance of Natural and Naturalistic Open Space areas:

(i) Unnecessary driving in sensitive or otherwise undisturbed areas shall be avoided. New roads or construction access roads would not be created where adequate access already exists.

(ii) Removal of native shrub or brush shall be avoided, except where necessary.

(iii) Drainages shall be avoided, except where required for construction. Limit activity to crossing drainages rather than using the lengths of drainage courses for access.

(iv) Excess fill or construction waste shall not be dumped in washes.

(v) Vehicles or other equipment shall not be parked in washes or other drainages.

(vi) Overwatering shall be avoided in washes and other drainages.

(vii) Wildlife including species such as fox, coyote, snakes, etc. shall not be harassed. Harassment includes shooting, throwing rocks, etc.

*(*This is identical to Aesthetics PP 4.1-2(d) and Biological Resources PP 4.4-1(b).)

PP 4.8-3(c) The campus shall continue to implement dust control measures consistent with SCAQMD Rule 403—Fugitive Dust during the construction phases of new project development. The following actions are currently recommended to implement Rule 403 and have been quantified by the SCAQMD as being able to reduce dust generation between 30 and 85 percent depending on the source of the dust generation. The Campus shall implement these measures as necessary to reduce fugitive dust. Individual measures shall be specified in construction documents and require implementation by construction contractor:

(i) Apply water and/or approved nontoxic chemical soil stabilizers according to manufacturer's specification to all inactive construction areas (previously graded areas that have been inactive for 10 or more days)

(ii) Replace ground cover in disturbed areas as quickly as possible

(iii) Enclose, cover, water twice daily, or apply approved chemical soil binders to exposed piles with 5 percent or greater silt content

(iv) Water active grading sites at least twice daily

(v) Suspend all excavating and grading operations when wind speeds (as instantaneous gusts) exceed 25 miles per hour over a 30-minute period

(vi) All trucks hauling dirt, sand, soil, or other loose materials are to be covered or should maintain at least two feet of freeboard (i.e., minimum vertical distance between top of the load and the top of the trailer), in accordance with Section 23114 of the California Vehicle Code

(vii) Sweep streets at the end of the day if visible soil material is carried over to adjacent roads

(viii) Install wheel washers where vehicles enter and exit unpaved roads onto paved roads, or wash off trucks and any equipment leaving the site each trip

(ix) Apply water three times daily or chemical soil stabilizers according to manufacturers' specifications to all unpaved parking or staging areas or unpaved road surfaces

(x) Post and enforce traffic speed limits of 15 miles per hour or less on all unpaved roads

(This is identical to Air Quality PP 4.3-2(b) and Geology PP 4.6-2(a).)

PP 4.8-3(d) In compliance with NPDES, the campus would continue to implement Best Management Practices, as identified in the UCR Stormwater Management Plan (UCR 2003):

(i) Public education and outreach on stormwater impacts

(ii) Public involvement/participation

(iii) Illicit discharge detection and elimination

(iv) Pollution prevention/good housekeeping for facilities

(v) Construction site stormwater runoff control

(vi) Post-construction stormwater management in new development and redevelopment

PP 4.8-3(e) Prior to the time of design approval, the campus will evaluate each specific project to determine if the project runoff would exceed the capacity of the existing storm drain system. If it is found that the capacity would be exceeded, one or more of the following components of the storm drain system would be implemented to minimize the occurrence of local flooding:

(i) Multi-project stormwater detention basins

(ii) Single-project detention basins

(iii) Surface detention design

(iv) Expansion or modification of the existing storm drain system

(v) Installation of necessary outlet control facilities

PP 4.8-3(e) Prior to the time of design approval, the campus will evaluate each specific project to determine if the project runoff would exceed the capacity of the existing storm drain system. If it is found that the capacity would be exceeded, one or more of the following components of the storm drain system would be implemented to minimize the occurrence of local flooding:

- Multi-project stormwater detention basins
- Single-project detention basins
- Surface detention design
- Expansion or modification of the existing storm drain system
- Installation of necessary outlet control facilities

PP 4.8-10 In the event of an emergency, including catastrophic failure of the California State Water Project pipeline, the campus would implement the Emergency Operations Plan.

Land Use

PP 4.9-1(a) The campus shall provide design architects with the Campus Design Guidelines and instructions to implement the guidelines, including those sections related to use of consistent scale and massing, compatible architectural style, complementary color palette, preservation of existing site features, and appropriate site and exterior lighting design.

(This is identical to Aesthetics PP 4.1-1.)

PP 4.9-1(b) The campus shall continue to provide design architects with the Landscape Master Plan and instructions to develop project specific landscape plans that are consistent with the Master Plan with respect to the selection of plants, retention of existing trees and use of water conserving plants were feasible.

(This is identical to Aesthetics PP 4.1-2(a).)

PP 4.9-1(c) The campus shall continue to relocate, where feasible, mature "specimen" trees that would be removed as a result of construction activities on the campus.

(This is identical to Aesthetics PP 4.1-2(b).)

Noise

PP 4.10-1(a) The campus shall continue to shield all new stationary sources of noise that would be located in close proximity of noise-sensitive buildings and uses or locate the new equipment in less sensitive areas of the campus to ensure that exterior noise levels generated by these sources and measured at nearby sensitive uses do not exceed 50 dBA Leq during the day and 40 dBA Leq during the night at residential uses (including on-campus housing), and 60 dBA during the day and 55 dBA during the night at classrooms and office buildings.

PP 4.10-1(b) UCR will incorporate the following siting design measures to reduce long-term noise impacts:

(i) Truck access, parking area design, and air conditioning/refrigeration units will be designed and evaluated when planning specific individual new facilities to minimize the potential for noise impacts to adjacent developments.

(ii) Building setbacks, building design and orientation will be used to reduce intrusive noise at sensitive student residential and educational building locations near main campus access routes, such as Blaine Street, Canyon Crest Drive, University Avenue, and Martin Luther King Boulevard. Noise walls may be advisable to screen existing and proposed facilities located near the I-215/SR-60 freeway.

(iii) Adequate acoustic insulation would be added to residence halls to ensure that the interior Ldn would not exceed 45 dBA during the daytime and 40 dBA during the nighttime (10 P.M. to 7 A.M.) in rooms facing major streets.

(iv) Potential noise impacts would be evaluated as part of the design review for all projects. If determined to be significant, mitigation measures would be identified and alternatives suggested. At a minimum, Campus residence halls and student housing design would comply with Title 24, Part 2 of the California Administrative Code.

PP 4.10-2 The UCR campus shall limit the hours of exterior construction activities from 7:00 A.M. to 9:00 P.M. Monday through Friday and 8:00 A.M. to 6:00 P.M. on Saturday when necessary. Construction traffic shall follow transportation routes prescribed for all construction traffic to minimize the impact of this traffic (including noise impacts) on the surrounding community.

PP 4.10-5(a) The campus shall continue to provide on-campus housing to continue the evolution of UCR from a commuter to a residential campus.

PP 4.10-5(b) The campus shall continue to implement an Alternative Transportation program that facilitates and promotes the use of transit, carpools, vanpools, and bicycling.

PP 4.10-6 The campus shall continue to shield all new stationary sources of noise that would be located in close proximity to noise sensitive buildings and uses.

PP 4.10-7(a) To the extent feasible, construction activities shall be limited to 7:00 A.M. to 9:00 P.M. Monday through Friday, 8:00 A.M. to 6:00 P.M. on Saturday, and no construction on Sunday and national holidays, as appropriate, in order to minimize disruption to area residences surrounding the campus and to on-campus uses that are sensitive to noise.

PP 4.10-7(b) The campus shall continue to require by contract specifications that construction equipment be required to be muffled or otherwise shielded. Contracts shall specify that engine-driven equipment be fitted with appropriate noise mufflers.

PP 4.10-7(c) The campus shall continue to require that stationary construction equipment material and vehicle staging be placed to direct noise away from sensitive receptors.

PP 4.10-7(d) The campus shall continue to conduct regular meetings, as needed, with on-campus constituents to provide advance notice of construction activities in order to coordinate these activities with the academic calendar, scheduled events, and other situations, as needed.

PP 4.10-8 The campus shall continue to conduct meetings, as needed, with off-campus constituents that are affected by campus construction to provide advance notice of construction activities and ensure that the mutual needs of the particular

construction project and of those impacted by construction noise are met, to the extent feasible.

Public Services

PP 4.12-1(a) As development occurs, the following measures will be incorporated:

(i) New structures would be designed with adequate fire protection features in compliance with State law and the requirements of the State Fire Marshal. Building designs would be reviewed by appropriate campus staff and government agencies.

(ii) Prior to implementation of individual projects, the adequacy of water supply and water pressure will be determined in order to ensure sufficient fire protection services.

(iii) Adequate access will be provided to within 50 feet of the main entrance of occupied buildings to accommodate emergency ambulance service.

(iv) Adequate access for fire apparatus will be provided within 50 feet of stand pipes and sprinkler outlets.

(v) Service roads, plazas, and pedestrian walks that may be used for fire or emergency vehicles will be constructed to withstand loads of up to 45,000 pounds.

(vi) As implementation of the LRDP occurs, campus fire prevention staffing needs would be assessed, increases in staffing would be determined through such needs assessments.

PP 4.12-1(b)

(i) Accident prevention features shall be reviewed and incorporated into new structures to minimize the need for emergency response from the City of Riverside.

(ii) Increased staffing levels for local fire agencies shall be encouraged to meet needs generated by LRDP project related on-campus population increases.

PP 4.12-2(a) As development under the LRDP occurs, the campus will hire additional police officers and support staff as necessary to maintain an adequate level of service, staff, and equipment, and will expand the existing police facility when additional space is required.

PP 4.12-2(b) The campus will continue to participate in the "UNET" program (for coordinated police response and staffing of a community service center), which provides law enforcement services in the vicinity of the campus, with equal participation of UCR and City police staffs.

Transportation

PP 4.14-1 The campus shall continue to implement a Transportation Demand Management program that meets or exceeds all trip reduction and AVR requirements of the SCAQMD. The TDM program may be subject to modification as new technologies are developed or alternate program elements are found to be more effective.

(This is identical to Air Quality PP 4.3-1.)

PP 4.14-2 The campus will periodically assess construction schedules of major projects to determine the potential for overlapping construction activities to result in periods of heavy construction vehicle traffic on individual roadway segments, and adjust construction schedules, work hours, or access routes to the extent feasible to reduce construction related traffic congestion.

PP 4.14-4 The campus shall provide design architects for roadway and parking improvements with the Campus Design Guidelines and instructions to implement those elements of the guidelines relevant to parking and roadway design.

PP 4.14-5 To the extent feasible, the campus shall maintain at least one unobstructed lane in both directions on campus roadways. At any time only a single lane is available, the campus shall provide a temporary traffic signal, signal carriers (i.e., flagpersons), or other appropriate traffic controls to allow travel in both directions. If construction activities require the complete closure of a roadway segment, the campus shall provide alternate routes and appropriate signage.

(This is identical to Hazards and Hazardous Materials PP 4.7-7(a).)

PP 4.14-6 For any construction-related closure of pedestrian routes, the campus shall provide alternate routes and appropriate signage and provide curb cuts and street crossings to assure alternate routes are accessible.

PP 4.14-8 To maintain adequate access for emergency vehicles when construction projects would result in roadway closures, the Office of Design and Construction shall consult with the UCPD, EH&S, and the RFD to disclose roadway closures and identify alternative travel routes.

(This is identical to Hazards and Hazardous Materials PP 4.7-7(b).)

Utilities

PP 4.15-1(a) Improvements to the campus water distribution system, including necessary pump capacity, will be made as required to serve new projects. Project-specific CEQA analysis of environmental effects that would occur prior to project-specific approval will consider the continued adequacy of the domestic/fire water

systems, and no new development would occur without a demonstration that appropriate domestic/fire water supplies continue to be available..

PP 4.15-1(b) To further reduce the campus' impact on domestic water resources, to the extent feasible, UCR will

(i) Install hot water recirculation devices (to reduce water waste)

(ii) Continue to require all new construction to comply with applicable State laws requiring water-efficient plumbing fixtures, including but not limited to the Health and Safety Code and Title 24, California Code of Regulations, Part 5 (California Plumbing Code)

(iii) Retrofit existing plumbing fixtures that do not meet current standards on a phased basis over time

(iv) Install recovery systems for losses attributable to existing and proposed steam- and chilled-water systems

(v) Prohibit using water as a means of cleaning impervious surfaces

(vi) Install water-efficient irrigation equipment to local evaporation rates to maximize water savings for landscaping and retrofit existing systems over time

(This is identical to Hydrology PP 4.8-2(a).)

PP 4.15-1(c) The campus shall promptly detect and repair leaks in water and irrigation pipes.

(This is identical to Hydrology PP 4.8-2(b).)

PP 4.15-1(d) The campus shall avoid serving water at food service facilities except upon request.

(This is identical to Hydrology PP 4.8-2(c).)

PP 4.15-5 The campus will continue to comply with all applicable water quality requirements established by the SARWQCB.

(This is identical to Hydrology PP 4.8-1.)

LRDP Mitigation Measures

Aesthetics

MM 4.1-3(a) Building materials shall be reviewed and approved as part of project-specific design and through approval of construction documents. Mirrored, reflective glass is prohibited on campus.

MM 4.1-3(b) All outdoor lighting on campus resulting from new development shall be directed to the specific location intended for illumination (e.g., roads, walkways, or recreation fields) to prevent stray light spillover onto adjacent residential areas. In addition, all fixtures on elevated light standards in parking lots, parking structures, and athletic fields shall be shielded to reduce glare. Lighting plans shall be reviewed and approved prior to project-specific design and construction document approval.

MM 4.1-3(c) Ingress and egress from new parking areas shall be designed and situated so as to minimize the impact of vehicular headlights on adjacent uses. Walls, landscaping or other light barriers will be provided. Site plans shall be reviewed and approved as part of project-specific design and construction document approval.

Air Quality

MM 4.3-2 Programs and Practices 4.3-2(a), (b), and (c), or their equivalent, shall be included in construction contract specifications. The contract specifications shall require the use of low NOx diesel fuel and construction equipment to the extent that it is readily available at the time of development.

MM 4.3-2 Programs and Practices 4.3-2(a), (b), and (c), or their equivalent, shall be included in construction contract specifications. The contract specifications shall require the use of low NOx diesel fuel and construction equipment to the extent that it is readily available at the time of development.

MM 4.3-3 To reduce energy consumption and areawide emission of criteria pollutants, the campus shall annually inspect and enforce an emissions reduction control strategy, which may include, where feasible, the following:

Design

- Use light-colored roof materials to reduce heat gain
- Orient buildings to the north and include passive solar design features
- Increase building and attic insulation beyond Title 24 requirements
- Provide electric vehicle charging systems at convenient location in campus parking facilities
- Provide prominent website and/or kiosks displaying information about alternative transportation programs
- Install electrical outlets outside buildings for the use of electric landscape maintenance equipment

Operation

- Implement a subsidized vanpool program ◎ Implement staggered or compressed work schedules to reduce vehicular traffic
- Use alternative fuel shuttle buses to reduce intra campus vehicle trips
- Provide shuttle service to major off-campus activity centers and Metrolink station(s)
- Aggressive expansion of the campus TDM program to achieve an AVR of 1.5
- Expand transit subsidies to encourage use of public transit
- Implement incentives for telecommuting
- Convert campus fleet to low emission, alternative fuel, and electric vehicles over time
- Implement solar or low-emission water heaters
- Implement an educational program for faculty and staff and distribute information to students and visitors about air pollution problems and solutions

Biological Resources

MM 4.4-1(a) To ensure that potential impacts to special status plant and wildlife species that are known to occur within the Natural and Naturalistic areas of the campus or have a moderate or greater potential to occur (refer to Tables 4.4-1 and 4.4-2) are reduced to less than significant levels, the campus shall conduct surveys for special-status species prior to disturbance of areas or habitat that are known to support the species. The University shall conduct surveys of the area(s) in accordance with applicable protocols or guidelines developed by the CDFG and/or USFWS, as applicable.

MM 4.4-1(b) If surveys determine that special-status plant or animal species are present, the following measures shall be implemented:

(i) Vegetation: If sensitive plant species or habitats are observed and would be impacted by projectrelated activities, a qualified botanist shall develop a species or habitats-specific replacement plan. This plan shall include elements to limit project impacts such as the relocation of individual specimens, the collection of seeds and replanting, or the preservation and movement of topsoil that contains the seed bank. If replacement within the project area is not feasible, then an approved mitigation bank shall be used. For either case, onsite or off-site revegetation, a mitigation monitoring plan shall be prepared and approved by the CDFG prior to start of construction.

(ii) Wildlife: If special status wildlife is found within areas of proposed construction and avoidance is not feasible, the campus will consult with the appropriate agencies, obtain any necessary State or federal permits, and prepare a mitigation plan for those special-status species that would be impacted. The mitigation plan would be subject to the approval of applicable State and/or federal agencies, and may include measures such as the relocation of the affected species, protection of other on-campus habitat where the plant or animal is known to occur, or site preparation and revegetation to create suitable habitat.

MM 4.4-3(a) When habitat that could be regulated by the Clean Water Act (Section 404) would be impacted, either directly or indirectly, the University shall perform a jurisdictional and/or wetland delineation to assess the extent of the jurisdictional area(s).

MM 4.4-3(b) If wetland or riparian habitat would be removed as a result of project development, the University shall restore or enhance wetland or riparian habitat as required by the applicable State and/or federal resource agencies.

MM 4.4-3(c) Any proposal for wetland creation or enhancement (pursuant to MM 4.4-3(b) above) will be based upon the completion of soils, hydrologic and other studies confirming the feasibility of the creation or enhancement proposal and shall include United States Army Corps of Engineers (USACE)–approved measures intended to promote occupancy by special status and other wetland-dependent species (e.g., plantings, collection of topsoil and inoculation of target areas).

MM 4.4-4(a) Prior to the onset of construction activities that would result in the removal of mature trees and would occur between March and mid-August, surveys for nesting special status avian species and raptors shall be conducted on the affected portion of the campus following USFWS and/or CDFG guidelines. If no active avian nests are identified on or within 250 feet of the construction site, no further mitigation is necessary.

MM 4.4-4(b) If active nests for avian species of concern or raptor nests are found within the construction footprint or a 250-foot buffer zone, exterior construction activities shall be delayed within the construction footprint and buffer zone until the young have fledged or appropriate mitigation measures responding to the specific situation have been developed and implemented in consultation with USFWS and CDFG.

Cultural Resources

MM 4.5-1(a) Before altering or otherwise affecting a building or structure 50 years old or older, the campus shall retain a qualified architectural historian to evaluate the potential significance of the building, using the significance criteria set forth for historic resources under CEQA Guidelines Section 15064.5. The evaluation process shall include the development of appropriate historical background research as context for the assessment of the significance of the structure in the

history of the University system, the campus, and the region. For historic buildings, structures, or features that do not meet the CEQA criteria for historical resource, no further mitigation is required and the impact is less than significant.

MM 4.5-1(b) The University shall follow the Secretary of the Interior's Standards for Treatment of Historic Properties with Guidelines for Preserving, Rehabilitating, Restoring, and Reconstructing Historic Buildings (Weeks and Grimmer 1995) or the State Historical Building Code, as appropriate when making modifications to historic structures eligible for NRHP or CRHR listing.

MM 4.5-2(a) For any proposal to demolish a structure or building that has been determined by a qualified architectural historian to qualify as an historical resource and where it has been determined that avoidance is not feasible, documentation and treatment shall be carried out as described below:

(i) If preservation and reuse at the site are not feasible, the historical building shall be documented as described in item (ii) and, when physically and financially feasible, be moved and preserved or reused.

(ii) If a significant historic building or structure is proposed to be demolished, the campus shall ensure that a qualified architectural historian thoroughly documents the building and associated landscaping and setting. Documentation shall include still and video photography and a written documentary record of the building to the standards of the Historic American Building Survey (HABS) or Historic American Engineering Record (HAER), including accurate scaled mapping, architectural descriptions, and scaled architectural plans, if available. A copy of the record shall be deposited with the University archives, Rivera Library Special Collections. The record shall be accompanied by a report containing site-specific history and appropriate contextual information. This information shall be gathered through site specific and comparative archival research, and oral history collection as appropriate.

Hazards and Hazardous Materials

MM 4.7-4 Prior to development on former agricultural lands, appropriate soil testing shall be performed to determine whether chemical residue is present from prior activities in amounts that would pose health hazards to construction workers and/or occupants of new buildings. If contamination is determined to be present, PP 4.7-4 shall be implemented.

MM 4.7-7(a) Evacuation zones designated in the UCR Emergency Operations Plan will be avoided, to the extent feasible, when siting construction staging areas. Where evacuation zones cannot be avoided, alternative evacuation zones shall be identified. UCPD and the Riverside Fire Department shall be notified of alternative evacuation zones so that they can respond accordingly to any emergencies.

MM 4.7-7(b) The campus Emergency Operations Plan shall be reviewed on an annual basis and updated as appropriate to account for new on-campus development, which may require changes to the plan, such as revised locations for Campus Evacuation Zones.

MM 4.7-8(a) Provide landscaping around development areas adjacent to preserved open space that emphasizes native or traditional plant material where appropriate and provides a transition to developed areas in a manner that minimizes dense vegetation immediately adjacent to structural development. Landscaping shall be shown on building plans, and plans shall be reviewed and approved for conformance with this measure prior to project design approval and project-specific construction documents.

MM 4.7-8(b) Implement annual fuel management procedures to maintain a firebreak between the undeveloped areas and structures.

Hydrology and Water Quality

MM 4.8-9(a) Prior to design approval, the campus will review the plans for all structures to be constructed in the 100-year floodplain for compliance with the following FEMA requirements for nonresidential structures:

(i) Elevate the lowest floor (including the basement) to or above the base flood level; or

(ii) Together with attendant utility and sanitary facilities, design so that below the base flood level, the structure is watertight with walls substantially impermeable to the passage of water and with structural components having the capability of resisting hydrostatic and hydrodynamic loads and effects of buoyancy; and

(iii) Require that fully enclosed areas below the lowest floor that are subject to flooding be designed to automatically equalize hydrostatic flood forces on exterior walls by allowing for entry and exit of flood waters.

MM 4.8-9(b) For structures placed within the 100- year floodplain, flood control devices will be designed to direct flows toward areas where flood hazards will be minimal.

Noise

MM 4.10-2 The campus shall notify all academic and residential facilities within 300 feet of approved construction sites of the planned schedule of vibration causing activities so that the occupants and/or researchers can take necessary precautionary measures to avoid negative effects to their activities and/or research.

Transportation and Traffic

MM 4.14-1(a) The intersection of 3rd Street/Chicago Avenue would require an additional left-turn lane on the westbound approach to operate at LOS D or better. (This intersection is under the jurisdiction of the City of Riverside.)

MM 4.14-1(b) In addition to the improvements identified for the 'Without Project' scenario, the intersection of Blaine Street/Iowa Avenue would require an additional left-turn lane on the eastbound approach, and a separate through and right-turn lane on the westbound approach to operate at LOS D or better. (This intersection is under the jurisdiction of the City of Riverside.)

MM 4.14-1(c) In addition to the improvements identified for the 'Without Project' scenario, the intersection of University Avenue/Chicago Avenue would require a separate through and a right-turn lane on the southbound approach to operate at LOS D or better. (This intersection is under the jurisdiction of the City of Riverside.)

MM 4.14-1(d) The intersection of University Avenue/Iowa Avenue would require an additional leftturn lane on the eastbound approach to operate at LOS D or better. The approach currently consists of one left-turn lane, two through lanes, and one rightturn lane. The mitigated approach would consist of two left-turn lanes, one through lane, and one shared through/right-turn lane. (This intersection is under the jurisdiction of the City of Riverside.)

MM 4.14-1(e) In addition to the improvements identified for the 'Without Project' scenario, the intersection of Martin Luther King Boulevard/Chicago Avenue would require an additional through lane on the westbound approach to operate at LOS D or better. (This intersection is under the jurisdiction of the City of Riverside.)

MM 4.14-1(f) In addition to the improvements identified for the 'Without Project' scenario, the intersection of Martin Luther King Boulevard/Canyon Crest Drive would require an additional left-turn lane on the westbound approach to operate at LOS D or better. (This intersection is under the jurisdiction of the University.)

MM 4.14-1(g) The intersection of Linden Street/Aberdeen Drive would require a shared through/left-turn lane and a right-turn lane on the eastbound approach to operate at LOS D or better. (This intersection is under the jurisdiction of the University.)

MM 4.14-1(h) In addition to the improvements identified for the 'Without Project' scenario, the intersection of Blaine Street/Iowa Avenue would require an additional left-turn lane on the southbound approach, an additional left-turn lane on the eastbound approach, an additional left-turn lane on the westbound approach, and a separate through and right-turn lane on the westbound approach to operate at LOS D or better. (This intersection is under the jurisdiction of the City of Riverside.)

MM 4.14-1(i) The intersection of University Avenue/Iowa Avenue would require an additional left turn lane on the eastbound approach, and a separate through and right lane on the southbound approach to operate at LOS D or better. The southbound approach currently consists of one left-turn lane, one through lane, and one shared through/right-turn lane. The mitigated southbound approach would consist of one left-turn lane, two through lanes, and one right turn lane. (This intersection is under the jurisdiction of the City of Riverside.)

MM 4.14-1(j) The intersection of Martin Luther King Boulevard/Chicago Avenue would require an additional through and an additional right-turn lane on the eastbound approach to operate at LOS D or better. (This intersection is under the jurisdiction of the City of Riverside.)

MM 4.14-1(k) In addition to the improvements identified for the 'Without Project' scenario, the intersection of Martin Luther King Boulevard/Canyon Crest Drive would require an additional left-turn lane on the westbound approach to operate at LOS D or better. (This intersection is under the jurisdiction of the University.)

MM 4.14-1(l) The intersection of Linden Street/Aberdeen Drive would require a shared through/left-turn lane and a right-turn lane on the eastbound approach to operate at LOS D or better. (This intersection is under the jurisdiction of the University.)

MM 4.14-10(a) The campus shall work with the City of Riverside to monitor the demand for off-campus parking in residential neighborhoods or at commercial establishments to determine whether use of off campus parking by the campus population is substantially restricting availability for neighborhood residents or patrons of commercial establishments

MM 4.14-10(b) If the campus and the City of Riverside mutually determine that use of off-campus parking by members of the campus population has substantially restricted availability to residents and patrons of commercial establishments, the campus and the City will work cooperatively to implement appropriate measures, which may include, but not be limited to

(i) Increased enforcement of existing parking regulations

(ii) Changes in parking regulations (e.g., time restrictions for on-street parking)

(iii) A permit parking program for affected residential neighborhoods and/or commercial facilities.

MM 4.14-11 If on-campus parking is not available, offsite construction worker parking shall be provided with shuttle service to the remote parking location

MM 4.14-13 As part of the Multi-modal Transportation Program, the UCR Transportation and Parking Services department will work with transit service providers on an

annual basis to monitor demand for transit services, to identify needed service improvements, and encourage the implementation of any such improvements.

Utilities

MM 4.15-6(a) UCR will work with the City of Riverside to evaluate the capacity of existing sewer trunk lines serving the campus and estimate the future impact of LRDP implementation on available capacity.

MM 4.15-6(b) If the study of sewer trunk line capacity determines that available capacity would be exceeded, UCR and the City will negotiate payment of fair share of improvements to provide sufficient discharge capacity to meet campus needs. UCR shall contribute its fair share payments and additional required trunk line capacity shall be provided by the City prior to exceedance of sewer trunk line capacity.

APPENDIX B

Air Quality Worksheets

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Urbemis 2007 Version 9.2.4

Detail Report for Summer Construction Unmitigated Emissions (Pounds/Day)

File Name: Z:\EBell\UCR LRDP update\Modeling\UCR LRDP Amendment_const_and_area_sources_with_support_yard.urb924

Project Name: UC Riverside - LRDP Amendment, SOM

Project Location: South Coast AQMD

On-Road Vehicle Emissions Based on: Version : Emfac2007 V2.3 Nov 1 2006

Off-Road Vehicle Emissions Based on: OFFROAD2007

CONSTRUCTION EMISSION ESTIMATES (Summer Pounds Per Day, Unmitigated)

	ROG	NOx	CO	SO2	PM10 Dust	PM10 Exhaust	PM10 Total	PM2.5 Dust	PM2.5 Exhaust	PM2.5 Total
Time Slice 1/3/2011-6/30/2011 Active Days: 129	3.95	31.68	18.04	0.00	200.01	1.69	201.70	41.77	1.55	43.32
Mass Grading 01/01/2011-12/31/2019	3.95	31.68	18.04	0.00	200.01	1.69	201.70	41.77	1.55	43.32
Mass Grading Dust	0.00	0.00	0.00	0.00	200.00	0.00	200.00	41.77	0.00	41.77
Mass Grading Off Road Diesel	3.91	31.61	16.82	0.00	0.00	1.68	1.68	0.00	1.55	1.55
Mass Grading On Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Mass Grading Worker Trips	0.04	0.07	1.22	0.00	0.01	0.00	0.01	0.00	0.00	0.01
Time Slice 7/1/2011-9/30/2011 Active Days: 66	5.93	48.15	27.09	0.00	200.01	2.51	202.53	41.77	2.31	44.08
Mass Grading 01/01/2011-12/31/2019	3.95	31.68	18.04	0.00	200.01	1.69	201.70	41.77	1.55	43.32
Mass Grading Dust	0.00	0.00	0.00	0.00	200.00	0.00	200.00	41.77	0.00	41.77
Mass Grading Off Road Diesel	3.91	31.61	16.82	0.00	0.00	1.68	1.68	0.00	1.55	1.55
Mass Grading On Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Mass Grading Worker Trips	0.04	0.07	1.22	0.00	0.01	0.00	0.01	0.00	0.00	0.01
Trenching 07/01/2011-06/30/2020	1.98	16.48	9.05	0.00	0.01	0.82	0.83	0.00	0.76	0.76
Trenching Off Road Diesel	1.95	16.42	8.07	0.00	0.00	0.82	0.82	0.00	0.76	0.76
Trenching Worker Trips	0.03	0.06	0.98	0.00	0.01	0.00	0.01	0.00	0.00	0.00

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Time Slice 10/3/2011-12/30/2011 Active Days: 65	28.12	**218.82**	**352.82**	0.54	202.22	10.44	212.66	42.55	9.53	52.08
Building 10/01/2011-12/31/2020	22.19	170.67	325.73	0.54	2.21	7.92	10.13	0.78	7.22	7.99
Building Off Road Diesel	3.77	21.85	13.95	0.00	0.00	1.57	1.57	0.00	1.45	1.45
Building Vendor Trips	11.92	136.59	100.62	0.26	0.94	5.62	6.55	0.32	5.15	5.47
Building Worker Trips	6.51	12.24	211.16	0.28	1.27	0.73	2.00	0.46	0.62	1.08
Mass Grading 01/01/2011-12/31/2019	3.95	31.68	18.04	0.00	200.01	1.69	201.70	41.77	1.55	43.32
Mass Grading Dust	0.00	0.00	0.00	0.00	200.00	0.00	200.00	41.77	0.00	41.77
Mass Grading Off Road Diesel	3.91	31.61	16.82	0.00	0.00	1.68	1.68	0.00	1.55	1.55
Mass Grading On Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Mass Grading Worker Trips	0.04	0.07	1.22	0.00	0.01	0.00	0.01	0.00	0.00	0.01
Trenching 07/01/2011-06/30/2020	1.98	16.48	9.05	0.00	0.01	0.82	0.83	0.00	0.76	0.76
Trenching Off Road Diesel	1.95	16.42	8.07	0.00	0.00	0.82	0.82	0.00	0.76	0.76
Trenching Worker Trips	0.03	0.06	0.98	0.00	0.01	0.00	0.01	0.00	0.00	0.00
Time Slice 1/2/2012-9/28/2012 Active Days: 195	25.89	198.49	329.17	0.54	202.22	9.40	211.62	42.55	8.57	51.12
Building 10/01/2011-12/31/2020	20.32	153.51	302.88	0.54	2.21	7.12	9.33	0.78	6.48	7.25
Building Off Road Diesel	3.48	20.42	13.62	0.00	0.00	1.42	1.42	0.00	1.31	1.31
Building Vendor Trips	10.92	121.87	92.82	0.26	0.94	4.96	5.90	0.32	4.55	4.87
Building Worker Trips	5.93	11.22	196.44	0.28	1.27	0.74	2.01	0.46	0.62	1.08
Mass Grading 01/01/2011-12/31/2019	3.74	29.68	17.37	0.00	200.01	1.54	201.55	41.77	1.42	43.19
Mass Grading Dust	0.00	0.00	0.00	0.00	200.00	0.00	200.00	41.77	0.00	41.77
Mass Grading Off Road Diesel	3.71	29.61	16.24	0.00	0.00	1.54	1.54	0.00	1.42	1.42
Mass Grading On Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Mass Grading Worker Trips	0.03	0.06	1.13	0.00	0.01	0.00	0.01	0.00	0.00	0.01
Trenching 07/01/2011-06/30/2020	1.83	15.29	8.92	0.00	0.01	0.74	0.74	0.00	0.68	0.68
Trenching Off Road Diesel	1.80	15.24	8.01	0.00	0.00	0.73	0.73	0.00	0.67	0.67
Trenching Worker Trips	0.03	0.05	0.91	0.00	0.01	0.00	0.01	0.00	0.00	0.00

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Time Slice 10/1/2012-12/31/2012 Active Days: 66	**58.23**	216.04	340.91	**0.55**	**202.23**	**10.94**	**213.18**	**42.55**	**9.99**	**52.54**
Asphalt 10/01/2012-12/31/2020	2.95	17.54	11.43	0.00	0.01	1.54	1.55	0.00	1.42	1.42
Paving Off-Gas	0.04	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Paving Off Road Diesel	2.86	17.34	10.24	0.00	0.00	1.53	1.53	0.00	1.41	1.41
Paving On Road Diesel	0.01	0.14	0.05	0.00	0.00	0.01	0.01	0.00	0.01	0.01
Paving Worker Trips	0.03	0.06	1.13	0.00	0.01	0.00	0.01	0.00	0.00	0.01
Building 10/01/2011-12/31/2020	20.32	153.51	302.88	0.54	2.21	7.12	9.33	0.78	6.48	7.25
Building Off Road Diesel	3.48	20.42	13.62	0.00	0.00	1.42	1.42	0.00	1.31	1.31
Building Vendor Trips	10.92	121.87	92.82	0.26	0.94	4.96	5.90	0.32	4.55	4.87
Building Worker Trips	5.93	11.22	196.44	0.28	1.27	0.74	2.01	0.46	0.62	1.08
Coating 10/01/2012-12/31/2020	29.39	0.02	0.31	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Architectural Coating	29.38	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Coating Worker Trips	0.01	0.02	0.31	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Mass Grading 01/01/2011-12/31/2019	3.74	29.68	17.37	0.00	200.01	1.54	201.55	41.77	1.42	43.19
Mass Grading Dust	0.00	0.00	0.00	0.00	200.00	0.00	200.00	41.77	0.00	41.77
Mass Grading Off Road Diesel	3.71	29.61	16.24	0.00	0.00	1.54	1.54	0.00	1.42	1.42
Mass Grading On Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Mass Grading Worker Trips	0.03	0.06	1.13	0.00	0.01	0.00	0.01	0.00	0.00	0.01
Trenching 07/01/2011-06/30/2020	1.83	15.29	8.92	0.00	0.01	0.74	0.74	0.00	0.68	0.68
Trenching Off Road Diesel	1.80	15.24	8.01	0.00	0.00	0.73	0.73	0.00	0.67	0.67
Trenching Worker Trips	0.03	0.05	0.91	0.00	0.01	0.00	0.01	0.00	0.00	0.00

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Time Slice 1/1/2013-12/31/2013 Active Days: 261	55.95	195.63	318.22	**0.55**	**202.23**	9.88	212.12	**42.55**	9.01	51.56
Asphalt 10/01/2012-12/31/2020	2.77	16.64	11.25	0.00	0.01	1.44	1.45	0.00	1.33	1.33
Paving Off-Gas	0.04	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Paving Off Road Diesel	2.69	16.46	10.15	0.00	0.00	1.43	1.43	0.00	1.32	1.32
Paving On Road Diesel	0.01	0.12	0.05	0.00	0.00	0.00	0.01	0.00	0.00	0.00
Paving Worker Trips	0.03	0.06	1.05	0.00	0.01	0.00	0.01	0.00	0.00	0.01
Building 10/01/2011-12/31/2020	18.51	136.99	281.12	0.54	2.21	6.34	8.55	0.78	5.76	6.53
Building Off Road Diesel	3.19	19.04	13.34	0.00	0.00	1.26	1.26	0.00	1.16	1.16
Building Vendor Trips	9.93	107.72	85.22	0.26	0.94	4.34	5.28	0.32	3.97	4.29
Building Worker Trips	5.40	10.24	182.57	0.28	1.27	0.74	2.01	0.46	0.62	1.08
Coating 10/01/2012-12/31/2020	29.39	0.02	0.29	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Architectural Coating	29.38	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Coating Worker Trips	0.01	0.02	0.29	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Mass Grading 01/01/2011-12/31/2019	3.54	27.82	16.74	0.00	200.01	1.42	201.42	41.77	1.30	43.07
Mass Grading Dust	0.00	0.00	0.00	0.00	200.00	0.00	200.00	41.77	0.00	41.77
Mass Grading Off Road Diesel	3.51	27.76	15.68	0.00	0.00	1.41	1.41	0.00	1.30	1.30
Mass Grading On Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Mass Grading Worker Trips	0.03	0.06	1.05	0.00	0.01	0.00	0.01	0.00	0.00	0.01
Trenching 07/01/2011-06/30/2020	1.74	14.17	8.81	0.00	0.01	0.68	0.69	0.00	0.63	0.63
Trenching Off Road Diesel	1.72	14.12	7.97	0.00	0.00	0.68	0.68	0.00	0.62	0.62
Trenching Worker Trips	0.02	0.05	0.84	0.00	0.01	0.00	0.01	0.00	0.00	0.00

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Time Slice 1/1/2014-12/31/2014 Active Days: 261	53.80	176.32	297.57	**0.55**	**202.23**	8.91	211.14	**42.55**	8.11	50.67
Asphalt 10/01/2012-12/31/2020	2.62	15.78	11.09	0.00	0.01	1.35	1.36	0.00	1.24	1.25
Paving Off-Gas	0.04	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Paving Off Road Diesel	2.54	15.61	10.07	0.00	0.00	1.34	1.34	0.00	1.24	1.24
Paving On Road Diesel	0.01	0.11	0.04	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Paving Worker Trips	0.03	0.05	0.98	0.00	0.01	0.00	0.01	0.00	0.00	0.01
Building 10/01/2011-12/31/2020	16.83	121.60	261.34	0.54	2.21	5.69	7.90	0.78	5.16	5.93
Building Off Road Diesel	2.93	17.65	13.06	0.00	0.00	1.11	1.11	0.00	1.02	1.02
Building Vendor Trips	8.98	94.53	78.21	0.26	0.94	3.78	4.72	0.32	3.46	3.78
Building Worker Trips	4.92	9.42	170.07	0.28	1.27	0.80	2.07	0.46	0.67	1.13
Coating 10/01/2012-12/31/2020	29.38	0.01	0.27	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Architectural Coating	29.38	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Coating Worker Trips	0.01	0.01	0.27	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Mass Grading 01/01/2011-12/31/2019	3.33	25.87	16.19	0.00	200.01	1.27	201.28	41.77	1.17	42.94
Mass Grading Dust	0.00	0.00	0.00	0.00	200.00	0.00	200.00	41.77	0.00	41.77
Mass Grading Off Road Diesel	3.31	25.81	15.21	0.00	0.00	1.26	1.26	0.00	1.16	1.16
Mass Grading On Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Mass Grading Worker Trips	0.03	0.05	0.98	0.00	0.01	0.00	0.01	0.00	0.00	0.01
Trenching 07/01/2011-06/30/2020	1.63	13.06	8.68	0.00	0.01	0.59	0.60	0.00	0.54	0.55
Trenching Off Road Diesel	1.61	13.02	7.89	0.00	0.00	0.59	0.59	0.00	0.54	0.54
Trenching Worker Trips	0.02	0.04	0.79	0.00	0.01	0.00	0.01	0.00	0.00	0.01

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Time Slice 1/1/2015-12/31/2015 Active Days: 261	51.75	157.75	278.34	**0.55**	**202.23**	8.09	210.32	**42.55**	7.36	49.91
Asphalt 10/01/2012-12/31/2020	2.46	14.80	10.93	0.00	0.01	1.25	1.26	0.00	1.15	1.16
Paving Off-Gas	0.04	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Paving Off Road Diesel	2.38	14.65	9.98	0.00	0.00	1.25	1.25	0.00	1.15	1.15
Paving On Road Diesel	0.01	0.09	0.04	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Paving Worker Trips	0.03	0.05	0.91	0.00	0.01	0.00	0.01	0.00	0.00	0.01
Building 10/01/2011-12/31/2020	15.29	107.49	242.92	0.54	2.21	5.11	7.32	0.78	4.62	5.40
Building Off Road Diesel	2.69	16.17	12.80	0.00	0.00	1.03	1.03	0.00	0.94	0.94
Building Vendor Trips	8.10	82.69	71.77	0.26	0.94	3.29	4.23	0.32	3.01	3.32
Building Worker Trips	4.50	8.63	158.35	0.28	1.27	0.80	2.07	0.46	0.67	1.13
Coating 10/01/2012-12/31/2020	29.38	0.01	0.25	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Architectural Coating	29.38	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Coating Worker Trips	0.01	0.01	0.25	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Mass Grading 01/01/2011-12/31/2019	3.11	23.76	15.66	0.00	200.01	1.16	201.17	41.77	1.07	42.84
Mass Grading Dust	0.00	0.00	0.00	0.00	200.00	0.00	200.00	41.77	0.00	41.77
Mass Grading Off Road Diesel	3.09	23.71	14.74	0.00	0.00	1.16	1.16	0.00	1.06	1.06
Mass Grading On Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Mass Grading Worker Trips	0.03	0.05	0.91	0.00	0.01	0.00	0.01	0.00	0.00	0.01
Trenching 07/01/2011-06/30/2020	1.50	11.69	8.58	0.00	0.01	0.56	0.56	0.00	0.51	0.52
Trenching Off Road Diesel	1.48	11.65	7.85	0.00	0.00	0.55	0.55	0.00	0.51	0.51
Trenching Worker Trips	0.02	0.04	0.73	0.00	0.01	0.00	0.01	0.00	0.00	0.01

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Time Slice 1/1/2016-12/30/2016 Active Days: 261	49.99	141.88	261.64	**0.55**	**202.23**	7.26	209.50	**42.55**	6.60	49.15
Asphalt 10/01/2012-12/31/2020	2.29	13.85	10.80	0.00	0.01	1.15	1.16	0.00	1.06	1.06
Paving Off-Gas	0.04	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Paving Off Road Diesel	2.22	13.72	9.91	0.00	0.00	1.14	1.14	0.00	1.05	1.05
Paving On Road Diesel	0.01	0.08	0.03	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Paving Worker Trips	0.02	0.05	0.85	0.00	0.01	0.00	0.01	0.00	0.00	0.01
Building 10/01/2011-12/31/2020	13.97	95.80	226.91	0.54	2.21	4.58	6.79	0.78	4.13	4.91
Building Off Road Diesel	2.47	14.84	12.61	0.00	0.00	0.88	0.88	0.00	0.81	0.81
Building Vendor Trips	7.38	72.99	66.38	0.26	0.94	2.90	3.84	0.32	2.65	2.97
Building Worker Trips	4.12	7.98	147.92	0.28	1.27	0.80	2.07	0.46	0.67	1.13
Coating 10/01/2012-12/31/2020	29.38	0.01	0.23	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Architectural Coating	29.38	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Coating Worker Trips	0.01	0.01	0.23	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Mass Grading 01/01/2011-12/31/2019	2.93	21.83	15.19	0.00	200.01	1.07	201.08	41.77	0.98	42.75
Mass Grading Dust	0.00	0.00	0.00	0.00	200.00	0.00	200.00	41.77	0.00	41.77
Mass Grading Off Road Diesel	2.90	21.78	14.34	0.00	0.00	1.06	1.06	0.00	0.98	0.98
Mass Grading On Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Mass Grading Worker Trips	0.02	0.05	0.85	0.00	0.01	0.00	0.01	0.00	0.00	0.01
Trenching 07/01/2011-06/30/2020	1.41	10.38	8.51	0.00	0.01	0.47	0.48	0.00	0.43	0.43
Trenching Off Road Diesel	1.39	10.35	7.83	0.00	0.00	0.47	0.47	0.00	0.43	0.43
Trenching Worker Trips	0.02	0.04	0.68	0.00	0.01	0.00	0.01	0.00	0.00	0.01

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Time Slice 1/2/2017-12/29/2017 Active Days: 260	48.44	128.07	246.06	**0.55**	**202.23**	6.58	208.81	**42.55**	5.97	48.52
Asphalt 10/01/2012-12/31/2020	2.16	12.97	10.66	0.00	0.01	1.06	1.07	0.00	0.98	0.98
Paving Off-Gas	0.04	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Paving Off Road Diesel	2.09	12.86	9.83	0.00	0.00	1.05	1.05	0.00	0.97	0.97
Paving On Road Diesel	0.01	0.07	0.03	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Paving Worker Trips	0.02	0.04	0.80	0.00	0.01	0.00	0.01	0.00	0.00	0.01
Building 10/01/2011-12/31/2020	12.79	85.91	212.00	0.54	2.21	4.14	6.35	0.78	3.73	4.51
Building Off Road Diesel	2.25	13.62	12.45	0.00	0.00	0.77	0.77	0.00	0.71	0.71
Building Vendor Trips	6.76	64.93	61.64	0.26	0.94	2.57	3.51	0.32	2.34	2.66
Building Worker Trips	3.79	7.36	137.91	0.28	1.27	0.80	2.07	0.46	0.67	1.13
Coating 10/01/2012-12/31/2020	29.38	0.01	0.22	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Architectural Coating	29.38	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Coating Worker Trips	0.01	0.01	0.22	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Mass Grading 01/01/2011-12/31/2019	2.78	19.99	14.75	0.00	200.01	0.96	200.97	41.77	0.88	42.65
Mass Grading Dust	0.00	0.00	0.00	0.00	200.00	0.00	200.00	41.77	0.00	41.77
Mass Grading Off Road Diesel	2.76	19.95	13.95	0.00	0.00	0.95	0.95	0.00	0.88	0.88
Mass Grading On Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Mass Grading Worker Trips	0.02	0.04	0.80	0.00	0.01	0.00	0.01	0.00	0.00	0.01
Trenching 07/01/2011-06/30/2020	1.32	9.18	8.44	0.00	0.01	0.41	0.42	0.00	0.38	0.38
Trenching Off Road Diesel	1.31	9.14	7.81	0.00	0.00	0.41	0.41	0.00	0.38	0.38
Trenching Worker Trips	0.02	0.03	0.64	0.00	0.01	0.00	0.01	0.00	0.00	0.01

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Time Slice 1/1/2018-12/31/2018 Active Days: 261	46.96	115.92	231.81	**0.55**	**202.23**	5.98	208.21	**42.55**	5.42	47.97
Asphalt 10/01/2012-12/31/2020	2.04	12.13	10.56	0.00	0.01	0.97	0.98	0.00	0.89	0.90
Paving Off-Gas	0.04	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Paving Off Road Diesel	1.97	12.02	9.79	0.00	0.00	0.96	0.96	0.00	0.89	0.89
Paving On Road Diesel	0.01	0.07	0.03	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Paving Worker Trips	0.02	0.04	0.74	0.00	0.01	0.00	0.01	0.00	0.00	0.01
Building 10/01/2011-12/31/2020	11.73	77.42	198.29	0.54	2.21	3.78	5.99	0.78	3.39	4.17
Building Off Road Diesel	2.03	12.45	12.26	0.00	0.00	0.67	0.67	0.00	0.62	0.62
Building Vendor Trips	6.22	58.18	57.45	0.26	0.94	2.30	3.24	0.32	2.10	2.42
Building Worker Trips	3.47	6.79	128.58	0.28	1.27	0.80	2.07	0.46	0.67	1.13
Coating 10/01/2012-12/31/2020	29.38	0.01	0.20	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Architectural Coating	29.38	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Coating Worker Trips	0.01	0.01	0.20	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Mass Grading 01/01/2011-12/31/2019	2.58	18.30	14.38	0.00	200.01	0.85	200.86	41.77	0.78	42.55
Mass Grading Dust	0.00	0.00	0.00	0.00	200.00	0.00	200.00	41.77	0.00	41.77
Mass Grading Off Road Diesel	2.56	18.26	13.63	0.00	0.00	0.84	0.84	0.00	0.78	0.78
Mass Grading On Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Mass Grading Worker Trips	0.02	0.04	0.74	0.00	0.01	0.00	0.01	0.00	0.00	0.01
Trenching 07/01/2011-06/30/2020	1.23	8.06	8.38	0.00	0.01	0.38	0.39	0.00	0.35	0.35
Trenching Off Road Diesel	1.22	8.03	7.78	0.00	0.00	0.38	0.38	0.00	0.35	0.35
Trenching Worker Trips	0.02	0.03	0.59	0.00	0.01	0.00	0.01	0.00	0.00	0.01

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Time Slice 1/1/2019-12/31/2019 Active Days: 261	45.66	105.28	218.69	**0.55**	**202.23**	5.41	207.64	**42.55**	4.90	47.45
Asphalt 10/01/2012-12/31/2020	1.89	11.36	10.42	0.00	0.01	0.88	0.89	0.00	0.81	0.81
Paving Off-Gas	0.04	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Paving Off Road Diesel	1.83	11.27	9.70	0.00	0.00	0.88	0.88	0.00	0.81	0.81
Paving On Road Diesel	0.01	0.06	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Paving Worker Trips	0.02	0.04	0.69	0.00	0.01	0.00	0.01	0.00	0.00	0.01
Building 10/01/2011-12/31/2020	10.83	70.13	185.73	0.54	2.21	3.45	5.65	0.78	3.09	3.86
Building Off Road Diesel	1.88	11.39	12.14	0.00	0.00	0.57	0.57	0.00	0.52	0.52
Building Vendor Trips	5.76	52.50	53.71	0.26	0.94	2.08	3.01	0.32	1.89	2.21
Building Worker Trips	3.20	6.25	119.88	0.28	1.27	0.80	2.07	0.46	0.67	1.13
Coating 10/01/2012-12/31/2020	29.38	0.01	0.19	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Architectural Coating	29.38	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Coating Worker Trips	0.01	0.01	0.19	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Mass Grading 01/01/2011-12/31/2019	2.41	16.71	14.03	0.00	200.01	0.76	200.76	41.77	0.70	42.47
Mass Grading Dust	0.00	0.00	0.00	0.00	200.00	0.00	200.00	41.77	0.00	41.77
Mass Grading Off Road Diesel	2.39	16.68	13.34	0.00	0.00	0.75	0.75	0.00	0.69	0.69
Mass Grading On Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Mass Grading Worker Trips	0.02	0.04	0.69	0.00	0.01	0.00	0.01	0.00	0.00	0.01
Trenching 07/01/2011-06/30/2020	1.14	7.06	8.32	0.00	0.01	0.33	0.33	0.00	0.30	0.30
Trenching Off Road Diesel	1.13	7.04	7.76	0.00	0.00	0.32	0.32	0.00	0.30	0.30
Trenching Worker Trips	0.01	0.03	0.55	0.00	0.01	0.00	0.01	0.00	0.00	0.01

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Time Slice 1/1/2020-6/30/2020 Active Days: 130	42.16	80.83	192.84	0.54	2.23	4.31	6.53	0.78	3.88	4.66
Asphalt 10/01/2012-12/31/2020	1.76	10.62	10.32	0.00	0.01	0.83	0.83	0.00	0.76	0.76
Paving Off-Gas	0.04	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Paving Off Road Diesel	1.70	10.53	9.66	0.00	0.00	0.82	0.82	0.00	0.75	0.75
Paving On Road Diesel	0.01	0.05	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Paving Worker Trips	0.02	0.03	0.64	0.00	0.01	0.00	0.01	0.00	0.00	0.01
Building 10/01/2011-12/31/2020	9.97	63.99	174.06	0.54	2.21	3.19	5.40	0.78	2.85	3.63
Building Off Road Diesel	1.71	10.50	12.03	0.00	0.00	0.50	0.50	0.00	0.46	0.46
Building Vendor Trips	5.35	47.72	50.38	0.26	0.94	1.89	2.83	0.32	1.72	2.04
Building Worker Trips	2.91	5.77	111.65	0.28	1.27	0.80	2.07	0.46	0.67	1.13
Coating 10/01/2012-12/31/2020	29.38	0.01	0.18	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Architectural Coating	29.38	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Coating Worker Trips	0.00	0.01	0.18	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Trenching 07/01/2011-06/30/2020	1.05	6.20	8.28	0.00	0.01	0.29	0.30	0.00	0.27	0.27
Trenching Off Road Diesel	1.04	6.18	7.76	0.00	0.00	0.29	0.29	0.00	0.26	0.26
Trenching Worker Trips	0.01	0.03	0.52	0.00	0.01	0.00	0.01	0.00	0.00	0.01

Time Slice 7/1/2020-12/31/2020 Active Days: 132	41.11	74.62	184.56	0.54	2.22	4.02	6.24	0.78	3.61	4.39
Asphalt 10/01/2012-12/31/2020	1.76	10.62	10.32	0.00	0.01	0.83	0.83	0.00	0.76	0.76
Paving Off-Gas	0.04	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Paving Off Road Diesel	1.70	10.53	9.66	0.00	0.00	0.82	0.82	0.00	0.75	0.75
Paving On Road Diesel	0.01	0.05	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Paving Worker Trips	0.02	0.03	0.64	0.00	0.01	0.00	0.01	0.00	0.00	0.01
Building 10/01/2011-12/31/2020	9.97	63.99	174.06	0.54	2.21	3.19	5.40	0.78	2.85	3.63
Building Off Road Diesel	1.71	10.50	12.03	0.00	0.00	0.50	0.50	0.00	0.46	0.46
Building Vendor Trips	5.35	47.72	50.38	0.26	0.94	1.89	2.83	0.32	1.72	2.04
Building Worker Trips	2.91	5.77	111.65	0.28	1.27	0.80	2.07	0.46	0.67	1.13
Coating 10/01/2012-12/31/2020	29.38	0.01	0.18	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Architectural Coating	29.38	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Coating Worker Trips	0.00	0.01	0.18	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Phase Assumptions

Phase: Mass Grading 1/1/2011 - 12/31/2019 - Default Mass Site Grading/Excavation Description

Total Acres Disturbed: 40

Maximum Daily Acreage Disturbed: 10

Fugitive Dust Level of Detail: Default

20 lbs per acre-day

On Road Truck Travel (VMT): 0

Off-Road Equipment:

1 Graders (174 hp) operating at a 0.61 load factor for 8 hours per day

1 Rubber Tired Dozers (357 hp) operating at a 0.59 load factor for 8 hours per day

2 Tractors/Loaders/Backhoes (108 hp) operating at a 0.55 load factor for 7 hours per day

1 Water Trucks (189 hp) operating at a 0.5 load factor for 8 hours per day

Phase: Trenching 7/1/2011 - 6/30/2020 - Default Trenching Description

Off-Road Equipment:

2 Excavators (168 hp) operating at a 0.57 load factor for 8 hours per day

1 Other General Industrial Equipment (238 hp) operating at a 0.51 load factor for 8 hours per day

1 Tractors/Loaders/Backhoes (108 hp) operating at a 0.55 load factor for 0 hours per day

Phase: Paving 10/1/2012 - 12/31/2020 - Default Paving Description
Acres to be Paved: 33.9
Off-Road Equipment:
1 Pavers (100 hp) operating at a 0.62 load factor for 8 hours per day
2 Paving Equipment (104 hp) operating at a 0.53 load factor for 8 hours per day
2 Rollers (95 hp) operating at a 0.56 load factor for 6 hours per day

Phase: Building Construction 10/1/2011 - 12/31/2020 - Default Building Construction Description
Off-Road Equipment:
1 Cranes (399 hp) operating at a 0.43 load factor for 7 hours per day
3 Forklifts (145 hp) operating at a 0.3 load factor for 8 hours per day
1 Generator Sets (49 hp) operating at a 0.74 load factor for 8 hours per day
3 Tractors/Loaders/Backhoes (108 hp) operating at a 0.55 load factor for 7 hours per day
1 Welders (45 hp) operating at a 0.45 load factor for 8 hours per day

Phase: Architectural Coating 10/1/2012 - 12/31/2020 - Default Architectural Coating Description
Rule: Residential Interior Coatings begins 1/1/2005 ends 6/30/2008 specifies a VOC of 100
Rule: Residential Interior Coatings begins 7/1/2008 ends 12/31/2040 specifies a VOC of 50
Rule: Residential Exterior Coatings begins 1/1/2005 ends 6/30/2008 specifies a VOC of 250
Rule: Residential Exterior Coatings begins 7/1/2008 ends 12/31/2040 specifies a VOC of 100
Rule: Nonresidential Interior Coatings begins 1/1/2005 ends 12/31/2040 specifies a VOC of 250
Rule: Nonresidential Exterior Coatings begins 1/1/2005 ends 12/31/2040 specifies a VOC of 250

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Urbemis 2007 Version 9.2.4

Detail Report for Winter Construction Unmitigated Emissions (Pounds/Day)

File Name: Z:\EBell\UCR LRDP update\Modeling\UCR LRDP Amendment_const_and_area_sources_with_support_yard.urb924

Project Name: UC Riverside - LRDP Amendment, SOM

Project Location: South Coast AQMD

On-Road Vehicle Emissions Based on: Version : Emfac2007 V2.3 Nov 1 2006

Off-Road Vehicle Emissions Based on: OFFROAD2007

CONSTRUCTION EMISSION ESTIMATES (Winter Pounds Per Day, Unmitigated)

	ROG	NOx	CO	SO2	PM10 Dust	PM10 Exhaust	PM10 Total	PM2.5 Dust	PM2.5 Exhaust	PM2.5 Total
Time Slice 1/3/2011-6/30/2011 Active Days: 129	3.95	31.68	18.04	0.00	200.01	1.69	201.70	41.77	1.55	43.32
Mass Grading 01/01/2011-12/31/2019	3.95	31.68	18.04	0.00	200.01	1.69	201.70	41.77	1.55	43.32
Mass Grading Dust	0.00	0.00	0.00	0.00	200.00	0.00	200.00	41.77	0.00	41.77
Mass Grading Off Road Diesel	3.91	31.61	16.82	0.00	0.00	1.68	1.68	0.00	1.55	1.55
Mass Grading On Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Mass Grading Worker Trips	0.04	0.07	1.22	0.00	0.01	0.00	0.01	0.00	0.00	0.01
Time Slice 7/1/2011-9/30/2011 Active Days: 66	5.93	48.15	27.09	0.00	200.01	2.51	202.53	41.77	2.31	44.08
Mass Grading 01/01/2011-12/31/2019	3.95	31.68	18.04	0.00	200.01	1.69	201.70	41.77	1.55	43.32
Mass Grading Dust	0.00	0.00	0.00	0.00	200.00	0.00	200.00	41.77	0.00	41.77
Mass Grading Off Road Diesel	3.91	31.61	16.82	0.00	0.00	1.68	1.68	0.00	1.55	1.55
Mass Grading On Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Mass Grading Worker Trips	0.04	0.07	1.22	0.00	0.01	0.00	0.01	0.00	0.00	0.01
Trenching 07/01/2011-06/30/2020	1.98	16.48	9.05	0.00	0.01	0.82	0.83	0.00	0.76	0.76
Trenching Off Road Diesel	1.95	16.42	8.07	0.00	0.00	0.82	0.82	0.00	0.76	0.76
Trenching Worker Trips	0.03	0.06	0.98	0.00	0.01	0.00	0.01	0.00	0.00	0.00

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Time Slice 10/3/2011-12/30/2011 Active Days: 65	28.12	**218.82**	**352.82**	0.54	202.22	10.44	212.66	42.55	9.53	52.08
Building 10/01/2011-12/31/2020	22.19	170.67	325.73	0.54	2.21	7.92	10.13	0.78	7.22	7.99
Building Off Road Diesel	3.77	21.85	13.95	0.00	0.00	1.57	1.57	0.00	1.45	1.45
Building Vendor Trips	11.92	136.59	100.62	0.26	0.94	5.62	6.55	0.32	5.15	5.47
Building Worker Trips	6.51	12.24	211.16	0.28	1.27	0.73	2.00	0.46	0.62	1.08
Mass Grading 01/01/2011-12/31/2019	3.95	31.68	18.04	0.00	200.01	1.69	201.70	41.77	1.55	43.32
Mass Grading Dust	0.00	0.00	0.00	0.00	200.00	0.00	200.00	41.77	0.00	41.77
Mass Grading Off Road Diesel	3.91	31.61	16.82	0.00	0.00	1.68	1.68	0.00	1.55	1.55
Mass Grading On Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Mass Grading Worker Trips	0.04	0.07	1.22	0.00	0.01	0.00	0.01	0.00	0.00	0.01
Trenching 07/01/2011-06/30/2020	1.98	16.48	9.05	0.00	0.01	0.82	0.83	0.00	0.76	0.76
Trenching Off Road Diesel	1.95	16.42	8.07	0.00	0.00	0.82	0.82	0.00	0.76	0.76
Trenching Worker Trips	0.03	0.06	0.98	0.00	0.01	0.00	0.01	0.00	0.00	0.00
Time Slice 1/2/2012-9/28/2012 Active Days: 195	25.89	198.49	329.17	0.54	202.22	9.40	211.62	42.55	8.57	51.12
Building 10/01/2011-12/31/2020	20.32	153.51	302.88	0.54	2.21	7.12	9.33	0.78	6.48	7.25
Building Off Road Diesel	3.48	20.42	13.62	0.00	0.00	1.42	1.42	0.00	1.31	1.31
Building Vendor Trips	10.92	121.87	92.82	0.26	0.94	4.96	5.90	0.32	4.55	4.87
Building Worker Trips	5.93	11.22	196.44	0.28	1.27	0.74	2.01	0.46	0.62	1.08
Mass Grading 01/01/2011-12/31/2019	3.74	29.68	17.37	0.00	200.01	1.54	201.55	41.77	1.42	43.19
Mass Grading Dust	0.00	0.00	0.00	0.00	200.00	0.00	200.00	41.77	0.00	41.77
Mass Grading Off Road Diesel	3.71	29.61	16.24	0.00	0.00	1.54	1.54	0.00	1.42	1.42
Mass Grading On Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Mass Grading Worker Trips	0.03	0.06	1.13	0.00	0.01	0.00	0.01	0.00	0.00	0.01
Trenching 07/01/2011-06/30/2020	1.83	15.29	8.92	0.00	0.01	0.74	0.74	0.00	0.68	0.68
Trenching Off Road Diesel	1.80	15.24	8.01	0.00	0.00	0.73	0.73	0.00	0.67	0.67
Trenching Worker Trips	0.03	0.05	0.91	0.00	0.01	0.00	0.01	0.00	0.00	0.00

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Time Slice 10/1/2012-12/31/2012 Active Days: 66	**58.23**	216.04	340.91	**0.55**	**202.23**	**10.94**	**213.18**	**42.55**	**9.99**	**52.54**
Asphalt 10/01/2012-12/31/2020	2.95	17.54	11.43	0.00	0.01	1.54	1.55	0.00	1.42	1.42
Paving Off-Gas	0.04	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Paving Off Road Diesel	2.86	17.34	10.24	0.00	0.00	1.53	1.53	0.00	1.41	1.41
Paving On Road Diesel	0.01	0.14	0.05	0.00	0.00	0.01	0.01	0.00	0.01	0.01
Paving Worker Trips	0.03	0.06	1.13	0.00	0.01	0.00	0.01	0.00	0.00	0.01
Building 10/01/2011-12/31/2020	20.32	153.51	302.88	0.54	2.21	7.12	9.33	0.78	6.48	7.25
Building Off Road Diesel	3.48	20.42	13.62	0.00	0.00	1.42	1.42	0.00	1.31	1.31
Building Vendor Trips	10.92	121.87	92.82	0.26	0.94	4.96	5.90	0.32	4.55	4.87
Building Worker Trips	5.93	11.22	196.44	0.28	1.27	0.74	2.01	0.46	0.62	1.08
Coating 10/01/2012-12/31/2020	29.39	0.02	0.31	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Architectural Coating	29.38	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Coating Worker Trips	0.01	0.02	0.31	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Mass Grading 01/01/2011-12/31/2019	3.74	29.68	17.37	0.00	200.01	1.54	201.55	41.77	1.42	43.19
Mass Grading Dust	0.00	0.00	0.00	0.00	200.00	0.00	200.00	41.77	0.00	41.77
Mass Grading Off Road Diesel	3.71	29.61	16.24	0.00	0.00	1.54	1.54	0.00	1.42	1.42
Mass Grading On Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Mass Grading Worker Trips	0.03	0.06	1.13	0.00	0.01	0.00	0.01	0.00	0.00	0.01
Trenching 07/01/2011-06/30/2020	1.83	15.29	8.92	0.00	0.01	0.74	0.74	0.00	0.68	0.68
Trenching Off Road Diesel	1.80	15.24	8.01	0.00	0.00	0.73	0.73	0.00	0.67	0.67
Trenching Worker Trips	0.03	0.05	0.91	0.00	0.01	0.00	0.01	0.00	0.00	0.00

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Time Slice 1/1/2013-12/31/2013 Active Days: 261	55.95	195.63	318.22	**0.55**	**202.23**	9.88	212.12	**42.55**	9.01	51.56
Asphalt 10/01/2012-12/31/2020	2.77	16.64	11.25	0.00	0.01	1.44	1.45	0.00	1.33	1.33
Paving Off-Gas	0.04	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Paving Off Road Diesel	2.69	16.46	10.15	0.00	0.00	1.43	1.43	0.00	1.32	1.32
Paving On Road Diesel	0.01	0.12	0.05	0.00	0.00	0.00	0.01	0.00	0.00	0.00
Paving Worker Trips	0.03	0.06	1.05	0.00	0.01	0.00	0.01	0.00	0.00	0.01
Building 10/01/2011-12/31/2020	18.51	136.99	281.12	0.54	2.21	6.34	8.55	0.78	5.76	6.53
Building Off Road Diesel	3.19	19.04	13.34	0.00	0.00	1.26	1.26	0.00	1.16	1.16
Building Vendor Trips	9.93	107.72	85.22	0.26	0.94	4.34	5.28	0.32	3.97	4.29
Building Worker Trips	5.40	10.24	182.57	0.28	1.27	0.74	2.01	0.46	0.62	1.08
Coating 10/01/2012-12/31/2020	29.39	0.02	0.29	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Architectural Coating	29.38	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Coating Worker Trips	0.01	0.02	0.29	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Mass Grading 01/01/2011-12/31/2019	3.54	27.82	16.74	0.00	200.01	1.42	201.42	41.77	1.30	43.07
Mass Grading Dust	0.00	0.00	0.00	0.00	200.00	0.00	200.00	41.77	0.00	41.77
Mass Grading Off Road Diesel	3.51	27.76	15.68	0.00	0.00	1.41	1.41	0.00	1.30	1.30
Mass Grading On Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Mass Grading Worker Trips	0.03	0.06	1.05	0.00	0.01	0.00	0.01	0.00	0.00	0.01
Trenching 07/01/2011-06/30/2020	1.74	14.17	8.81	0.00	0.01	0.68	0.69	0.00	0.63	0.63
Trenching Off Road Diesel	1.72	14.12	7.97	0.00	0.00	0.68	0.68	0.00	0.62	0.62
Trenching Worker Trips	0.02	0.05	0.84	0.00	0.01	0.00	0.01	0.00	0.00	0.00

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Time Slice 1/1/2014-12/31/2014 Active Days: 261	53.80	176.32	297.57	**0.55**	**202.23**	8.91	211.14	**42.55**	8.11	50.67
Asphalt 10/01/2012-12/31/2020	2.62	15.78	11.09	0.00	0.01	1.35	1.36	0.00	1.24	1.25
Paving Off-Gas	0.04	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Paving Off Road Diesel	2.54	15.61	10.07	0.00	0.00	1.34	1.34	0.00	1.24	1.24
Paving On Road Diesel	0.01	0.11	0.04	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Paving Worker Trips	0.03	0.05	0.98	0.00	0.01	0.00	0.01	0.00	0.00	0.01
Building 10/01/2011-12/31/2020	16.83	121.60	261.34	0.54	2.21	5.69	7.90	0.78	5.16	5.93
Building Off Road Diesel	2.93	17.65	13.06	0.00	0.00	1.11	1.11	0.00	1.02	1.02
Building Vendor Trips	8.98	94.53	78.21	0.26	0.94	3.78	4.72	0.32	3.46	3.78
Building Worker Trips	4.92	9.42	170.07	0.28	1.27	0.80	2.07	0.46	0.67	1.13
Coating 10/01/2012-12/31/2020	29.38	0.01	0.27	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Architectural Coating	29.38	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Coating Worker Trips	0.01	0.01	0.27	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Mass Grading 01/01/2011-12/31/2019	3.33	25.87	16.19	0.00	200.01	1.27	201.28	41.77	1.17	42.94
Mass Grading Dust	0.00	0.00	0.00	0.00	200.00	0.00	200.00	41.77	0.00	41.77
Mass Grading Off Road Diesel	3.31	25.81	15.21	0.00	0.00	1.26	1.26	0.00	1.16	1.16
Mass Grading On Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Mass Grading Worker Trips	0.03	0.05	0.98	0.00	0.01	0.00	0.01	0.00	0.00	0.01
Trenching 07/01/2011-06/30/2020	1.63	13.06	8.68	0.00	0.01	0.59	0.60	0.00	0.54	0.55
Trenching Off Road Diesel	1.61	13.02	7.89	0.00	0.00	0.59	0.59	0.00	0.54	0.54
Trenching Worker Trips	0.02	0.04	0.79	0.00	0.01	0.00	0.01	0.00	0.00	0.01

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Time Slice 1/1/2015-12/31/2015 Active Days: 261	51.75	157.75	278.34	**0.55**	**202.23**	8.09	210.32	**42.55**	7.36	49.91
Asphalt 10/01/2012-12/31/2020	2.46	14.80	10.93	0.00	0.01	1.25	1.26	0.00	1.15	1.16
Paving Off-Gas	0.04	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Paving Off Road Diesel	2.38	14.65	9.98	0.00	0.00	1.25	1.25	0.00	1.15	1.15
Paving On Road Diesel	0.01	0.09	0.04	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Paving Worker Trips	0.03	0.05	0.91	0.00	0.01	0.00	0.01	0.00	0.00	0.01
Building 10/01/2011-12/31/2020	15.29	107.49	242.92	0.54	2.21	5.11	7.32	0.78	4.62	5.40
Building Off Road Diesel	2.69	16.17	12.80	0.00	0.00	1.03	1.03	0.00	0.94	0.94
Building Vendor Trips	8.10	82.69	71.77	0.26	0.94	3.29	4.23	0.32	3.01	3.32
Building Worker Trips	4.50	8.63	158.35	0.28	1.27	0.80	2.07	0.46	0.67	1.13
Coating 10/01/2012-12/31/2020	29.38	0.01	0.25	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Architectural Coating	29.38	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Coating Worker Trips	0.01	0.01	0.25	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Mass Grading 01/01/2011-12/31/2019	3.11	23.76	15.66	0.00	200.01	1.16	201.17	41.77	1.07	42.84
Mass Grading Dust	0.00	0.00	0.00	0.00	200.00	0.00	200.00	41.77	0.00	41.77
Mass Grading Off Road Diesel	3.09	23.71	14.74	0.00	0.00	1.16	1.16	0.00	1.06	1.06
Mass Grading On Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Mass Grading Worker Trips	0.03	0.05	0.91	0.00	0.01	0.00	0.01	0.00	0.00	0.01
Trenching 07/01/2011-06/30/2020	1.50	11.69	8.58	0.00	0.01	0.56	0.56	0.00	0.51	0.52
Trenching Off Road Diesel	1.48	11.65	7.85	0.00	0.00	0.55	0.55	0.00	0.51	0.51
Trenching Worker Trips	0.02	0.04	0.73	0.00	0.01	0.00	0.01	0.00	0.00	0.01

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Time Slice 1/1/2016-12/30/2016 Active Days: 261	49.99	141.88	261.64	**0.55**	**202.23**	7.26	209.50	**42.55**	6.60	49.15
Asphalt 10/01/2012-12/31/2020	2.29	13.85	10.80	0.00	0.01	1.15	1.16	0.00	1.06	1.06
Paving Off-Gas	0.04	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Paving Off Road Diesel	2.22	13.72	9.91	0.00	0.00	1.14	1.14	0.00	1.05	1.05
Paving On Road Diesel	0.01	0.08	0.03	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Paving Worker Trips	0.02	0.05	0.85	0.00	0.01	0.00	0.01	0.00	0.00	0.01
Building 10/01/2011-12/31/2020	13.97	95.80	226.91	0.54	2.21	4.58	6.79	0.78	4.13	4.91
Building Off Road Diesel	2.47	14.84	12.61	0.00	0.00	0.88	0.88	0.00	0.81	0.81
Building Vendor Trips	7.38	72.99	66.38	0.26	0.94	2.90	3.84	0.32	2.65	2.97
Building Worker Trips	4.12	7.98	147.92	0.28	1.27	0.80	2.07	0.46	0.67	1.13
Coating 10/01/2012-12/31/2020	29.38	0.01	0.23	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Architectural Coating	29.38	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Coating Worker Trips	0.01	0.01	0.23	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Mass Grading 01/01/2011-12/31/2019	2.93	21.83	15.19	0.00	200.01	1.07	201.08	41.77	0.98	42.75
Mass Grading Dust	0.00	0.00	0.00	0.00	200.00	0.00	200.00	41.77	0.00	41.77
Mass Grading Off Road Diesel	2.90	21.78	14.34	0.00	0.00	1.06	1.06	0.00	0.98	0.98
Mass Grading On Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Mass Grading Worker Trips	0.02	0.05	0.85	0.00	0.01	0.00	0.01	0.00	0.00	0.01
Trenching 07/01/2011-06/30/2020	1.41	10.38	8.51	0.00	0.01	0.47	0.48	0.00	0.43	0.43
Trenching Off Road Diesel	1.39	10.35	7.83	0.00	0.00	0.47	0.47	0.00	0.43	0.43
Trenching Worker Trips	0.02	0.04	0.68	0.00	0.01	0.00	0.01	0.00	0.00	0.01

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Time Slice 1/2/2017-12/29/2017 Active Days: 260	48.44	128.07	246.06	**0.55**	**202.23**	6.58	208.81	**42.55**	5.97	48.52
Asphalt 10/01/2012-12/31/2020	2.16	12.97	10.66	0.00	0.01	1.06	1.07	0.00	0.98	0.98
Paving Off-Gas	0.04	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Paving Off Road Diesel	2.09	12.86	9.83	0.00	0.00	1.05	1.05	0.00	0.97	0.97
Paving On Road Diesel	0.01	0.07	0.03	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Paving Worker Trips	0.02	0.04	0.80	0.00	0.01	0.00	0.01	0.00	0.00	0.01
Building 10/01/2011-12/31/2020	12.79	85.91	212.00	0.54	2.21	4.14	6.35	0.78	3.73	4.51
Building Off Road Diesel	2.25	13.62	12.45	0.00	0.00	0.77	0.77	0.00	0.71	0.71
Building Vendor Trips	6.76	64.93	61.64	0.26	0.94	2.57	3.51	0.32	2.34	2.66
Building Worker Trips	3.79	7.36	137.91	0.28	1.27	0.80	2.07	0.46	0.67	1.13
Coating 10/01/2012-12/31/2020	29.38	0.01	0.22	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Architectural Coating	29.38	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Coating Worker Trips	0.01	0.01	0.22	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Mass Grading 01/01/2011-12/31/2019	2.78	19.99	14.75	0.00	200.01	0.96	200.97	41.77	0.88	42.65
Mass Grading Dust	0.00	0.00	0.00	0.00	200.00	0.00	200.00	41.77	0.00	41.77
Mass Grading Off Road Diesel	2.76	19.95	13.95	0.00	0.00	0.95	0.95	0.00	0.88	0.88
Mass Grading On Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Mass Grading Worker Trips	0.02	0.04	0.80	0.00	0.01	0.00	0.01	0.00	0.00	0.01
Trenching 07/01/2011-06/30/2020	1.32	9.18	8.44	0.00	0.01	0.41	0.42	0.00	0.38	0.38
Trenching Off Road Diesel	1.31	9.14	7.81	0.00	0.00	0.41	0.41	0.00	0.38	0.38
Trenching Worker Trips	0.02	0.03	0.64	0.00	0.01	0.00	0.01	0.00	0.00	0.01

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Time Slice 1/1/2018-12/31/2018 Active Days: 261	46.96	115.92	231.81	**0.55**	**202.23**	5.98	208.21	**42.55**	5.42	47.97
Asphalt 10/01/2012-12/31/2020	2.04	12.13	10.56	0.00	0.01	0.97	0.98	0.00	0.89	0.90
Paving Off-Gas	0.04	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Paving Off Road Diesel	1.97	12.02	9.79	0.00	0.00	0.96	0.96	0.00	0.89	0.89
Paving On Road Diesel	0.01	0.07	0.03	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Paving Worker Trips	0.02	0.04	0.74	0.00	0.01	0.00	0.01	0.00	0.00	0.01
Building 10/01/2011-12/31/2020	11.73	77.42	198.29	0.54	2.21	3.78	5.99	0.78	3.39	4.17
Building Off Road Diesel	2.03	12.45	12.26	0.00	0.00	0.67	0.67	0.00	0.62	0.62
Building Vendor Trips	6.22	58.18	57.45	0.26	0.94	2.30	3.24	0.32	2.10	2.42
Building Worker Trips	3.47	6.79	128.58	0.28	1.27	0.80	2.07	0.46	0.67	1.13
Coating 10/01/2012-12/31/2020	29.38	0.01	0.20	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Architectural Coating	29.38	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Coating Worker Trips	0.01	0.01	0.20	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Mass Grading 01/01/2011-12/31/2019	2.58	18.30	14.38	0.00	200.01	0.85	200.86	41.77	0.78	42.55
Mass Grading Dust	0.00	0.00	0.00	0.00	200.00	0.00	200.00	41.77	0.00	41.77
Mass Grading Off Road Diesel	2.56	18.26	13.63	0.00	0.00	0.84	0.84	0.00	0.78	0.78
Mass Grading On Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Mass Grading Worker Trips	0.02	0.04	0.74	0.00	0.01	0.00	0.01	0.00	0.00	0.01
Trenching 07/01/2011-06/30/2020	1.23	8.06	8.38	0.00	0.01	0.38	0.39	0.00	0.35	0.35
Trenching Off Road Diesel	1.22	8.03	7.78	0.00	0.00	0.38	0.38	0.00	0.35	0.35
Trenching Worker Trips	0.02	0.03	0.59	0.00	0.01	0.00	0.01	0.00	0.00	0.01

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Time Slice 1/1/2019-12/31/2019 Active Days: 261	45.66	105.28	218.69	**0.55**	**202.23**	5.41	207.64	**42.55**	4.90	47.45
Asphalt 10/01/2012-12/31/2020	1.89	11.36	10.42	0.00	0.01	0.88	0.89	0.00	0.81	0.81
Paving Off-Gas	0.04	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Paving Off Road Diesel	1.83	11.27	9.70	0.00	0.00	0.88	0.88	0.00	0.81	0.81
Paving On Road Diesel	0.01	0.06	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Paving Worker Trips	0.02	0.04	0.69	0.00	0.01	0.00	0.01	0.00	0.00	0.01
Building 10/01/2011-12/31/2020	10.83	70.13	185.73	0.54	2.21	3.45	5.65	0.78	3.09	3.86
Building Off Road Diesel	1.88	11.39	12.14	0.00	0.00	0.57	0.57	0.00	0.52	0.52
Building Vendor Trips	5.76	52.50	53.71	0.26	0.94	2.08	3.01	0.32	1.89	2.21
Building Worker Trips	3.20	6.25	119.88	0.28	1.27	0.80	2.07	0.46	0.67	1.13
Coating 10/01/2012-12/31/2020	29.38	0.01	0.19	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Architectural Coating	29.38	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Coating Worker Trips	0.01	0.01	0.19	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Mass Grading 01/01/2011-12/31/2019	2.41	16.71	14.03	0.00	200.01	0.76	200.76	41.77	0.70	42.47
Mass Grading Dust	0.00	0.00	0.00	0.00	200.00	0.00	200.00	41.77	0.00	41.77
Mass Grading Off Road Diesel	2.39	16.68	13.34	0.00	0.00	0.75	0.75	0.00	0.69	0.69
Mass Grading On Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Mass Grading Worker Trips	0.02	0.04	0.69	0.00	0.01	0.00	0.01	0.00	0.00	0.01
Trenching 07/01/2011-06/30/2020	1.14	7.06	8.32	0.00	0.01	0.33	0.33	0.00	0.30	0.30
Trenching Off Road Diesel	1.13	7.04	7.76	0.00	0.00	0.32	0.32	0.00	0.30	0.30
Trenching Worker Trips	0.01	0.03	0.55	0.00	0.01	0.00	0.01	0.00	0.00	0.01

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Time Slice 1/1/2020-6/30/2020 Active Days: 130	42.16	80.83	192.84	0.54	2.23	4.31	6.53	0.78	3.88	4.66
Asphalt 10/01/2012-12/31/2020	1.76	10.62	10.32	0.00	0.01	0.83	0.83	0.00	0.76	0.76
Paving Off-Gas	0.04	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Paving Off Road Diesel	1.70	10.53	9.66	0.00	0.00	0.82	0.82	0.00	0.75	0.75
Paving On Road Diesel	0.01	0.05	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Paving Worker Trips	0.02	0.03	0.64	0.00	0.01	0.00	0.01	0.00	0.00	0.01
Building 10/01/2011-12/31/2020	9.97	63.99	174.06	0.54	2.21	3.19	5.40	0.78	2.85	3.63
Building Off Road Diesel	1.71	10.50	12.03	0.00	0.00	0.50	0.50	0.00	0.46	0.46
Building Vendor Trips	5.35	47.72	50.38	0.26	0.94	1.89	2.83	0.32	1.72	2.04
Building Worker Trips	2.91	5.77	111.65	0.28	1.27	0.80	2.07	0.46	0.67	1.13
Coating 10/01/2012-12/31/2020	29.38	0.01	0.18	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Architectural Coating	29.38	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Coating Worker Trips	0.00	0.01	0.18	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Trenching 07/01/2011-06/30/2020	1.05	6.20	8.28	0.00	0.01	0.29	0.30	0.00	0.27	0.27
Trenching Off Road Diesel	1.04	6.18	7.76	0.00	0.00	0.29	0.29	0.00	0.26	0.26
Trenching Worker Trips	0.01	0.03	0.52	0.00	0.01	0.00	0.01	0.00	0.00	0.01

Time Slice 7/1/2020-12/31/2020 Active Days: 132	41.11	74.62	184.56	0.54	2.22	4.02	6.24	0.78	3.61	4.39
Asphalt 10/01/2012-12/31/2020	1.76	10.62	10.32	0.00	0.01	0.83	0.83	0.00	0.76	0.76
Paving Off-Gas	0.04	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Paving Off Road Diesel	1.70	10.53	9.66	0.00	0.00	0.82	0.82	0.00	0.75	0.75
Paving On Road Diesel	0.01	0.05	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Paving Worker Trips	0.02	0.03	0.64	0.00	0.01	0.00	0.01	0.00	0.00	0.01
Building 10/01/2011-12/31/2020	9.97	63.99	174.06	0.54	2.21	3.19	5.40	0.78	2.85	3.63
Building Off Road Diesel	1.71	10.50	12.03	0.00	0.00	0.50	0.50	0.00	0.46	0.46
Building Vendor Trips	5.35	47.72	50.38	0.26	0.94	1.89	2.83	0.32	1.72	2.04
Building Worker Trips	2.91	5.77	111.65	0.28	1.27	0.80	2.07	0.46	0.67	1.13
Coating 10/01/2012-12/31/2020	29.38	0.01	0.18	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Architectural Coating	29.38	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Coating Worker Trips	0.00	0.01	0.18	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Phase Assumptions

Phase: Mass Grading 1/1/2011 - 12/31/2019 - Default Mass Site Grading/Excavation Description

Total Acres Disturbed: 40

Maximum Daily Acreage Disturbed: 10

Fugitive Dust Level of Detail: Default

20 lbs per acre-day

On Road Truck Travel (VMT): 0

Off-Road Equipment:

1 Graders (174 hp) operating at a 0.61 load factor for 8 hours per day

1 Rubber Tired Dozers (357 hp) operating at a 0.59 load factor for 8 hours per day

2 Tractors/Loaders/Backhoes (108 hp) operating at a 0.55 load factor for 7 hours per day

1 Water Trucks (189 hp) operating at a 0.5 load factor for 8 hours per day

Phase: Trenching 7/1/2011 - 6/30/2020 - Default Trenching Description

Off-Road Equipment:

2 Excavators (168 hp) operating at a 0.57 load factor for 8 hours per day

1 Other General Industrial Equipment (238 hp) operating at a 0.51 load factor for 8 hours per day

1 Tractors/Loaders/Backhoes (108 hp) operating at a 0.55 load factor for 0 hours per day

Phase: Paving 10/1/2012 - 12/31/2020 - Default Paving Description
Acres to be Paved: 33.9
Off-Road Equipment:
1 Pavers (100 hp) operating at a 0.62 load factor for 8 hours per day
2 Paving Equipment (104 hp) operating at a 0.53 load factor for 8 hours per day
2 Rollers (95 hp) operating at a 0.56 load factor for 6 hours per day

Phase: Building Construction 10/1/2011 - 12/31/2020 - Default Building Construction Description
Off-Road Equipment:
1 Cranes (399 hp) operating at a 0.43 load factor for 7 hours per day
3 Forklifts (145 hp) operating at a 0.3 load factor for 8 hours per day
1 Generator Sets (49 hp) operating at a 0.74 load factor for 8 hours per day
3 Tractors/Loaders/Backhoes (108 hp) operating at a 0.55 load factor for 7 hours per day
1 Welders (45 hp) operating at a 0.45 load factor for 8 hours per day

Phase: Architectural Coating 10/1/2012 - 12/31/2020 - Default Architectural Coating Description
Rule: Residential Interior Coatings begins 1/1/2005 ends 6/30/2008 specifies a VOC of 100
Rule: Residential Interior Coatings begins 7/1/2008 ends 12/31/2040 specifies a VOC of 50
Rule: Residential Exterior Coatings begins 1/1/2005 ends 6/30/2008 specifies a VOC of 250
Rule: Residential Exterior Coatings begins 7/1/2008 ends 12/31/2040 specifies a VOC of 100
Rule: Nonresidential Interior Coatings begins 1/1/2005 ends 12/31/2040 specifies a VOC of 250
Rule: Nonresidential Exterior Coatings begins 1/1/2005 ends 12/31/2040 specifies a VOC of 250

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Urbemis 2007 Version 9.2.4

Detail Report for Annual Construction Unmitigated Emissions (Tons/Year)

File Name: Z:\EBell\UCR LRDP update\Modeling\UCR LRDP Amendment_const_and_area_sources_with_support_yard.urb924

Project Name: UC Riverside - LRDP Amendment, SOM

Project Location: South Coast AQMD

On-Road Vehicle Emissions Based on: Version : Emfac2007 V2.3 Nov 1 2006

Off-Road Vehicle Emissions Based on: OFFROAD2007

CONSTRUCTION EMISSION ESTIMATES (Annual Tons Per Year, Unmitigated)

	ROG	NOx	CO	SO2	PM10 Dust	PM10 Exhaust	PM10 Total	PM2.5 Dust	PM2.5 Exhaust	PM2.5 Total
2011	1.36	10.74	13.52	0.02	26.07	0.53	26.60	5.46	0.49	5.94
Mass Grading 01/01/2011-12/31/2019	0.51	4.12	2.35	0.00	26.00	0.22	26.22	5.43	0.20	5.63
Mass Grading Dust	0.00	0.00	0.00	0.00	26.00	0.00	26.00	5.43	0.00	5.43
Mass Grading Off Road Diesel	0.51	4.11	2.19	0.00	0.00	0.22	0.22	0.00	0.20	0.20
Mass Grading On Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Mass Grading Worker Trips	0.00	0.01	0.16	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Trenching 07/01/2011-06/30/2020	0.13	1.08	0.59	0.00	0.00	0.05	0.05	0.00	0.05	0.05
Trenching Off Road Diesel	0.13	1.08	0.53	0.00	0.00	0.05	0.05	0.00	0.05	0.05
Trenching Worker Trips	0.00	0.00	0.06	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Building 10/01/2011-12/31/2020	0.72	5.55	10.59	0.02	0.07	0.26	0.33	0.03	0.23	0.26
Building Off Road Diesel	0.12	0.71	0.45	0.00	0.00	0.05	0.05	0.00	0.05	0.05
Building Vendor Trips	0.39	4.44	3.27	0.01	0.03	0.18	0.21	0.01	0.17	0.18
Building Worker Trips	0.21	0.40	6.86	0.01	0.04	0.02	0.07	0.01	0.02	0.03

2012	4.45	26.48	43.34	0.07	26.39	1.28	27.67	5.55	1.17	6.72
Building 10/01/2011-12/31/2020	2.65	20.03	39.53	0.07	0.29	0.93	1.22	0.10	0.85	0.95
Building Off Road Diesel	0.45	2.67	1.78	0.00	0.00	0.19	0.19	0.00	0.17	0.17
Building Vendor Trips	1.42	15.90	12.11	0.03	0.12	0.65	0.77	0.04	0.59	0.64
Building Worker Trips	0.77	1.46	25.64	0.04	0.17	0.10	0.26	0.06	0.08	0.14
Mass Grading 01/01/2011-12/31/2019	0.49	3.87	2.27	0.00	26.10	0.20	26.30	5.45	0.19	5.64
Mass Grading Dust	0.00	0.00	0.00	0.00	26.10	0.00	26.10	5.45	0.00	5.45
Mass Grading Off Road Diesel	0.48	3.86	2.12	0.00	0.00	0.20	0.20	0.00	0.18	0.18
Mass Grading On Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Mass Grading Worker Trips	0.00	0.01	0.15	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Trenching 07/01/2011-06/30/2020	0.24	2.00	1.16	0.00	0.00	0.10	0.10	0.00	0.09	0.09
Trenching Off Road Diesel	0.24	1.99	1.05	0.00	0.00	0.10	0.10	0.00	0.09	0.09
Trenching Worker Trips	0.00	0.01	0.12	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Asphalt 10/01/2012-12/31/2020	0.10	0.58	0.38	0.00	0.00	0.05	0.05	0.00	0.05	0.05
Paving Off-Gas	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Paving Off Road Diesel	0.09	0.57	0.34	0.00	0.00	0.05	0.05	0.00	0.05	0.05
Paving On Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Paving Worker Trips	0.00	0.00	0.04	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Coating 10/01/2012-12/31/2020	0.97	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Architectural Coating	0.97	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Coating Worker Trips	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00

2013	7.30	25.53	41.53	0.07	26.39	1.29	27.68	5.55	1.18	6.73
Asphalt 10/01/2012-12/31/2020	0.36	2.17	1.47	0.00	0.00	0.19	0.19	0.00	0.17	0.17
Paving Off-Gas	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Paving Off Road Diesel	0.35	2.15	1.32	0.00	0.00	0.19	0.19	0.00	0.17	0.17
Paving On Road Diesel	0.00	0.02	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Paving Worker Trips	0.00	0.01	0.14	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Building 10/01/2011-12/31/2020	2.42	17.88	36.69	0.07	0.29	0.83	1.12	0.10	0.75	0.85
Building Off Road Diesel	0.42	2.48	1.74	0.00	0.00	0.17	0.17	0.00	0.15	0.15
Building Vendor Trips	1.30	14.06	11.12	0.03	0.12	0.57	0.69	0.04	0.52	0.56
Building Worker Trips	0.70	1.34	23.82	0.04	0.17	0.10	0.26	0.06	0.08	0.14
Coating 10/01/2012-12/31/2020	3.83	0.00	0.04	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Architectural Coating	3.83	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Coating Worker Trips	0.00	0.00	0.04	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Mass Grading 01/01/2011-12/31/2019	0.46	3.63	2.18	0.00	26.10	0.18	26.29	5.45	0.17	5.62
Mass Grading Dust	0.00	0.00	0.00	0.00	26.10	0.00	26.10	5.45	0.00	5.45
Mass Grading Off Road Diesel	0.46	3.62	2.05	0.00	0.00	0.18	0.18	0.00	0.17	0.17
Mass Grading On Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Mass Grading Worker Trips	0.00	0.01	0.14	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Trenching 07/01/2011-06/30/2020	0.23	1.85	1.15	0.00	0.00	0.09	0.09	0.00	0.08	0.08
Trenching Off Road Diesel	0.22	1.84	1.04	0.00	0.00	0.09	0.09	0.00	0.08	0.08
Trenching Worker Trips	0.00	0.01	0.11	0.00	0.00	0.00	0.00	0.00	0.00	0.00

2014	7.02	23.01	38.83	0.07	26.39	1.16	27.55	5.55	1.06	6.61
Asphalt 10/01/2012-12/31/2020	0.34	2.06	1.45	0.00	0.00	0.18	0.18	0.00	0.16	0.16
Paving Off-Gas	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Paving Off Road Diesel	0.33	2.04	1.31	0.00	0.00	0.18	0.18	0.00	0.16	0.16
Paving On Road Diesel	0.00	0.01	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Paving Worker Trips	0.00	0.01	0.13	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Building 10/01/2011-12/31/2020	2.20	15.87	34.11	0.07	0.29	0.74	1.03	0.10	0.67	0.77
Building Off Road Diesel	0.38	2.30	1.70	0.00	0.00	0.14	0.14	0.00	0.13	0.13
Building Vendor Trips	1.17	12.34	10.21	0.03	0.12	0.49	0.62	0.04	0.45	0.49
Building Worker Trips	0.64	1.23	22.19	0.04	0.17	0.10	0.27	0.06	0.09	0.15
Coating 10/01/2012-12/31/2020	3.83	0.00	0.04	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Architectural Coating	3.83	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Coating Worker Trips	0.00	0.00	0.04	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Mass Grading 01/01/2011-12/31/2019	0.44	3.38	2.11	0.00	26.10	0.17	26.27	5.45	0.15	5.60
Mass Grading Dust	0.00	0.00	0.00	0.00	26.10	0.00	26.10	5.45	0.00	5.45
Mass Grading Off Road Diesel	0.43	3.37	1.98	0.00	0.00	0.17	0.17	0.00	0.15	0.15
Mass Grading On Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Mass Grading Worker Trips	0.00	0.01	0.13	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Trenching 07/01/2011-06/30/2020	0.21	1.70	1.13	0.00	0.00	0.08	0.08	0.00	0.07	0.07
Trenching Off Road Diesel	0.21	1.70	1.03	0.00	0.00	0.08	0.08	0.00	0.07	0.07
Trenching Worker Trips	0.00	0.01	0.10	0.00	0.00	0.00	0.00	0.00	0.00	0.00

2015	6.75	20.59	36.32	0.07	26.39	1.06	27.45	5.55	0.96	6.51
Asphalt 10/01/2012-12/31/2020	0.32	1.93	1.43	0.00	0.00	0.16	0.16	0.00	0.15	0.15
Paving Off-Gas	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Paving Off Road Diesel	0.31	1.91	1.30	0.00	0.00	0.16	0.16	0.00	0.15	0.15
Paving On Road Diesel	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Paving Worker Trips	0.00	0.01	0.12	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Building 10/01/2011-12/31/2020	1.99	14.03	31.70	0.07	0.29	0.67	0.96	0.10	0.60	0.70
Building Off Road Diesel	0.35	2.11	1.67	0.00	0.00	0.13	0.13	0.00	0.12	0.12
Building Vendor Trips	1.06	10.79	9.37	0.03	0.12	0.43	0.55	0.04	0.39	0.43
Building Worker Trips	0.59	1.13	20.66	0.04	0.17	0.10	0.27	0.06	0.09	0.15
Coating 10/01/2012-12/31/2020	3.83	0.00	0.03	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Architectural Coating	3.83	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Coating Worker Trips	0.00	0.00	0.03	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Mass Grading 01/01/2011-12/31/2019	0.41	3.10	2.04	0.00	26.10	0.15	26.25	5.45	0.14	5.59
Mass Grading Dust	0.00	0.00	0.00	0.00	26.10	0.00	26.10	5.45	0.00	5.45
Mass Grading Off Road Diesel	0.40	3.09	1.92	0.00	0.00	0.15	0.15	0.00	0.14	0.14
Mass Grading On Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Mass Grading Worker Trips	0.00	0.01	0.12	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Trenching 07/01/2011-06/30/2020	0.20	1.53	1.12	0.00	0.00	0.07	0.07	0.00	0.07	0.07
Trenching Off Road Diesel	0.19	1.52	1.02	0.00	0.00	0.07	0.07	0.00	0.07	0.07
Trenching Worker Trips	0.00	0.01	0.10	0.00	0.00	0.00	0.00	0.00	0.00	0.00

2016	6.52	18.51	34.14	0.07	26.39	0.95	27.34	5.55	0.86	6.41
Asphalt 10/01/2012-12/31/2020	0.30	1.81	1.41	0.00	0.00	0.15	0.15	0.00	0.14	0.14
Paving Off-Gas	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Paving Off Road Diesel	0.29	1.79	1.29	0.00	0.00	0.15	0.15	0.00	0.14	0.14
Paving On Road Diesel	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Paving Worker Trips	0.00	0.01	0.11	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Building 10/01/2011-12/31/2020	1.82	12.50	29.61	0.07	0.29	0.60	0.89	0.10	0.54	0.64
Building Off Road Diesel	0.32	1.94	1.65	0.00	0.00	0.11	0.11	0.00	0.11	0.11
Building Vendor Trips	0.96	9.52	8.66	0.03	0.12	0.38	0.50	0.04	0.35	0.39
Building Worker Trips	0.54	1.04	19.30	0.04	0.17	0.10	0.27	0.06	0.09	0.15
Coating 10/01/2012-12/31/2020	3.83	0.00	0.03	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Architectural Coating	3.83	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Coating Worker Trips	0.00	0.00	0.03	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Mass Grading 01/01/2011-12/31/2019	0.38	2.85	1.98	0.00	26.10	0.14	26.24	5.45	0.13	5.58
Mass Grading Dust	0.00	0.00	0.00	0.00	26.10	0.00	26.10	5.45	0.00	5.45
Mass Grading Off Road Diesel	0.38	2.84	1.87	0.00	0.00	0.14	0.14	0.00	0.13	0.13
Mass Grading On Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Mass Grading Worker Trips	0.00	0.01	0.11	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Trenching 07/01/2011-06/30/2020	0.18	1.36	1.11	0.00	0.00	0.06	0.06	0.00	0.06	0.06
Trenching Off Road Diesel	0.18	1.35	1.02	0.00	0.00	0.06	0.06	0.00	0.06	0.06
Trenching Worker Trips	0.00	0.00	0.09	0.00	0.00	0.00	0.00	0.00	0.00	0.00

2017	6.30	16.65	31.99	0.07	26.29	0.85	27.15	5.53	0.78	6.31
Asphalt 10/01/2012-12/31/2020	0.28	1.69	1.39	0.00	0.00	0.14	0.14	0.00	0.13	0.13
Paving Off-Gas	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Paving Off Road Diesel	0.27	1.67	1.28	0.00	0.00	0.14	0.14	0.00	0.13	0.13
Paving On Road Diesel	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Paving Worker Trips	0.00	0.01	0.10	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Building 10/01/2011-12/31/2020	1.66	11.17	27.56	0.07	0.29	0.54	0.83	0.10	0.48	0.59
Building Off Road Diesel	0.29	1.77	1.62	0.00	0.00	0.10	0.10	0.00	0.09	0.09
Building Vendor Trips	0.88	8.44	8.01	0.03	0.12	0.33	0.46	0.04	0.30	0.35
Building Worker Trips	0.49	0.96	17.93	0.04	0.17	0.10	0.27	0.06	0.09	0.15
Coating 10/01/2012-12/31/2020	3.82	0.00	0.03	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Architectural Coating	3.82	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Coating Worker Trips	0.00	0.00	0.03	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Mass Grading 01/01/2011-12/31/2019	0.36	2.60	1.92	0.00	26.00	0.12	26.13	5.43	0.11	5.54
Mass Grading Dust	0.00	0.00	0.00	0.00	26.00	0.00	26.00	5.43	0.00	5.43
Mass Grading Off Road Diesel	0.36	2.59	1.81	0.00	0.00	0.12	0.12	0.00	0.11	0.11
Mass Grading On Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Mass Grading Worker Trips	0.00	0.01	0.10	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Trenching 07/01/2011-06/30/2020	0.17	1.19	1.10	0.00	0.00	0.05	0.05	0.00	0.05	0.05
Trenching Off Road Diesel	0.17	1.19	1.01	0.00	0.00	0.05	0.05	0.00	0.05	0.05
Trenching Worker Trips	0.00	0.00	0.08	0.00	0.00	0.00	0.00	0.00	0.00	0.00

2018	6.13	15.13	30.25	0.07	26.39	0.78	27.17	5.55	0.71	6.26
Asphalt 10/01/2012-12/31/2020	0.27	1.58	1.38	0.00	0.00	0.13	0.13	0.00	0.12	0.12
Paving Off-Gas	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Paving Off Road Diesel	0.26	1.57	1.28	0.00	0.00	0.13	0.13	0.00	0.12	0.12
Paving On Road Diesel	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Paving Worker Trips	0.00	0.01	0.10	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Building 10/01/2011-12/31/2020	1.53	10.10	25.88	0.07	0.29	0.49	0.78	0.10	0.44	0.54
Building Off Road Diesel	0.27	1.63	1.60	0.00	0.00	0.09	0.09	0.00	0.08	0.08
Building Vendor Trips	0.81	7.59	7.50	0.03	0.12	0.30	0.42	0.04	0.27	0.32
Building Worker Trips	0.45	0.89	16.78	0.04	0.17	0.10	0.27	0.06	0.09	0.15
Coating 10/01/2012-12/31/2020	3.83	0.00	0.03	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Architectural Coating	3.83	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Coating Worker Trips	0.00	0.00	0.03	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Mass Grading 01/01/2011-12/31/2019	0.34	2.39	1.88	0.00	26.10	0.11	26.21	5.45	0.10	5.55
Mass Grading Dust	0.00	0.00	0.00	0.00	26.10	0.00	26.10	5.45	0.00	5.45
Mass Grading Off Road Diesel	0.33	2.38	1.78	0.00	0.00	0.11	0.11	0.00	0.10	0.10
Mass Grading On Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Mass Grading Worker Trips	0.00	0.01	0.10	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Trenching 07/01/2011-06/30/2020	0.16	1.05	1.09	0.00	0.00	0.05	0.05	0.00	0.05	0.05
Trenching Off Road Diesel	0.16	1.05	1.02	0.00	0.00	0.05	0.05	0.00	0.05	0.05
Trenching Worker Trips	0.00	0.00	0.08	0.00	0.00	0.00	0.00	0.00	0.00	0.00

2019	5.96	13.74	28.54	0.07	26.39	0.71	27.10	5.55	0.64	6.19
Asphalt 10/01/2012-12/31/2020	0.25	1.48	1.36	0.00	0.00	0.12	0.12	0.00	0.11	0.11
Paving Off-Gas	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Paving Off Road Diesel	0.24	1.47	1.27	0.00	0.00	0.11	0.11	0.00	0.11	0.11
Paving On Road Diesel	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Paving Worker Trips	0.00	0.00	0.09	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Building 10/01/2011-12/31/2020	1.41	9.15	24.24	0.07	0.29	0.45	0.74	0.10	0.40	0.50
Building Off Road Diesel	0.25	1.49	1.58	0.00	0.00	0.07	0.07	0.00	0.07	0.07
Building Vendor Trips	0.75	6.85	7.01	0.03	0.12	0.27	0.39	0.04	0.25	0.29
Building Worker Trips	0.42	0.82	15.64	0.04	0.17	0.10	0.27	0.06	0.09	0.15
Coating 10/01/2012-12/31/2020	3.83	0.00	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Architectural Coating	3.83	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Coating Worker Trips	0.00	0.00	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Mass Grading 01/01/2011-12/31/2019	0.31	2.18	1.83	0.00	26.10	0.10	26.20	5.45	0.09	5.54
Mass Grading Dust	0.00	0.00	0.00	0.00	26.10	0.00	26.10	5.45	0.00	5.45
Mass Grading Off Road Diesel	0.31	2.18	1.74	0.00	0.00	0.10	0.10	0.00	0.09	0.09
Mass Grading On Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Mass Grading Worker Trips	0.00	0.00	0.09	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Trenching 07/01/2011-06/30/2020	0.15	0.92	1.09	0.00	0.00	0.04	0.04	0.00	0.04	0.04
Trenching Off Road Diesel	0.15	0.92	1.01	0.00	0.00	0.04	0.04	0.00	0.04	0.04
Trenching Worker Trips	0.00	0.00	0.07	0.00	0.00	0.00	0.00	0.00	0.00	0.00

2020	5.45	10.18	24.72	0.07	0.29	0.55	0.84	0.10	0.49	0.59
Asphalt 10/01/2012-12/31/2020	0.23	1.39	1.35	0.00	0.00	0.11	0.11	0.00	0.10	0.10
Paving Off-Gas	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Paving Off Road Diesel	0.22	1.38	1.26	0.00	0.00	0.11	0.11	0.00	0.10	0.10
Paving On Road Diesel	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Paving Worker Trips	0.00	0.00	0.08	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Building 10/01/2011-12/31/2020	1.31	8.38	22.80	0.07	0.29	0.42	0.71	0.10	0.37	0.48
Building Off Road Diesel	0.22	1.38	1.58	0.00	0.00	0.07	0.07	0.00	0.06	0.06
Building Vendor Trips	0.70	6.25	6.60	0.03	0.12	0.25	0.37	0.04	0.23	0.27
Building Worker Trips	0.38	0.76	14.63	0.04	0.17	0.11	0.27	0.06	0.09	0.15
Coating 10/01/2012-12/31/2020	3.85	0.00	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Architectural Coating	3.85	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Coating Worker Trips	0.00	0.00	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Trenching 07/01/2011-06/30/2020	0.07	0.40	0.54	0.00	0.00	0.02	0.02	0.00	0.02	0.02
Trenching Off Road Diesel	0.07	0.40	0.50	0.00	0.00	0.02	0.02	0.00	0.02	0.02
Trenching Worker Trips	0.00	0.00	0.03	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Phase Assumptions

Phase: Mass Grading 1/1/2011 - 12/31/2019 - Default Mass Site Grading/Excavation Description

Total Acres Disturbed: 40

Maximum Daily Acreage Disturbed: 10

Fugitive Dust Level of Detail: Default

20 lbs per acre-day

On Road Truck Travel (VMT): 0

Off-Road Equipment:

1 Graders (174 hp) operating at a 0.61 load factor for 8 hours per day

1 Rubber Tired Dozers (357 hp) operating at a 0.59 load factor for 8 hours per day

2 Tractors/Loaders/Backhoes (108 hp) operating at a 0.55 load factor for 7 hours per day

1 Water Trucks (189 hp) operating at a 0.5 load factor for 8 hours per day

9/15/2010 5:09:32 PM

Phase: Trenching 7/1/2011 - 6/30/2020 - Default Trenching Description
Off-Road Equipment:
2 Excavators (168 hp) operating at a 0.57 load factor for 8 hours per day
1 Other General Industrial Equipment (238 hp) operating at a 0.51 load factor for 8 hours per day
1 Tractors/Loaders/Backhoes (108 hp) operating at a 0.55 load factor for 0 hours per day

Phase: Paving 10/1/2012 - 12/31/2020 - Default Paving Description
Acres to be Paved: 33.9
Off-Road Equipment:
1 Pavers (100 hp) operating at a 0.62 load factor for 8 hours per day
2 Paving Equipment (104 hp) operating at a 0.53 load factor for 8 hours per day
2 Rollers (95 hp) operating at a 0.56 load factor for 6 hours per day

Phase: Building Construction 10/1/2011 - 12/31/2020 - Default Building Construction Description
Off-Road Equipment:
1 Cranes (399 hp) operating at a 0.43 load factor for 7 hours per day
3 Forklifts (145 hp) operating at a 0.3 load factor for 8 hours per day
1 Generator Sets (49 hp) operating at a 0.74 load factor for 8 hours per day
3 Tractors/Loaders/Backhoes (108 hp) operating at a 0.55 load factor for 7 hours per day
1 Welders (45 hp) operating at a 0.45 load factor for 8 hours per day

Phase: Architectural Coating 10/1/2012 - 12/31/2020 - Default Architectural Coating Description
Rule: Residential Interior Coatings begins 1/1/2005 ends 6/30/2008 specifies a VOC of 100
Rule: Residential Interior Coatings begins 7/1/2008 ends 12/31/2040 specifies a VOC of 50
Rule: Residential Exterior Coatings begins 1/1/2005 ends 6/30/2008 specifies a VOC of 250
Rule: Residential Exterior Coatings begins 7/1/2008 ends 12/31/2040 specifies a VOC of 100
Rule: Nonresidential Interior Coatings begins 1/1/2005 ends 12/31/2040 specifies a VOC of 250
Rule: Nonresidential Exterior Coatings begins 1/1/2005 ends 12/31/2040 specifies a VOC of 250

Arnold Schwarzenegger
Governor

STATE OF CALIFORNIA
Governor's Office of Planning and Research
State Clearinghouse and Planning Unit

Cathleen Cox
Acting Director

Notice of Preparation

November 8, 2010

To: Reviewing Agencies

Re: University of California, Riverside 2005 Long Range Development Plan Amendment 2
SCH# 2010111034

Attached for your review and comment is the Notice of Preparation (NOP) for the University of California, Riverside 2005 Long Range Development Plan Amendment 2 draft Environmental Impact Report (EIR).

Responsible agencies must transmit their comments on the scope and content of the NOP, focusing on specific information related to their own statutory responsibility, within 30 days of receipt of the NOP from the Lead Agency. This is a courtesy notice provided by the State Clearinghouse with a reminder for you to comment in a timely manner. We encourage other agencies to also respond to this notice and express their concerns early in the environmental review process.

Please direct your comments to:

Juanita W. Bullock
University of California, Riverside
3637 Canyon Crest Drive, F-101
Riverside, CA 92507

with a copy to the State Clearinghouse in the Office of Planning and Research. Please refer to the SCH number noted above in all correspondence concerning this project.

If you have any questions about the environmental document review process, please call the State Clearinghouse at (916) 445-0613.

Sincerely,

Scott Morgan
Director, State Clearinghouse

Attachments
cc: Lead Agency

Document Details Report
State Clearinghouse Data Base

SCH# 2010111034
Project Title University of California, Riverside 2005 Long Range Development Plan Amendment 2
Lead Agency University of California, Riverside

Type NOP Notice of Preparation

Description In 2005, the University adopted the 2005 LRDP which was designed to accommodate an increase in campus enrollment through 2015/16 and guide the physical development of the UCR campus. The proposed 2005 LRDP Amendment 2 involves changes to the 2005 LRDP Land Use map and changes to the text of the 2005 LRDP. The primary objective of the proposed 2005 LRDP Amendment 2 is to make appropriate changes to the Campus's land development plan that would facilitate the development of facilities to accommodate a new school of medicine on the UCR campus. The secondary objective is to make other changes to the 2005 LRDP that would improve the location of parking structures, allow for the development of better designed Open Space, and better utilize the available land base on the West Campus with the additional program needs.

Lead Agency Contact

Name Juanita W. Bullock
Agency University of California, Riverside
Phone (951) 827-7376 **Fax**
email
Address 3637 Canyon Crest Drive, F-101
City Riverside **State** CA **Zip** 92507

Project Location

County Riverside
City Riverside
Region
Cross Streets East Campus-University/Canyon Crest; West Campus-Martin Luther King/Iowa
Lat / Long
Parcel No.
Township **Range** **Section** **Base**

Proximity to:

Highways I-215/SR-60
Airports
Railways UPRR
Waterways Gage Canal
Schools
Land Use University Campus

Project Issues Aesthetic/Visual; Agricultural Land; Air Quality; Drainage/Absorption; Noise; Population/Housing Balance; Public Services; Schools/Universities; Sewer Capacity; Solid Waste; Toxic/Hazardous; Traffic/Circulation; Water Quality; Water Supply; Growth Inducing; Landuse; Cumulative Effects; Other Issues

Reviewing Agencies Resources Agency; Office of Historic Preservation; Department of Water Resources; Department of Fish and Game, Region 6; Native American Heritage Commission; Public Utilities Commission; California Highway Patrol; Caltrans, District 8; Department of Toxic Substances Control; Regional Water Quality Control Board, Region 8; Department of Parks and Recreation

Date Received 11/08/2010 **Start of Review** 11/08/2010 **End of Review** 12/07/2010

Note: Blanks in data fields result from insufficient information provided by lead agency.

NOP Distribution List

County: Riverside

SCH# 2010111034

Resources Agency

- [ ] Resources Agency
  Nadell Gayou
- [ ] Dept. of Boating & Waterways
  Mike Sotello
- [ ] California Coastal Commission
  Elizabeth A. Fuchs
- [ ] Colorado River Board
  Gerald R. Zimmerman
- [ ] Dept. of Conservation
  Rebecca Salazar
- [ ] California Energy Commission
  Eric Knight
- [ ] Cal Fire
  Allen Robertson
- [ ] Central Valley Flood Protection Board
  James Herota
- [ ] Office of Historic Preservation
  Wayne Donaldson
- [ ] Dept of Parks & Recreation
  Environmental Stewardship Section
- [ ] California Department of Resources, Recycling & Recovery
  Sue O'Leary
- [ ] S.F. Bay Conservation & Dev't. Comm.
  Steve McAdam
- [ ] Dept. of Water Resources
  Resources Agency
  Nadell Gayou
- [ ] _____
  Conservancy

Fish and Game

- [ ] Depart. of Fish & Game
  Scott Flint
  Environmental Services Division
- [ ] Fish & Game Region 1
  Donald Koch
- [ ] Fish & Game Region 1E
  Laurie Harnsberger
- [ ] Fish & Game Region 2
  Jeff Drongesen
- [ ] Fish & Game Region 3
  Charles Armor
- [ ] Fish & Game Region 4
  Julie Vance
- [ ] Fish & Game Region 5
  Don Chadwick
  Habitat Conservation Program
- [x] Fish & Game Region 6
  Gabrina Gatchel
  Habitat Conservation Program
- [ ] Fish & Game Region 6 I/M
  Brad Henderson
  Inyo/Mono, Habitat Conservation Program
- [ ] Dept. of Fish & Game M
  George Isaac
  Marine Region

Other Departments

- [ ] Food & Agriculture
  Steve Shaffer
  Dept. of Food and Agriculture
- [ ] Depart. of General Services
  Public School Construction
- [ ] Dept. of General Services
  Anna Garbeff
  Environmental Services Section
- [ ] Dept. of Public Health
  Bridgette Binning
  Dept. of Health/Drinking Water

Independent Commissions,Boards

- [ ] Delta Protection Commission
  Linda Flack
- [ ] Cal EMA (Emergency Management Agency)
  Dennis Castrillo
- [ ] Governor's Office of Planning & Research
  State Clearinghouse
- [x] Native American Heritage Comm.
  Debbie Treadway
- [x] Public Utilities Commission
  Leo Wong
- [ ] Santa Monica Bay Restoration
  Guangyu Wang
- [ ] State Lands Commission
  Marina Brand
- [ ] Tahoe Regional Planning Agency (TRPA)
  Cherry Jacques

Business, Trans & Housing

- [ ] Caltrans - Division of Aeronautics
  Sandy Hesnard
- [ ] Caltrans - Planning
  Terri Pencovic
- [x] California Highway Patrol
  Scott Loetscher
  Office of Special Projects
- [ ] Housing & Community Development
  CEQA Coordinator
  Housing Policy Division

Dept. of Transportation

- [ ] Caltrans, District 1
  Rex Jackman
- [ ] Caltrans, District 2
  Marcelino Gonzalez
- [ ] Caltrans, District 3
  Bruce de Terra
- [ ] Caltrans, District 4
  Lisa Carboni
- [ ] Caltrans, District 5
  David Murray
- [ ] Caltrans, District 6
  Michael Navarro
- [ ] Caltrans, District 7
  Elmer Alvarez
- [x] Caltrans, District 8
  Dan Kopulsky
- [ ] Caltrans, District 9
  Gayle Rosander
- [ ] Caltrans, District 10
  Tom Dumas
- [ ] Caltrans, District 11
  Jacob Armstrong
- [ ] Caltrans, District 12
  Chris Herre

Cal EPA

Air Resources Board

- [ ] Airport Projects
  Jim Lerner
  - [ ] Transportation Projects
    Douglas Ito
  - [ ] Industrial Projects
    Mike Tollstrup
- [ ] State Water Resources Control Board
  Regional Programs Unit
  Division of Financial Assistance
- [ ] State Water Resources Control Board
  Student Intern, 401 Water Quality Certification Unit
  Division of Water Quality
- [ ] State Water Resouces Control Board
  Steven Herrera
  Division of Water Rights
- [x] Dept. of Toxic Substances Control
  CEQA Tracking Center
- [ ] Department of Pesticide Regulation
  CEQA Coordinator

Regional Water Quality Control Board (RWQCB)

- [ ] RWQCB 1
  Cathleen Hudson
  North Coast Region (1)
- [ ] RWQCB 2
  Environmental Document Coordinator
  San Francisco Bay Region (2)
- [ ] RWQCB 3
  Central Coast Region (3)
- [ ] RWQCB 4
  Teresa Rodgers
  Los Angeles Region (4)
- [ ] RWQCB 5S
  Central Valley Region (5)
  - [ ] RWQCB 5F
    Central Valley Region (5)
    Fresno Branch Office
  - [ ] RWQCB 5R
    Central Valley Region (5)
    Redding Branch Office
- [ ] RWQCB 6
  Lahontan Region (6)
  - [ ] RWQCB 6V
    Lahontan Region (6)
    Victorville Branch Office
- [ ] RWQCB 7
  Colorado River Basin Region (7)
- [x] RWQCB 8
  Santa Ana Region (8)
- [ ] RWQCB 9
  San Diego Region (9)

- [ ] Other _____

Last Updated on 03/24/10

From: dbrinker@ucr.edu
To: lrdp@ucr.edu;
Date: Wednesday, November 10, 2010 5:44:52 PM

Kindly send information about planned site for the UCR Medical School.

From: Nita Bullock
To: lrdp@ucr.edu;
Subject: FW:
Date: Friday, November 12, 2010 9:59:12 AM

Copy of IS, NOP and Press NOP sent to dbrinker on November 12, 2010.

-----Original Message-----
From: dbrinker@ucr.edu [mailto:dbrinker@ucr.edu]
Sent: Wednesday, November 10, 2010 5:45 PM
To: lrdp@ucr.edu
Subject:

Kindly send information about planned site for the UCR Medical School.

Nita Bullock

From: Nita Bullock [nita.bullock@ucr.edu]
Sent: Friday, November 12, 2010 10:03 AM
To: 'dbrinker@ucr.edu'
Subject: RE: 2005 UCR LRDP Amendment 2 NOP and IS

I sent you a copy of the documents earlier regarding the Amendment to the 2005 LRDP. The file was rather large. Did you get them? If not, the are on the lrdp.ucr.edu website under Amendment 2. Please e-mail if you have any comments or concerns regarding the information in the documents.

-----Original Message-----
From: dbrinker@ucr.edu [mailto:dbrinker@ucr.edu]
Sent: Wednesday, November 10, 2010 5:45 PM
To: lrdp@ucr.edu
Subject:

Kindly send information about planned site for the UCR Medical School.

DEPARTMENT OF TRANSPORTATION
DISTRICT 8
PLANNING
464 WEST 4th STREET, 6th Floor MS 725
SAN BERNARDINO, CA 92401-1400
PHONE (909) 383-4557
FAX (909) 383-6890
TTY (909) 383-6300

Flex your power!
Be energy efficient!

November 15, 2010

Ms. Juanita W. Bullock
Director of Physical Planning
3637 Canyon Crest Drive
Bannockburn Suite F-101
Riverside, CA 92507

Environmental Impact Report for the University of California, Riverside 2005 Long Range Development Plan (LRDP) Amendment 2. Riv-215-PM 40.87/41.507

Dear Ms. Bullock,

We have completed our review for the above noted project. The project is located on the east and west of Interstate 215 (I-215) in the city of Riverside and is generally bounded by University Avenue and Blaine Street on the north, Watkins Drive and Valencia Hill Drive and its extension south on the east, and Chicago Avenue on the west.

Generally, the proposed 2005 LRDP Amendment 2 is to make appropriate changes to the Campus's land development plan that would facilitate the development of facilities to accommodate a new school of medicine on the UCR campus, to improve the location of parking structures, to better utilize campus Open Space for any future programs needed.

As the owner and operator of the State Highway System (SHS), it is our responsibility to coordinate and consult with local jurisdictions when proposed development may impact our facilities. As the responsible agency under the California Environmental Quality Act (CEQA), it is also our responsibility to make recommendations to offset associated impacts with the proposed project. Although the project is under the jurisdiction of the County of Riverside due to the Project's potential impact to State facilities it is also subject to the policies and regulations that govern the SHS.

We do not expect project development to result in a direct or adverse impact to nearby State transportation facilities and therefore we have no comments. However, the following guidelines are for your consideration:

Traffic Study

A Traffic Study may be needed if the proposed project reaches a certain traffic-generating threshold. Information regarding traffic study preparation criteria is available in the "Guide for the Preparation of Traffic Impact Studies", on the Caltrans website:

http://www.dot.ca.gov/hq/traffops/developserv/operationalsystems/

Drainage/Hydrology

All existing tributary areas, area drainage patterns and runoff volumes having an impact to adjacent I-215 drainage facilities must be identified and analyzed in a project hydrology study. With regard to any on-site detention area proposed, basin calculations should be included to verify that the basin volume is sufficient to detain necessary runoff flows.

Encroachment Permit

1. Any proposed alterations to existing improvements within State right-of-way may only be performed upon issuance of a valid encroachment permit and must conform to current Caltrans design standards and construction practices.

2. Review and approval of street, grading and drainage construction plans will be necessary prior to permit issuance.

Information regarding permit application and submittal requirements may be obtained by contacting:

Office of Encroachment Permits
Department of Transportation
464 West 4th Street, 6th Floor, MS-619
San Bernardino, CA 92401-1400
(909) 383-4526

We appreciate the opportunity to offer comments concerning this project. If you have any questions regarding this letter, please contact Joe Shaer at (909) 383-6908 or myself at (909) 383-4557 for assistance.

Sincerely,

DANIEL KOPULSKY
Office Chief
Community Planning/IGR-CEQA

NATIVE AMERICAN HERITAGE COMMISSION
915 CAPITOL MALL, ROOM 364
SACRAMENTO, CA 95814
(916) 653-6251
Fax (916) 657-5390
Web Site www.nahc.ca.gov
e-mail: ds_nahc@pacbell.net

November 16, 2010

Ms. Juanita W. Bullock, Planner

University of California, Riverside

3637 Canyon Crest Drive, F-101
Riverside, CA 92507

Re: SCH#2010111034 CEQA Notice of Preparation (NOP); draft Environmental Impact Report (DEIR) for the **UC Riverside 2005 Long Range Development Plan Amendment 2Project** located in the City of Riverside; Riverside County, California

Dear Ms. Bullock:

The Native American Heritage Commission (NAHC) is the state 'trustee agency' pursuant to Public Resources Code §21070 for the protection and preservation of California's Native American Cultural Resources. (Also see *Environmental Protection Information Center v. Johnson (1985) 170 Cal App. 3rd 604).* The California Environmental Quality Act (CEQA - CA Public Resources Code §21000-21177, amendment effective 3/18/2010) requires that any project that causes a substantial adverse change in the significance of an historical resource, that includes archaeological resources, is a 'significant effect' requiring the preparation of an Environmental Impact Report (EIR) per the California Code of Regulations §15064.5(b)(c)(f) CEQA guidelines). Section 15382 of the CEQA Guidelines defines a significant impact on the environment as "a substantial, or potentially substantial, adverse change in any of physical conditions within an area affected by the proposed project, including ...objects of historic or aesthetic significance. The lead agency is required to assess whether the project will have an adverse impact on these resources within the 'area of potential effect (APE), and if so, to mitigate that effect. State law also addresses Native American Religious Expression in Public Resources Code §5097.9.

The Native American Heritage Commission did perform a Sacred Lands File (SLF) search in the NAHC SLF Inventory, established by the Legislature pursuant to Public Resources Code §5097.94(a) and Native American Cultural Resources **were not identified** within one-half mile of the Area of Potential Effect (APE). It is important to do early consultation with Native American tribes in your area as the best way to avoid unanticipated discoveries once a project is underway and to learn of any sensitive cultural areas. Enclosed are the names of the culturally affiliated tribes and interested Native American individuals that the NAHC recommends as 'consulting parties,' for this purpose, that may have knowledge of the religious and cultural significance of the historic properties in the project area (e.g. APE). A Native American Tribe or Tribal Elder may be the only source of information about a cultural resource.. Also, the NAHC recommends that a Native American Monitor or Native American culturally knowledgeable person be employed whenever a professional archaeologist is employed during the 'Initial Study' and in other phases of the environmental planning processes.

Furthermore the NAHC recommends that you contact the California Historic Resources Information System (CHRIS) of the Office of Historic Preservation (OHP), for

information on recorded archaeological data. This information is available at the OHP Office in Sacramento (916) 445-7000.

Consultation with tribes and interested Native American tribes and interested Native American individuals, as consulting parties, on the NAHC list ,should be conducted in compliance with the requirements of federal NEPA (42 U.S.C. 4321-43351) and Section 106 and 4(f) of federal NHPA (16 U.S.C. 470 [f)]*et seq.),* 36 CFR Part 800.3, the President's Council on Environmental Quality (CSQ; 42 U.S.C. 4371 *et seq.*) and NAGPRA (25 U.S.C. 3001-3013), as appropriate. The 1992 *Secretary of the Interior's Standards for the Treatment of Historic Properties* were revised so that they could be applied to all historic resource types included in the National Register of Historic Places and including *cultural landscapes.* Consultation with Native American communities is also a matter of environmental justice as defined by California Government Code §65040.12(e).

Lead agencies should consider avoidance, as defined in Section 15370 of the California Environmental Quality Act (CEQA) when significant cultural resources could be affected by a project. Also, Public Resources Code Section 5097.98 and Health & Safety Code Section 7050.5 provide for provisions for accidentally discovered archeological resources during construction and mandate the processes to be followed in the event of an accidental discovery of any human remains in a project location other than a 'dedicated cemetery. Discussion of these should be included in your environmental documents, as appropriate.

The authority for the SLF record search of the NAHC Sacred Lands Inventory, established by the California Legislature, is California Public Resources Code §5097.94(a) and is exempt from the CA Public Records Act (c.f. California Government Code §6254.10). The results of the SLF search are confidential. However, Native Americans on the attached contact list are not prohibited from and may wish to reveal the nature of identified cultural resources/historic properties. Confidentiality of "historic properties of religious and cultural significance' may also be protected the under Section 304 of the NHPA or at the Secretary of the Interior' discretion if not eligible for listing on the National Register of Historic Places. The Secretary may also be advised by the federal Indian Religious Freedom Act (cf. 42 U.S.C, 1996) in issuing a decision on whether or not to disclose items of religious and/or cultural significance identified in or near the APE and possibly threatened by proposed project activity.

CEQA Guidelines, Section 15064.5(d) requires the lead agency to work with the Native Americans identified by this Commission if the initial Study identifies the presence or likely presence of Native American human remains within the APE. CEQA Guidelines provide for agreements with Native American, identified by the NAHC, to assure the appropriate and dignified treatment of Native American human remains and any associated grave liens. Although tribal consultation under the California Environmental Quality Act (CEQA; CA Public Resources Code Section 21000 – 21177) is 'advisory' rather than mandated, the NAHC does request 'lead agencies' to work with tribes and interested Native American individuals as 'consulting parties,' on the list provided by the NAHC in order that cultural resources will be protected. However, the 2006 SB 1059 the state enabling legislation to the Federal Energy Policy Act of 2005, does mandate tribal consultation for the 'electric transmission corridors. This is codified in the California Public Resources Code, Chapter 4.3, and §25330 to Division 15, requires consultation with California Native American tribes, and identifies both federally recognized and non-federally recognized on a list maintained by the NAHC

Health and Safety Code §7050.5, Public Resources Code §5097.98 and Sec. §15064.5 (d) of the California Code of Regulations (CEQA Guidelines) mandate procedures to be followed, including that construction or excavation be stopped in the event of an accidental discovery of any human remains in a location other than a dedicated cemetery until the county coroner or medical examiner can determine whether the remains are those of a Native American. . Note that §7052 of the Health & Safety Code states that disturbance of Native American cemeteries is a felony.

Please feel free to contact me at (916) 653-6251 if you have any questions.

Sincerely,

Dave Singleton
Program Analyst

Attachment: List of Culturally Affiliated Native American Contacts

Cc: State Clearinghouse

Native American Contacts
Riverside County
November 16, 2010

Pala Band of Mission Indians
Tribal Historic Preservation Office
35008 PalaTemecula Rd, PMB
Pala , CA 92059
sgavghen@palatribe.com
(760) 891-3500
(760) 742-1411 Fax
Luiseno
Cupeno

Pechanga Band of Mission Indians
Paul Macarro, Cultural Resource Center
P.O. Box 1477
Temecula , CA 92593
(951) 770-8100
pmacarro@pechanga-nsn.gov
(951) 506-9491 Fax
Luiseno

Ramona Band of Cahuilla Mission Indians
Joseph Hamilton, Chairman
P.O. Box 391670
Anza , CA 92539
admin@ramonatribe.com
(951) 763-4105
(951) 763-4325 Fax
Cahuilla

San Manuel Band of Mission Indians
James Ramos, Chairperson
26569 Community Center Drive
Highland , CA 92346
(909) 864-8933
(909) 864-3724 - FAX
(909) 864-3370 Fax
Serrano

Soboba Band of Mission Indians
Scott Cozaet, Chairperson
P.O. Box 487
San Jacinto , CA 92581
dhill@soboba-nsn.gov
(951) 654-2765
(951) 654-4198 - Fax
Luiseno

Torres-Martinez Desert Cahuilla Indians
Mary Resvaloso, Chairperson
PO Box 1160
Thermal , CA 92274
(760) 397-0300
mresvaloso@torresmartinez.org
(760) 397-8146 Fax
Cahuilla

Twenty-Nine Palms Band of Mission Indians
Darrell Mike, Chairperson
46-200 Harrison Place
Coachella , CA 92236
tribal-epa@worldnet.att.net
(760) 775-5566
(760) 775-4639 Fax
Chemehuevi

Chemehuevi Reservation
Charles Wood, Chairperson
P.O. Box 1976
Chemehuevi Valley CA 92363
chair1cit@yahoo.com
(760) 858-4301
(760) 858-5400 Fax
Chemehuevi

This list is current only as of the date of this document.

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This list is only applicable for contacting local Native Americans for consultation purposes with regard to cultural resources impact by the proposed SCH#20101110334; CEQA Notice of Preparation (NOP); draft Environmental Impact Report (DEIR) for the U.C. Riverside 2005 Long Range Development Plan Amendment 2; University of California Riverside; Riverside County, California.

Native American Contacts
Riverside County
November 16, 2010

Fort Mojave Indian Tribe
Tim Williams, Chairperson
500 Merriman Ave Mojave
Needles , CA 92363
(760) 629-4591
(760) 629-5767 Fax

Santa Rosa Band of Mission Indians
John Marcus, Chairman
P.O. Box 609 Cahuilla
Hemet , CA 92546
srtribaloffice@aol.com
(951) 658-5311
(951) 658-6733 Fax

Ti'At Society/Inter-Tribal Council of Pimu
Cindi M. Alvitre, Chairwoman-Manisar
6515 E. Seaside Walk, #C Gabrielino
Long Beach , CA 90803
calvitre@yahoo.com
(714) 504-2468 Cell

Augustine Band of Cahuilla Mission Indians
Mary Ann Green, Chairperson
P.O. Box 846 Cahuilla
Coachella , CA 92236
(760) 398-6180
760-369-7161

Gabrieleno/Tongva San Gabriel Band of Mission
Anthony Morales, Chairperson
PO Box 693 Gabrielino Tongva
San Gabriel , CA 91778
GTTribalcouncil@aol.com
(626) 286-1632
(626) 286-1758 - Home
(626) 286-1262 -FAX

Gabrielino Tongva Nation
Sam Dunlap, Chairperson
P.O. Box 86908 Gabrielino Tongva
Los Angeles , CA 90086
samdunlap@earthlink.net

(909) 262-9351 - cell

AhaMaKav Cultural Society, Fort Mojave Indian
Linda Otero, Director
P.O. Box 5990 Mojave
Mohave Valley AZ 86440
lindaotero@fortmojave,
(928) 768-4475
(928) 768-7996 Fax

Morongo Band of Mission Indians
Michael Contreras, Cultural Heritage Prog.
12700 Pumarra Road Cahuilla
Banning , CA 92220 Serrano
(951) 201-1866 - cell
mcontreras@morongo-nsn.gov
(951) 922-0105 Fax

This list is current only as of the date of this document.

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Native American Contacts
Riverside County
November 16, 2010

San Manuel Band of Mission Indians
Ann Brierty, Policy/Cultural Resources Departmen
26569 Community Center. Drive Serrano
Highland , CA 92346
(909) 864-8933, Ext 3250
abrierty@sanmanuel-nsn.gov
(909) 862-5152 Fax

Morongo Band of Mission Indians
Robert Martin, Chairperson
12700 Pumarra Rroad Cahuilla
Banning , CA 92220 Serrano
(951) 849-8807
(951) 755-5200
(951) 922-8146 Fax

Fort Mojave Indian Tribe
Nora McDowell, Cultural Resources Coordinator
500 Merriman Ave Mojave
Needles , CA 92363
g.goforth@fortmojave.com
(760) 629-4591
(760) 629-5767 Fax

Pechanga Band of Mission Indians
Mark Macarro, Chairperson
P.O. Box 1477 Luiseno
Temecula , CA 92593
tbrown@pechanga-nsn.gov
(951) 770-6100
(951) 695-1778 Fax

Ramona Band of Cahuilla Indians
Manuel Hamilton, Vice Chairperson
P.O. Box 391670 Cahuilla
Anza , CA 92539
admin@ramonatribe.com
(951) 763-4105
(951) 763-4325 Fax

Willie J. Pink
48310 Pechanga Road Luiseno
Temecula , CA 92592
wjpink@hotmail.com
(909) 936-1216
Prefers e-mail contact

Agua Caliente Band of Cahuilla Indians
Richard Milanovich, Chairperson
5401 Dinah Shore Drive Cahuilla
Palm Springs, CA 92262
lfreogoz@aguacaliente-nsn.gov
(760) 325-3400
(760) 325-0593 Fax

Serrano Nation of Indians
Goldie Walker
P.O. Box 343 Serrano
Patton , CA 92369

(909) 862-9883

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Native American Contacts
Riverside County
November 16, 2010

Agua Caliente Band of Cahuilla Indians THPO
Patricia Tuck, Tribal Historic Perservation Officer
5401 Dinah Shore Drive Cahuilla
Palm Springs, CA 92264
ptuck@aguacaliente-nsn.

(760) 699-6907
(760) 699-6924- Fax

Cahuilla Band of Indians
Luther Salgado, Sr., , Chairperson
PO Box 391760 Cahuilla
Anza , CA 92539
tribalcouncil@cahuilla.net
915-763-5549

Joseph Ontiveros, Cultural Resource Department
SOBOBA BAND OF LUISENO INDIANS
P.O. BOX 487 Luiseno
San Jacinto , CA 92581
jontiveros@soboba-msn.gov
(951) 663-5279
(951) 654-5544, ext 4137

This list is current only as of the date of this document.

Distribution of this list does not relieve any person of statutory responsibility as defined in Section 7050.5 of the Health and Safety Code, Section 5097.94 of the Public Resources Code and Section 5097.98 of the Public Resources Code. Also, federal National Environmental Policy Act (NEPA), National Historic Preservation Act, Section 106 and fed eral NAGPRA. And 36 CFR Part 800.

This list is only applicable for contacting local Native Americans for consultation purposes with regard to cultural resources impact by the proposed SCH#20101110334; CEQA Notice of Preparation (NOP); draft Environmental Impact Report (DEIR) for the U.C. Riverside 2005 Long Range Development Plan Amendment 2; University of California Riverside; Riverside County, California.

From: Nita Bullock
To: lrdp@ucr.edu;
Subject: FW: [Faculty] Scoping Meeting Nov 18, 2010
Date: Thursday, November 18, 2010 2:56:50 PM

From: Nita Bullock [mailto:nita.bullock@ucr.edu]
Sent: Thursday, November 18, 2010 2:55 PM
To: 'David Eastmond'
Cc: 'Tim Ralston'
Subject: RE: [Faculty] Scoping Meeting Nov 18, 2010

Hi Dr. Eastman:

I agree with you completely. This notice was the second notice for the meetings (the first went out last week without a hitch) and was sent out to Scotmail for delivery on Tuesday morning for immediate release. Not everyone received the e-mail so we attempted again yesterday and today and it still did not go out consistently. Some staff received the e-mail earlier this morning, but faculty apparently received it at 12:31 pm during the meeting. We were very disappointed to come back from the meeting and find out what happened. I, as a staff subscriber, still haven't received a Scotmail for the second, third, forth, etc., mailing. However, the information on the amendment is on lrdp.ucr.edu and we will be taking comments on the preparation of the Environmental Impact Report for the next 30 days. And information regarding the noon meeting and this evening's meeting will be on the website shortly.

Upcoming public review meetings on the 2005 LRDP Amendment 2 EIR will take place in the Spring. You can be assured that we will be monitoring very carefully what supplemental information goes out on Scotmail so everyone who subscribes to the service will be notified about the meetings and public review period and location of the documents.

If you have any questions, please let me know.

Thanks, Nita

From: David Eastmond [mailto:david.eastmond@ucr.edu]
Sent: Thursday, November 18, 2010 2:22 PM
To: Leslie Rose
Cc: Nita Bullock; Tim Ralston

Subject: Re: [Faculty] Scoping Meeting Nov 18, 2010
Importance: High

This is really inadequate notification. I received this message at 12:31 pm.

On Nov 18, 2010, at 9:48 AM, Leslie Rose wrote:

PUBLIC SCOPING MEETINGS – NOVEMBER 18
12 noon to 1 pm in HUB Room 367
6 to 7 pm in Bannockburn J-102

The meetings are to take comments on the proposed Amendment 2 to the 2005 UCR
LRDP to include the new **SCHOOL OF MEDICINE** as a land use on the West Campus
and additional land use and text changes to the LRDP. See attached Agenda and Land
Use Maps, For additional information go to lrdp.ucr.edu.

<scoping meeting attachments.pdf>

Faculty mailing list
Faculty@scotmail.ucr.edu
http://scotmail.ucr.edu/mailman/listinfo/faculty

Dr. David A. Eastmond
Professor and Chair
Department of Cell Biology & Neuroscience
2109 Biological Sciences Building
University of California, Riverside
Riverside, CA 92521 U.S.A.
(951) 827-4497 [telephone]
(951) 827-3087 [fax]
david.eastmond@ucr.edu

From: Nita Bullock
To: lrdp@ucr.edu;
Subject: FW: [Staff] Scoping Meeting Nov 18, 2010
Date: Thursday, November 18, 2010 2:57:42 PM

From: Nita Bullock [mailto:nita.bullock@ucr.edu]
Sent: Thursday, November 18, 2010 2:10 PM
To: 'Russell Vernon'
Subject: RE: [Staff] Scoping Meeting Nov 18, 2010

Printing and Reprographics is considered academic support so it would comply with a permitted use in the Academic Core as is the HUB. EH&S is campus support and thus goes with Corp Yard, TAPs etc. We did eliminate the old EH&S site on the West Campus and reverted the entire parcel to Parking. The current EH&S site/use was grandfathered in as a non-conforming use as is the Grounds facility. We would not add a new support facility within the Academic land use designation, but we wouldn't tear out a non-conforming use just because it exists. Hope this clarifies the issue.

From: Russell Vernon [mailto:russell.vernon@ucr.edu]
Sent: Thursday, November 18, 2010 1:10 PM
To: 'Nita Bullock'
Cc: 'Leslie Rose'
Subject: RE: [Staff] Scoping Meeting Nov 18, 2010

HI Nita,
On your map you have designated the site that EH&S currently occupies as 'academic'.
It is my understanding that when we get a new building, Printing will move into our existing site…. Another support function….
-Russ

Russell Vernon, Ph.D.
Research Safety
Environmental Health & Safety
University of California, Riverside
900 University Ave
Riverside, CA 92521
www.ehs.ucr.edu
russell.vernon@ucr.edu

Direct (951) 827-5119
Admin (951) 827-5528
Fax (951) 827-5122

From: staff-bounces@scotmail.ucr.edu [mailto:staff-bounces@scotmail.ucr.edu]
On Behalf Of Leslie Rose
Sent: Thursday, November 18, 2010 9:48 AM
To: staff@scotmail.ucr.edu; faculty@scotmail.ucr.edu; studentlife@scotmail.ucr.edu
Cc: 'Nita Bullock'; 'Tim Ralston'
Subject: [Staff] Scoping Meeting Nov 18, 2010
Importance: High

PUBLIC SCOPING MEETINGS – NOVEMBER 18
12 noon to 1 pm in HUB Room 367
6 to 7 pm in Bannockburn J-102

The meetings are to take comments on the proposed Amendment 2 to the 2005 UCR
LRDP to include the new **SCHOOL OF MEDICINE** as a land use on the West Campus
and additional land use and text changes to the LRDP. See attached Agenda and Land
Use Maps, For additional information go to lrdp.ucr.edu.

South Coast
Air Quality Management District
21865 Copley Drive, Diamond Bar, CA 91765-4178
(909) 396-2000 • www.aqmd.gov

November 18, 2010

Juanita W. Bullock RLA, ASLA, AICP
Directory of Physical Planning/Campus Landscape Architect
3637 Canyon Crest Drive
Bannockburn Suite F-101
Riverside, CA 92507

Notice of Preparation of a CEQA Document for the
UC Riverside 2005 LRDP Amendment 2 Project

The South Coast Air Quality Management District (SCAQMD) appreciates the opportunity to comment on the above-mentioned document. The SCAQMD's comments are recommendations regarding the analysis of potential air quality impacts from the proposed project that should be included in the draft environmental impact report (EIR). Please send the SCAQMD a copy of the Draft EIR upon its completion. Note that copies of the Draft EIR that are submitted to the State Clearinghouse are not forwarded to the SCAQMD. Please forward a copy of the Draft EIR directly to SCAQMD at the address in our letterhead. **In addition, please send with the draft EIR all appendices or technical documents related to the air quality and greenhouse gas analyses and electronic versions of all air quality modeling and health risk assessment files. These include original emission calculation spreadsheets and modeling files (not Adobe PDF files). Without all files and supporting air quality documentation, the SCAQMD will be unable to complete its review of the air quality analysis in a timely manner. Any delays in providing all supporting air quality documentation will require additional time for review beyond the end of the comment period.**

Air Quality Analysis

The SCAQMD adopted its California Environmental Quality Act (CEQA) Air Quality Handbook in 1993 to assist other public agencies with the preparation of air quality analyses. The SCAQMD recommends that the Lead Agency use this Handbook as guidance when preparing its air quality analysis. Copies of the Handbook are available from the SCAQMD's Subscription Services Department by calling (909) 396-3720. Alternatively, the lead agency may wish to consider using the California Air Resources Board (CARB) approved URBEMIS 2007 Model. This model is available on the SCAQMD Website at: www.urbemis.com.

The Lead Agency should identify any potential adverse air quality impacts that could occur from all phases of the project and all air pollutant sources related to the project. Air quality impacts from both construction (including demolition, if any) and operations should be calculated. Construction-related air quality impacts typically include, but are not limited to, emissions from the use of heavy-duty equipment from grading, earth-loading/unloading, paving, architectural coatings, off-road mobile sources (e.g., heavy-duty construction equipment) and on-road mobile sources (e.g., construction worker vehicle trips, material transport trips). Operation-related air quality impacts may include, but are not limited to, emissions from stationary sources (e.g., boilers), area sources (e.g., solvents and coatings), and vehicular trips (e.g., on- and off-road tailpipe emissions and entrained dust). Air quality impacts from indirect sources, that is, sources that generate or attract vehicular trips should be included in the analysis.

The SCAQMD has developed a methodology for calculating PM2.5 emissions from construction and operational activities and processes. In connection with developing PM2.5 calculation methodologies, the SCAQMD has also developed both regional and localized significance thresholds. The SCAQMD requests that the lead agency quantify PM2.5 emissions and compare the results to the recommended PM2.5 significance thresholds. Guidance for calculating PM2.5 emissions and PM2.5 significance thresholds can be found at the following internet address: http://www.aqmd.gov/ceqa/handbook/PM2_5/PM2_5.html.

In addition to analyzing regional air quality impacts the SCAQMD recommends calculating localized air quality impacts and comparing the results to localized significance thresholds (LSTs). LST's can be used in addition to the recommended regional significance thresholds as a second indication of air quality impacts when preparing a CEQA document. Therefore, when preparing the air quality analysis for the proposed project, it is recommended that the lead agency perform a localized significance analysis by either using the LSTs developed by the SCAQMD or performing dispersion modeling as necessary. Guidance for performing a localized air quality analysis can be found at http://www.aqmd.gov/ceqa/handbook/LST/LST.html.

In the event that the proposed project generates or attracts vehicular trips, especially heavy-duty diesel-fueled vehicles, it is recommended that the lead agency perform a mobile source health risk assessment. Guidance for performing a mobile source health risk assessment ("Health Risk Assessment Guidance for Analyzing Cancer Risk from Mobile Source Diesel Idling Emissions for CEQA Air Quality Analysis") can be found on the SCAQMD's CEQA web pages at the following internet address: http://www.aqmd.gov/ceqa/handbook/mobile_toxic/mobile_toxic.html. An analysis of all toxic air contaminant impacts due to the decommissioning or use of equipment potentially generating such air pollutants should also be included.

Mitigation Measures

In the event that the project generates significant adverse air quality impacts, CEQA requires that all feasible mitigation measures that go beyond what is required by law be utilized during project construction and operation to minimize or eliminate significant adverse air quality impacts. To assist the Lead Agency with identifying possible mitigation measures for the project, please refer to Chapter 11 of the SCAQMD CEQA Air Quality Handbook for sample air quality mitigation measures. Additional mitigation measures can be found on the SCAQMD's CEQA web pages at the following internet address: www.aqmd.gov/ceqa/handbook/mitigation/MM_intro.html Additionally, SCAQMD's Rule 403 – Fugitive Dust, and the Implementation Handbook contain numerous measures for controlling construction-related emissions that should be considered for use as CEQA mitigation if not otherwise required. Other measures to reduce air quality impacts from land use projects can be found in the SCAQMD's Guidance Document for Addressing Air Quality Issues in General Plans and Local Planning. This document can be found at the following internet address: http://www.aqmd.gov/prdas/aqguide/aqguide.html. In addition, guidance on siting incompatible land uses can be found in the California Air Resources Board's Air Quality and Land Use Handbook: A Community Perspective, which can be found at the following internet address: http://www.arb.ca.gov/ch/handbook.pdf. CARB's Land Use Handbook is a general reference guide for evaluating and reducing air pollution impacts associated with new projects that go through the land use decision-making process. Pursuant to state CEQA Guidelines §15126.4 (a)(1)(D), any impacts resulting from mitigation measures must also be discussed.

Data Sources

SCAQMD rules and relevant air quality reports and data are available by calling the SCAQMD's Public Information Center at (909) 396-2039. Much of the information available through the Public Information Center is also available via the SCAQMD's World Wide Web Homepage (http://www.aqmd.gov).

The SCAQMD is willing to work with the Lead Agency to ensure that project-related emissions are accurately identified, categorized, and evaluated. If you have any questions regarding this letter, please call Ian MacMillan, Program Supervisor, CEQA Section, at (909) 396-3244.

Sincerely,

Ian MacMillan
Program Supervisor, CEQA Inter-Governmental Review
Planning, Rule Development & Area Sources

IM
RVC101109-02
Control Number

From: Mario Cortez
To: lrdp@ucr.edu;
Subject: Land Use
Date: Thursday, November 25, 2010 11:55:18 AM

Hello, Just a simple comment. It think the location of the Medical School is a good idea. However, the area of Chicago and MLK, designated for housing is not. I think that land should be reserved for potential growth of the medical school program. History has proven the Inland Empire along with UCR will continue to grow. Looking at UCR 30 years from now, the Medical School will need more buildings and land for specialized medical disciplines. Such is the continuous growth of UCLA and UCI medical programs.

New housing is a good idea, just somewhere else on campus.

Respectfully,

Mario Cortez...
UCR Alumni..

R. Umashankar

From: sam dunlap [samdunlap@earthlink.net]
Sent: Friday, December 03, 2010 1:41 PM
To: R. Umashankar
Subject: Re: UC Riverside 2005 LRDP Amendment 2 and EIR

Thank you for the notification. I have no specific concerns.

Sam Dunlap
Tribal Chairman
Gabrielino Tongva Nation

-----Original Message-----
From: "R. Umashankar"
Sent: Nov 30, 2010 3:54 PM
To: "sgavghen@palatribe.com" , "pmacarro@pechanga-nsn.gov" , "dhill@soboba-nsn.gov" , "mresvaloso@torresmartinez.org" , "admin@ramonatribe.com" , "tribal-epa@worldnet.att.net" , "chair1cit@yahoo.com" , "srtribaloffice@aol.com" , "calvitre@yahoo.com" , "GTTribalcouncil@aol.com" , "samdunlap@earthlink.net" , "lindaotero@fortmojave.com" , "mcontreras@morongo-nsn.gov" , "abrierty@sanmanuel-nsn.gov" , "g.goforth@fortmajave.com" , "tbrown@pechanga-nsn.gov" , "admin@ramonatribe.com" , "wjpink@hotmail.com" , "lfreogoz@aguacaliente-nsn.gov" , "ptuck@aguacaliente-nsn.gov" , "tribalcouncil@cahuilla.net" , "jontiveros@soboba-msn.gov"
Subject: UC Riverside 2005 LRDP Amendment 2 and EIR

At the recommendation of the Native American Heritage Commission, the attached letter from the University of California Riverside (UCR) provides you with information about the proposed amendment to the UCR 2005 Long Range Development Plan and the Environmental Impact Report that the Campus is preparing so that you may decide whether your tribe would like to provide input to the University with respect to this planning project.

Sincerely,

R. Umashankar
Senior Physical Planner

UNIVERSITY OF CALIFORNIA RIVERSIDE

Capital and Physical Planning | Bannockburn F-101
3637 Canyon Crest Drive | Riverside CA 92507
Phone: 951.827.5610 | rumash@ucr.edu

CITY OF RIVERSIDE

Community Development
Department
Planning Division

December 6, 2010

Ms. Juanita W. Bullock RLA, ASLA, AICP
Director of Physical Planning/Campus Landscape Architect
University of California, Riverside
3637 Canyon Crest Drive
Bannockburn Suite F-101
Riverside, CA 92507

SUBJECT: NOTICE OF PREPARATION OF AN ENVIRONMENTAL IMPACT REPORT FOR THE UNIVERSITY OF CALIFORNIA, RIVERSIDE LONG RANGE DEVELOPMENT PLAN AMENDMENT 2

Dear Ms. Bullock:

Thank you for the opportunity to comment on the Notice of Preparation (NOP) of an Environmental Impact Report (EIR) for the University of California, Riverside (UCR) Long Range Development Plan (LRDP) Amendment 2 (AMD 2). As is noted in the NOP, the LRDP is the document that guides the physical development of the UCR Campus in order to accommodate the projected campus enrollment (25,000 students). This proposal intends to amend the LRDP to accommodate the 3.1 million square-feet of new facilities required by the proposed School of Medicine (SOM), relocate parking structures, reconfigure open space areas, and relocate those land uses displaced by the SOM. This proposal would also include text changes to the LRDP to incorporate the University of California Policy on Sustainable Practices, UCR's Sustainability and Climate Actions Plans, as well as extend the LRDP's horizon year from 2015/2016 to 2020/2021.

City staff has significant concerns with various components of the proposed LRDP AMD 2. Beyond the inclusion of the proposed SOM, the changes included as part of this proposal would constitute a divergence from the existing LRDP. Various components of this proposal – including the new location for the SOM – had not been previously discussed prior to the issuance of this NOP, and are in fact a complete departure from previous understandings. It is strongly recommended that a formal meeting be scheduled between City staff and UCR staff to discuss this proposal in greater detail before additional work is completed for the prospective Draft EIR.

3900 Main Street • Riverside, CA 92522 • 951.826.5371 • fax 951.826.5981 • www.riversideca.gov

Nonetheless, given the potential significant impact resulting from the proposed LRDP AMD 2 on the City, City staff has reviewed the NOP and offers the following comments and concerns for your review and consideration in the prospective Draft EIR:

- As is identified in the NOP, further environmental analysis will be required to fully assess the probable environmental impacts associated with the LRDP AMD 2 on the City. A thorough discussion and analysis is needed to fully identify all respective impacts as well as to develop adequate mitigation to offset those impacts. The prospective Draft EIR needs to expand on the analysis provided in the NOP, including for aesthetics, land use compatibility, noise, public services, traffic, and utility services.

- The prospective Draft EIR needs to adequately analyze this proposal's impact on City services. The NOP identifies potential impacts resulting from this project on UCR, the West Campus, and the surrounding area to an extent, but it does not go far enough in its analysis to adequately assess the specific impacts anticipated on the City. For example, the Public Services Section of the NOP notes that the LRDP AMD 2 would likely result in additional calls for service. However, it does not include an analysis on whether additional public safety personnel would be needed or if additional equipment is necessary to provide emergency services for the proposed new facilities. This type of in-depth analysis is required in the prospective Draft EIR to fully assess this proposal's impact on the City, including but not limited to police, fire, sewer, and utility services.

- The project shall implement and maintain appropriate construction-phase and post-construction BMP's (Best Management Practices) to minimize pollutant loads in urban runoff. The project must comply with all Federal and State regulations related to water quality, including the Federal Clean Water Act, the Porter-Cologne Water Quality Control Act and all applicable provisions of the Statewide Water Quality Control Plans and Policies adopted by the State Water Resources Control Board.

- The Traffic Impact Analysis to be prepared as part of the prospective Draft EIR needs to be forwarded to the City for review and comment. Contrary to statements contained within the NOP, the City is not responsible for roadway and/or traffic signal improvements to mitigate impacts caused by the proposed development. Although the City operates and maintains the public roadways within and around the proposed development, UCR shall be solely responsible for mitigating traffic impacts caused by the proposed development, including the measures listed in Appendix A, specified in the Traffic Impact Analysis, and recognized in the prospective Draft EIR. All improvements within the public rights-of-way shall be subject to the review, approval, and permitting by the City.

- As stated in the initial study, the prospective Draft EIR shall evaluate the impacts to the City's wastewater collection system and treatment facilities due to the 3.1 million square-foot increase of proposed building space. As development occurs, UCR shall be required to pay the City's Sewer Capacity Charge in accordance with the current fee schedule, prior to building occupancy.

City staff appreciates you collaboration on this project and looks forward to continue working alongside UCR staff to address these comments and concerns in the forthcoming EIR. Please forward copies of any revised plans, staff reports, and environmental documents – as they may pertain to this project – to the Planning Division for further review. Should you have any questions regarding this letter, please feel free to contact Moises A. Lopez, Associate Planner at (951) 826-5264 or by email at mlopez@riversideca.gov.

Sincerely,

Ken Gutierrez, AICP
Planning Director

cc: Ronald Loveridge, Mayor
Riverside City Council Members
Brad Hudson, City Manager
Belinda Graham, Assistant City Manager
Kristi Smith, Supervising Deputy City Attorney
Scott Barber, Community Development Director
Siobhan Foster, Public Works Director
Tom Boyd, Deputy Public Works Director/City Engineer
Rob Van Zanten, Principal Engineer
Steve Libring, Traffic Engineer

R. Umashankar

From: Lopez, Moises [MLopez@riversideca.gov]
Sent: Monday, December 06, 2010 4:19 PM
To: 'lrdp@ucr.edu'
Cc: Darnell, Doug; Jenkins, Diane
Subject: UCR LRDP AMD 2
Attachments: Letter - UCR LRDP AMD 2.pdf

OUTSIDE AGENCY REVIEW
University of California, Riverside (UCR)
Notice of Preparation of an Environmental Impact Report for the UCR Long Range Development Plan Amendment 2 (LRDP AMD 2)

Ms. Bullock,

Please find attached to this email the City of Riverside's comment letter in response to the NOP of an EIR for the proposed LRDP AMD 2. Upon receiving this email, please confirm that you were able to view and download the attached comment letter (PDF).

Should you have any questions, or if I can be of any assistance, please feel free to contact me at your earliest convenience.

Thanks,

Moises

Moises A. Lopez ▪ Associate Planner
City of Riverside ▪ Community Development Department ▪ Planning Division
3900 Main Street, Third Floor ▪ Riverside, CA 92522
✆ (951) 826-5264 ▪ 🖷 (951) 826-5981
✉ mlopez@riversideca.gov

please consider the ENVIRONMENT before printing this email

COPY

2005 LRDP AMENDMENT 2 EIR SCOPING MEETING

REPORTER'S TRANSCRIPT OF PROCEEDINGS

THURSDAY, NOVEMBER 18, 2010, 12:06 P.M.

367 HIGHLANDER UNION BUILDING

RIVERSIDE, CALIFORNIA

Reported by:

Mary K. Medley, CSR 9557

Hutchings Number 287638

RIVERSIDE, CALIFORNIA - THURSDAY, NOVEMBER 18, 2010

12:06 P.M.

***

MS. BULLOCK: I'd like to introduce our team to you. Our senior physical planner back there is Uma, and he's helping tremendously giving us a fresh eye on all of the LRDP text and information as he's new to the campus. So he asks a lot of questions and that's good.

He is going to be collecting speaker slips if any of you have any desire to give us verbal comments. They're on the table in the purple.

Shabnam Barati from Impact Sciences and Paul Stephenson, they're the consultants for this amendment to the LRDP, and they're going to be conducting the meeting today.

MR. STEPHENSON: Okay. Thank you very much.

Just to begin, I'd like to review the agenda for this -- today's meeting.

First, I'd like to briefly discuss the CEQA process, the California Environmental Quality Act, and next go over a brief project description.

As you will notice, here in the room we have the matrix of the proposed changes on the back wall and corresponding land use maps here on the side.

So if you don't -- If you have questions

afterwards, please consult these visual aids for the project description.

Then I want to talk about some of the resource topics that we're going to discuss in the EIR. And then after that, it's your time.

The purpose of this meeting is for you to provide us comments -- or provide us with topics that need to be covered in the EIR. And so it's -- like I say, it's your meeting. Let us know what you would like us to cover.

Moving on, CEQA applies to any discretionary project proposed to be carried out or approved by a public agency, which in this case is the university.

And just as way of background, back in 2005, the university adopted the LRDP to guide development here on campus, and this proposed project is an amendment to that plan.

And because this project is a discretionary action, the university must evaluate the potential environmental impacts from the proposed amendment before it can approve it.

So here's the CEQA process. The first step in the process is an initial review by the university to determine if the EIR is required. And as part of that review, an initial study was prepared which looked at

12:09 1 the potentially -- potential environmental impacts of
2 the project. And that study is posted online on the
3 campus' website for review.
4 Next, we have the scoping process, which is what
12:09 5 we're doing right now, is the purpose of this meeting.
6 And the purpose behind the process is to solicit
7 comments from both public agencies and the community on
8 what we should be covering in the EIR. And that's for
9 30 days, a 30-day period which began on November the
12:09 10 8th.
11 Now, after all these comments have come back to us,
12 we'll go ahead and prepare the draft EIR and then two
13 things will happen.
14 One, there will be a 45-day review period for the
12:09 15 document in which the public agencies and community will
16 have an opportunity to comment on the content of the
17 EIR, and then we can provide written comments to that,
18 and then there will be a public hearing on the EIR.
19 So you can submit verbal comments now. Once all
12:10 20 these comments have been gathered, we'll go ahead and
21 provide written responses to those comments, and then
22 combine those comments with the draft EIR into what will
23 become the final EIR. And that document will be
24 forwarded on to the Regents for their -- to be certified
12:10 25 and then be used in the approval of the proposed

amendment.

Just want to cover a bit of a schedule here. A Notice of Preparation was published on November 8th, like I mentioned, that started the 30-day scoping period.

And then today, of course, we're having our scoping meetings. We're having a meeting this afternoon for the campus community and then later on tonight we're going to have a meeting for the Riverside community.

We expect that the draft EIR will be published sometime in the spring of next year. And following the publication of that draft EIR, there'll be the 45-day circulation period. And then we expect to have all the comments responded to and the final EIR prepared by the summer of 2011.

Moving on to project description, there's two major components to this project, one is changes to the land use map; and, two, there is text changes to the document itself.

I'd just like to briefly point out some of the major land use map changes.

First, we're going to -- the university is going to designate land for the future school of medicine. And that will be located, roughly, on the northeast corner of Iowa and Martin Luther King.

12:11 Next, the university plans on relocating two future parking garages and deleting a third parking structure on the West Campus, and then redistributing the parking stalls from the third eliminated parking structure to
12:12 the remaining two.

Next, the campus plans on modifying a major open space configuration on the West Campus from what is referred to as the Grove concept to the Gage Canal Mall concept.

12:12 And then, next, the campus plans on extending the hundred-foot landscape buffer along MLK, and plans on extending the Northwest and Southwest Malls from Cranford to Chicago Avenue.

Then, next, there are going to be some
12:12 redesignation of land to make room for the SOM on the West Campus. Currently, right now, the SOM site is designated for residential and academic uses.

And with that -- with the school of medicine going in, those uses will be relocated to other spots on
12:12 campus, namely, the campus reserve, which is located in the northwest corner of the West Campus.

And then, finally, the campus plans on incorporating previously approved land use amendments and map changes that have occurred since the adoption of
12:13 the 2005 LRDP.

12:13 Okay. Here's a current land use map from the LRDP (indicating).

Things I'd like to point out here, here's the Grove concept (indicating). It's a rectangular shape. It's an open space here along the Gage Canal.

And right here is the rough spot for the school of medicine (indicating).

And this here is the campus reserve site (indicating).

So I'd like to point that out and then move on here to the proposed land use map. As you can see here, here's the school of medicine with its own new land use designation (indicating).

And then this here (indicating), along the Gage Canal, the Grove concept has been replaced by the linear -- a linear pathway along the Gage Canal, what's referred to as the Gage Canal concept.

Then here's the campus reserve site (indicating). You can see here it's been redesignated with residential and open space.

Then I'd also like to point out --

DR. NORMAN: Where's Chicago on that map?

MR. STEPHENSON: Chicago's right here, here's MLK and here's the extension of the landscape buffer (indicating).

12:14 It's -- The extension of the Northwest and the Southwest Mall is right here (indicating), all the way out to Chicago currently. They end right here (indicating), so --

12:14 MS. BARATI: On the parking structure changes, can you point those out as well.

MR. STEPHENSON: Oh, sure. Let me go back.

Currently the parking structures are located right here and right here on the current map (indicating).

12:14 And with the new changes, they'll be relocated -- one will be relocated right here (indicating), just north of Everton Place.

And the other one will move from right here (indicating), next to the freeway, south of Everton

12:15 Place. Those are the changes for the parking structures.

Text changes, the first one is the extension of the 2005 LRDP horizon year from 2015-16 to 2020-21, followed by an increase in the maximum square footage

12:15 accommodated in the 2005 LRDP from 11.8 million square feet to 14.9 million square feet to account for the 3.1 million square feet associated with the school of medicine.

Next, other changes to occur in the text will be to

12:15 provide a design criteria for the SOM land use

designation.

And then, also, to update the Circulation and Parking chapter to reflect changes to the existing and future transit service and proposed TDM program.

These final two changes are here (indicating), update the existing Resource Conservation and Environmental chapter to include some sustainability plans that the university has prepared to include the climate action plan and UCR sustainability plan and climate action plan, and up- -- to update the parking designation to allow for retail or office uses on the ground floor.

So based on the analysis that was conducted in the initial study, these are the topics that we have determined that could have a potential -- affect the environment.

And here are the topics which we were able to scope out.

MS. BARATI: Let me just add here, the purpose here was going through an initial study to figure out what needs to be revisited in light of the changes to the Long Range Development Plan, because you already have an EIR that was certified for that previous for the project plan as it was adopted before.

So when we looked at the changes that are proposed,

we've said, well, we don't think biological resource analysis needs to be revisited because the changes don't affect that.

And that kind of applies -- These are the four that we were able to scope out, but the explanation is in the initial study, so please do look at that.

MR. STEPHENSON: Other CEQA requirements we're required to look at, there will be an evaluation of amount. I have to include the no-project alternative and an off-site alternative.

And then, next, we need to look at cumulative effects of the amendment along with other future projects here in the area, any growth inducement that may occur as a result of the amendment and significant irreversible environmental changes.

Okay. Now it's time for public comments. Just wanted to reiterate that if you would like to speak today, if you could please fill out a speaker's card and pass it back to Uma back there, he will be collecting those, please.

And, then, as a reminder, because time is limited, please keep your comments to three minutes. And then if there's more time at the end, you can come back and provide more.

I'd also like to point out that you don't need to

provide verbal comments here today. There's also comment cards back there that you can provide written comments to staff if you don't feel comfortable with airing your comments vocally.

So with that, is there anybody who'd like to fill out --

MS. BARTON: This may be outside the scope of an LRDP amendment, but I noticed on the siting of the school of medicine there were three blocks surrounded by pedestrian malls, it appeared.

Is this the stage where more specific planning occurs? What will happen in those three blue blocks? Or is that outside the scope of the LRDP amendment?

MS. BARATI: Outside the scope.

MR. STEPHENSON: Yeah.

MS. BARATI: At this point, it's only to designate the land for that use. The actual plan will be developed at a later point in time for these parcels.

MS. BARTON: And when that happens, there'll be another layer of CEQA for those specific projects and the specific effects of those projects.

DR. NORMAN: I had a point of clarification. In your introduction, I thought you said that in the present plan that the medical school was going to be on the southeast corner of Chicago.

12:20 MR. STEPHENSON: I'm sorry, it's on the northeast corner of Iowa and MLK.

DR. NORMAN: You didn't say MLK. You said Chicago. And I've heard the chancellor even make that statement.

12:20 MS. BULLOCK: Dr. Norman, the campus reserve that is located in our current LRDP at the northeast corner of Chicago and MLK is about a 48-acre parcel that was designated campus reserve in the 2005 LRDP. That was identified at the time of requesting to have a medical 12:20 school as the site for the medical school.

MS. BARATI: That site (indicating).

MS. THRASHER: But that was not official.

MS. BULLOCK: That was official at the time.

DR. NORMAN: That's what that block is there?

12:20 MS. BULLOCK: And we proceeded on the amendment to the LRDP with the medical school located there until we got to the CPAC meeting last fall, and at that point in time there was discussion about moving it.

And we looked at about five different locations. 12:20 This particular location at the northeast corner of Iowa and MLK satisfied everybody's expectations, so that is now the direction the medical school is --

DR. NORMAN: Right, I understood that, but I -- it was --

12:21 MS. BULLOCK: It was a mistake.

DR. NORMAN: It was the history that was troubling me.

MS. BRADEEN: On here there's a small corner in --

MS. BARATI: Excuse me. Could you identify yourself.

MS. BRADEEN: I'm Jeanette Bradeen with housing.

And there's a small corner to the left of where the housing is on the West Campus. That is for campus support.

MR. STEPHENSON: Are you talking about right here (indicating)?

MS. BRADEEN: Right there.

And I don't see in the new plan where that campus support would be located, so is this not going to be campus support on the West Campus anymore?

MS. BULLOCK: Theoretically, we're not supposed to answer questions, but this is a campus community.

MS. BRADEEN: Oh, okay.

MS. BULLOCK: Jeanette, that was core campus support and it was a physical plant -- second physical plant. And when the medical school was identified for that location campus reserve, it became a physical plant to serve the medical school.

That is going to be part of the medical school. The blue band use, there will be a support yard there

that may or may not -- depending on how the planning goes, may serve the entire West Campus or just the medical school.

MS. BRADEEN: Okay. So you don't -- we're not sure where that --

MS. BULLOCK: Yeah.

MS. BRADEEN: All right. Thank you.

MS. BULLOCK: But that's all part of the changes, if you look at the details.

MS. BRADEEN: Okay. All right.

MS. BARATI: Any more questions?

MS. BARTON: One more. If the final EIR is finished in the summer of '11, approximately, then when would it be presented for general approval?

MS. BARATI: It is in the summer that we are looking at. It depends upon how things go. Currently shooting for the summer.

DR. NORMAN: They don't meet -- They meet early July and then September.

MS. BARATI: You're right, they meet every other month. There's a July Regents meeting and then there will be a September one.

That's why I think -- Nita, I think you said it'll probably be summer and fall, somewhere in that time frame.

MS. BULLOCK: It's going to depend on what kind of public comments we get, primarily from the neighborhood community, and whether we have to do more than we think we're going to have to do.

Any comments on what --

MS. BARATI: Anything else?

We do have the maps up, and some of you have gone around and looked at the changes there. And the middle two explain where the changes are.

And then the text at the back also kind of ties to the changes, if you want to see, but I think Paul summarized the key ones for everybody pretty much.

MS. BULLOCK: And we will be putting the maps and all of the comments that were given to us today, both right now and this evening, on the website under "Scoping Meetings," so you can go back at any time and look at it during the next couple of months. But any comments that are given here and/or this evening will be answered in the LRDP EIR.

MR. STEPHENSON: All right. If there's no other comments --

DR. NORMAN: I think I have a question about, again, the old plan.

Where are the present agricultural experimentation plots and trees and so forth? And what is their future?

12:25 MR. STEPHENSON: Right now the -- there's experimental fields covering this portion of campus and those will go away with the development of the -- but everything south of MLK will remain.

12:25 DR. NORMAN: Oh, okay.

MR. STEPHENSON: So these -- there'll be a loss of this agricultural land right here when the campus is built out, developed in that area (indicating).

DR. NORMAN: So the two-thirds of it will be

12:25 untouched, approximately?

MS. BARATI: Yeah, south of it there's no plan to develop that at all.

And the development of the area to the north was part of the 2005 LRDP. In other words, this is not a

12:25 change from that, that it was always envisioned that that land would be changing over time.

MS. THRASHER: Actually, all the way back to the 1990s --

MS. BARATI: Actually, if you go even further, that

12:26 that would be developed. The only change --

DR. NORMAN: But there was no time line set for --

MS. BARATI: And even now there isn't. LRDP is just a plan to guide the campus. It just depends on when the campus grows and when it has a need for that

12:26 land.

Right now, the map is just designating areas for types of uses based on what we expect the campus to be headed toward.

You're going to need housing, so this is the area for housing. But other than that, the pace of growth is not known to us for purposes of the EIR.

Of course, we will evaluate as it gets developed by 2020, because we've got to do something. We've got to use, summarizing here.

MR. RUIZ: Alex Ruiz, undergraduate admissions.

I have a question on one of the first slides you had up there. There was a bullet point on the change, it says -- it says, the fourth bullet point, extending the hundred feet landscape-type buffer along MLK.

What specifically is that referring to?

MR. STEPHENSON: Show you right here (indicating). See, right now is a landscape buffer. It's to buffer the traffic that's along MLK from the campus uses and is that -- with this amendment, that will now be extended all the way here to Chicago, the hundred-foot buffer.

MS. BARATI: It's a green area. Basically, it's an area like a greenbelt. I don't want to use "a greenbelt," but basically it's landscaping and other types of uses that could go in would be like for storm water management, you know, swales and things like that

to control.

But landscaping, that's the concept. And it was always -- it was there in the 2005 LRDP. This amendment extends it out.

MR. RUZIZ: The reason I'm making a comment here, now, the reason I ask is, quite often you see a lot of students now using that traffic -- that area as pedestrian walkway and there's no sidewalk there. And I think that that's something that is -- the future plan should consider.

MS. BARATI: Yes, that is the concept as well, that there would be pedestrian facility along that.

MS. BULLOCK: This campus reserve is not to be developed until an amendment is made to the LRDP.

THE REPORTER: I can't hear.

MS. BULLOCK: This area was not to be developed. In the 2005 LRDP, it was to remain in agriculture until there was a use by the campus for the area.

We now have a use for the campus by -- of the area. And it was going to be the school of medicine site. The school of medicine site is moved, and now it's going to be housing.

So as we develop the housing, we will develop that buffer as well. Just continue it.

I'm giving you all the answers, but --

MS. BARATI: Nita was going to go back to what you said that -- I think it's just a clarification of the project, and it's fine for us to discuss today. But because we haven't done the environmental review yet, we can't give you any answers on that. We are just starting it, as you know.

MS. BULLOCK: But we're giving you the reasons why these changes are being made and that, too, because it's going to be -- housing will extend the Northwest and Southwest Malls to Chicago.

MS. BRADEEN: Jeanette Bradeen, housing, again.

The buffer along MLK, will that, then, be the university doing that buffer?

MS. BULLOCK: Uh-huh.

MS. BRADEEN: Okay.

MS. BULLOCK: Any other concerns?

MR. STEPHENSON: Okay. We'll go ahead and close the meeting now.

If you do have some concerns that come up, please see one of the staff here. We'll be more than willing to --

MS. BARATI: The comment period -- The time to comment ends on the 7th.

MR. STEPHENSON: The 7th.

MS. BARATI: Nita, I think in the notice we said

6th, but 6th is not 30 days.

MS. BULLOCK: That's fine.

MS. BARATI: It'll probably be all right.

MS. BULLOCK: And, actually, we do take comments even after that period.

MS. BARATI: Exactly, right, right.

MS. BULLOCK: We want to make sure we include everything in the document that could be of concern to people. This is because it is an amendment. It is not a full-blown change on the entire campus. It's very specific.

It's, again, primarily to bring in the school of medicine in a new location than was previously anticipated and to identify design criteria for that school of medicine land use designation, and then just some cleanup items along with that.

MR. STEPHENSON: Okay. Thank you for your attendance.

(The proceedings concluded at 12:30 p.m.)

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COPY

2005 LRDP AMENDMENT 2 EIR SCOPING MEETING

REPORTER'S TRANSCRIPT OF PROCEEDINGS

THURSDAY, NOVEMBER 18, 2010, 6:04 P.M.

3637 CANYON CREST DRIVE, SUITE J102

RIVERSIDE, CALIFORNIA

Reported by:

Mary K. Medley, CSR 9557

Hutchings Number 287639

RIVERSIDE, CALIFORNIA - THURSDAY, NOVEMBER 18, 2010

6:04 P.M.

***

MS. BULLOCK: Good evening and thank you for attending our scoping meeting for the amendment for the LRDP.

As I mentioned in the back of the room, this is primarily to codify the school of medicine, which you all know was approved a couple of years ago as part of the land use designations here on the UCR campus.

I'm Nita Bullock, I'm the director of physical planning and landscape architect and project manager for this amendment to the LRDP.

Our senior planner, Uma, back there will take any speaker cards. If you want to make a comment, please fill out a speaker card. Make sure you signed in so that we can send you the results of this meeting.

And the rest of the team is Shabnam Barati from Impact Sciences, our principal in the consulting -- the consulting for the LRDP EIR.

This is Paul Stephenson and he's project manager for the EIR, and he will be leading tonight's discussion -- not discussion, meeting.

And I do want to mention that the purpose of this is to let you know what the amendment is about. And

this is the kind of kickoff of the Environmental Impact Report that will be done for the project for the amendment to the LRDP.

And what we're looking for tonight from you is issues that you want to be covered in the Environmental Impact Report. Anything that has to do with what the amendment is all about is fair game.

Things that don't have anything to do with the amendment, that's for another time and place. But we are specifically talking about items to be included in the EIR for this amendment.

And I'll turn it over to Paul.

MR. STEPHENSON: Thank you.

I'd like to begin tonight with the review of tonight's agenda.

First off, I want to explain a little about the CEQA process and what stage we are in right now, then I'd like to discuss a little bit about the project description, and then discuss some of the resource topics that we're going to be looking at in the EIR.

And then after that, we'll turn the time over to you for public comments. This is your opportunity to let us know what you would like us to cover in the EIR.

So with that, CEQA applies to any discretionary action or project proposed to be carried out or approved

by a public agency, which in this case is the university.

As a way of background, back in 2005, the university adopted the campus' long-range development plan, which served as a blueprint for how growth would develop here on campus.

And this project is an amendment to that plan. And as the amendment is a discretionary action, the university must evaluate its potential environmental impacts in order for it to be approved.

So to go into the process, the initial review by the university to determine if an EIR is required as part of that, we prepared an environmental -- excuse me, an initial study which looked at the potential environmental impacts of the project. And that initial study is located on the campus' website for your review.

I heard some of you mention that you have already taken a look at that. And right now the scoping process we began on November 8th when we published the Notice of Preparation and this meeting is a part of that process.

We held a meeting earlier today with the campus community to solicit their comments for the project and now we're soliciting the community's comments.

Once all the comments or the suggestions that -- have been given to us, we'll go ahead and prepare the

draft EIR. And once that's complete, we'll open it up to 45-day public review period, and that's a time when the community and public agencies have an opportunity to provide written comments on the EIR as to its content.

And then at the same time, during that period, we'll also hold a public hearing on the draft EIR so you can provide verbal comments on the content.

Then once all the comments have been gathered, we'll go ahead and we'll provide written responses to those comments and combine those with the draft EIR for the final EIR, which will be forwarded on to the Board of Regents for certification and will be used to -- in the approval of the project.

By way of schedule, as I mentioned, the Notice of Preparation was published with the State clearinghouse on November 8th, a couple weeks ago, and we are right now conducting the scoping meetings to solicit your comments.

We expect that the EIR will be published sometime in the spring of next year along with the circulation period, and then the final EIR we estimate will be ready in the summer of 2011.

Discuss the project. The project has two main components. First, there's changes to the land use map; and, second, there's changes to the text of the

document.

And the biggest change to the land use map is the designation of land use for future school of medicine at the northeastern corner of MLK and Iowa.

Next, we're going to have -- the university proposes to change the location of two future parking structures and to eliminate -- delete a third parking structure, and those parking stalls that will be deleted from the third parking structure will be redistributed to the other two parking structures.

We have a major open space modification on the West Campus from the Gage Canal -- excuse me, from the Grove concept to the Gage Canal concept.

Next, we're going to extend the hundred-foot landscape buffer along MLK from Cranford to Chicago, as well as extending the Northwest and Southwest Malls from Cranford to Chicago.

Then the university proposes to redesignate some land on the West Campus for residential and open space uses.

Currently, right now, the SOM is -- the land that the SOM is -- will be placed is currently designated for residential and for academic uses, and so those uses are going to be -- we're going to move the location of those uses to over to other sites on the West Campus, mainly

the campus reserve site, which will be designated for residential and open space uses.

Here is the 2005 LRDP land use map (indicating). It's current.

MS. BARATI: Paul, would you move out because people can't see.

MR. STEPHENSON: Sure.

Just like to point out here's the Grove concept, which is a rectangular small mall (indicating).

And then here's the site of the school of medicine (indicating).

And then right here is the campus reserve right (indicating) -- just want to point that out.

And then with the new plan, the changes, here's the school of medicine (indicating). You can see it has its own land use designation.

Then, also, we have here the linear Gage Canal Mall concept, which takes advantage of the mall's curvilinear features.

And, then, as you can see right here (indicating), the campus reserve spot space is -- with -- redesignated with residential and open space uses.

And also like to point out here the extension of the landscape buffer and also the extension of the two malls.

Next, moving on to the text changes of the document. First change is to extend the LRDP horizon year from 2015-16 to 2020-21, and also to increase the maximum square footage that's accommodated in the LRDP to accommodate the 3.1 million square feet. That will be coming with the school of medicine.

Next, the university is going to change -- make changes to provide design criteria for the SOM land use designation, and also to update the Circulation and Parking chapter to reflect changes in the existing and future transit service and proposed TDM program.

And the final two changes are update the existing Resource Conservation and Environmental chapter to include information sustainability plans that have been prepared by the university and the campus, and then to update the parking land use designation to allow for retail and office as permitted uses within all proposed parking structures on campus.

Here are the resource topics to be analyzed in the EIR. This is based on our study -- the initial study which is prepared, and so these topics all match the topics that are in the initial study.

These are topics that we concluded do not need to be analyzed in the EIR. What we mean by that is the -- there's no changes occurred between the 2005 LRDP EIR

and the current situation, and so this is what they were able to scope out.

Other CEQA requirements we'll be looking at are evaluation of alternatives, including the no project alternative and the alternative site alternative, then other CEQA-mandated requirements such as cumulative effects, growth inducement and significant irreversible environmental changes.

Now it is time for public comments. If you'd like to make some comments tonight, please fill out a speaker card and provide it to Uma in the corner.

And just so -- Because of our limited time tonight, we would ask that you take three minutes per turn. If there's more time at the end of the meeting, you can go ahead and speak again.

And just point out this meeting is -- the purpose of this meeting is to solicit what you want to have covered in the EIR.

We aren't taking comments tonight on whether the project is good or bad; we just want to find out what you need, what would you like us to cover in the EIR.

So with that, is there anybody who'd like to speak, provide comments? And please state your name for the court reporter.

MS. BULLOCK: And you can also submit comments

between now and --

MR. DAWSON: I'll make a few comments. My name's Kevin Dawson.

One of the things I'd like considered is the issue of sustainability, and not just sustainability on campus, but the sustainability of the immediate off-campus uses.

For example, I believe that certain development that has gone on in the last three or four years by the campus has had a very negative impact upon the livability and the environment of the single-family residences immediately to the east. The lights and the noise and the parking from the athletic field, for example.

And I think that that needs to be something that should be examined, especially since in the last year here there's been several seminars or symposia on the issue of sustainability, and the campus has said that they -- you know, they believe in this.

They need to look broader. I think the campus planning sometimes is too much campus centric, they look -- you look only at what's going on on the immediate campus without much consideration -- or enough consideration of what that activity has upon off-campus or even what off-campus development -- how it might

impact on-campus development.

The example being the extension of the Child Development Center and how little consideration was given to the fact that there's going to be that rail line developed into at some point in the near future, a traffic corridor, and that would impact sensitive receptor use such as the Child Development Center.

I also think that the campus is changing from being a res- -- or a campus that -- where the students are primarily commuters to being more residential. And so you're increasing the number of students that are in the immediate facility 24-7 as opposed to only during the business hours.

And for that reason, I think a study or consideration needs to be given to fire protection services and what impact that has on the needs that -- apparently that currently the City provides that service.

Well, you know, that's -- are you pushing that negative externality onto the City and, therefore, the local taxpayers? And the same with police.

MR. STEPHENSON: I'm going to cut you off right now. Your time is up.

Next for comments.

MR. PHILLIPS: I'll go. My name's Robert Phillips.

I want to comment on the change in the plans to modify that triangular area at Martin Luther King and Canyon Crest Drive where you -- in the old LRDP it was going to be the site of the EHS facility and other campus support, and now you have -- it has a parking garage.

I think in your analysis, you need to look at what effect there is going to be on the residential neighborhoods around the campus on the fact that by moving the EHS facility to the east side of the campus, you're going to be transporting all of the wastes generated at the medical school over city streets and through residential neighborhoods, whereas if you leave that EH&S facility on that little triangular area there, you only have to transport the materials over a few hundred feet and you don't have to go through my residential neighborhoods.

So this change you're making can have all kinds of consequences on residential areas surrounding the campus and you need to really look at that.

MR. STEPHENSON: Okay. Thank you.

Is there anyone else who'd like to take a turn with a comment?

Your name, please.

MR. KHALSA: Gurumantra Khalsa, I live in the

neighborhood.

One of the issues we'd like you to consider is as the campus is growing, we want to know about is your police force also growing?

Are you staffed appropriately to handle the increase?

And, you know, is the UNET team getting everything they're tasked to have?

And so that's an issue for us.

MR. STEPHENSON: Okay. Any other -- Yes, sir? Please state your name.

MR. MIRYOKUTCK: Ian Miryokutck.

A thousand years down the road, this building is not going to live that long. Do you have any considerations for destroying the building in a way that wouldn't affect other areas?

I mean, you have four lanes of highway next to a big yellow square there before you're blowing something else out.

Has that been taken into consideration as well?

Students may have different feelings about how to use the bathroom. If the bathroom's larger, do they throw away their trash?

Do these habits improve how much trash ends up in these streets? Because these streets belong to

Riversidians.

MR. STEPHENSON: Yes?

MR. KHALSA: One other comment.

The City is very much interested in looking at how they plan their streets and ways of getting around in terms of bikes, trails and whatnot. And, you know, where you are, you're going right across the orange groves there.

Is there anything that you're considering in your plan that would support Riverside's healthy cities initiatives with the walkable city or, you know, bike stuff?

And particularly around King Drive. As you know, it gets to your open space areas and other parts of campus.

MR. STEPHENSON: Well, these -- the malls here, Northwest Mall and the Southwest Mall, will be open to bicycles and pedestrians for their use.

MR. KHALSA: Is that also public access? Particularly along King Drive.

MS. BULLOCK: We'll discuss that in the EIR.

MR. KHALSA: You will?

MS. BULLOCK: Yeah, uh-huh.

MR. KHALSA: Because that's a big issue here. It's like you've got an opportunity to make a contribution

here by doing some, you know, forethought and we'd like you to consider that.

MR. STEPHENSON: Okay. Any other comment?

MR. DAWSON: I know the environmental health and safety building is not part of this per se, but I did notice in your draft document here there was quite a bit of discussion under -- in the section where it was under -- about hazardous wastes that brought up the issue of nothing is within a quarter mile of an existing school at this point.

And that seemed to be some sort of a key planning criteria and yet I believe that the Environmental Health and Safety site that is currently being pursued might be within a quarter of a mile of Highland Elementary School. And it's certainly closer than a quarter mile to the campus Child Development Center, which ought to be considered a school.

So is it possible to examine whatever aspect that is of hazardous waste consideration?

And, also, there's a section in your current draft document where you talk about compatible uses.

And I agree with Mr. Phillips that the current proposed site for the Environmental Health and Safety building is putting an incompatible-use situation in place, that you have an industrial type of facility

that's hazardous waste storage. And you're putting it in the middle of the designated campus, high density residential area. It seems inappropriate.

Also, it seems that -- it's nice that you're doing these plans, but it seems that when you actually come to the point where you're actually building a building, sometimes you are not being very complete.

For example, not installing sidewalk along the corner of Blaine and Watkins Drive, so now the children that live in the campus married student housing, when it rains, they have to walk in the gutter to -- or in mud as they're walking up Blaine Street to the corner to walk to Highland Elementary School.

It seems to me that's created a public safety issue where it's endangering, you know, residents that actually live on campus.

And are you going to examine your pathways to make sure they're logical for pedestrians?

Again, we have a lot of staff, faculty and students that live in the neighborhood to the east. And when they walk down Blaine Street and try to cross onto campus, there is no pathway onto campus for them so they're having to make a pathway, cut through the residential housing and Crest housing and what have you.

It seems to me that there's not been enough

attention to provide a natural pathway onto campus for --

MR. STEPHENSON: I've got to cut you off right there.

Is there anybody else has a comment?

MR. KHALSA: I'll say one more thing about the EH&S thing. When I toured the facility, I really got a sense of what they're doing. And one of the things I learned is that all of the toxic stuff actually comes into the receiving yard that's been on Watkins forever.

So it's like as I am looking at your map, it seems to me if I'm in a position to make a plan change now, and the whole back of that campus is in a neighborhood surrounded by residential campus housing and proposed future development residential all the way down to Iowa and Blaine, it'd be a good time to look at combining both sites into one facility near King Drive and the freeway so that that traffic is all handled without ever having to endanger residents on campus or off. It is -- just seems to me like that's a planning thing that should be looked at.

You know, in spite of the fact that -- I know there's tons of circumstances and reasons why it's not popular to do, but if you're making a plan change, and you're talking about sustainability and impact on the

community around you, including the campus community, I would think that would be something you really want to give some deep thought to.

MR. STEPHENSON: Okay. Thank you.

Any other comments?

Sir.

MR. DAWSON: The siting study that we've been referred to that was used to make the decision to relocate the Environmental Health and Safety building back to Watkins, we finally got a copy of it. And in reviewing it, we found that there was -- the criteria that were used to make the decision all involved impacts of money, how much it was going to cost to do this or that.

There was no consideration given to the compatibility of the immediate uses around each site. I think that that was improper, that that is an important consideration, and certainly in your CEQA documents here that is a criteria that is listed as needing to be studied.

So it seems to me that there's some sort of a disconnect between the master plan and when you finally get down to the ground where you're going to implement an aspect of the master plan, an actual project.

So I know it's -- it's hard for me to articulate

what I'd ask, but I'm expressing a frustration here that we're going through this planning process, and yet when we see the results later down the road, there's -- it doesn't seem to be best practices put into practice at the end for the end result.

MR. STEPHENSON: Okay. Go ahead, sir.

MR. MIRYOKUTCK: I love the canal, by the way. I walk in Sycamore Canyon three or four times a week. And the birds love the canal.

There's a great hope for putting in trees and having a pathway for birds. Believe it or not, the little birds, like finches, don't like to fly forever. They're not built for it. And by offering some kind of pathway through, you know, big giant buildings, it makes it easy for them to mosey on and visit and tweet and do whatever they do.

MR. STEPHENSON: All right. Any other comments?

MR. KHALSA: That's yellow for the future, the residential?

MR. STEPHENSON: Uh-huh.

MR. KHALSA: Where's the parking for that?

MS. BULLOCK: Are we going to close the public hearing and we could just have a little bit of a discussion? Would you like to do that?

MR. KHALSA: We're curious about a lot of --

18:30 MS. BULLOCK: Does anyone have any comments on the EIR itself?

Shall we end the public hearing?

Let's officially end the public hearing. The court reporter will turn off her machine and go home.

(The proceedings concluded at 6:30 p.m.)

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APPENDIX 3.0

LRDP Planning Strategies, Programs, and Practices

2005 LRDP PLANNING STRATEGIES, PROGRAMS, AND PRACTICES

Planning Strategies

Land Use

1. Achieve academic core densities of 1.0 FAR or higher on the East Campus and 1.6 to 1.9 FAR on the West Campus in order to achieve a balance of academic land area versus other required uses.

2. In order to achieve these development densities, infill sites in the partially developed East Campus academic core and expand to the West Campus academic zone immediately adjacent to the I-215/SR-60 freeway, maintaining a compact and contiguous academic core.

3. Maintain the teaching and research fields on the West Campus south of Martin Luther King Jr. Boulevard.

4. Pursue a goal of housing 50 percent of student enrollment in on campus or campus controlled housing.

5. Remove existing family housing units on the East Campus, and provide replacement and additional units of family housing on the West Campus.

6. Provide expanded athletics and recreational facilities and fields on the East and West Campuses, adjacent to concentrations of student housing.

7. Over time, relocate parking from central campus locations to the periphery of the academic core and replace surface parking with structures, where appropriate.

Open Space

1. Protect the steep and natural southeast hillsides designated as a Natural Open Space Reserve, to protect wildlife habitat, to provide a visual backdrop to the campus, and protect against erosion.

2. Within the Natural Open Space Reserve, no major facilities will be allowed (except for sensitively sited utility projects), vehicular and pedestrian access will be limited, and native plant materials will be used, where needed, for erosion, screening, and restoration.

3. In Naturalistic Open Space areas, where arroyos and other natural features exist, preserve wherever possible, existing landforms, native plant materials, and trees. Where appropriate, restore habitat value.

4. Provide landscaped buffers and setbacks along campus edges, such as Valencia Hill Drive and its extension south of Big Springs Road, Martin Luther King Jr. Boulevard, and the I-215/SR-60 freeway.

5. Retain the Carillon Mall as a major Campus Landmark Open Space, respecting its existing dominant width of approximately 200 feet throughout its length. Other “named” malls and walks will be 100 feet wide.

6. Provide a new Campus Landmark Open Space on the West Campus, the Gage Canal Mall, to reflect the natural dry arroyos that are part of the Riverside landscape, and provide gathering/activity space within and adjacent to the Mall.

7. Provide neighborhood parks and tot lots in the family housing areas as neighborhood open space.

Campus and Community

1. Provide sensitive land use transitions and landscaped buffers where residential neighborhoods might experience noise or light from UCR activities.

2. Encourage a "permeable" edge with the community where interaction is desirable, especially along University Avenue and in areas where a high proportion of students live in close proximity to the campus.

3. Discourage vehicular traffic originating off campus from moving through campus as a short cut.

4. Provide strong connections within the campus and its edges to promote walking, bicycling and transit use, rather than vehicular traffic.

5. Continue to improve campus signage and wayfinding to provide easy access for visitors and to discourage impacts in neighboring residential areas.

6. Locate public-oriented uses, such as performance facilities, galleries and major sports venues, where they can be easily accessed and where they can contribute to the vitality and economic health of businesses along University Avenue.

7. Work cooperatively with the City of Riverside to effect the redevelopment of University Avenue between the campus and Chicago Avenue as a high intensity mixed use district, with an abundance of campus/community serving businesses and uses.

8. Encourage the City to explore the opportunity for student housing in a mixed use configuration along University Avenue.

9. Strongly encourage private developers to provide a variety of housing types that target both current and future needs of the overall community and the campus.

10. Use City/UCR/RCC enhancement of Downtown cultural, arts and entertainment resources and the campus need for off-campus housing as the foundation of a revitalization program.

11. Support the City in their coordination of Block Grant, Redevelopment set-aside, and other funds for the upgrading of Neighborhood Reinvestment Areas adjacent to University Avenue.

12. Support the City in creating design guidelines for community, student, faculty, staff and visitor housing along University Avenue that has a friendly street presence.

13. Support the City in amending the Eastside Community Plan to update housing strategies and action plans for rehabilitation of existing housing stock and new construction. This should be done in conjunction with modifications to the University Avenue Specific Plan.

14. Support the City in creating a "town/gown square" at the southwest corner of the intersection of University and Chicago Avenues to provide retail and services for the community and campus.

15. Support the City in developing design guidelines for mixed use housing and retail along University Avenue.

16. Partner with the City to create a Riverside/UCR Entrepreneurial Program at the "town/gown square" related to minority business Opportunities in the University Avenue and Hunter Business Park areas.

17. Work with the City to link the open spaces of UCR, University Avenue, the Marketplace and the Downtown with enhanced streetscape treatments for University to Market and from Market to Santa Fe Street along Mission Inn Avenue/7th Street.

18. Work with the City to link the open spaces of UCR with the Citywide Trail Network.

19. Work with the City to develop streetscape concepts with banners, lighting, street furniture and public art that celebrate the linkages between the University and Downtown. Banners should highlight cultural and artistic events in Downtown and at UCR when appropriate.

20. Work with the City to evaluate the conversion of University Avenue from Iowa Avenue to the I-215/SR 60 freeway from an auto emphasis street to a biking, pedestrian, transit street with localized auto access. Consider Martin Luther King Jr. Boulevard/14th Street and Blaine/3rd Street as primary freeway connecting streets.

21. Work with the City to emphasize University Avenue as the link between the UCR campus and Downtown rather than as the link to the freeways.

22. Work with the City to encourage bicycle and pedestrian use and safety, including minimizing the number of curb cuts for residential and retail development along University Avenue to Chicago Avenue and then to the Downtown.

Transportation

1. Develop an integrated multi-modal transportation plan to encourage walking, biking, and transit use.

2. Expand shuttle or tram service connecting major parking lots and campus destinations, and linking the East and West Campuses. Coordinate this system with RTA routes and schedules.

3. Provide a continuous network of bicycle lanes and paths throughout the campus, connecting to off-campus bicycle routes.

4. Over time, limit general vehicular circulation in the central campus, but allow transit, service, and emergency vehicle access, and provide access for persons with mobility impairments.

5. Provide bicycle parking at convenient locations.

6. Implement parking management measures that may include

   - Restricted permit availability

- Restricted permit mobility

- Differential permit parking (price determined by proximity to facilities/buildings).

Development Strategies

1. Establish a design review process to provide regular review of building and landscape development on campus.

2. Review and update, as needed, the Campus Design Guidelines and the Campus Landscape Guidelines (now the 2007 Campus Design Guidelines) to ensure conformity with LRDP planning strategies.

3. Review other plans that may be prepared, such as district, sub-area or transportation plans, for conformity with the goals and design intent of the 2005 LRDP.

Programs and Practices

PP 4.1-1 The Campus shall provide design professionals with the 2007 Campus Design Guidelines and instructions to implement the guidelines, including those sections related to use of consistent scale and massing, compatible architectural style, complementary color palette, preservation of existing site features, and appropriate site and exterior lighting design.

(This is identical to Land Use PP 4.9-1(a))

PP 4.1-2(a) The Campus shall continue to provide design professionals with the 2007 Campus Design Guidelines and instructions to develop project-specific landscape plans that are consistent with the Guidelines with respect to the selection of plants, retention of existing trees, and use of water conserving plants, where feasible.

(This is identical to Land Use PP 4.9-1(b))

PP 4.1-2(b) The Campus shall continue to relocate, where feasible, mature "specimen" trees that would be removed as a result of construction activities on the campus.

(This is identical to Land Use PP 4.9-1(c).)

PP 4.1-2(c) To reduce impacts to the Natural Open Space Reserve area:

(i) If any construction is proposed within the Open Space Reserve, conduct surveys for threatened and endangered species at an appropriate time of year. If these species are located in this area, the site or sites shall be protected from damage by either protective fencing or some other means of restricting access.

(ii) Landscaping around development areas adjacent to the Open Space Reserve shall emphasize native or historically significant plant material that provide

wildlife value and a sensitive transition from developed areas to natural open spaces. A qualified native landscape specialist shall be retained to develop an appropriate native landscape plan for the development areas.

(This is identical to Biological Resources PP 4.4-1(a) and Hydrology PP 4.8-3(a).)

PP 4.1-2(d) To reduce disturbance of Natural and Naturalistic Open Space areas:

(i) Unnecessary driving in sensitive or otherwise undisturbed areas shall be avoided. New roads or construction access roads would not be created where adequate access already exists.

(ii) Removal of native shrub or brush shall be avoided, except where necessary.

(iii) Drainages shall be avoided, except where required for construction. Limit activity to crossing drainages rather than using the lengths of drainage courses for access.

(iv) Excess fill or construction waste shall not be dumped in washes.

(v) Vehicles or other equipment shall not be parked in washes or other drainages.

(vi) Overwatering shall be avoided in washes and other drainages.

(vii) Wildlife including species such as fox, coyote, snakes, etc. shall not be harassed. Harassment includes shooting, throwing rocks, etc.

(This is identical to Biological Resources PP 4.4-1(b) and Hydrology PP 4.8-3(b).)

PP 4.3-1 The Campus shall continue to implement a Transportation Demand Management program that meets or exceeds all trip reduction and AVR requirements of the SCAQMD. The TDM program may be subject to modification as new technologies are developed or alternate program elements are found to be more effective.

(This is identical to Transportation and Traffic PP 4.14-1)

PP 4.3-2(a) Construction contract specifications shall include the following:

(i) Compliance with all SCAQMD rules and regulations

(ii) Maintenance programs to assure vehicles remain in good operating condition

(iii) Avoid unnecessary idling of construction vehicles and equipment

(iv) Use of alternative fuel construction vehicles

(v) Provision of electrical power to the site, to eliminate the need for on-site generators

PP 4.3-2(b) The Campus shall continue to implement dust control measures consistent with SCAQMD Rule 403—Fugitive Dust during the construction phases of new project development. The following actions are currently recommended to implement Rule 403 and have been quantified by the SCAQMD as being able to reduce dust generation between 30 and 85 percent depending on the source of the dust generation. The Campus shall implement these measures as necessary to reduce fugitive dust. Individual measures shall be specified in construction documents and require implementation by construction contractor:

(i) Apply water and/or approved non-toxic chemical soil stabilizers according to manufacturer's specification to all inactive construction areas (previously graded areas that have been inactive for 10 or more days)

(ii) Replace ground cover in disturbed areas as quickly as possible

(iii) Enclose, cover, water twice daily, or apply approved chemical soil binders to exposed piles with 5 percent or greater silt content

(iv) Water active grading sites at least twice daily

(v) Suspend all excavating and grading operations when wind speeds (as instantaneous gusts) exceed 25 miles per hour over a 30-minute period

(vi) All trucks hauling dirt, sand, soil, or other loose materials shall be covered or maintain at least two feet of freeboard (i.e., minimum vertical distance between top of the load and the top of the trailer), in accordance with Section 23114 of the California Vehicle Code

(vii) Sweep streets at the end of the day if visible soil material is carried over to adjacent roads

(viii) Install wheel washers where vehicles enter and exit unpaved roads onto paved roads, or wash off trucks and any equipment leaving the site each trip

(ix) Apply water three times daily or chemical soil stabilizers according to manufacturers' specifications to all unpaved parking or staging areas or unpaved road surfaces

(x) Post and enforce traffic speed limits of 15 miles per hour or less on all unpaved roads

(This is identical to Geology PP 4.6-2(a) and Hydrology PP 4.8-3(c).)

PP 4.3-2(c) The Campus shall continue to implement SCAQMD Rule 1403—Asbestos when demolishing existing buildings on the campus.

PP 4.4-1(a) To reduce impacts to the Natural Open Space Reserve area:

(i) If any construction is proposed within the Open Space Reserve, conduct surveys for threatened and endangered species at an appropriate time of year. If these species are located in this area, the site or sites shall be protected from damage by either protective fencing or some other means of restricting access.

(ii) Landscaping around development areas adjacent to the Open Space Reserve shall emphasize native or historically significant plant material that provides wildlife value and a sensitive transition from developed areas to natural open spaces. A qualified native landscape specialist shall be retained to develop an appropriate native landscape plan for the development areas.

(This is identical to Aesthetics PP 4.1-2(c) and Hydrology PP 4.8-3(a).)

PP 4.4-1(b) To reduce disturbance of Natural and Naturalistic Open Space areas:

(i) Unnecessary driving in sensitive or otherwise undisturbed areas shall be avoided. New roads or construction access roads would not be created where adequate access already exists.

(ii) Removal of native shrub or brush shall be avoided, except where necessary.

(iii) Drainages shall be avoided, except where required for construction. Limit activity to crossing drainages rather than using the lengths of drainage courses for access.

(iv) Excess fill or construction waste shall not be dumped in washes.

(v) Vehicles or other equipment shall not be parked in washes or other drainages.

(vi) Overwatering shall be avoided in washes and other drainages.

(vii) Wildlife including species such as fox, coyote, snakes, etc. shall not be harassed. Harassment includes shooting, throwing rocks, etc.

(This is identical to Aesthetics PP 4.1-2(d) and Hydrology 4.8-3(b).)

PP 4.4-2(a) Impacts to riparian and wetland habitats shall be avoided, wherever feasible. If avoidance is not feasible, then the impacts will be evaluated as part of the Clean Water Act section 404 and California Fish and Game Code section 1602 permit application process. If mitigation is required, the University of California will develop and implement a resource mitigation program to be reviewed and approved by the USACE and CDFG through the state and federal permit process. The permit shall mitigate the habitats such that they are consistent with the Clean Water Act and CDFG policy of "no net loss" of wetland. Furthermore, impacted wetlands and/or riparian vegetation that cannot be avoided would be replaced at a ratio approved by the USACE and CDFG. If replacement within the area is not feasible, then an approved mitigation bank or other off-site area will be used. The revegetation of impacted areas or mitigation parcels will be

performed by a qualified restoration specialist and shall be conducted only on sites where soils, hydrology, and microclimate conditions are suitable for riparian habitat. First priority will be given to areas that are adjacent to existing patches of native habitat.

PP 4.4-2(b) In compliance with NPDES, the Campus would continue to implement Best Management Practices, as identified in the UCR Stormwater Management Plan (UCR 2003):

(i) Public education and outreach on stormwater impacts

(ii) Public involvement/participation

(iii) Illicit discharge detection and elimination

(iv) Pollution prevention/good housekeeping for facilities

(v) Construction site stormwater runoff control

(vi) Post-construction stormwater management in new development and redevelopment

(This is identical to Geology and Soils PP 4.6-2(b) and Hydrology PP 4.8-3(d).)

PP 4.5-2 If any project is proposed that would require or result in the relocation or demolition of a historic structure, the Campus shall prepare a project-specific CEQA analysis, pursuant to Section 15064.5 et seq. of the CEQA Guidelines.

PP 4.5-3 If construction would occur within the southeast hills or within the portion of the West Campus north of Martin Luther King Boulevard, a surface field survey shall be conducted in conjunction with a project specific environmental analysis in accordance with CEQA. Depending on the results of the survey, the following measures shall be implemented:

(i) If no evidence of surface archaeological resources is discovered, or if development would occur in areas not designated as sensitive for archaeological resources:

- Prior to site preparation or grading activities, construction personnel shall be informed of the potential for encountering unique archaeological resources and taught how to identify these resources if encountered. This shall include the provision of written materials to familiarize personnel with the range of resources that might be expected, the type of activities that may result in impacts, and the legal framework of cultural resources protection. Construction specifications shall require that all construction personnel shall be instructed to stop work in the vicinity of a potential discovery until a qualified, non-University archaeologist assesses the significance of the find and implements appropriate measures to protect or scientifically remove the find. Construction personnel shall also be

informed that unauthorized collection of archaeological resources is prohibited.

- The Campus shall require the site project contractor to report any evidence of archaeological resources unearthed during development excavation to the campus.

- The archaeologist shall then be present during the grading and shall have the authority to halt disturbance of any archaeological resources long enough to assess the situation, conduct testing, and implement mitigation measures that would reduce impacts in accordance with Section 21083.2 of CEQA.

(ii) If any evidence of archaeological materials is discovered on the surface during field survey, then:

- A qualified archaeologist shall prepare a recovery plan for the resources.

- An archaeologist shall also be present during grading and shall have the authority to halt disturbance of any archaeological resources long enough to assess the situation, conduct testing, and implement mitigation measures that would reduce impacts in accordance with Section 21083.2 of CEQA.

PP 4.5-4 Construction specifications shall require that if a paleontological resource is uncovered during construction activities:

(i) A qualified paleontologist shall determine the significance of the find.

(ii) The Campus shall make an effort to preserve the find intact through feasible project design measures.

(iii) If it cannot be preserved intact, then the University shall retain a qualified non-University paleontologist to design and implement a treatment plan to document and evaluate the data and/or preserve appropriate scientific samples.

(iv) The paleontologist shall prepare a report of the results of the study, following accepted professional practice.

(v) Copies of the report shall be submitted to the University and the Riverside County Museum.

PP 4.5-5 In the event of the discovery of a burial, human bone, or suspected human bone, all excavation or grading in the vicinity of the find shall halt immediately and the area of the find shall be protected and the University immediately shall notify the Riverside County Coroner of the find and comply with the provisions of P.R.C. Section 5097 with respect to Native American involvement, burial treatment, and re-burial, if necessary.

PP 4.6-1(a) During project-specific building design, a site-specific geotechnical study shall be conducted under the direct supervision of a California Registered Engineering Geologist or licensed geotechnical engineer to assess seismic, geological, soil, and groundwater conditions at each construction site and develop recommendations to prevent or abate any identified hazards. The study shall follow applicable recommendations of CDMG Special Publication 117 and shall include, but not necessarily be limited to

- Determination of the locations of any suspected fault traces and anticipated ground acceleration at the building site
- Potential for displacement caused by seismically induced shaking, fault/ground surface rupture, liquefaction, differential soil settlement, expansive and compressible soils, landsliding, or other earth movements or soil constraints
- Evaluation of depth to groundwater

The structural engineer shall incorporate the recommendations made by the geotechnical report when designing building foundations.

PP 4.6-1(b) The Campus shall continue to implement its current seismic upgrade program.

PP 4.6-1(c) The Campus will continue to fully comply with the University of California's Policy for Seismic Safety, as amended. The intent of this policy is to ensure that the design and construction of new buildings and other facilities shall, as a minimum, comply with seismic provisions of California Code of Regulations, Title 24, California Administrative Code, the California State Building Code, or local seismic requirements, whichever requirements are most stringent.

PP 4.6-2(a) The Campus shall continue to implement dust control measures consistent with SCAQMD Rule 403—Fugitive Dust during the construction phases of new project development. The following actions are currently recommended to implement Rule 403 and have been quantified by the SCAQMD as being able to reduce dust generation between 30 and 85 percent depending on the source of the dust generation. The Campus shall implement these measures as necessary to reduce fugitive dust. Individual measures shall be specified in construction documents and require implementation by construction contractor:

(i) Apply water and/or approved nontoxic chemical soil stabilizers according to manufacturer's specification to all inactive construction areas (previously graded areas that have been inactive for 10 or more days)

(ii) Replace ground cover in disturbed areas as quickly as possible

(iii) Enclose, cover, water twice daily, or apply approved chemical soil binders to exposed piles with 5 percent or greater silt content

(iv) Water active grading sites at least twice daily

(v) Suspend all excavating and grading operations when wind speeds (as instantaneous gusts) exceed 25 miles per hour over a 30-minute period

(vi) All trucks hauling dirt, sand, soil, or other loose materials are to be covered or should maintain at least two feet of freeboard (i.e., minimum vertical distance between top of the load and the top of the trailer), in accordance with Section 23114 of the California Vehicle Code

(vii) Sweep streets at the end of the day if visible soil material is carried over to adjacent roads

(viii) Install wheel washers where vehicles enter and exit unpaved roads onto paved roads, or wash off trucks and any equipment leaving the site each trip (ix) Apply water three times daily or chemical soil stabilizers according to manufacturers' specifications to all unpaved parking or staging areas or unpaved road surfaces

(x) Post and enforce traffic speed limits of 15 miles per hour or less on all unpaved roads

(This is identical to Air Quality PP 4.3-2(b) and Hydrology PP 4.8-3(c).)

PP 4.6-2(b) In compliance with National Pollution Discharge Elimination System (NPDES), the Campus would continue to implement Best Management Practices, as identified in the UCR Stormwater Management Plan (UCR 2003):

(i) Public education and outreach on stormwater impacts

(ii) Public involvement/participation

(iii) Illicit discharge detection and elimination

(iv) Pollution prevention/good housekeeping for facilities

(v) Construction site stormwater runoff control

(vi) Post-construction stormwater management in new development and redevelopment

(This is identical to Biological Resources PP 4.4-2(b) and Hydrology PP 4.8-3(d).)

PP 4.7-1 The Campus shall continue to implement the current (or equivalent) health and safety plans, programs, and practices related to the use, storage, disposal, or transportation of hazardous materials, including, but not necessarily limited to, the Business Plan, the Broadscope Radioactive Materials License, and the following programs: Biosafety, Emergency Management, Environmental Health, Hazardous Materials, Industrial Hygiene and Safety, Laboratory/Research Safety, Radiation Safety, and Integrated Waste Management. These programs may be subject to modification as more stringent standards are developed or if

the programs are replaced by other programs that incorporate similar health and safety protection measures.

PP 4.7-2 The Campus shall perform hazardous materials surveys on buildings and soils, if applicable, prior to demolition. When remediation is deemed necessary, surveys shall identify all potential hazardous materials within the structure to be demolished, and identify handling and disposal practices. The Campus shall follow the practices during building demolition to ensure construction worker and public safety.

PP 4.7-3 The Campus will inform employees and students of hazardous materials minimization strategies applicable to research, maintenance, and instructional activities, and require the implementation of these strategies where feasible. Strategies include but are not limited to the following:

(i) Maintenance of online database by EH&S of available surplus chemicals retrieved from laboratories to minimize ordering or new chemicals.

(ii) Shifting from chemical usage to micro techniques as standard practice for instruction and research, as better technology becomes available.

PP 4.7-4 Prior to demolition of structures on the campus or new construction on former agricultural teaching and research fields, the Campus shall complete a Phase I environmental site assessment to determine the potential for soil or groundwater contamination on a project site. If the assessment determines that a substantial potential exists on the site, the Campus shall develop and implement an appropriate testing and, if needed, develop a remediation strategy prior to demolition or construction activities.

If contaminated soil and/or groundwater is encountered during the removal of onsite debris or during excavation and/or grading activities

(i) The construction contractor(s) shall stop work and immediately inform EH&S.

(ii) An on-site assessment shall be conducted to determine if the discovered materials pose a significant risk to the public or construction workers.

(iii) If the materials are determined to pose such a risk, a remediation plan shall be prepared and submitted to EH&S to comply with all federal and State regulations necessary to clean and/or remove the contaminated soil and/or groundwater.

(iv) Soil remediation methods could include, but are not necessarily limited to, excavation and on-site treatment, excavation and off-site treatment or disposal, and/or treatment without excavation.

(v) Remediation alternatives for cleanup of contaminated groundwater could include, but are not necessarily limited to, on-site treatment, extraction and off-site treatment, and/or disposal.

(vi) The construction schedule shall be modified or delayed to ensure that construction will not inhibit remediation activities and will not expose the public or construction workers to significant risks associated with hazardous conditions.

PP 4.7-7(a) To the extent feasible, the Campus shall maintain at least one unobstructed lane in both directions on campus roadways. At any time only a single lane is available, the Campus shall provide a temporary traffic signal, signal carriers (i.e., flagpersons), or other appropriate traffic controls to allow travel in both directions. If construction activities require the complete closure of a roadway segment, the Campus shall provide appropriate signage indicating alternative routes.

(This is identical to Transportation and Traffic PP 4.14-5.)

PP 4.7-7(b) To maintain adequate access for emergency vehicles when construction projects would result in roadway closures, the Office of Design and Construction shall consult with the UCPD, EH&S, and the RFD to disclose roadway closures and identify alternative travel routes.

(This is identical to Transportation and Traffic PP 4.14-8.)

PP 4.8-1 The Campus will continue to comply with all applicable water quality requirements established by the SARWQCB.

(This is identical to Utilities PP 4.15-5.)

PP 4.8-2(a) To further reduce the campus' impact on domestic water resources, to the extent feasible, UCR will

(i) Install hot water recirculation devices (to reduce water waste)

(ii) Continue to require all new construction to comply with applicable State laws requiring water-efficient plumbing fixtures, including but not limited to the Health and Safety Code and Title 24, California Code of Regulations, Part 5 (California Plumbing Code)

(iii) Retrofit existing plumbing fixtures that do not meet current standards on a phased basis over time

(iv) Install recovery systems for losses attributable to existing and proposed steam and chilled-water systems

(v) Prohibit using water as a means of cleaning impervious surfaces

(vi) Install water-efficient irrigation equipment to maximize water savings for landscaping and retrofit existing systems over time

(This is identical to Utilities PP 4.15-1(b))

PP 4.8-2(b) The Campus shall promptly detect and repair leaks in water and irrigation pipes.

(This is identical to Utilities PP 4.15-1(c))

PP 4.8-2(c) The Campus shall avoid serving water at food service facilities except upon request.

(This is identical to Utilities PP 4.15-1(d))

PP 4.8-3(a) To reduce impacts to the Natural Open Space Reserve area:

(i) If any construction is proposed within the Open Space Reserve, conduct surveys for threatened and endangered species at an appropriate time of year. If these species are located in this area, the site or sites shall be protected from damage by either protective fencing or some other means of restricting access.

(ii) Landscaping around development areas adjacent to the Open Space Reserve shall emphasize native or historically significant plant material that provides wildlife value and a sensitive transition from developed areas to Natural open spaces. A qualified native landscape specialist shall be retained to develop an appropriate native landscape plan for the development areas.

(This is identical to Biological Resources PP 4.4-1(a) and Aesthetics 4.1-2(c).)

PP 4.8-3(b) To reduce disturbance of Natural and Naturalistic Open Space areas:

(i) Unnecessary driving in sensitive or otherwise undisturbed areas shall be avoided. New roads or construction access roads would not be created where adequate access already exists.

(ii) Removal of native shrub or brush shall be avoided, except where necessary.

(iii) Drainages shall be avoided, except where required for construction. Limit activity to crossing drainages rather than using the lengths of drainage courses for access.

(iv) Excess fill or construction waste shall not be dumped in washes.

(v) Vehicles or other equipment shall not be parked in washes or other drainages.

(vi) Overwatering shall be avoided in washes and other drainages.

(vii) Wildlife including species such as fox, coyote, snakes, etc. shall not be harassed. Harassment includes shooting, throwing rocks, etc.

(This is identical to Aesthetics PP 4.1-2(d) and Biological Resources PP 4.4-1(b).)

PP 4.8-3(c) The Campus shall continue to implement dust control measures consistent with SCAQMD Rule 403—Fugitive Dust during the construction phases of new project development. The following actions are currently recommended to implement Rule 403 and have been quantified by the SCAQMD as being able to reduce dust generation between 30 and 85 percent depending on the source of the dust generation. The Campus shall implement these measures as necessary to reduce fugitive dust. Individual measures shall be specified in construction documents and require implementation by construction contractor:

(i) Apply water and/or approved nontoxic chemical soil stabilizers according to manufacturer's specification to all inactive construction areas (previously graded areas that have been inactive for 10 or more days)

(ii) Replace ground cover in disturbed areas as quickly as possible

(iii) Enclose, cover, water twice daily, or apply approved chemical soil binders to exposed piles with 5 percent or greater silt content

(iv) Water active grading sites at least twice daily

(v) Suspend all excavating and grading operations when wind speeds (as instantaneous gusts) exceed 25 miles per hour over a 30-minute period (vi) All trucks hauling dirt, sand, soil, or other loose materials are to be covered or should maintain at least two feet of freeboard (i.e., minimum vertical distance between top of the load and the top of the trailer), in accordance with Section 23114 of the California Vehicle Code

(vii) Sweep streets at the end of the day if visible soil material is carried over to adjacent roads

(viii) Install wheel washers where vehicles enter and exit unpaved roads onto paved roads, or wash off trucks and any equipment leaving the site each trip

(ix) Apply water three times daily or chemical soil stabilizers according to manufacturers' specifications to all unpaved parking or staging areas or unpaved road surfaces

(x) Post and enforce traffic speed limits of 15 miles per hour or less on all unpaved roads

(This is identical to Air Quality PP 4.3-2(b) and Geology PP 4.6-2(a).)

PP 4.8-3(d): In compliance with NPDES, the Campus would continue to implement Best Management Practices, as identified in the UCR Stormwater Management Plan (UCR 2003):

(i) Public education and outreach on stormwater impacts

(ii) Public involvement/participation

(iii) Illicit discharge detection and elimination

(iv) Pollution prevention/good housekeeping for facilities

(v) Construction site stormwater runoff control

(vi) Post-construction stormwater management in new development and redevelopment

(This is identical to Biological Resources PP 4.4-2(b) and Geology and Soils PP 4.6-2(b).)

PP 4.8-3(e) Prior to the time of design approval, the Campus will evaluate each specific project to determine if the project runoff would exceed the capacity of the existing storm drain system. If it is found that the capacity would be exceeded, one or more of the following components of the storm drain system would be implemented to minimize the occurrence of local flooding:

(i) Multi-project stormwater detention basins

(ii) Single-project detention basins

(iii) Surface detention design

(iv) Expansion or modification of the existing storm drain system

(v) Installation of necessary outlet control facilities

PP 4.8-10 In the event of an emergency, including catastrophic failure of the California State Water Project pipeline, the Campus would implement the Emergency Operations Plan.

PP 4.9-1(a) The Campus shall provide design professionals with the 2007 Campus Design Guidelines and instructions to implement the guidelines, including those sections related to use of consistent scale and massing, compatible architectural style, complementary color palette, preservation of existing site features, and appropriate site and exterior lighting design.

(This is identical to Aesthetics PP 4.1-1.)

PP 4.9-1(b) The Campus shall continue to provide design professionals with the 2007 Campus Design Guidelines and instructions to develop project-specific landscape plans that are consistent with the Guidelines with respect to the selection of plants, retention of existing trees, and use of water conserving plants, where feasible.

(This is identical to Aesthetics PP 4.1-2(a).)

PP 4.9-1(c) The Campus shall continue to relocate, where feasible, mature "specimen" trees that would be removed as a result of construction activities on the campus.

(This is identical to Aesthetics PP 4.1-2(b).)

PP 4.10-1(a) UCR will incorporate the following siting design measures to reduce long-term noise impacts:

(i) Truck access, parking area design, and air conditioning/refrigeration units will be designed and evaluated when planning specific individual new facilities to minimize the potential for noise impacts to adjacent developments.

(ii) Building setbacks, building design and orientation will be used to reduce intrusive noise at sensitive student residential and educational building locations near main campus access routes, such as Blaine Street, Canyon Crest Drive, University Avenue, and Martin Luther King Jr. Boulevard. Noise walls may be advisable to screen existing and proposed facilities located near the I-215/SR-60 freeway.

(iii) Adequate acoustic insulation would be added to residence halls to ensure that the interior Ldn would not exceed 45 dBA during the daytime and 40 dBA during the nighttime (10 P.M. to 7 A.M.) in rooms facing major streets.

(iv) Potential noise impacts would be evaluated as part of the design review for all projects. If determined to be significant, mitigation measures would be identified and alternatives suggested. At a minimum, campus residence halls and student housing design would comply with Title 24, Part 2 of the California Administrative Code.

PP 4.10-2 The UCR campus shall limit the hours of exterior construction activities from 7:00 A.M. to 9:00 P.M. Monday through Friday and 8:00 A.M. to 6:00 P.M. on Saturday when necessary. Construction traffic shall follow transportation routes prescribed for all construction traffic to minimize the impact of this traffic (including noise impacts) on the surrounding community.

PP 4.10-5(a) The Campus shall continue to provide on-campus housing to continue the evolution of UCR from a commuter to a residential campus.

PP 4.10-5(b) The Campus shall continue to implement an Alternative Transportation program that facilitates and promotes the use of transit, carpools, vanpools, and bicycling.

PP 4.10-6 The Campus shall continue to shield all new stationary sources of noise that would be located in close proximity to noise-sensitive buildings and uses.

PP 4.10-7(a) To the extent feasible, construction activities shall be limited to 7:00 A.M. to 9:00 P.M. Monday through Friday, 8:00 A.M. to 6:00 P.M. on Saturday, and no construction on Sunday and national holidays, as appropriate, in order to minimize disruption to area residences surrounding the campus and to on-campus uses that are sensitive to noise.

PP 4.10-7(b) The Campus shall continue to require by contract specifications that construction equipment be required to be muffled or otherwise shielded. Contracts shall specify that engine-driven equipment be fitted with appropriate noise mufflers.

PP 4.10-7(c) The Campus shall continue to require that stationary construction equipment material and vehicle staging be placed to direct noise away from sensitive receptors.

PP 4.10-7(d) The Campus shall continue to conduct regular meetings, as needed, with on campus constituents to provide advance notice of construction activities in order to coordinate these activities with the academic calendar, scheduled events, and other situations, as needed.

PP 4.10-8 The Campus shall continue to conduct meetings, as needed, with off-campus constituents that are affected by campus construction to provide advance notice of construction activities and ensure that the mutual needs of the particular construction project and of those impacted by construction noise are met, to the extent feasible.

PP 4.12-1(a) As development occurs, the following measures will be incorporated:

(i) New structures would be designed with adequate fire protection features in compliance with State law and the requirements of the State Fire Marshal. Building designs would be reviewed by appropriate campus staff and government agencies.

(ii) Prior to implementation of individual projects, the adequacy of water supply and water pressure will be determined in order to ensure sufficient fire protection services.

(iii) Adequate access will be provided to within 50 feet of the main entrance of occupied buildings to accommodate emergency ambulance service.

(iv) Adequate access for fire apparatus will be provided within 50 feet of stand pipes and sprinkler outlets.

(v) Service roads, plazas, and pedestrian walks that may be used for fire or emergency vehicles will be constructed to withstand loads of up to 45,000 pounds.

(vi) As implementation of the LRDP occurs, campus fire prevention staffing needs would be assessed; increases in staffing would be determined through such needs assessments.

PP 4.12-1(b) (i) Accident prevention features shall be reviewed and incorporated into new structures to minimize the need for emergency response from the City of Riverside.

(ii) Increased staffing levels for local fire agencies shall be encouraged to meet needs generated by LRDP project related on-campus population increases.

PP 4.12-2(a) As development under the LRDP occurs, the Campus will hire additional police officers and support staff as necessary to maintain an adequate level of service, staff, and equipment, and will expand the existing police facility when additional space is required.

PP 4.12-2(b) The Campus will continue to participate in the "UNET" program (for coordinated police response and staffing of a community service center), which provides law enforcement services in the vicinity of the campus, with equal participation of UCR and City police staffs.

PP 4.14-1 The Campus shall continue to implement a Transportation Demand Management program that meets or exceeds all trip reduction and AVR requirements of the SCAQMD. The TDM program may be subject to modification as new technologies are developed or alternate program elements are found to be more effective.

(This is identical to Air Quality PP 4.3-1.)

PP 4.14-2 The Campus will periodically assess construction schedules of major projects to determine the potential for overlapping construction activities to result in periods of heavy construction vehicle traffic on individual roadway segments, and adjust construction schedules, work hours, or access routes to the extent feasible to reduce construction-related traffic congestion.

PP 4.14-4 The Campus shall provide design professionals for roadway and parking improvements with the Campus Design Guidelines and instructions to implement those elements of the guidelines relevant to parking and roadway design.

PP 4.14-5 To the extent feasible, the Campus shall maintain at least one unobstructed lane in both directions on campus roadways. At any time only a single lane is available, the Campus shall provide a temporary traffic signal, signal carriers (i.e., flagpersons), or other appropriate traffic controls to allow travel in both directions. If construction activities require the complete closure of a roadway segment, the Campus shall provide alternate routes and appropriate signage.

(This is identical to Hazards and Hazardous Materials PP 4.7-7(a).)

PP 4.14-6 For any construction-related closure of pedestrian routes, the Campus shall provide alternate routes and appropriate signage and provide curb cuts and street crossings to assure alternate routes are accessible.

PP 4.14-8 To maintain adequate access for emergency vehicles when construction projects would result in roadway closures, the Office of Design and Construction shall consult with the UCPD, EH&S, and the RFD to disclose roadway closures and identify alternative travel routes.

(This is identical to Hazards and Hazardous Materials PP 4.7-7(b).)

PP 4.15-1(a) Improvements to the campus water distribution system, including necessary pump capacity, will be made as required to serve new projects. Project-specific CEQA analysis of environmental effects that would occur prior to project-specific approval will consider the continued adequacy of the domestic/fire water systems, and no new development would occur without a demonstration that appropriate domestic/fire water supplies continue to be available.

PP 4.15-1(b) To further reduce the campus' impact on domestic water resources, to the extent feasible, UCR will

(i) Install hot water recirculation devices (to reduce water waste)

(ii) Continue to require all new construction to comply with applicable State laws requiring water-efficient plumbing fixtures, including but not limited to the

Health and Safety Code and Title 24, California Code of Regulations, Part 5 (California Plumbing Code)

(iii) Retrofit existing plumbing fixtures that do not meet current standards on a phased basis over time

(iv) Install recovery systems for losses attributable to existing and proposed steam and chilled-water systems

(v) Prohibit using water as a means of cleaning impervious surfaces

(vi) Install water-efficient irrigation equipment to local evaporation rates to maximize water savings for landscaping and retrofit existing systems over time

(This is identical to Hydrology PP 4.8-2(a).)

PP 4.15-1(c) The Campus shall promptly detect and repair leaks in water and irrigation pipes.

PP 4.15-1(d) The Campus shall avoid serving water at food service facilities except upon request.

PP 4.15-5 The Campus will continue to comply with all applicable water quality requirements established by the SARWQCB.

(This is identical to Hydrology PP 4.8-1.)

APPENDIX 4.3

Air Quality Calculations

Construction and Operations Emission Calculations

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Urbemis 2007 Version 9.2.4

Detail Report for Summer Construction Unmitigated Emissions (Pounds/Day)

File Name: Z:\EBell\UCR LRDP Amend 2\URBEMIS\Construction\UCR LRDP Construction 2012.urb924

Project Name: UCR LRDP Construction 2012

Project Location: South Coast AQMD

On-Road Vehicle Emissions Based on: Version : Emfac2007 V2.3 Nov 1 2006

Off-Road Vehicle Emissions Based on: OFFROAD2007

CONSTRUCTION EMISSION ESTIMATES (Summer Pounds Per Day, Unmitigated)

	ROG	NOx	CO	SO2	PM10 Dust	PM10 Exhaust	PM10 Total	PM2.5 Dust	PM2.5 Exhaust	PM2.5 Total	CO2
Time Slice 1/2/2012-4/30/2012 Active Days: 86	8.33	68.81	37.53	0.00	636.01	3.35	639.36	132.83	3.08	135.91	7,496.32
Mass Grading 01/01/2012-05/31/2012	8.33	68.81	37.53	0.00	636.01	3.35	639.36	132.83	3.08	135.91	7,496.32
Mass Grading Dust	0.00	0.00	0.00	0.00	636.00	0.00	636.00	132.82	0.00	132.82	0.00
Mass Grading Off Road Diesel	8.27	68.69	35.49	0.00	0.00	3.34	3.34	0.00	3.07	3.07	7,216.54
Mass Grading On Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Mass Grading Worker Trips	0.06	0.12	2.04	0.00	0.01	0.01	0.02	0.00	0.01	0.01	279.78
Time Slice 5/1/2012-5/31/2012 Active Days: 23	**18.87**	**122.41**	**233.12**	**0.29**	**637.26**	**6.36**	**643.62**	**133.27**	**5.80**	**139.07**	**37,480.75**
Building 05/01/2012-12/31/2012	10.54	53.61	195.59	0.29	1.24	3.01	4.26	0.44	2.72	3.16	29,984.43
Building Off Road Diesel	3.48	20.42	13.62	0.00	0.00	1.42	1.42	0.00	1.31	1.31	2,259.28
Building Vendor Trips	2.21	24.00	21.04	0.05	0.20	0.99	1.19	0.07	0.90	0.97	5,676.46
Building Worker Trips	4.86	9.19	160.93	0.23	1.04	0.60	1.64	0.38	0.51	0.88	22,048.69
Mass Grading 01/01/2012-05/31/2012	8.33	68.81	37.53	0.00	636.01	3.35	639.36	132.83	3.08	135.91	7,496.32
Mass Grading Dust	0.00	0.00	0.00	0.00	636.00	0.00	636.00	132.82	0.00	132.82	0.00
Mass Grading Off Road Diesel	8.27	68.69	35.49	0.00	0.00	3.34	3.34	0.00	3.07	3.07	7,216.54
Mass Grading On Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Mass Grading Worker Trips	0.06	0.12	2.04	0.00	0.01	0.01	0.02	0.00	0.01	0.01	279.78

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Time Slice 6/1/2012-12/31/2012 Active Days: 152	**18.87**	**122.41**	**233.12**	**0.29**	**637.26**	**6.36**	**643.62**	**133.27**	**5.80**	**139.07**	**37,480.75**
Building 05/01/2012-12/31/2012	10.54	53.61	195.59	0.29	1.24	3.01	4.26	0.44	2.72	3.16	29,984.43
Building Off Road Diesel	3.48	20.42	13.62	0.00	0.00	1.42	1.42	0.00	1.31	1.31	2,259.28
Building Vendor Trips	2.21	24.00	21.04	0.05	0.20	0.99	1.19	0.07	0.90	0.97	5,676.46
Building Worker Trips	4.86	9.19	160.93	0.23	1.04	0.60	1.64	0.38	0.51	0.88	22,048.69
Fine Grading 06/01/2012-12/31/2012	8.33	68.81	37.53	0.00	636.01	3.35	639.36	132.83	3.08	135.91	7,496.32
Fine Grading Dust	0.00	0.00	0.00	0.00	636.00	0.00	636.00	132.82	0.00	132.82	0.00
Fine Grading Off Road Diesel	8.27	68.69	35.49	0.00	0.00	3.34	3.34	0.00	3.07	3.07	7,216.54
Fine Grading On Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Fine Grading Worker Trips	0.06	0.12	2.04	0.00	0.01	0.01	0.02	0.00	0.01	0.01	279.78

Phase Assumptions

Phase: Fine Grading 6/1/2012 - 12/31/2012 - Default Fine Site Grading/Excavation Description

Total Acres Disturbed: 127.21

Maximum Daily Acreage Disturbed: 31.8

Fugitive Dust Level of Detail: Default

20 lbs per acre-day

On Road Truck Travel (VMT): 0

Off-Road Equipment:

1 Excavators (168 hp) operating at a 0.57 load factor for 8 hours per day

1 Graders (174 hp) operating at a 0.61 load factor for 8 hours per day

1 Rubber Tired Dozers (357 hp) operating at a 0.59 load factor for 8 hours per day

2 Scrapers (313 hp) operating at a 0.72 load factor for 8 hours per day

3 Tractors/Loaders/Backhoes (108 hp) operating at a 0.55 load factor for 8 hours per day

1 Water Trucks (189 hp) operating at a 0.5 load factor for 8 hours per day

Phase: Mass Grading 1/1/2012 - 5/31/2012 - Default Mass Site Grading/Excavation Description

Total Acres Disturbed: 127.21

Maximum Daily Acreage Disturbed: 31.8

Fugitive Dust Level of Detail: Default

20 lbs per acre-day

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On Road Truck Travel (VMT): 0

Off-Road Equipment:

1 Excavators (168 hp) operating at a 0.57 load factor for 8 hours per day

1 Graders (174 hp) operating at a 0.61 load factor for 8 hours per day

1 Rubber Tired Dozers (357 hp) operating at a 0.59 load factor for 8 hours per day

2 Scrapers (313 hp) operating at a 0.72 load factor for 8 hours per day

3 Tractors/Loaders/Backhoes (108 hp) operating at a 0.55 load factor for 8 hours per day

1 Water Trucks (189 hp) operating at a 0.5 load factor for 8 hours per day

Phase: Building Construction 5/1/2012 - 12/31/2012 - Default Building Construction Description

Off-Road Equipment:

1 Cranes (399 hp) operating at a 0.43 load factor for 7 hours per day

3 Forklifts (145 hp) operating at a 0.3 load factor for 8 hours per day

1 Generator Sets (49 hp) operating at a 0.74 load factor for 8 hours per day

3 Tractors/Loaders/Backhoes (108 hp) operating at a 0.55 load factor for 7 hours per day

1 Welders (45 hp) operating at a 0.45 load factor for 8 hours per day

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Urbemis 2007 Version 9.2.4

Detail Report for Summer Construction Mitigated Emissions (Pounds/Day)

File Name: Z:\EBell\UCR LRDP Amend 2\URBEMIS\Construction\UCR LRDP Construction 2012.urb924

Project Name: UCR LRDP Construction 2012

Project Location: South Coast AQMD

On-Road Vehicle Emissions Based on: Version : Emfac2007 V2.3 Nov 1 2006

Off-Road Vehicle Emissions Based on: OFFROAD2007

CONSTRUCTION EMISSION ESTIMATES (Summer Pounds Per Day, Mitigated)

	ROG	NOx	CO	SO2	PM10 Dust	PM10 Exhaust	PM10 Total	PM2.5 Dust	PM2.5 Exhaust	PM2.5 Total	CO2
Time Slice 1/2/2012-4/30/2012 Active Days: 86	8.33	68.81	37.53	0.00	144.23	3.35	147.57	30.12	3.08	33.20	7,496.32
Mass Grading 01/01/2012-05/31/2012	8.33	68.81	37.53	0.00	144.23	3.35	147.57	30.12	3.08	33.20	7,496.32
Mass Grading Dust	0.00	0.00	0.00	0.00	144.21	0.00	144.21	30.12	0.00	30.12	0.00
Mass Grading Off Road Diesel	8.27	68.69	35.49	0.00	0.00	3.34	3.34	0.00	3.07	3.07	7,216.54
Mass Grading On Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Mass Grading Worker Trips	0.06	0.12	2.04	0.00	0.01	0.01	0.02	0.00	0.01	0.01	279.78
Time Slice 5/1/2012-5/31/2012 Active Days: 23	**18.87**	119.35	**233.12**	**0.29**	145.47	5.15	150.62	30.57	4.69	35.25	**37,480.75**
Building 05/01/2012-12/31/2012	10.54	50.54	195.59	0.29	1.24	1.80	3.05	0.44	1.61	2.05	29,984.43
Building Off Road Diesel	3.48	17.36	13.62	0.00	0.00	0.21	0.21	0.00	0.20	0.20	2,259.28
Building Vendor Trips	2.21	24.00	21.04	0.05	0.20	0.99	1.19	0.07	0.90	0.97	5,676.46
Building Worker Trips	4.86	9.19	160.93	0.23	1.04	0.60	1.64	0.38	0.51	0.88	22,048.69
Mass Grading 01/01/2012-05/31/2012	8.33	68.81	37.53	0.00	144.23	3.35	147.57	30.12	3.08	33.20	7,496.32
Mass Grading Dust	0.00	0.00	0.00	0.00	144.21	0.00	144.21	30.12	0.00	30.12	0.00
Mass Grading Off Road Diesel	8.27	68.69	35.49	0.00	0.00	3.34	3.34	0.00	3.07	3.07	7,216.54
Mass Grading On Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Mass Grading Worker Trips	0.06	0.12	2.04	0.00	0.01	0.01	0.02	0.00	0.01	0.01	279.78

Time Slice 6/1/2012-12/31/2012 Active Days: 152	**18.87**	119.35	**233.12**	**0.29**	145.47	5.15	150.62	30.57	4.69	35.25	**37,480.75**
Building 05/01/2012-12/31/2012	10.54	50.54	195.59	0.29	1.24	1.80	3.05	0.44	1.61	2.05	29,984.43
Building Off Road Diesel	3.48	17.36	13.62	0.00	0.00	0.21	0.21	0.00	0.20	0.20	2,259.28
Building Vendor Trips	2.21	24.00	21.04	0.05	0.20	0.99	1.19	0.07	0.90	0.97	5,676.46
Building Worker Trips	4.86	9.19	160.93	0.23	1.04	0.60	1.64	0.38	0.51	0.88	22,048.69
Fine Grading 06/01/2012-12/31/2012	8.33	68.81	37.53	0.00	144.23	3.35	147.57	30.12	3.08	33.20	7,496.32
Fine Grading Dust	0.00	0.00	0.00	0.00	144.21	0.00	144.21	30.12	0.00	30.12	0.00
Fine Grading Off Road Diesel	8.27	68.69	35.49	0.00	0.00	3.34	3.34	0.00	3.07	3.07	7,216.54
Fine Grading On Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Fine Grading Worker Trips	0.06	0.12	2.04	0.00	0.01	0.01	0.02	0.00	0.01	0.01	279.78

Construction Related Mitigation Measures

The following mitigation measures apply to Phase: Fine Grading 6/1/2012 - 12/31/2012 - Default Fine Site Grading/Excavation Description

For Soil Stablizing Measures, the Apply soil stabilizers to inactive areas mitigation reduces emissions by:

PM10: 84% PM25: 84%

For Soil Stablizing Measures, the Replace ground cover in disturbed areas quickly mitigation reduces emissions by:

PM10: 5% PM25: 5%

For Soil Stablizing Measures, the Water exposed surfaces 2x daily watering mitigation reduces emissions by:

PM10: 55% PM25: 55%

For Soil Stablizing Measures, the Equipment loading/unloading mitigation reduces emissions by:

PM10: 69% PM25: 69%

The following mitigation measures apply to Phase: Mass Grading 1/1/2012 - 5/31/2012 - Default Mass Site Grading/Excavation Description

For Soil Stablizing Measures, the Apply soil stabilizers to inactive areas mitigation reduces emissions by:

PM10: 84% PM25: 84%

For Soil Stablizing Measures, the Replace ground cover in disturbed areas quickly mitigation reduces emissions by:

PM10: 5% PM25: 5%

For Soil Stablizing Measures, the Water exposed surfaces 2x daily watering mitigation reduces emissions by:

PM10: 55% PM25: 55%

For Soil Stablizing Measures, the Equipment loading/unloading mitigation reduces emissions by:

PM10: 69% PM25: 69%

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The following mitigation measures apply to Phase: Building Construction 5/1/2012 - 12/31/2012 - Default Building Construction Description

For Cranes, the Diesel Particulate Filter (DPF) 1st Tier mitigation reduces emissions by:

PM10: 85% PM25: 85%

For Cranes, the Diesel Oxidation Catalyst 15% mitigation reduces emissions by:

NOX: 15%

For Forklifts, the Diesel Particulate Filter (DPF) 1st Tier mitigation reduces emissions by:

PM10: 85% PM25: 85%

For Forklifts, the Diesel Oxidation Catalyst 15% mitigation reduces emissions by:

NOX: 15%

For Generator Sets, the Diesel Particulate Filter (DPF) 1st Tier mitigation reduces emissions by:

PM10: 85% PM25: 85%

For Generator Sets, the Diesel Oxidation Catalyst 15% mitigation reduces emissions by:

NOX: 15%

For Tractors/Loaders/Backhoes, the Diesel Particulate Filter (DPF) 1st Tier mitigation reduces emissions by:

PM10: 85% PM25: 85%

For Tractors/Loaders/Backhoes, the Diesel Oxidation Catalyst 15% mitigation reduces emissions by:

NOX: 15%

For Welders, the Diesel Particulate Filter (DPF) 1st Tier mitigation reduces emissions by:

PM10: 85% PM25: 85%

For Welders, the Diesel Oxidation Catalyst 15% mitigation reduces emissions by:

NOX: 15%

Phase Assumptions

Phase: Fine Grading 6/1/2012 - 12/31/2012 - Default Fine Site Grading/Excavation Description

Total Acres Disturbed: 127.21

Maximum Daily Acreage Disturbed: 31.8

Fugitive Dust Level of Detail: Default

20 lbs per acre-day

On Road Truck Travel (VMT): 0

Off-Road Equipment:

1 Excavators (168 hp) operating at a 0.57 load factor for 8 hours per day

1 Graders (174 hp) operating at a 0.61 load factor for 8 hours per day

1 Rubber Tired Dozers (357 hp) operating at a 0.59 load factor for 8 hours per day

2 Scrapers (313 hp) operating at a 0.72 load factor for 8 hours per day

3 Tractors/Loaders/Backhoes (108 hp) operating at a 0.55 load factor for 8 hours per day
1 Water Trucks (189 hp) operating at a 0.5 load factor for 8 hours per day

Phase: Mass Grading 1/1/2012 - 5/31/2012 - Default Mass Site Grading/Excavation Description
Total Acres Disturbed: 127.21
Maximum Daily Acreage Disturbed: 31.8
Fugitive Dust Level of Detail: Default
20 lbs per acre-day
On Road Truck Travel (VMT): 0
Off-Road Equipment:
1 Excavators (168 hp) operating at a 0.57 load factor for 8 hours per day
1 Graders (174 hp) operating at a 0.61 load factor for 8 hours per day
1 Rubber Tired Dozers (357 hp) operating at a 0.59 load factor for 8 hours per day
2 Scrapers (313 hp) operating at a 0.72 load factor for 8 hours per day
3 Tractors/Loaders/Backhoes (108 hp) operating at a 0.55 load factor for 8 hours per day
1 Water Trucks (189 hp) operating at a 0.5 load factor for 8 hours per day

Phase: Building Construction 5/1/2012 - 12/31/2012 - Default Building Construction Description
Off-Road Equipment:
1 Cranes (399 hp) operating at a 0.43 load factor for 7 hours per day
3 Forklifts (145 hp) operating at a 0.3 load factor for 8 hours per day
1 Generator Sets (49 hp) operating at a 0.74 load factor for 8 hours per day
3 Tractors/Loaders/Backhoes (108 hp) operating at a 0.55 load factor for 7 hours per day
1 Welders (45 hp) operating at a 0.45 load factor for 8 hours per day

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Urbemis 2007 Version 9.2.4

Detail Report for Summer Construction Unmitigated Emissions (Pounds/Day)

File Name: Z:\EBell\UCR LRDP Amend 2\URBEMIS\Construction\UCR LRDP Construction 2013.urb924

Project Name: UCR LRDP Construction 2013

Project Location: South Coast AQMD

On-Road Vehicle Emissions Based on: Version : Emfac2007 V2.3 Nov 1 2006

Off-Road Vehicle Emissions Based on: OFFROAD2007

CONSTRUCTION EMISSION ESTIMATES (Summer Pounds Per Day, Unmitigated)

	ROG	NOx	CO	SO2	PM10 Dust	PM10 Exhaust	PM10 Total	PM2.5 Dust	PM2.5 Exhaust	PM2.5 Total
Time Slice 1/1/2013-12/31/2013 Active Days: 261	**9.62**	**48.64**	**182.30**	**0.29**	**1.24**	**2.74**	**3.98**	**0.44**	**2.46**	**2.91**
Building 01/01/2013-12/31/2013	9.62	48.64	182.30	0.29	1.24	2.74	3.98	0.44	2.46	2.91
Building Off Road Diesel	3.19	19.04	13.34	0.00	0.00	1.26	1.26	0.00	1.16	1.16
Building Vendor Trips	2.01	21.22	19.40	0.05	0.20	0.87	1.07	0.07	0.79	0.86
Building Worker Trips	4.42	8.39	149.57	0.23	1.04	0.61	1.65	0.38	0.51	0.88

Phase Assumptions

Phase: Building Construction 1/1/2013 - 12/31/2013 - Default Building Construction Description

Off-Road Equipment:

1 Cranes (399 hp) operating at a 0.43 load factor for 7 hours per day

3 Forklifts (145 hp) operating at a 0.3 load factor for 8 hours per day

1 Generator Sets (49 hp) operating at a 0.74 load factor for 8 hours per day

3 Tractors/Loaders/Backhoes (108 hp) operating at a 0.55 load factor for 7 hours per day

1 Welders (45 hp) operating at a 0.45 load factor for 8 hours per day

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Urbemis 2007 Version 9.2.4

Detail Report for Summer Construction Mitigated Emissions (Pounds/Day)

File Name: Z:\EBell\UCR LRDP Amend 2\URBEMIS\Construction\UCR LRDP Construction 2013.urb924

Project Name: UCR LRDP Construction 2013

Project Location: South Coast AQMD

On-Road Vehicle Emissions Based on: Version : Emfac2007 V2.3 Nov 1 2006

Off-Road Vehicle Emissions Based on: OFFROAD2007

CONSTRUCTION EMISSION ESTIMATES (Summer Pounds Per Day, Mitigated)

	ROG	NOx	CO	SO2	PM10 Dust	PM10 Exhaust	PM10 Total	PM2.5 Dust	PM2.5 Exhaust	PM2.5 Total	CO2
Time Slice 1/1/2013-12/31/2013 Active Days: 261	**9.62**	45.79	**182.30**	**0.29**	**1.24**	1.66	2.90	**0.44**	1.47	1.92	**29,982.06**
Building 01/01/2013-12/31/2013	9.62	45.79	182.30	0.29	1.24	1.66	2.90	0.44	1.47	1.92	29,982.06
Building Off Road Diesel	3.19	16.18	13.34	0.00	0.00	0.19	0.19	0.00	0.17	0.17	2,259.28
Building Vendor Trips	2.01	21.22	19.40	0.05	0.20	0.87	1.07	0.07	0.79	0.86	5,676.72
Building Worker Trips	4.42	8.39	149.57	0.23	1.04	0.61	1.65	0.38	0.51	0.88	22,046.07

Construction Related Mitigation Measures

The following mitigation measures apply to Phase: Building Construction 1/1/2013 - 12/31/2013 - Default Building Construction Description

For Cranes, the Diesel Particulate Filter (DPF) 1st Tier mitigation reduces emissions by:

PM10: 85% PM25: 85%

For Cranes, the Diesel Oxidation Catalyst 15% mitigation reduces emissions by:

NOX: 15%

For Forklifts, the Diesel Particulate Filter (DPF) 1st Tier mitigation reduces emissions by:

PM10: 85% PM25: 85%

For Forklifts, the Diesel Oxidation Catalyst 15% mitigation reduces emissions by:

NOX: 15%

For Generator Sets, the Diesel Particulate Filter (DPF) 1st Tier mitigation reduces emissions by:

PM10: 85% PM25: 85%

For Generator Sets, the Diesel Oxidation Catalyst 15% mitigation reduces emissions by:

NOX: 15%

For Tractors/Loaders/Backhoes, the Diesel Particulate Filter (DPF) 1st Tier mitigation reduces emissions by:

PM10: 85% PM25: 85%

For Tractors/Loaders/Backhoes, the Diesel Oxidation Catalyst 15% mitigation reduces emissions by:

NOX: 15%

For Welders, the Diesel Particulate Filter (DPF) 1st Tier mitigation reduces emissions by:

PM10: 85% PM25: 85%

For Welders, the Diesel Oxidation Catalyst 15% mitigation reduces emissions by:

NOX: 15%

Phase Assumptions

Phase: Building Construction 1/1/2013 - 12/31/2013 - Default Building Construction Description

Off-Road Equipment:

1 Cranes (399 hp) operating at a 0.43 load factor for 7 hours per day

3 Forklifts (145 hp) operating at a 0.3 load factor for 8 hours per day

1 Generator Sets (49 hp) operating at a 0.74 load factor for 8 hours per day

3 Tractors/Loaders/Backhoes (108 hp) operating at a 0.55 load factor for 7 hours per day

1 Welders (45 hp) operating at a 0.45 load factor for 8 hours per day

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Urbemis 2007 Version 9.2.4

Detail Report for Summer Construction Unmitigated Emissions (Pounds/Day)

File Name: Z:\EBell\UCR LRDP Amend 2\URBEMIS\Construction\UCR LRDP Construction 2014.urb924

Project Name: UCR LRDP Construction 2014

Project Location: South Coast AQMD

On-Road Vehicle Emissions Based on: Version : Emfac2007 V2.3 Nov 1 2006

Off-Road Vehicle Emissions Based on: OFFROAD2007

CONSTRUCTION EMISSION ESTIMATES (Summer Pounds Per Day, Unmitigated)

	ROG	NOx	CO	SO2	PM10 Dust	PM10 Exhaust	PM10 Total	PM2.5 Dust	PM2.5 Exhaust	PM2.5 Total
Time Slice 1/1/2014-8/29/2014 Active Days: 173	236.24	44.12	172.36	0.29	1.26	2.53	3.79	0.45	2.27	2.72
Building 01/01/2014-12/31/2014	8.78	44.00	170.28	0.29	1.24	2.52	3.76	0.44	2.26	2.71
Building Off Road Diesel	2.93	17.65	13.06	0.00	0.00	1.11	1.11	0.00	1.02	1.02
Building Vendor Trips	1.82	18.64	17.89	0.05	0.20	0.76	0.96	0.07	0.69	0.76
Building Worker Trips	4.03	7.71	139.33	0.23	1.04	0.66	1.70	0.38	0.55	0.93
Coating 01/01/2014-12/31/2014	227.45	0.12	2.09	0.00	0.02	0.01	0.03	0.01	0.01	0.01
Architectural Coating	227.39	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Coating Worker Trips	0.06	0.12	2.09	0.00	0.02	0.01	0.03	0.01	0.01	0.01

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Time Slice 9/1/2014-12/31/2014 Active Days: 88	**239.97**	**62.28**	**184.39**	**0.30**	**1.28**	**3.98**	**5.26**	**0.46**	**3.60**	**4.06**
Asphalt 09/01/2014-12/31/2014	3.73	18.17	12.02	0.01	0.03	1.44	1.47	0.01	1.33	1.34
Paving Off-Gas	0.95	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Paving Off Road Diesel	2.54	15.61	10.07	0.00	0.00	1.34	1.34	0.00	1.24	1.24
Paving On Road Diesel	0.21	2.50	0.97	0.01	0.02	0.09	0.11	0.01	0.09	0.09
Paving Worker Trips	0.03	0.05	0.98	0.00	0.01	0.00	0.01	0.00	0.00	0.01
Building 01/01/2014-12/31/2014	8.78	44.00	170.28	0.29	1.24	2.52	3.76	0.44	2.26	2.71
Building Off Road Diesel	2.93	17.65	13.06	0.00	0.00	1.11	1.11	0.00	1.02	1.02
Building Vendor Trips	1.82	18.64	17.89	0.05	0.20	0.76	0.96	0.07	0.69	0.76
Building Worker Trips	4.03	7.71	139.33	0.23	1.04	0.66	1.70	0.38	0.55	0.93
Coating 01/01/2014-12/31/2014	227.45	0.12	2.09	0.00	0.02	0.01	0.03	0.01	0.01	0.01
Architectural Coating	227.39	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Coating Worker Trips	0.06	0.12	2.09	0.00	0.02	0.01	0.03	0.01	0.01	0.01

Phase Assumptions

Phase: Paving 9/1/2014 - 12/31/2014 - Type Your Description Here

Acres to be Paved: 31.8

Off-Road Equipment:

1 Pavers (100 hp) operating at a 0.62 load factor for 8 hours per day

2 Paving Equipment (104 hp) operating at a 0.53 load factor for 8 hours per day

2 Rollers (95 hp) operating at a 0.56 load factor for 6 hours per day

Phase: Building Construction 1/1/2014 - 12/31/2014 - Default Building Construction Description

Off-Road Equipment:

1 Cranes (399 hp) operating at a 0.43 load factor for 7 hours per day

3 Forklifts (145 hp) operating at a 0.3 load factor for 8 hours per day

1 Generator Sets (49 hp) operating at a 0.74 load factor for 8 hours per day

3 Tractors/Loaders/Backhoes (108 hp) operating at a 0.55 load factor for 7 hours per day

1 Welders (45 hp) operating at a 0.45 load factor for 8 hours per day

Phase: Architectural Coating 1/1/2014 - 12/31/2014 - Type Your Description Here

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Rule: Residential Interior Coatings begins 1/1/2005 ends 6/30/2008 specifies a VOC of 100

Rule: Residential Interior Coatings begins 7/1/2008 ends 12/31/2040 specifies a VOC of 50

Rule: Residential Exterior Coatings begins 1/1/2005 ends 6/30/2008 specifies a VOC of 250

Rule: Residential Exterior Coatings begins 7/1/2008 ends 12/31/2040 specifies a VOC of 100

Rule: Nonresidential Interior Coatings begins 1/1/2005 ends 12/31/2040 specifies a VOC of 250

Rule: Nonresidential Exterior Coatings begins 1/1/2005 ends 12/31/2040 specifies a VOC of 250

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Urbemis 2007 Version 9.2.4

Detail Report for Summer Construction Mitigated Emissions (Pounds/Day)

File Name: Z:\EBell\UCR LRDP Amend 2\URBEMIS\Construction\UCR LRDP Construction 2014.urb924

Project Name: UCR LRDP Construction 2014

Project Location: South Coast AQMD

On-Road Vehicle Emissions Based on: Version : Emfac2007 V2.3 Nov 1 2006

Off-Road Vehicle Emissions Based on: OFFROAD2007

CONSTRUCTION EMISSION ESTIMATES (Summer Pounds Per Day, Mitigated)

	ROG	NOx	CO	SO2	PM10 Dust	PM10 Exhaust	PM10 Total	PM2.5 Dust	PM2.5 Exhaust	PM2.5 Total
Time Slice 1/1/2014-8/29/2014 Active Days: 173	213.50	41.47	172.36	0.29	1.26	1.59	2.85	0.45	1.41	1.86
Building 01/01/2014-12/31/2014	8.78	41.35	170.28	0.29	1.24	1.58	2.82	0.44	1.40	1.84
Building Off Road Diesel	2.93	15.00	13.06	0.00	0.00	0.17	0.17	0.00	0.15	0.15
Building Vendor Trips	1.82	18.64	17.89	0.05	0.20	0.76	0.96	0.07	0.69	0.76
Building Worker Trips	4.03	7.71	139.33	0.23	1.04	0.66	1.70	0.38	0.55	0.93
Coating 01/01/2014-12/31/2014	204.72	0.12	2.09	0.00	0.02	0.01	0.03	0.01	0.01	0.01
Architectural Coating	204.65	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Coating Worker Trips	0.06	0.12	2.09	0.00	0.02	0.01	0.03	0.01	0.01	0.01

Time Slice 9/1/2014-12/31/2014 Active Days: 88	217.23	57.29	**184.39**	**0.30**	**1.28**	1.89	3.18	**0.46**	1.68	2.14
Asphalt 09/01/2014-12/31/2014	3.73	15.83	12.02	0.01	0.03	0.30	0.33	0.01	0.28	0.29
Paving Off-Gas	0.95	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Paving Off Road Diesel	2.54	13.27	10.07	0.00	0.00	0.20	0.20	0.00	0.19	0.19
Paving On Road Diesel	0.21	2.50	0.97	0.01	0.02	0.09	0.11	0.01	0.09	0.09
Paving Worker Trips	0.03	0.05	0.98	0.00	0.01	0.00	0.01	0.00	0.00	0.01
Building 01/01/2014-12/31/2014	8.78	41.35	170.28	0.29	1.24	1.58	2.82	0.44	1.40	1.84
Building Off Road Diesel	2.93	15.00	13.06	0.00	0.00	0.17	0.17	0.00	0.15	0.15
Building Vendor Trips	1.82	18.64	17.89	0.05	0.20	0.76	0.96	0.07	0.69	0.76
Building Worker Trips	4.03	7.71	139.33	0.23	1.04	0.66	1.70	0.38	0.55	0.93
Coating 01/01/2014-12/31/2014	204.72	0.12	2.09	0.00	0.02	0.01	0.03	0.01	0.01	0.01
Architectural Coating	204.65	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Coating Worker Trips	0.06	0.12	2.09	0.00	0.02	0.01	0.03	0.01	0.01	0.01

Construction Related Mitigation Measures

The following mitigation measures apply to Phase: Paving 9/1/2014 - 12/31/2014 - Type Your Description Here

For Pavers, the Diesel Particulate Filter (DPF) 1st Tier mitigation reduces emissions by:

PM10: 85% PM25: 85%

For Pavers, the Diesel Oxidation Catalyst 15% mitigation reduces emissions by:

NOX: 15%

For Paving Equipment, the Diesel Particulate Filter (DPF) 1st Tier mitigation reduces emissions by:

PM10: 85% PM25: 85%

For Paving Equipment, the Diesel Oxidation Catalyst 15% mitigation reduces emissions by:

NOX: 15%

For Rollers, the Diesel Particulate Filter (DPF) 1st Tier mitigation reduces emissions by:

PM10: 85% PM25: 85%

For Rollers, the Diesel Oxidation Catalyst 15% mitigation reduces emissions by:

NOX: 15%

The following mitigation measures apply to Phase: Building Construction 1/1/2014 - 12/31/2014 - Default Building Construction Description

For Cranes, the Diesel Particulate Filter (DPF) 1st Tier mitigation reduces emissions by:

PM10: 85% PM25: 85%

For Cranes, the Diesel Oxidation Catalyst 15% mitigation reduces emissions by:

NOX: 15%

For Forklifts, the Diesel Particulate Filter (DPF) 1st Tier mitigation reduces emissions by:

PM10: 85% PM25: 85%

For Forklifts, the Diesel Oxidation Catalyst 15% mitigation reduces emissions by:

NOX: 15%

For Generator Sets, the Diesel Particulate Filter (DPF) 1st Tier mitigation reduces emissions by:

PM10: 85% PM25: 85%

For Generator Sets, the Diesel Oxidation Catalyst 15% mitigation reduces emissions by:

NOX: 15%

For Tractors/Loaders/Backhoes, the Diesel Particulate Filter (DPF) 1st Tier mitigation reduces emissions by:

PM10: 85% PM25: 85%

For Tractors/Loaders/Backhoes, the Diesel Oxidation Catalyst 15% mitigation reduces emissions by:

NOX: 15%

For Welders, the Diesel Particulate Filter (DPF) 1st Tier mitigation reduces emissions by:

PM10: 85% PM25: 85%

For Welders, the Diesel Oxidation Catalyst 15% mitigation reduces emissions by:

NOX: 15%

The following mitigation measures apply to Phase: Architectural Coating 1/1/2014 - 12/31/2014 - Type Your Description Here

For Residential Architectural Coating Measures, the Residential Exterior: Use Low VOC Coatings mitigation reduces emissions by:

ROG: 10%

For Residential Architectural Coating Measures, the Residential Interior: Use Low VOC Coatings mitigation reduces emissions by:

ROG: 10%

For Nonresidential Architectural Coating Measures, the Nonresidential Exterior: Use Low VOC Coatings mitigation reduces emissions by:
ROG: 10%

For Nonresidential Architectural Coating Measures, the Nonresidential Interior: Use Low VOC Coatings mitigation reduces emissions by:
ROG: 10%

Phase Assumptions

Phase: Paving 9/1/2014 - 12/31/2014 - Type Your Description Here

Acres to be Paved: 31.8

Off-Road Equipment:

1 Pavers (100 hp) operating at a 0.62 load factor for 8 hours per day

2 Paving Equipment (104 hp) operating at a 0.53 load factor for 8 hours per day

2 Rollers (95 hp) operating at a 0.56 load factor for 6 hours per day

Phase: Building Construction 1/1/2014 - 12/31/2014 - Default Building Construction Description

Off-Road Equipment:

1 Cranes (399 hp) operating at a 0.43 load factor for 7 hours per day

3 Forklifts (145 hp) operating at a 0.3 load factor for 8 hours per day

1 Generator Sets (49 hp) operating at a 0.74 load factor for 8 hours per day

3 Tractors/Loaders/Backhoes (108 hp) operating at a 0.55 load factor for 7 hours per day

1 Welders (45 hp) operating at a 0.45 load factor for 8 hours per day

Phase: Architectural Coating 1/1/2014 - 12/31/2014 - Type Your Description Here

Rule: Residential Interior Coatings begins 1/1/2005 ends 6/30/2008 specifies a VOC of 100

Rule: Residential Interior Coatings begins 7/1/2008 ends 12/31/2040 specifies a VOC of 50

Rule: Residential Exterior Coatings begins 1/1/2005 ends 6/30/2008 specifies a VOC of 250

Rule: Residential Exterior Coatings begins 7/1/2008 ends 12/31/2040 specifies a VOC of 100

Rule: Nonresidential Interior Coatings begins 1/1/2005 ends 12/31/2040 specifies a VOC of 250

Rule: Nonresidential Exterior Coatings begins 1/1/2005 ends 12/31/2040 specifies a VOC of 250

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Urbemis 2007 Version 9.2.4

Detail Report for Summer Construction Unmitigated Emissions (Pounds/Day)

File Name: Z:\EBell\UCR LRDP Amend 2\URBEMIS\Construction\UCR LRDP Construction 2015.urb924

Project Name: UCR LRDP Construction 2015

Project Location: South Coast AQMD

On-Road Vehicle Emissions Based on: Version : Emfac2007 V2.3 Nov 1 2006

Off-Road Vehicle Emissions Based on: OFFROAD2007

CONSTRUCTION EMISSION ESTIMATES (Summer Pounds Per Day, Unmitigated)

	ROG	NOx	CO	SO2	PM10 Dust	PM10 Exhaust	PM10 Total	PM2.5 Dust	PM2.5 Exhaust	PM2.5 Total
Time Slice 1/1/2015-4/30/2015 Active Days: 86	7.04	54.85	33.18	0.00	636.01	2.55	638.57	132.83	2.35	135.18
Mass Grading 01/01/2015-05/31/2015	7.04	54.85	33.18	0.00	636.01	2.55	638.57	132.83	2.35	135.18
Mass Grading Dust	0.00	0.00	0.00	0.00	636.00	0.00	636.00	132.82	0.00	132.82
Mass Grading Off Road Diesel	6.99	54.76	31.53	0.00	0.00	2.55	2.55	0.00	2.34	2.34
Mass Grading On Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Mass Grading Worker Trips	0.05	0.09	1.65	0.00	0.01	0.01	0.02	0.00	0.01	0.01
Time Slice 5/1/2015-5/29/2015 Active Days: 21	**15.05**	**94.41**	**192.20**	**0.29**	**637.26**	**4.90**	**642.15**	**133.27**	**4.45**	**137.72**
Building 05/01/2015-12/31/2015	8.02	39.56	159.02	0.29	1.24	2.34	3.59	0.44	2.10	2.55
Building Off Road Diesel	2.69	16.17	12.80	0.00	0.00	1.03	1.03	0.00	0.94	0.94
Building Vendor Trips	1.64	16.32	16.50	0.05	0.20	0.66	0.86	0.07	0.61	0.67
Building Worker Trips	3.68	7.07	129.73	0.23	1.04	0.66	1.70	0.38	0.55	0.93
Mass Grading 01/01/2015-05/31/2015	7.04	54.85	33.18	0.00	636.01	2.55	638.57	132.83	2.35	135.18
Mass Grading Dust	0.00	0.00	0.00	0.00	636.00	0.00	636.00	132.82	0.00	132.82
Mass Grading Off Road Diesel	6.99	54.76	31.53	0.00	0.00	2.55	2.55	0.00	2.34	2.34
Mass Grading On Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Mass Grading Worker Trips	0.05	0.09	1.65	0.00	0.01	0.01	0.02	0.00	0.01	0.01

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Time Slice 6/1/2015-12/31/2015 Active Days: 154	**15.05**	**94.41**	**192.20**	**0.29**	**637.26**	**4.90**	**642.15**	**133.27**	**4.45**	**137.72**
Building 05/01/2015-12/31/2015	8.02	39.56	159.02	0.29	1.24	2.34	3.59	0.44	2.10	2.55
Building Off Road Diesel	2.69	16.17	12.80	0.00	0.00	1.03	1.03	0.00	0.94	0.94
Building Vendor Trips	1.64	16.32	16.50	0.05	0.20	0.66	0.86	0.07	0.61	0.67
Building Worker Trips	3.68	7.07	129.73	0.23	1.04	0.66	1.70	0.38	0.55	0.93
Fine Grading 06/01/2015-12/31/2015	7.04	54.85	33.18	0.00	636.01	2.55	638.57	132.83	2.35	135.18
Fine Grading Dust	0.00	0.00	0.00	0.00	636.00	0.00	636.00	132.82	0.00	132.82
Fine Grading Off Road Diesel	6.99	54.76	31.53	0.00	0.00	2.55	2.55	0.00	2.34	2.34
Fine Grading On Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Fine Grading Worker Trips	0.05	0.09	1.65	0.00	0.01	0.01	0.02	0.00	0.01	0.01

Phase Assumptions

Phase: Fine Grading 6/1/2015 - 12/31/2015 - Default Fine Site Grading/Excavation Description

Total Acres Disturbed: 127.21

Maximum Daily Acreage Disturbed: 31.8

Fugitive Dust Level of Detail: Default

20 lbs per acre-day

On Road Truck Travel (VMT): 0

Off-Road Equipment:

1 Excavators (168 hp) operating at a 0.57 load factor for 8 hours per day

1 Graders (174 hp) operating at a 0.61 load factor for 8 hours per day

1 Rubber Tired Dozers (357 hp) operating at a 0.59 load factor for 8 hours per day

2 Scrapers (313 hp) operating at a 0.72 load factor for 8 hours per day

3 Tractors/Loaders/Backhoes (108 hp) operating at a 0.55 load factor for 8 hours per day

1 Water Trucks (189 hp) operating at a 0.5 load factor for 8 hours per day

Phase: Mass Grading 1/1/2015 - 5/31/2015 - Default Mass Site Grading/Excavation Description

Total Acres Disturbed: 127.21

Maximum Daily Acreage Disturbed: 31.8

Fugitive Dust Level of Detail: Default

20 lbs per acre-day

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On Road Truck Travel (VMT): 0

Off-Road Equipment:

1 Excavators (168 hp) operating at a 0.57 load factor for 8 hours per day

1 Graders (174 hp) operating at a 0.61 load factor for 8 hours per day

1 Rubber Tired Dozers (357 hp) operating at a 0.59 load factor for 8 hours per day

2 Scrapers (313 hp) operating at a 0.72 load factor for 8 hours per day

3 Tractors/Loaders/Backhoes (108 hp) operating at a 0.55 load factor for 8 hours per day

1 Water Trucks (189 hp) operating at a 0.5 load factor for 8 hours per day

Phase: Building Construction 5/1/2015 - 12/31/2015 - Default Building Construction Description

Off-Road Equipment:

1 Cranes (399 hp) operating at a 0.43 load factor for 7 hours per day

3 Forklifts (145 hp) operating at a 0.3 load factor for 8 hours per day

1 Generator Sets (49 hp) operating at a 0.74 load factor for 8 hours per day

3 Tractors/Loaders/Backhoes (108 hp) operating at a 0.55 load factor for 7 hours per day

1 Welders (45 hp) operating at a 0.45 load factor for 8 hours per day

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Urbemis 2007 Version 9.2.4

Detail Report for Summer Construction Mitigated Emissions (Pounds/Day)

File Name: Z:\EBell\UCR LRDP Amend 2\URBEMIS\Construction\UCR LRDP Construction 2015.urb924

Project Name: UCR LRDP Construction 2015

Project Location: South Coast AQMD

On-Road Vehicle Emissions Based on: Version : Emfac2007 V2.3 Nov 1 2006

Off-Road Vehicle Emissions Based on: OFFROAD2007

CONSTRUCTION EMISSION ESTIMATES (Summer Pounds Per Day, Mitigated)

	ROG	NOx	CO	SO2	PM10 Dust	PM10 Exhaust	PM10 Total	PM2.5 Dust	PM2.5 Exhaust	PM2.5 Total
Time Slice 1/1/2015-4/30/2015 Active Days: 86	7.04	54.85	33.18	0.00	144.23	2.55	146.78	30.12	2.35	32.47
Mass Grading 01/01/2015-05/31/2015	7.04	54.85	33.18	0.00	144.23	2.55	146.78	30.12	2.35	32.47
Mass Grading Dust	0.00	0.00	0.00	0.00	144.21	0.00	144.21	30.12	0.00	30.12
Mass Grading Off Road Diesel	6.99	54.76	31.53	0.00	0.00	2.55	2.55	0.00	2.34	2.34
Mass Grading On Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Mass Grading Worker Trips	0.05	0.09	1.65	0.00	0.01	0.01	0.02	0.00	0.01	0.01
Time Slice 5/1/2015-5/29/2015 Active Days: 21	**15.05**	91.98	**192.20**	**0.29**	145.47	4.03	149.50	30.57	3.65	34.22
Building 05/01/2015-12/31/2015	8.02	37.13	159.02	0.29	1.24	1.47	2.72	0.44	1.30	1.74
Building Off Road Diesel	2.69	13.75	12.80	0.00	0.00	0.15	0.15	0.00	0.14	0.14
Building Vendor Trips	1.64	16.32	16.50	0.05	0.20	0.66	0.86	0.07	0.61	0.67
Building Worker Trips	3.68	7.07	129.73	0.23	1.04	0.66	1.70	0.38	0.55	0.93
Mass Grading 01/01/2015-05/31/2015	7.04	54.85	33.18	0.00	144.23	2.55	146.78	30.12	2.35	32.47
Mass Grading Dust	0.00	0.00	0.00	0.00	144.21	0.00	144.21	30.12	0.00	30.12
Mass Grading Off Road Diesel	6.99	54.76	31.53	0.00	0.00	2.55	2.55	0.00	2.34	2.34
Mass Grading On Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Mass Grading Worker Trips	0.05	0.09	1.65	0.00	0.01	0.01	0.02	0.00	0.01	0.01

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Time Slice 6/1/2015-12/31/2015 Active Days: 154	**15.05**	91.98	**192.20**	**0.29**	145.47	4.03	149.50	30.57	3.65	34.22
Building 05/01/2015-12/31/2015	8.02	37.13	159.02	0.29	1.24	1.47	2.72	0.44	1.30	1.74
Building Off Road Diesel	2.69	13.75	12.80	0.00	0.00	0.15	0.15	0.00	0.14	0.14
Building Vendor Trips	1.64	16.32	16.50	0.05	0.20	0.66	0.86	0.07	0.61	0.67
Building Worker Trips	3.68	7.07	129.73	0.23	1.04	0.66	1.70	0.38	0.55	0.93
Fine Grading 06/01/2015-12/31/2015	7.04	54.85	33.18	0.00	144.23	2.55	146.78	30.12	2.35	32.47
Fine Grading Dust	0.00	0.00	0.00	0.00	144.21	0.00	144.21	30.12	0.00	30.12
Fine Grading Off Road Diesel	6.99	54.76	31.53	0.00	0.00	2.55	2.55	0.00	2.34	2.34
Fine Grading On Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Fine Grading Worker Trips	0.05	0.09	1.65	0.00	0.01	0.01	0.02	0.00	0.01	0.01

Construction Related Mitigation Measures

The following mitigation measures apply to Phase: Fine Grading 6/1/2015 - 12/31/2015 - Default Fine Site Grading/Excavation Description
For Soil Stablizing Measures, the Apply soil stabilizers to inactive areas mitigation reduces emissions by:

PM10: 84% PM25: 84%

For Soil Stablizing Measures, the Replace ground cover in disturbed areas quickly mitigation reduces emissions by:

PM10: 5% PM25: 5%

For Soil Stablizing Measures, the Water exposed surfaces 2x daily watering mitigation reduces emissions by:

PM10: 55% PM25: 55%

For Soil Stablizing Measures, the Equipment loading/unloading mitigation reduces emissions by:

PM10: 69% PM25: 69%

The following mitigation measures apply to Phase: Mass Grading 1/1/2015 - 5/31/2015 - Default Mass Site Grading/Excavation Description
For Soil Stablizing Measures, the Apply soil stabilizers to inactive areas mitigation reduces emissions by:

PM10: 84% PM25: 84%

For Soil Stablizing Measures, the Replace ground cover in disturbed areas quickly mitigation reduces emissions by:

PM10: 5% PM25: 5%

For Soil Stablizing Measures, the Water exposed surfaces 2x daily watering mitigation reduces emissions by:

PM10: 55% PM25: 55%

For Soil Stablizing Measures, the Equipment loading/unloading mitigation reduces emissions by:

PM10: 69% PM25: 69%

The following mitigation measures apply to Phase: Building Construction 5/1/2015 - 12/31/2015 - Default Building Construction Description

For Cranes, the Diesel Particulate Filter (DPF) 1st Tier mitigation reduces emissions by:

PM10: 85% PM25: 85%

For Cranes, the Diesel Oxidation Catalyst 15% mitigation reduces emissions by:

NOX: 15%

For Forklifts, the Diesel Particulate Filter (DPF) 1st Tier mitigation reduces emissions by:

PM10: 85% PM25: 85%

For Forklifts, the Diesel Oxidation Catalyst 15% mitigation reduces emissions by:

NOX: 15%

For Generator Sets, the Diesel Particulate Filter (DPF) 1st Tier mitigation reduces emissions by:

PM10: 85% PM25: 85%

For Generator Sets, the Diesel Oxidation Catalyst 15% mitigation reduces emissions by:

NOX: 15%

For Tractors/Loaders/Backhoes, the Diesel Particulate Filter (DPF) 1st Tier mitigation reduces emissions by:

PM10: 85% PM25: 85%

For Tractors/Loaders/Backhoes, the Diesel Oxidation Catalyst 15% mitigation reduces emissions by:

NOX: 15%

For Welders, the Diesel Particulate Filter (DPF) 1st Tier mitigation reduces emissions by:

PM10: 85% PM25: 85%

For Welders, the Diesel Oxidation Catalyst 15% mitigation reduces emissions by:

NOX: 15%

Phase Assumptions

Phase: Fine Grading 6/1/2015 - 12/31/2015 - Default Fine Site Grading/Excavation Description

Total Acres Disturbed: 127.21

Maximum Daily Acreage Disturbed: 31.8

Fugitive Dust Level of Detail: Default

20 lbs per acre-day

On Road Truck Travel (VMT): 0

Off-Road Equipment:

1 Excavators (168 hp) operating at a 0.57 load factor for 8 hours per day

1 Graders (174 hp) operating at a 0.61 load factor for 8 hours per day

1 Rubber Tired Dozers (357 hp) operating at a 0.59 load factor for 8 hours per day

2 Scrapers (313 hp) operating at a 0.72 load factor for 8 hours per day

3 Tractors/Loaders/Backhoes (108 hp) operating at a 0.55 load factor for 8 hours per day
1 Water Trucks (189 hp) operating at a 0.5 load factor for 8 hours per day

Phase: Mass Grading 1/1/2015 - 5/31/2015 - Default Mass Site Grading/Excavation Description
Total Acres Disturbed: 127.21
Maximum Daily Acreage Disturbed: 31.8
Fugitive Dust Level of Detail: Default
20 lbs per acre-day
On Road Truck Travel (VMT): 0
Off-Road Equipment:
1 Excavators (168 hp) operating at a 0.57 load factor for 8 hours per day
1 Graders (174 hp) operating at a 0.61 load factor for 8 hours per day
1 Rubber Tired Dozers (357 hp) operating at a 0.59 load factor for 8 hours per day
2 Scrapers (313 hp) operating at a 0.72 load factor for 8 hours per day
3 Tractors/Loaders/Backhoes (108 hp) operating at a 0.55 load factor for 8 hours per day
1 Water Trucks (189 hp) operating at a 0.5 load factor for 8 hours per day

Phase: Building Construction 5/1/2015 - 12/31/2015 - Default Building Construction Description
Off-Road Equipment:
1 Cranes (399 hp) operating at a 0.43 load factor for 7 hours per day
3 Forklifts (145 hp) operating at a 0.3 load factor for 8 hours per day
1 Generator Sets (49 hp) operating at a 0.74 load factor for 8 hours per day
3 Tractors/Loaders/Backhoes (108 hp) operating at a 0.55 load factor for 7 hours per day
1 Welders (45 hp) operating at a 0.45 load factor for 8 hours per day

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Urbemis 2007 Version 9.2.4

Detail Report for Summer Construction Unmitigated Emissions (Pounds/Day)

File Name: Z:\EBell\UCR LRDP Amend 2\URBEMIS\Construction\UCR LRDP Construction 2016.urb924

Project Name: UCR LRDP Construction 2016

Project Location: South Coast AQMD

On-Road Vehicle Emissions Based on: Version : Emfac2007 V2.3 Nov 1 2006

Off-Road Vehicle Emissions Based on: OFFROAD2007

CONSTRUCTION EMISSION ESTIMATES (Summer Pounds Per Day, Unmitigated)

	ROG	NOx	CO	SO2	PM10 Dust	PM10 Exhaust	PM10 Total	PM2.5 Dust	PM2.5 Exhaust	PM2.5 Total
Time Slice 1/1/2016-12/30/2016 Active Days: 261	**7.34**	**35.79**	**149.12**	**0.29**	**1.24**	**2.12**	**3.36**	**0.44**	**1.90**	**2.34**
Building 01/01/2016-12/31/2016	7.34	35.79	149.12	0.29	1.24	2.12	3.36	0.44	1.90	2.34
Building Off Road Diesel	2.47	14.84	12.61	0.00	0.00	0.88	0.88	0.00	0.81	0.81
Building Vendor Trips	1.50	14.41	15.32	0.05	0.20	0.59	0.79	0.07	0.54	0.60
Building Worker Trips	3.38	6.54	121.18	0.23	1.04	0.66	1.70	0.38	0.55	0.93

Phase Assumptions

Phase: Building Construction 1/1/2016 - 12/31/2016 - Default Building Construction Description

Off-Road Equipment:

1 Cranes (399 hp) operating at a 0.43 load factor for 7 hours per day

3 Forklifts (145 hp) operating at a 0.3 load factor for 8 hours per day

1 Generator Sets (49 hp) operating at a 0.74 load factor for 8 hours per day

3 Tractors/Loaders/Backhoes (108 hp) operating at a 0.55 load factor for 7 hours per day

1 Welders (45 hp) operating at a 0.45 load factor for 8 hours per day

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Urbemis 2007 Version 9.2.4

Detail Report for Summer Construction Mitigated Emissions (Pounds/Day)

File Name: Z:\EBell\UCR LRDP Amend 2\URBEMIS\Construction\UCR LRDP Construction 2016.urb924

Project Name: UCR LRDP Construction 2016

Project Location: South Coast AQMD

On-Road Vehicle Emissions Based on: Version : Emfac2007 V2.3 Nov 1 2006

Off-Road Vehicle Emissions Based on: OFFROAD2007

CONSTRUCTION EMISSION ESTIMATES (Summer Pounds Per Day, Mitigated)

	ROG	NOx	CO	SO2	PM10 Dust	PM10 Exhaust	PM10 Total	PM2.5 Dust	PM2.5 Exhaust	PM2.5 Total
Time Slice 1/1/2016-12/30/2016 Active Days: 261	**7.34**	33.56	**149.12**	**0.29**	**1.24**	1.38	2.62	**0.44**	1.21	1.65
Building 01/01/2016-12/31/2016	7.34	33.56	149.12	0.29	1.24	1.38	2.62	0.44	1.21	1.65
Building Off Road Diesel	2.47	12.61	12.61	0.00	0.00	0.13	0.13	0.00	0.12	0.12
Building Vendor Trips	1.50	14.41	15.32	0.05	0.20	0.59	0.79	0.07	0.54	0.60
Building Worker Trips	3.38	6.54	121.18	0.23	1.04	0.66	1.70	0.38	0.55	0.93

Construction Related Mitigation Measures

The following mitigation measures apply to Phase: Building Construction 1/1/2016 - 12/31/2016 - Default Building Construction Description

For Cranes, the Diesel Particulate Filter (DPF) 1st Tier mitigation reduces emissions by:

PM10: 85% PM25: 85%

For Cranes, the Diesel Oxidation Catalyst 15% mitigation reduces emissions by:

NOX: 15%

For Forklifts, the Diesel Particulate Filter (DPF) 1st Tier mitigation reduces emissions by:

PM10: 85% PM25: 85%

For Forklifts, the Diesel Oxidation Catalyst 15% mitigation reduces emissions by:

NOX: 15%

For Generator Sets, the Diesel Particulate Filter (DPF) 1st Tier mitigation reduces emissions by:

PM10: 85% PM25: 85%

For Generator Sets, the Diesel Oxidation Catalyst 15% mitigation reduces emissions by:

NOX: 15%

For Tractors/Loaders/Backhoes, the Diesel Particulate Filter (DPF) 1st Tier mitigation reduces emissions by:

PM10: 85% PM25: 85%

For Tractors/Loaders/Backhoes, the Diesel Oxidation Catalyst 15% mitigation reduces emissions by:

NOX: 15%

For Welders, the Diesel Particulate Filter (DPF) 1st Tier mitigation reduces emissions by:

PM10: 85% PM25: 85%

For Welders, the Diesel Oxidation Catalyst 15% mitigation reduces emissions by:

NOX: 15%

Phase Assumptions

Phase: Building Construction 1/1/2016 - 12/31/2016 - Default Building Construction Description

Off-Road Equipment:

1 Cranes (399 hp) operating at a 0.43 load factor for 7 hours per day

3 Forklifts (145 hp) operating at a 0.3 load factor for 8 hours per day

1 Generator Sets (49 hp) operating at a 0.74 load factor for 8 hours per day

3 Tractors/Loaders/Backhoes (108 hp) operating at a 0.55 load factor for 7 hours per day

1 Welders (45 hp) operating at a 0.45 load factor for 8 hours per day

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Urbemis 2007 Version 9.2.4

Detail Report for Summer Construction Unmitigated Emissions (Pounds/Day)

File Name: Z:\EBell\UCR LRDP Amend 2\URBEMIS\Construction\UCR LRDP Construction 2017.urb924

Project Name: UCR LRDP Construction 2017

Project Location: South Coast AQMD

On-Road Vehicle Emissions Based on: Version : Emfac2007 V2.3 Nov 1 2006

Off-Road Vehicle Emissions Based on: OFFROAD2007

CONSTRUCTION EMISSION ESTIMATES (Summer Pounds Per Day, Unmitigated)

	ROG	NOx	CO	SO2	PM10 Dust	PM10 Exhaust	PM10 Total	PM2.5 Dust	PM2.5 Exhaust	PM2.5 Total
Time Slice 1/2/2017-8/31/2017 Active Days: 174	234.17	32.57	141.40	0.29	1.26	1.96	3.22	0.45	1.75	2.20
Building 01/01/2017-12/31/2017	6.73	32.48	139.71	0.29	1.24	1.95	3.19	0.44	1.74	2.18
Building Off Road Diesel	2.25	13.62	12.45	0.00	0.00	0.77	0.77	0.00	0.71	0.71
Building Vendor Trips	1.37	12.83	14.29	0.05	0.20	0.52	0.72	0.07	0.48	0.55
Building Worker Trips	3.11	6.03	112.98	0.23	1.04	0.66	1.70	0.38	0.55	0.93
Coating 01/01/2017-12/31/2017	227.44	0.09	1.69	0.00	0.02	0.01	0.03	0.01	0.01	0.01
Architectural Coating	227.39	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Coating Worker Trips	0.05	0.09	1.69	0.00	0.02	0.01	0.03	0.01	0.01	0.01

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Time Slice 9/1/2017-12/29/2017 Active Days: 86	**237.41**	**47.22**	**152.73**	**0.30**	**1.28**	**3.08**	**4.37**	**0.46**	**2.78**	**3.24**
Asphalt 09/01/2017-12/31/2017	3.24	14.64	11.33	0.01	0.03	1.12	1.15	0.01	1.03	1.04
Paving Off-Gas	0.97	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Paving Off Road Diesel	2.09	12.86	9.83	0.00	0.00	1.05	1.05	0.00	0.97	0.97
Paving On Road Diesel	0.16	1.74	0.70	0.01	0.02	0.06	0.08	0.01	0.06	0.06
Paving Worker Trips	0.02	0.04	0.80	0.00	0.01	0.00	0.01	0.00	0.00	0.01
Building 01/01/2017-12/31/2017	6.73	32.48	139.71	0.29	1.24	1.95	3.19	0.44	1.74	2.18
Building Off Road Diesel	2.25	13.62	12.45	0.00	0.00	0.77	0.77	0.00	0.71	0.71
Building Vendor Trips	1.37	12.83	14.29	0.05	0.20	0.52	0.72	0.07	0.48	0.55
Building Worker Trips	3.11	6.03	112.98	0.23	1.04	0.66	1.70	0.38	0.55	0.93
Coating 01/01/2017-12/31/2017	227.44	0.09	1.69	0.00	0.02	0.01	0.03	0.01	0.01	0.01
Architectural Coating	227.39	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Coating Worker Trips	0.05	0.09	1.69	0.00	0.02	0.01	0.03	0.01	0.01	0.01

Phase Assumptions

Phase: Paving 9/1/2017 - 12/31/2017 - Type Your Description Here

Acres to be Paved: 31.8

Off-Road Equipment:

1 Pavers (100 hp) operating at a 0.62 load factor for 8 hours per day

2 Paving Equipment (104 hp) operating at a 0.53 load factor for 8 hours per day

2 Rollers (95 hp) operating at a 0.56 load factor for 6 hours per day

Phase: Building Construction 1/1/2017 - 12/31/2017 - Default Building Construction Description

Off-Road Equipment:

1 Cranes (399 hp) operating at a 0.43 load factor for 7 hours per day

3 Forklifts (145 hp) operating at a 0.3 load factor for 8 hours per day

1 Generator Sets (49 hp) operating at a 0.74 load factor for 8 hours per day

3 Tractors/Loaders/Backhoes (108 hp) operating at a 0.55 load factor for 7 hours per day

1 Welders (45 hp) operating at a 0.45 load factor for 8 hours per day

Phase: Architectural Coating 1/1/2017 - 12/31/2017 - Type Your Description Here

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Rule: Residential Interior Coatings begins 1/1/2005 ends 6/30/2008 specifies a VOC of 100

Rule: Residential Interior Coatings begins 7/1/2008 ends 12/31/2040 specifies a VOC of 50

Rule: Residential Exterior Coatings begins 1/1/2005 ends 6/30/2008 specifies a VOC of 250

Rule: Residential Exterior Coatings begins 7/1/2008 ends 12/31/2040 specifies a VOC of 100

Rule: Nonresidential Interior Coatings begins 1/1/2005 ends 12/31/2040 specifies a VOC of 250

Rule: Nonresidential Exterior Coatings begins 1/1/2005 ends 12/31/2040 specifies a VOC of 250

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Urbemis 2007 Version 9.2.4

Detail Report for Summer Construction Mitigated Emissions (Pounds/Day)

File Name: Z:\EBell\UCR LRDP Amend 2\URBEMIS\Construction\UCR LRDP Construction 2017.urb924

Project Name: UCR LRDP Construction 2017

Project Location: South Coast AQMD

On-Road Vehicle Emissions Based on: Version : Emfac2007 V2.3 Nov 1 2006

Off-Road Vehicle Emissions Based on: OFFROAD2007

CONSTRUCTION EMISSION ESTIMATES (Summer Pounds Per Day, Mitigated)

	ROG	NOx	CO	SO2	PM10 Dust	PM10 Exhaust	PM10 Total	PM2.5 Dust	PM2.5 Exhaust	PM2.5 Total
Time Slice 1/2/2017-8/31/2017 Active Days: 174	211.43	30.53	141.40	0.29	1.26	1.31	2.56	0.45	1.14	1.59
Building 01/01/2017-12/31/2017	6.73	30.44	139.71	0.29	1.24	1.30	2.54	0.44	1.14	1.58
Building Off Road Diesel	2.25	11.58	12.45	0.00	0.00	0.12	0.12	0.00	0.11	0.11
Building Vendor Trips	1.37	12.83	14.29	0.05	0.20	0.52	0.72	0.07	0.48	0.55
Building Worker Trips	3.11	6.03	112.98	0.23	1.04	0.66	1.70	0.38	0.55	0.93
Coating 01/01/2017-12/31/2017	204.70	0.09	1.69	0.00	0.02	0.01	0.03	0.01	0.01	0.01
Architectural Coating	204.65	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Coating Worker Trips	0.05	0.09	1.69	0.00	0.02	0.01	0.03	0.01	0.01	0.01

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Time Slice 9/1/2017-12/29/2017 Active Days: 86	214.67	43.24	**152.73**	**0.30**	**1.28**	1.53	2.81	**0.46**	1.35	1.81
Asphalt 09/01/2017-12/31/2017	3.24	12.71	11.33	0.01	0.03	0.22	0.25	0.01	0.21	0.22
Paving Off-Gas	0.97	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Paving Off Road Diesel	2.09	10.93	9.83	0.00	0.00	0.16	0.16	0.00	0.15	0.15
Paving On Road Diesel	0.16	1.74	0.70	0.01	0.02	0.06	0.08	0.01	0.06	0.06
Paving Worker Trips	0.02	0.04	0.80	0.00	0.01	0.00	0.01	0.00	0.00	0.01
Building 01/01/2017-12/31/2017	6.73	30.44	139.71	0.29	1.24	1.30	2.54	0.44	1.14	1.58
Building Off Road Diesel	2.25	11.58	12.45	0.00	0.00	0.12	0.12	0.00	0.11	0.11
Building Vendor Trips	1.37	12.83	14.29	0.05	0.20	0.52	0.72	0.07	0.48	0.55
Building Worker Trips	3.11	6.03	112.98	0.23	1.04	0.66	1.70	0.38	0.55	0.93
Coating 01/01/2017-12/31/2017	204.70	0.09	1.69	0.00	0.02	0.01	0.03	0.01	0.01	0.01
Architectural Coating	204.65	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Coating Worker Trips	0.05	0.09	1.69	0.00	0.02	0.01	0.03	0.01	0.01	0.01

Construction Related Mitigation Measures

The following mitigation measures apply to Phase: Paving 9/1/2017 - 12/31/2017 - Type Your Description Here

For Pavers, the Diesel Particulate Filter (DPF) 1st Tier mitigation reduces emissions by:

PM10: 85% PM25: 85%

For Pavers, the Diesel Oxidation Catalyst 15% mitigation reduces emissions by:

NOX: 15%

For Paving Equipment, the Diesel Particulate Filter (DPF) 1st Tier mitigation reduces emissions by:

PM10: 85% PM25: 85%

For Paving Equipment, the Diesel Oxidation Catalyst 15% mitigation reduces emissions by:

NOX: 15%

For Rollers, the Diesel Particulate Filter (DPF) 1st Tier mitigation reduces emissions by:

PM10: 85% PM25: 85%

For Rollers, the Diesel Oxidation Catalyst 15% mitigation reduces emissions by:

NOX: 15%

The following mitigation measures apply to Phase: Building Construction 1/1/2017 - 12/31/2017 - Default Building Construction Description

For Cranes, the Diesel Particulate Filter (DPF) 1st Tier mitigation reduces emissions by:

PM10: 85% PM25: 85%

For Cranes, the Diesel Oxidation Catalyst 15% mitigation reduces emissions by:

NOX: 15%

For Forklifts, the Diesel Particulate Filter (DPF) 1st Tier mitigation reduces emissions by:

PM10: 85% PM25: 85%

For Forklifts, the Diesel Oxidation Catalyst 15% mitigation reduces emissions by:

NOX: 15%

For Generator Sets, the Diesel Particulate Filter (DPF) 1st Tier mitigation reduces emissions by:

PM10: 85% PM25: 85%

For Generator Sets, the Diesel Oxidation Catalyst 15% mitigation reduces emissions by:

NOX: 15%

For Tractors/Loaders/Backhoes, the Diesel Particulate Filter (DPF) 1st Tier mitigation reduces emissions by:

PM10: 85% PM25: 85%

For Tractors/Loaders/Backhoes, the Diesel Oxidation Catalyst 15% mitigation reduces emissions by:

NOX: 15%

For Welders, the Diesel Particulate Filter (DPF) 1st Tier mitigation reduces emissions by:

PM10: 85% PM25: 85%

For Welders, the Diesel Oxidation Catalyst 15% mitigation reduces emissions by:

NOX: 15%

The following mitigation measures apply to Phase: Architectural Coating 1/1/2017 - 12/31/2017 - Type Your Description Here

For Residential Architectural Coating Measures, the Residential Exterior: Use Low VOC Coatings mitigation reduces emissions by:

ROG: 10%

For Residential Architectural Coating Measures, the Residential Interior: Use Low VOC Coatings mitigation reduces emissions by:

ROG: 10%

For Nonresidential Architectural Coating Measures, the Nonresidential Exterior: Use Low VOC Coatings mitigation reduces emissions by:
ROG: 10%

For Nonresidential Architectural Coating Measures, the Nonresidential Interior: Use Low VOC Coatings mitigation reduces emissions by:
ROG: 10%

Phase Assumptions

Phase: Paving 9/1/2017 - 12/31/2017 - Type Your Description Here

Acres to be Paved: 31.8

Off-Road Equipment:

1 Pavers (100 hp) operating at a 0.62 load factor for 8 hours per day

2 Paving Equipment (104 hp) operating at a 0.53 load factor for 8 hours per day

2 Rollers (95 hp) operating at a 0.56 load factor for 6 hours per day

Phase: Building Construction 1/1/2017 - 12/31/2017 - Default Building Construction Description

Off-Road Equipment:

1 Cranes (399 hp) operating at a 0.43 load factor for 7 hours per day

3 Forklifts (145 hp) operating at a 0.3 load factor for 8 hours per day

1 Generator Sets (49 hp) operating at a 0.74 load factor for 8 hours per day

3 Tractors/Loaders/Backhoes (108 hp) operating at a 0.55 load factor for 7 hours per day

1 Welders (45 hp) operating at a 0.45 load factor for 8 hours per day

Phase: Architectural Coating 1/1/2017 - 12/31/2017 - Type Your Description Here

Rule: Residential Interior Coatings begins 1/1/2005 ends 6/30/2008 specifies a VOC of 100

Rule: Residential Interior Coatings begins 7/1/2008 ends 12/31/2040 specifies a VOC of 50

Rule: Residential Exterior Coatings begins 1/1/2005 ends 6/30/2008 specifies a VOC of 250

Rule: Residential Exterior Coatings begins 7/1/2008 ends 12/31/2040 specifies a VOC of 100

Rule: Nonresidential Interior Coatings begins 1/1/2005 ends 12/31/2040 specifies a VOC of 250

Rule: Nonresidential Exterior Coatings begins 1/1/2005 ends 12/31/2040 specifies a VOC of 250

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Urbemis 2007 Version 9.2.4

Detail Report for Summer Construction Unmitigated Emissions (Pounds/Day)

File Name: Z:\EBell\UCR LRDP Amend 2\URBEMIS\Construction\UCR LRDP Construction 2018.urb924

Project Name: UCR LRDP Construction 2018

Project Location: South Coast AQMD

On-Road Vehicle Emissions Based on: Version : Emfac2007 V2.3 Nov 1 2006

Off-Road Vehicle Emissions Based on: OFFROAD2007

CONSTRUCTION EMISSION ESTIMATES (Summer Pounds Per Day, Unmitigated)

	ROG	NOx	CO	SO2	PM10 Dust	PM10 Exhaust	PM10 Total	PM2.5 Dust	PM2.5 Exhaust	PM2.5 Total
Time Slice 1/1/2018-4/30/2018 Active Days: 86	5.80	42.02	30.21	0.00	636.01	1.85	637.86	132.83	1.70	134.53
Mass Grading 01/01/2018-05/31/2018	5.80	42.02	30.21	0.00	636.01	1.85	637.86	132.83	1.70	134.53
Mass Grading Dust	0.00	0.00	0.00	0.00	636.00	0.00	636.00	132.82	0.00	132.82
Mass Grading Off Road Diesel	5.77	41.95	28.88	0.00	0.00	1.84	1.84	0.00	1.69	1.69
Mass Grading On Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Mass Grading Worker Trips	0.04	0.07	1.34	0.00	0.01	0.01	0.02	0.00	0.01	0.01
Time Slice 5/1/2018-5/31/2018 Active Days: 23	**11.95**	**71.54**	**161.17**	**0.29**	**637.26**	**3.65**	**640.90**	**133.27**	**3.30**	**136.57**
Building 05/01/2018-12/31/2018	6.14	29.52	130.96	0.29	1.24	1.80	3.04	0.44	1.60	2.04
Building Off Road Diesel	2.03	12.45	12.26	0.00	0.00	0.67	0.67	0.00	0.62	0.62
Building Vendor Trips	1.27	11.50	13.36	0.05	0.20	0.47	0.67	0.07	0.43	0.50
Building Worker Trips	2.85	5.56	105.34	0.23	1.04	0.66	1.70	0.38	0.55	0.93
Mass Grading 01/01/2018-05/31/2018	5.80	42.02	30.21	0.00	636.01	1.85	637.86	132.83	1.70	134.53
Mass Grading Dust	0.00	0.00	0.00	0.00	636.00	0.00	636.00	132.82	0.00	132.82
Mass Grading Off Road Diesel	5.77	41.95	28.88	0.00	0.00	1.84	1.84	0.00	1.69	1.69
Mass Grading On Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Mass Grading Worker Trips	0.04	0.07	1.34	0.00	0.01	0.01	0.02	0.00	0.01	0.01

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Time Slice 6/1/2018-12/31/2018 Active Days: 152	**11.95**	**71.54**	**161.17**	**0.29**	**637.26**	**3.65**	**640.90**	**133.27**	**3.30**	**136.57**
Building 05/01/2018-12/31/2018	6.14	29.52	130.96	0.29	1.24	1.80	3.04	0.44	1.60	2.04
Building Off Road Diesel	2.03	12.45	12.26	0.00	0.00	0.67	0.67	0.00	0.62	0.62
Building Vendor Trips	1.27	11.50	13.36	0.05	0.20	0.47	0.67	0.07	0.43	0.50
Building Worker Trips	2.85	5.56	105.34	0.23	1.04	0.66	1.70	0.38	0.55	0.93
Fine Grading 06/01/2018-12/31/2018	5.80	42.02	30.21	0.00	636.01	1.85	637.86	132.83	1.70	134.53
Fine Grading Dust	0.00	0.00	0.00	0.00	636.00	0.00	636.00	132.82	0.00	132.82
Fine Grading Off Road Diesel	5.77	41.95	28.88	0.00	0.00	1.84	1.84	0.00	1.69	1.69
Fine Grading On Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Fine Grading Worker Trips	0.04	0.07	1.34	0.00	0.01	0.01	0.02	0.00	0.01	0.01

Phase Assumptions

Phase: Fine Grading 6/1/2018 - 12/31/2018 - Default Fine Site Grading/Excavation Description

Total Acres Disturbed: 127.21

Maximum Daily Acreage Disturbed: 31.8

Fugitive Dust Level of Detail: Default

20 lbs per acre-day

On Road Truck Travel (VMT): 0

Off-Road Equipment:

1 Excavators (168 hp) operating at a 0.57 load factor for 8 hours per day

1 Graders (174 hp) operating at a 0.61 load factor for 8 hours per day

1 Rubber Tired Dozers (357 hp) operating at a 0.59 load factor for 8 hours per day

2 Scrapers (313 hp) operating at a 0.72 load factor for 8 hours per day

3 Tractors/Loaders/Backhoes (108 hp) operating at a 0.55 load factor for 8 hours per day

1 Water Trucks (189 hp) operating at a 0.5 load factor for 8 hours per day

Phase: Mass Grading 1/1/2018 - 5/31/2018 - Default Mass Site Grading/Excavation Description

Total Acres Disturbed: 127.21

Maximum Daily Acreage Disturbed: 31.8

Fugitive Dust Level of Detail: Default

20 lbs per acre-day

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On Road Truck Travel (VMT): 0

Off-Road Equipment:

1 Excavators (168 hp) operating at a 0.57 load factor for 8 hours per day

1 Graders (174 hp) operating at a 0.61 load factor for 8 hours per day

1 Rubber Tired Dozers (357 hp) operating at a 0.59 load factor for 8 hours per day

2 Scrapers (313 hp) operating at a 0.72 load factor for 8 hours per day

3 Tractors/Loaders/Backhoes (108 hp) operating at a 0.55 load factor for 8 hours per day

1 Water Trucks (189 hp) operating at a 0.5 load factor for 8 hours per day

Phase: Building Construction 5/1/2018 - 12/31/2018 - Default Building Construction Description

Off-Road Equipment:

1 Cranes (399 hp) operating at a 0.43 load factor for 7 hours per day

3 Forklifts (145 hp) operating at a 0.3 load factor for 8 hours per day

1 Generator Sets (49 hp) operating at a 0.74 load factor for 8 hours per day

3 Tractors/Loaders/Backhoes (108 hp) operating at a 0.55 load factor for 7 hours per day

1 Welders (45 hp) operating at a 0.45 load factor for 8 hours per day

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Urbemis 2007 Version 9.2.4

Detail Report for Summer Construction Mitigated Emissions (Pounds/Day)

File Name: Z:\EBell\UCR LRDP Amend 2\URBEMIS\Construction\UCR LRDP Construction 2018.urb924

Project Name: UCR LRDP Construction 2018

Project Location: South Coast AQMD

On-Road Vehicle Emissions Based on: Version : Emfac2007 V2.3 Nov 1 2006

Off-Road Vehicle Emissions Based on: OFFROAD2007

CONSTRUCTION EMISSION ESTIMATES (Summer Pounds Per Day, Mitigated)

	ROG	NOx	CO	SO2	PM10 Dust	PM10 Exhaust	PM10 Total	PM2.5 Dust	PM2.5 Exhaust	PM2.5 Total
Time Slice 1/1/2018-4/30/2018 Active Days: 86	5.80	42.02	30.21	0.00	144.23	1.85	146.07	30.12	1.70	31.82
Mass Grading 01/01/2018-05/31/2018	5.80	42.02	30.21	0.00	144.23	1.85	146.07	30.12	1.70	31.82
Mass Grading Dust	0.00	0.00	0.00	0.00	144.21	0.00	144.21	30.12	0.00	30.12
Mass Grading Off Road Diesel	5.77	41.95	28.88	0.00	0.00	1.84	1.84	0.00	1.69	1.69
Mass Grading On Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Mass Grading Worker Trips	0.04	0.07	1.34	0.00	0.01	0.01	0.02	0.00	0.01	0.01
Time Slice 5/1/2018-5/31/2018 Active Days: 23	**11.95**	69.67	**161.17**	**0.29**	145.47	3.08	148.55	30.57	2.77	33.34
Building 05/01/2018-12/31/2018	6.14	27.65	130.96	0.29	1.24	1.23	2.47	0.44	1.08	1.52
Building Off Road Diesel	2.03	10.59	12.26	0.00	0.00	0.10	0.10	0.00	0.09	0.09
Building Vendor Trips	1.27	11.50	13.36	0.05	0.20	0.47	0.67	0.07	0.43	0.50
Building Worker Trips	2.85	5.56	105.34	0.23	1.04	0.66	1.70	0.38	0.55	0.93
Mass Grading 01/01/2018-05/31/2018	5.80	42.02	30.21	0.00	144.23	1.85	146.07	30.12	1.70	31.82
Mass Grading Dust	0.00	0.00	0.00	0.00	144.21	0.00	144.21	30.12	0.00	30.12
Mass Grading Off Road Diesel	5.77	41.95	28.88	0.00	0.00	1.84	1.84	0.00	1.69	1.69
Mass Grading On Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Mass Grading Worker Trips	0.04	0.07	1.34	0.00	0.01	0.01	0.02	0.00	0.01	0.01

Time Slice 6/1/2018-12/31/2018 Active Days: 152	**11.95**	69.67	**161.17**	**0.29**	145.47	3.08	148.55	30.57	2.77	33.34
Building 05/01/2018-12/31/2018	6.14	27.65	130.96	0.29	1.24	1.23	2.47	0.44	1.08	1.52
Building Off Road Diesel	2.03	10.59	12.26	0.00	0.00	0.10	0.10	0.00	0.09	0.09
Building Vendor Trips	1.27	11.50	13.36	0.05	0.20	0.47	0.67	0.07	0.43	0.50
Building Worker Trips	2.85	5.56	105.34	0.23	1.04	0.66	1.70	0.38	0.55	0.93
Fine Grading 06/01/2018-12/31/2018	5.80	42.02	30.21	0.00	144.23	1.85	146.07	30.12	1.70	31.82
Fine Grading Dust	0.00	0.00	0.00	0.00	144.21	0.00	144.21	30.12	0.00	30.12
Fine Grading Off Road Diesel	5.77	41.95	28.88	0.00	0.00	1.84	1.84	0.00	1.69	1.69
Fine Grading On Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Fine Grading Worker Trips	0.04	0.07	1.34	0.00	0.01	0.01	0.02	0.00	0.01	0.01

Construction Related Mitigation Measures

The following mitigation measures apply to Phase: Fine Grading 6/1/2018 - 12/31/2018 - Default Fine Site Grading/Excavation Description
For Soil Stablizing Measures, the Apply soil stabilizers to inactive areas mitigation reduces emissions by:

PM10: 84% PM25: 84%

For Soil Stablizing Measures, the Replace ground cover in disturbed areas quickly mitigation reduces emissions by:

PM10: 5% PM25: 5%

For Soil Stablizing Measures, the Water exposed surfaces 2x daily watering mitigation reduces emissions by:

PM10: 55% PM25: 55%

For Soil Stablizing Measures, the Equipment loading/unloading mitigation reduces emissions by:

PM10: 69% PM25: 69%

The following mitigation measures apply to Phase: Mass Grading 1/1/2018 - 5/31/2018 - Default Mass Site Grading/Excavation Description
For Soil Stablizing Measures, the Apply soil stabilizers to inactive areas mitigation reduces emissions by:

PM10: 84% PM25: 84%

For Soil Stablizing Measures, the Replace ground cover in disturbed areas quickly mitigation reduces emissions by:

PM10: 5% PM25: 5%

For Soil Stablizing Measures, the Water exposed surfaces 2x daily watering mitigation reduces emissions by:

PM10: 55% PM25: 55%

For Soil Stablizing Measures, the Equipment loading/unloading mitigation reduces emissions by:

PM10: 69% PM25: 69%

The following mitigation measures apply to Phase: Building Construction 5/1/2018 - 12/31/2018 - Default Building Construction Description

For Cranes, the Diesel Particulate Filter (DPF) 1st Tier mitigation reduces emissions by:

PM10: 85% PM25: 85%

For Cranes, the Diesel Oxidation Catalyst 15% mitigation reduces emissions by:

NOX: 15%

For Forklifts, the Diesel Particulate Filter (DPF) 1st Tier mitigation reduces emissions by:

PM10: 85% PM25: 85%

For Forklifts, the Diesel Oxidation Catalyst 15% mitigation reduces emissions by:

NOX: 15%

For Generator Sets, the Diesel Particulate Filter (DPF) 1st Tier mitigation reduces emissions by:

PM10: 85% PM25: 85%

For Generator Sets, the Diesel Oxidation Catalyst 15% mitigation reduces emissions by:

NOX: 15%

For Tractors/Loaders/Backhoes, the Diesel Particulate Filter (DPF) 1st Tier mitigation reduces emissions by:

PM10: 85% PM25: 85%

For Tractors/Loaders/Backhoes, the Diesel Oxidation Catalyst 15% mitigation reduces emissions by:

NOX: 15%

For Welders, the Diesel Particulate Filter (DPF) 1st Tier mitigation reduces emissions by:

PM10: 85% PM25: 85%

For Welders, the Diesel Oxidation Catalyst 15% mitigation reduces emissions by:

NOX: 15%

Phase Assumptions

Phase: Fine Grading 6/1/2018 - 12/31/2018 - Default Fine Site Grading/Excavation Description

Total Acres Disturbed: 127.21

Maximum Daily Acreage Disturbed: 31.8

Fugitive Dust Level of Detail: Default

20 lbs per acre-day

On Road Truck Travel (VMT): 0

Off-Road Equipment:

1 Excavators (168 hp) operating at a 0.57 load factor for 8 hours per day

1 Graders (174 hp) operating at a 0.61 load factor for 8 hours per day

1 Rubber Tired Dozers (357 hp) operating at a 0.59 load factor for 8 hours per day

2 Scrapers (313 hp) operating at a 0.72 load factor for 8 hours per day

3 Tractors/Loaders/Backhoes (108 hp) operating at a 0.55 load factor for 8 hours per day
1 Water Trucks (189 hp) operating at a 0.5 load factor for 8 hours per day

Phase: Mass Grading 1/1/2018 - 5/31/2018 - Default Mass Site Grading/Excavation Description
Total Acres Disturbed: 127.21
Maximum Daily Acreage Disturbed: 31.8
Fugitive Dust Level of Detail: Default
20 lbs per acre-day
On Road Truck Travel (VMT): 0
Off-Road Equipment:
1 Excavators (168 hp) operating at a 0.57 load factor for 8 hours per day
1 Graders (174 hp) operating at a 0.61 load factor for 8 hours per day
1 Rubber Tired Dozers (357 hp) operating at a 0.59 load factor for 8 hours per day
2 Scrapers (313 hp) operating at a 0.72 load factor for 8 hours per day
3 Tractors/Loaders/Backhoes (108 hp) operating at a 0.55 load factor for 8 hours per day
1 Water Trucks (189 hp) operating at a 0.5 load factor for 8 hours per day

Phase: Building Construction 5/1/2018 - 12/31/2018 - Default Building Construction Description
Off-Road Equipment:
1 Cranes (399 hp) operating at a 0.43 load factor for 7 hours per day
3 Forklifts (145 hp) operating at a 0.3 load factor for 8 hours per day
1 Generator Sets (49 hp) operating at a 0.74 load factor for 8 hours per day
3 Tractors/Loaders/Backhoes (108 hp) operating at a 0.55 load factor for 7 hours per day
1 Welders (45 hp) operating at a 0.45 load factor for 8 hours per day

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Urbemis 2007 Version 9.2.4

Detail Report for Summer Construction Unmitigated Emissions (Pounds/Day)

File Name: Z:\EBell\UCR LRDP Amend 2\URBEMIS\Construction\UCR LRDP Construction 2019.urb924

Project Name: UCR LRDP Construction 2019

Project Location: South Coast AQMD

On-Road Vehicle Emissions Based on: Version : Emfac2007 V2.3 Nov 1 2006

Off-Road Vehicle Emissions Based on: OFFROAD2007

CONSTRUCTION EMISSION ESTIMATES (Summer Pounds Per Day, Unmitigated)

	ROG	NOx	CO	SO2	PM10 Dust	PM10 Exhaust	PM10 Total	PM2.5 Dust	PM2.5 Exhaust	PM2.5 Total
Time Slice 1/1/2019-12/31/2019 Active Days: 261	**5.67**	**26.89**	**122.87**	**0.29**	**1.24**	**1.65**	**2.90**	**0.44**	**1.46**	**1.91**
Building 01/01/2019-12/31/2019	5.67	26.89	122.87	0.29	1.24	1.65	2.90	0.44	1.46	1.91
Building Off Road Diesel	1.88	11.39	12.14	0.00	0.00	0.57	0.57	0.00	0.52	0.52
Building Vendor Trips	1.17	10.38	12.52	0.05	0.20	0.43	0.63	0.07	0.39	0.46
Building Worker Trips	2.62	5.12	98.21	0.23	1.04	0.66	1.70	0.38	0.55	0.93

Phase Assumptions

Phase: Building Construction 1/1/2019 - 12/31/2019 - Default Building Construction Description

Off-Road Equipment:

1 Cranes (399 hp) operating at a 0.43 load factor for 7 hours per day

3 Forklifts (145 hp) operating at a 0.3 load factor for 8 hours per day

1 Generator Sets (49 hp) operating at a 0.74 load factor for 8 hours per day

3 Tractors/Loaders/Backhoes (108 hp) operating at a 0.55 load factor for 7 hours per day

1 Welders (45 hp) operating at a 0.45 load factor for 8 hours per day

1/19/2011 5:10:45 PM

Urbemis 2007 Version 9.2.4

Detail Report for Summer Construction Mitigated Emissions (Pounds/Day)

File Name: Z:\EBell\UCR LRDP Amend 2\URBEMIS\Construction\UCR LRDP Construction 2019.urb924

Project Name: UCR LRDP Construction 2019

Project Location: South Coast AQMD

On-Road Vehicle Emissions Based on: Version : Emfac2007 V2.3 Nov 1 2006

Off-Road Vehicle Emissions Based on: OFFROAD2007

CONSTRUCTION EMISSION ESTIMATES (Summer Pounds Per Day, Mitigated)

	ROG	NOx	CO	SO2	PM10 Dust	PM10 Exhaust	PM10 Total	PM2.5 Dust	PM2.5 Exhaust	PM2.5 Total
Time Slice 1/1/2019-12/31/2019 Active Days: 261	**5.67**	25.18	**122.87**	**0.29**	**1.24**	1.17	2.41	**0.44**	1.02	1.46
Building 01/01/2019-12/31/2019	5.67	25.18	122.87	0.29	1.24	1.17	2.41	0.44	1.02	1.46
Building Off Road Diesel	1.88	9.68	12.14	0.00	0.00	0.09	0.09	0.00	0.08	0.08
Building Vendor Trips	1.17	10.38	12.52	0.05	0.20	0.43	0.63	0.07	0.39	0.46
Building Worker Trips	2.62	5.12	98.21	0.23	1.04	0.66	1.70	0.38	0.55	0.93

Construction Related Mitigation Measures

The following mitigation measures apply to Phase: Building Construction 1/1/2019 - 12/31/2019 - Default Building Construction Description

For Cranes, the Diesel Particulate Filter (DPF) 1st Tier mitigation reduces emissions by:

PM10: 85% PM25: 85%

For Cranes, the Diesel Oxidation Catalyst 15% mitigation reduces emissions by:

NOX: 15%

For Forklifts, the Diesel Particulate Filter (DPF) 1st Tier mitigation reduces emissions by:

PM10: 85% PM25: 85%

For Forklifts, the Diesel Oxidation Catalyst 15% mitigation reduces emissions by:

NOX: 15%

For Generator Sets, the Diesel Particulate Filter (DPF) 1st Tier mitigation reduces emissions by:

PM10: 85% PM25: 85%

For Generator Sets, the Diesel Oxidation Catalyst 15% mitigation reduces emissions by:

NOX: 15%

For Tractors/Loaders/Backhoes, the Diesel Particulate Filter (DPF) 1st Tier mitigation reduces emissions by:

PM10: 85% PM25: 85%

For Tractors/Loaders/Backhoes, the Diesel Oxidation Catalyst 15% mitigation reduces emissions by:

NOX: 15%

For Welders, the Diesel Particulate Filter (DPF) 1st Tier mitigation reduces emissions by:

PM10: 85% PM25: 85%

For Welders, the Diesel Oxidation Catalyst 15% mitigation reduces emissions by:

NOX: 15%

Phase Assumptions

Phase: Building Construction 1/1/2019 - 12/31/2019 - Default Building Construction Description

Off-Road Equipment:

1 Cranes (399 hp) operating at a 0.43 load factor for 7 hours per day

3 Forklifts (145 hp) operating at a 0.3 load factor for 8 hours per day

1 Generator Sets (49 hp) operating at a 0.74 load factor for 8 hours per day

3 Tractors/Loaders/Backhoes (108 hp) operating at a 0.55 load factor for 7 hours per day

1 Welders (45 hp) operating at a 0.45 load factor for 8 hours per day

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Urbemis 2007 Version 9.2.4

Detail Report for Summer Construction Unmitigated Emissions (Pounds/Day)

File Name: Z:\EBell\UCR LRDP Amend 2\URBEMIS\Construction\UCR LRDP Construction 2020.urb924

Project Name: UCR LRDP Construction 2020

Project Location: South Coast AQMD

On-Road Vehicle Emissions Based on: Version : Emfac2007 V2.3 Nov 1 2006

Off-Road Vehicle Emissions Based on: OFFROAD2007

CONSTRUCTION EMISSION ESTIMATES (Summer Pounds Per Day, Unmitigated)

	ROG	NOx	CO	SO2	PM10 Dust	PM10 Exhaust	PM10 Total	PM2.5 Dust	PM2.5 Exhaust	PM2.5 Total
Time Slice 1/1/2020-8/31/2020 Active Days: 174	231.74	24.74	116.64	0.29	1.26	1.56	2.82	0.45	1.37	1.82
Building 01/01/2020-12/31/2020	5.18	24.67	115.27	0.29	1.24	1.55	2.79	0.44	1.37	1.81
Building Off Road Diesel	1.71	10.50	12.03	0.00	0.00	0.50	0.50	0.00	0.46	0.46
Building Vendor Trips	1.09	9.44	11.77	0.05	0.20	0.39	0.59	0.07	0.36	0.43
Building Worker Trips	2.38	4.73	91.47	0.23	1.04	0.66	1.70	0.38	0.55	0.93
Coating 01/01/2020-12/31/2020	226.56	0.07	1.36	0.00	0.02	0.01	0.03	0.01	0.01	0.01
Architectural Coating	226.53	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Coating Worker Trips	0.04	0.07	1.36	0.00	0.02	0.01	0.03	0.01	0.01	0.01

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Time Slice 9/1/2020-12/31/2020 Active Days: 88	**234.53**	**36.56**	**127.44**	**0.30**	**1.28**	**2.42**	**3.71**	**0.46**	**2.17**	**2.63**
Asphalt 09/01/2020-12/31/2020	2.78	11.81	10.81	0.01	0.03	0.87	0.89	0.01	0.80	0.81
Paving Off-Gas	0.95	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Paving Off Road Diesel	1.70	10.53	9.66	0.00	0.00	0.82	0.82	0.00	0.75	0.75
Paving On Road Diesel	0.12	1.25	0.51	0.01	0.02	0.04	0.06	0.01	0.04	0.04
Paving Worker Trips	0.02	0.03	0.64	0.00	0.01	0.00	0.01	0.00	0.00	0.01
Building 01/01/2020-12/31/2020	5.18	24.67	115.27	0.29	1.24	1.55	2.79	0.44	1.37	1.81
Building Off Road Diesel	1.71	10.50	12.03	0.00	0.00	0.50	0.50	0.00	0.46	0.46
Building Vendor Trips	1.09	9.44	11.77	0.05	0.20	0.39	0.59	0.07	0.36	0.43
Building Worker Trips	2.38	4.73	91.47	0.23	1.04	0.66	1.70	0.38	0.55	0.93
Coating 01/01/2020-12/31/2020	226.56	0.07	1.36	0.00	0.02	0.01	0.03	0.01	0.01	0.01
Architectural Coating	226.53	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Coating Worker Trips	0.04	0.07	1.36	0.00	0.02	0.01	0.03	0.01	0.01	0.01

Phase Assumptions

Phase: Paving 9/1/2020 - 12/31/2020 - Type Your Description Here

Acres to be Paved: 31.8

Off-Road Equipment:

1 Pavers (100 hp) operating at a 0.62 load factor for 8 hours per day

2 Paving Equipment (104 hp) operating at a 0.53 load factor for 8 hours per day

2 Rollers (95 hp) operating at a 0.56 load factor for 6 hours per day

Phase: Building Construction 1/1/2020 - 12/31/2020 - Default Building Construction Description

Off-Road Equipment:

1 Cranes (399 hp) operating at a 0.43 load factor for 7 hours per day

3 Forklifts (145 hp) operating at a 0.3 load factor for 8 hours per day

1 Generator Sets (49 hp) operating at a 0.74 load factor for 8 hours per day

3 Tractors/Loaders/Backhoes (108 hp) operating at a 0.55 load factor for 7 hours per day

1 Welders (45 hp) operating at a 0.45 load factor for 8 hours per day

Phase: Architectural Coating 1/1/2020 - 12/31/2020 - Type Your Description Here

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Rule: Residential Interior Coatings begins 1/1/2005 ends 6/30/2008 specifies a VOC of 100

Rule: Residential Interior Coatings begins 7/1/2008 ends 12/31/2040 specifies a VOC of 50

Rule: Residential Exterior Coatings begins 1/1/2005 ends 6/30/2008 specifies a VOC of 250

Rule: Residential Exterior Coatings begins 7/1/2008 ends 12/31/2040 specifies a VOC of 100

Rule: Nonresidential Interior Coatings begins 1/1/2005 ends 12/31/2040 specifies a VOC of 250

Rule: Nonresidential Exterior Coatings begins 1/1/2005 ends 12/31/2040 specifies a VOC of 250

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Urbemis 2007 Version 9.2.4

Detail Report for Summer Construction Mitigated Emissions (Pounds/Day)

File Name: Z:\EBell\UCR LRDP Amend 2\URBEMIS\Construction\UCR LRDP Construction 2020.urb924

Project Name: UCR LRDP Construction 2020

Project Location: South Coast AQMD

On-Road Vehicle Emissions Based on: Version : Emfac2007 V2.3 Nov 1 2006

Off-Road Vehicle Emissions Based on: OFFROAD2007

CONSTRUCTION EMISSION ESTIMATES (Summer Pounds Per Day, Mitigated)

	ROG	NOx	CO	SO2	PM10 Dust	PM10 Exhaust	PM10 Total	PM2.5 Dust	PM2.5 Exhaust	PM2.5 Total
Time Slice 1/1/2020-8/31/2020 Active Days: 174	209.09	23.17	116.64	0.29	1.26	1.14	2.39	0.45	0.99	1.44
Building 01/01/2020-12/31/2020	5.18	23.10	115.27	0.29	1.24	1.13	2.37	0.44	0.98	1.42
Building Off Road Diesel	1.71	8.92	12.03	0.00	0.00	0.07	0.07	0.00	0.07	0.07
Building Vendor Trips	1.09	9.44	11.77	0.05	0.20	0.39	0.59	0.07	0.36	0.43
Building Worker Trips	2.38	4.73	91.47	0.23	1.04	0.66	1.70	0.38	0.55	0.93
Coating 01/01/2020-12/31/2020	203.91	0.07	1.36	0.00	0.02	0.01	0.03	0.01	0.01	0.01
Architectural Coating	203.87	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Coating Worker Trips	0.04	0.07	1.36	0.00	0.02	0.01	0.03	0.01	0.01	0.01

Time Slice 9/1/2020-12/31/2020 Active Days: 88	211.87	34.98	**127.44**	**0.30**	**1.28**	2.00	3.28	**0.46**	1.78	2.24
Asphalt 09/01/2020-12/31/2020	2.78	11.81	10.81	0.01	0.03	0.87	0.89	0.01	0.80	0.81
Paving Off-Gas	0.95	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Paving Off Road Diesel	1.70	10.53	9.66	0.00	0.00	0.82	0.82	0.00	0.75	0.75
Paving On Road Diesel	0.12	1.25	0.51	0.01	0.02	0.04	0.06	0.01	0.04	0.04
Paving Worker Trips	0.02	0.03	0.64	0.00	0.01	0.00	0.01	0.00	0.00	0.01
Building 01/01/2020-12/31/2020	5.18	23.10	115.27	0.29	1.24	1.13	2.37	0.44	0.98	1.42
Building Off Road Diesel	1.71	8.92	12.03	0.00	0.00	0.07	0.07	0.00	0.07	0.07
Building Vendor Trips	1.09	9.44	11.77	0.05	0.20	0.39	0.59	0.07	0.36	0.43
Building Worker Trips	2.38	4.73	91.47	0.23	1.04	0.66	1.70	0.38	0.55	0.93
Coating 01/01/2020-12/31/2020	203.91	0.07	1.36	0.00	0.02	0.01	0.03	0.01	0.01	0.01
Architectural Coating	203.87	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Coating Worker Trips	0.04	0.07	1.36	0.00	0.02	0.01	0.03	0.01	0.01	0.01

Construction Related Mitigation Measures

The following mitigation measures apply to Phase: Building Construction 1/1/2020 - 12/31/2020 - Default Building Construction Description

For Cranes, the Diesel Particulate Filter (DPF) 1st Tier mitigation reduces emissions by:

PM10: 85% PM25: 85%

For Cranes, the Diesel Oxidation Catalyst 15% mitigation reduces emissions by:

NOX: 15%

For Forklifts, the Diesel Particulate Filter (DPF) 1st Tier mitigation reduces emissions by:

PM10: 85% PM25: 85%

For Forklifts, the Diesel Oxidation Catalyst 15% mitigation reduces emissions by:

NOX: 15%

For Generator Sets, the Diesel Particulate Filter (DPF) 1st Tier mitigation reduces emissions by:

PM10: 85% PM25: 85%

For Generator Sets, the Diesel Oxidation Catalyst 15% mitigation reduces emissions by:

NOX: 15%

For Tractors/Loaders/Backhoes, the Diesel Particulate Filter (DPF) 1st Tier mitigation reduces emissions by:

PM10: 85% PM25: 85%

For Tractors/Loaders/Backhoes, the Diesel Oxidation Catalyst 15% mitigation reduces emissions by:

NOX: 15%

For Welders, the Diesel Particulate Filter (DPF) 1st Tier mitigation reduces emissions by:

PM10: 85% PM25: 85%

For Welders, the Diesel Oxidation Catalyst 15% mitigation reduces emissions by:

NOX: 15%

The following mitigation measures apply to Phase: Architectural Coating 1/1/2020 - 12/31/2020 - Type Your Description Here

For Nonresidential Architectural Coating Measures, the Nonresidential Exterior: Use Low VOC Coatings mitigation reduces emissions by:
ROG: 10%

For Nonresidential Architectural Coating Measures, the Nonresidential Interior: Use Low VOC Coatings mitigation reduces emissions by:
ROG: 10%

Phase Assumptions

Phase: Paving 9/1/2020 - 12/31/2020 - Type Your Description Here

Acres to be Paved: 31.8

Off-Road Equipment:

1 Pavers (100 hp) operating at a 0.62 load factor for 8 hours per day

2 Paving Equipment (104 hp) operating at a 0.53 load factor for 8 hours per day

2 Rollers (95 hp) operating at a 0.56 load factor for 6 hours per day

Phase: Building Construction 1/1/2020 - 12/31/2020 - Default Building Construction Description

Off-Road Equipment:

1 Cranes (399 hp) operating at a 0.43 load factor for 7 hours per day

3 Forklifts (145 hp) operating at a 0.3 load factor for 8 hours per day

1 Generator Sets (49 hp) operating at a 0.74 load factor for 8 hours per day

3 Tractors/Loaders/Backhoes (108 hp) operating at a 0.55 load factor for 7 hours per day

1 Welders (45 hp) operating at a 0.45 load factor for 8 hours per day

Phase: Architectural Coating 1/1/2020 - 12/31/2020 - Type Your Description Here

Rule: Residential Interior Coatings begins 1/1/2005 ends 6/30/2008 specifies a VOC of 100

Rule: Residential Interior Coatings begins 7/1/2008 ends 12/31/2040 specifies a VOC of 50

Rule: Residential Exterior Coatings begins 1/1/2005 ends 6/30/2008 specifies a VOC of 250

Rule: Residential Exterior Coatings begins 7/1/2008 ends 12/31/2040 specifies a VOC of 100

Rule: Nonresidential Interior Coatings begins 1/1/2005 ends 12/31/2040 specifies a VOC of 250

Rule: Nonresidential Exterior Coatings begins 1/1/2005 ends 12/31/2040 specifies a VOC of 250

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Urbemis 2007 Version 9.2.4

Detail Report for Summer Area Source Unmitigated Emissions (Pounds/Day)

File Name: Z:\EBell\UCR LRDP Amend 2\URBEMIS\Operational\Area Source\Area Sources.urb924

Project Name: UC Riverside LRDP - Area Source Operational Emissions

Project Location: South Coast AQMD

On-Road Vehicle Emissions Based on: Version : Emfac2007 V2.3 Nov 1 2006

Off-Road Vehicle Emissions Based on: OFFROAD2007

AREA SOURCE EMISSION ESTIMATES (Summer Pounds Per Day, Unmitigated)

Source	ROG	NOx	CO	SO2	PM10	PM2.5
Natural Gas	5.83	80.35	67.49	0.00	0.14	0.14
Hearth - No Summer Emissions						
Landscape	0.12	0.02	1.55	0.00	0.01	0.01
Consumer Products	0.00					
Architectural Coatings	48.65					
TOTALS (lbs/day, unmitigated)	54.60	80.37	69.04	0.00	0.15	0.15

Area Source Changes to Defaults

Percent residential using natural gas changed from 78% to 100%

Percentage of residences with wood stoves changed from 10% to 0%

Percentage of residences with wood fireplaces changed from 5% to 0%

Percentage of residences with natural gas fireplaces changed from 85% to 100%

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Urbemis 2007 Version 9.2.4

Detail Report for Summer Operational Unmitigated Emissions (Pounds/Day)

File Name: Z:\EBell\UCR LRDP Amend 2\URBEMIS\Operational\Mobile Source\LRDP Amend 2 Update.urb924

Project Name: LRDP Amend 2 update

Project Location: Riverside County

On-Road Vehicle Emissions Based on: Version : Emfac2007 V2.3 Nov 1 2006

Off-Road Vehicle Emissions Based on: OFFROAD2007

OPERATIONAL EMISSION ESTIMATES (Summer Pounds Per Day, Unmitigated)

Source	ROG	NOX	CO	SO2	PM10	PM25
University/college (4 yrs)	71.54	65.12	588.74	1.17	188.64	36.94
Medical office building	105.88	136.11	1,232.71	2.45	394.49	77.25
University faculty and staff	139.45	165.09	1,488.41	2.97	477.84	93.55
Ambulatory care facility	74.13	86.12	776.43	1.55	249.27	48.80
TOTALS (lbs/day, unmitigated)	391.00	452.44	4,086.29	8.14	1,310.24	256.54

Does not include correction for passby trips

Does not include double counting adjustment for internal trips

Analysis Year: 2020 Temperature (F): 80 Season: Summer

Emfac: Version : Emfac2007 V2.3 Nov 1 2006

Summary of Land Uses

Land Use Type	Acreage	Trip Rate	Unit Type	No. Units	Total Trips	Total VMT
University/college (4 yrs)		2.38	students	5,042.00	11,999.96	108,989.64
Medical office building		36.13	1000 sq ft	689.00	24,893.57	227,913.08
University faculty and staff		9.13	unknown	3,370.00	30,768.10	276,082.15

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Summary of Land Uses

Land Use Type	Acreage	Trip Rate	Unit Type	No. Units	Total Trips	Total VMT
Ambulatory care facility		7.75	unknown	2,071.00	16,050.25	144,018.89
					83,711.88	757,003.76

Vehicle Fleet Mix

Vehicle Type	Percent Type	Non-Catalyst	Catalyst	Diesel
Light Auto	44.4	0.0	100.0	0.0
Light Truck < 3750 lbs	9.2	0.0	97.8	2.2
Light Truck 3751-5750 lbs	22.5	0.0	100.0	0.0
Med Truck 5751-8500 lbs	12.6	0.0	100.0	0.0
Lite-Heavy Truck 8501-10,000 lbs	2.0	0.0	80.0	20.0
Lite-Heavy Truck 10,001-14,000 lbs	0.6	0.0	50.0	50.0
Med-Heavy Truck 14,001-33,000 lbs	0.8	0.0	25.0	75.0
Heavy-Heavy Truck 33,001-60,000 lbs	1.6	0.0	0.0	100.0
Other Bus	0.0	0.0	0.0	0.0
Urban Bus	0.0	0.0	0.0	0.0
Motorcycle	4.7	38.3	61.7	0.0
School Bus	0.1	0.0	0.0	100.0
Motor Home	1.5	0.0	86.7	13.3

Travel Conditions

	Residential			Commercial		
	Home-Work	Home-Shop	Home-Other	Commute	Non-Work	Customer
Urban Trip Length (miles)	12.7	7.0	9.5	13.3	7.4	8.9
Rural Trip Length (miles)	17.6	12.1	14.9	15.4	9.6	12.6

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Travel Conditions

	Residential			Commercial		
	Home-Work	Home-Shop	Home-Other	Commute	Non-Work	Customer
Trip speeds (mph)	30.0	30.0	30.0	30.0	30.0	30.0
% of Trips - Residential	32.9	18.0	49.1			
% of Trips - Commercial (by land use)						
University/college (4 yrs)				5.0	2.5	92.5
Medical office building				7.0	3.5	89.5
University faculty and staff				2.0	1.0	97.0
Ambulatory care facility				2.0	1.0	97.0

Operational Changes to Defaults

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Urbemis 2007 Version 9.2.4

Detail Report for Winter Operational Unmitigated Emissions (Pounds/Day)

File Name: Z:\EBell\UCR LRDP Amend 2\URBEMIS\Operational\Mobile Source\LRDP Amend 2 Update.urb924

Project Name: LRDP Amend 2 update

Project Location: Riverside County

On-Road Vehicle Emissions Based on: Version : Emfac2007 V2.3 Nov 1 2006

Off-Road Vehicle Emissions Based on: OFFROAD2007

OPERATIONAL EMISSION ESTIMATES (Winter Pounds Per Day, Unmitigated)

Source	ROG	NOX	CO	SO2	PM10	PM25
University/college (4 yrs)	66.42	77.81	566.15	0.99	188.64	36.94
Medical office building	117.82	162.65	1,184.74	2.07	394.49	77.25
University faculty and staff	148.10	197.25	1,432.58	2.51	477.84	93.55
Ambulatory care facility	77.93	102.90	747.31	1.31	249.27	48.80
TOTALS (lbs/day, unmitigated)	410.27	540.61	3,930.78	6.88	1,310.24	256.54

Does not include correction for passby trips

Does not include double counting adjustment for internal trips

Analysis Year: 2020 Temperature (F): 60 Season: Winter

Emfac: Version : Emfac2007 V2.3 Nov 1 2006

Summary of Land Uses

Land Use Type	Acreage	Trip Rate	Unit Type	No. Units	Total Trips	Total VMT
University/college (4 yrs)		2.38	students	5,042.00	11,999.96	108,989.64
Medical office building		36.13	1000 sq ft	689.00	24,893.57	227,913.08
University faculty and staff		9.13	unknown	3,370.00	30,768.10	276,082.15

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Summary of Land Uses

Land Use Type	Acreage	Trip Rate	Unit Type	No. Units	Total Trips	Total VMT
Ambulatory care facility		7.75	unknown	2,071.00	16,050.25	144,018.89
					83,711.88	757,003.76

Vehicle Fleet Mix

Vehicle Type	Percent Type	Non-Catalyst	Catalyst	Diesel
Light Auto	44.4	0.0	100.0	0.0
Light Truck < 3750 lbs	9.2	0.0	97.8	2.2
Light Truck 3751-5750 lbs	22.5	0.0	100.0	0.0
Med Truck 5751-8500 lbs	12.6	0.0	100.0	0.0
Lite-Heavy Truck 8501-10,000 lbs	2.0	0.0	80.0	20.0
Lite-Heavy Truck 10,001-14,000 lbs	0.6	0.0	50.0	50.0
Med-Heavy Truck 14,001-33,000 lbs	0.8	0.0	25.0	75.0
Heavy-Heavy Truck 33,001-60,000 lbs	1.6	0.0	0.0	100.0
Other Bus	0.0	0.0	0.0	0.0
Urban Bus	0.0	0.0	0.0	0.0
Motorcycle	4.7	38.3	61.7	0.0
School Bus	0.1	0.0	0.0	100.0
Motor Home	1.5	0.0	86.7	13.3

Travel Conditions

	Residential			Commercial		
	Home-Work	Home-Shop	Home-Other	Commute	Non-Work	Customer
Urban Trip Length (miles)	12.7	7.0	9.5	13.3	7.4	8.9
Rural Trip Length (miles)	17.6	12.1	14.9	15.4	9.6	12.6

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Travel Conditions

	Residential			Commercial		
	Home-Work	Home-Shop	Home-Other	Commute	Non-Work	Customer
Trip speeds (mph)	30.0	30.0	30.0	30.0	30.0	30.0
% of Trips - Residential	32.9	18.0	49.1			
% of Trips - Commercial (by land use)						
University/college (4 yrs)				5.0	2.5	92.5
Medical office building				7.0	3.5	89.5
University faculty and staff				2.0	1.0	97.0
Ambulatory care facility				2.0	1.0	97.0

Operational Changes to Defaults

BAY AREA AQMD SIMPLIFIED CALINE4 ANALYSIS; UPDATED WITH EMFAC2007

Project Title:	UC Riverside LRDP
Intersection:	Chicago Avenue and 3rd Street
Analysis Condition:	Cumulative Plus Project Conditions (Year 2020)
Nearest Air Monitoring Station measuring CO:	SRA 23 (Metropolitan Riverside County 2)
Background 1-hour CO Concentration (ppm):	7 0
Background 8-hour CO Concentration (ppm):	2 3
Persistence Factor:	0 7
Analysis Year:	2020

		Roadway Type	No of Lanes	Approach/Departure Speed A M	Approach/Departure Speed P M
North-South Roadway:	Chicago Avenue	AT GRADE	4	5	5
East-West Roadway:	3rd Street	AT GRADE	4	5	5

EMFAC2007 COMPOSITE EMISSION FACTORS FOR CO

Air Basin: South Coast County: Riverside
Assumes lowest mean wintertime temperature of 39 degrees F and 55% humidity

	Average Speed (miles per hour)									
Year	5	8	11	14	17	20	23	26	29	32
2010	6 779	6 003	5 379	4 873	4 459	4 123	3 851	3 624	3 435	3 28
2011	6 147	5 456	4 899	4 445	4 074	3 772	3 528	3 322	3 151	3 009
2012	5 585	4 969	4 471	4 064	3 729	3 458	3 238	3 052	2 896	2 767
2013	5 078	4 529	4 082	3 717	3 416	3 172	2 974	2 806	2 664	2 546
2014	4 62	4 129	3 729	3 4	3 13	2 91	2 732	2 58	2 451	2 343
2015	4 218	3 778	3 418	3 121	2 876	2 678	2 517	2 379	2 262	2 163
2020	2 891	2 612	2 38	2 187	2 028	1 899	1 793	1 702	1 624	1 557
2025	2 222	2 013	1 839	1 694	1 574	1 478	1 4	1 332	1 273	1 222
2030	1 902	1 723	1 573	1 449	1 347	1 266	1 201	1 144	1 094	1 051
2035	1 738	1 569	1 428	1 312	1 217	1 143	1 084	1 033	0 987	0 948
2040	1 642	1 476	1 338	1 224	1 133	1 063	1 008	0 96	0 918	0 881

PEAK HOUR TURNING VOLUMES

A M Peak

	N			
	50	246	323	
W	<	v	>	E
86	^		^	313
433	>		<	461
105	v		v	136
	<	^	>	
	163	623	195	
	S			

P M Peak

	N			
	74	788	389	
W	<	v	>	E
86	^		^	263
742	>		<	419
238	v		v	295
	<	^	>	
	163	623	195	
	S			

Representative Traffic Volumes (Vehicles per Hour)

N-S Road	1,641	N-S Road	2,302
E-W Road	1,861	E-W Road	2,303
Primary Road =	E-W Road	Primary Road =	E-W Road

ROADWAY CO CONTRIBUTIONS

Roadway	Reference CO Concentrations 0 Feet	25 Feet	50 Feet		Traffic Volume		Emission Factor		
A M Peak Hour									
N-S Road	3 3	2 6	2 2	*	1,641	*	2 89	÷	100,000
E-W Road	11 9	7 0	5 4	*	1,861	*	2 89	÷	100,000
P M Peak Hour									
N-S Road	3 3	2 6	2 2	*	2,302	*	2 89	÷	100,000
E-W Road	11 9	7 0	5 4	*	2,303	*	2 89	÷	100,000

TOTAL CO CONCENTRATIONS (ppm)

	A M Peak Hour	P M Peak Hour	8-Hour
0 Feet from Roadway Edge	7 8	8 0	3 0
25 Feet from Roadway Edge	7 5	7 6	2 7
50 Feet from Roadway Edge	7 4	7 5	2 7

BAY AREA AQMD SIMPLIFIED CALINE4 ANALYSIS; UPDATED WITH EMFAC2007

Project Title:	UC Riverside LRDP
Intersection:	Iowa Avenue and Blaine Street
Analysis Condition:	Cumulative Plus Project Conditions (Year 2020)
Nearest Air Monitoring Station measuring CO:	SRA 23 (Metropolitan Riverside County 2)
Background 1-hour CO Concentration (ppm):	7 0
Background 8-hour CO Concentration (ppm):	2 3
Persistence Factor:	0 7
Analysis Year:	2020

		Roadway Type	No of Lanes	Approach/Departure Speed A M	Approach/Departure Speed P M
North-South Roadway:	Iowa Avenue	AT GRADE	4	5	5
East-West Roadway:	Blaine Street	AT GRADE	4	5	5

EMFAC2007 COMPOSITE EMISSION FACTORS FOR CO

Air Basin: South Coast County: Riverside
Assumes lowest mean wintertime temperature of 39 degrees F and 55% humidity

	Average Speed (miles per hour)									
Year	5	8	11	14	17	20	23	26	29	32
2010	6 779	6 003	5 379	4 873	4 459	4 123	3 851	3 624	3 435	3 28
2011	6 147	5 456	4 899	4 445	4 074	3 772	3 528	3 322	3 151	3 009
2012	5 585	4 969	4 471	4 064	3 729	3 458	3 238	3 052	2 896	2 767
2013	5 078	4 529	4 082	3 717	3 416	3 172	2 974	2 806	2 664	2 546
2014	4 62	4 129	3 729	3 4	3 13	2 91	2 732	2 58	2 451	2 343
2015	4 218	3 778	3 418	3 121	2 876	2 678	2 517	2 379	2 262	2 163
2020	2 891	2 612	2 38	2 187	2 028	1 899	1 793	1 702	1 624	1 557
2025	2 222	2 013	1 839	1 694	1 574	1 478	1 4	1 332	1 273	1 222
2030	1 902	1 723	1 573	1 449	1 347	1 266	1 201	1 144	1 094	1 051
2035	1 738	1 569	1 428	1 312	1 217	1 143	1 084	1 033	0 987	0 948
2040	1 642	1 476	1 338	1 224	1 133	1 063	1 008	0 96	0 918	0 881

PEAK HOUR TURNING VOLUMES

A M Peak

	N			
	261	627	172	
W	<	v	>	E
485	^		^	160
595	>		<	529
249	v		v	209
	<	^	>	
	219	808	158	
	S			

P M Peak

	N			
	217	1,015	244	
W	<	v	>	E
350	^		^	160
584	>		<	441
422	v		v	248
	<	^	>	
	435	816	307	
	S			

Representative Traffic Volumes (Vehicles per Hour)

N-S Road	2,513	N-S Road	3,243
E-W Road	2,338	E-W Road	2,449
Primary Road =	N-S Road	Primary Road =	N-S Road

ROADWAY CO CONTRIBUTIONS

Roadway	Reference CO Concentrations 0 Feet	25 Feet	50 Feet		Traffic Volume		Emission Factor		
A M Peak Hour									
N-S Road	11 9	7 0	5 4	*	2,513	*	2 89	÷	100,000
E-W Road	3 3	2 6	2 2	*	2,338	*	2 89	÷	100,000
P M Peak Hour									
N-S Road	11 9	7 0	5 4	*	3,243	*	2 89	÷	100,000
E-W Road	3 3	2 6	2 2	*	2,449	*	2 89	÷	100,000

TOTAL CO CONCENTRATIONS (ppm)

	A M Peak Hour	P M Peak Hour	8-Hour
0 Feet from Roadway Edge	8 1	8 3	3 2
25 Feet from Roadway Edge	7 7	7 8	2 9
50 Feet from Roadway Edge	7 5	7 7	2 8

BAY AREA AQMD SIMPLIFIED CALINE4 ANALYSIS; UPDATED WITH EMFAC2007

Project Title:	UC Riverside LRDP
Intersection:	Rustin Ave and Blaine Street
Analysis Condition:	Cumulative Plus Project Conditions (Year 2020)
Nearest Air Monitoring Station measuring CO:	SRA 23 (Metropolitan Riverside County 2)
Background 1-hour CO Concentration (ppm):	7 0
Background 8-hour CO Concentration (ppm):	2 3
Persistence Factor:	0 7
Analysis Year:	2020

		Roadway Type	No of Lanes	Approach/Departure Speed A M	Approach/Departure Speed P M
North-South Roadway:	Rustin Ave	AT GRADE	2	5	5
East-West Roadway:	Blaine Street	AT GRADE	2	5	5

EMFAC2007 COMPOSITE EMISSION FACTORS FOR CO

Air Basin: South Coast County: Riverside
Assumes lowest mean wintertime temperature of 39 degrees F and 55% humidity

	Average Speed (miles per hour)									
Year	5	8	11	14	17	20	23	26	29	32
2010	6 779	6 003	5 379	4 873	4 459	4 123	3 851	3 624	3 435	3 28
2011	6 147	5 456	4 899	4 445	4 074	3 772	3 528	3 322	3 151	3 009
2012	5 585	4 969	4 471	4 064	3 729	3 458	3 238	3 052	2 896	2 767
2013	5 078	4 529	4 082	3 717	3 416	3 172	2 974	2 806	2 664	2 546
2014	4 62	4 129	3 729	3 4	3 13	2 91	2 732	2 58	2 451	2 343
2015	4 218	3 778	3 418	3 121	2 876	2 678	2 517	2 379	2 262	2 163
2020	2 891	2 612	2 38	2 187	2 028	1 899	1 793	1 702	1 624	1 557
2025	2 222	2 013	1 839	1 694	1 574	1 478	1 4	1 332	1 273	1 222
2030	1 902	1 723	1 573	1 449	1 347	1 266	1 201	1 144	1 094	1 051
2035	1 738	1 569	1 428	1 312	1 217	1 143	1 084	1 033	0 987	0 948
2040	1 642	1 476	1 338	1 224	1 133	1 063	1 008	0 96	0 918	0 881

PEAK HOUR TURNING VOLUMES

A M Peak

	N			
	108	52	108	
W	<	v	>	E
175	^		^	92
574	>		<	616
113	v		v	74
	<	^	>	
	55	58	38	
	S			

P M Peak

	N			
	52	31	77	
W	<	v	>	E
60	^		^	52
815	>		<	733
89	v		v	45
	<	^	>	
	111	22	51	
	S			

Representative Traffic Volumes (Vehicles per Hour)

N-S Road	593	N-S Road	349
E-W Road	1,641	E-W Road	1,860
Primary Road =	E-W Road	Primary Road =	E-W Road

ROADWAY CO CONTRIBUTIONS

Roadway	Reference CO Concentrations 0 Feet	25 Feet	50 Feet		Traffic Volume		Emission Factor		
A M Peak Hour									
N-S Road	3 7	2 7	2 2	*	593	*	2 89	÷	100,000
E-W Road	14 0	7 6	5 7	*	1,641	*	2 89	÷	100,000
P M Peak Hour									
N-S Road	3 7	2 7	2 2	*	349	*	2 89	÷	100,000
E-W Road	14 0	7 6	5 7	*	1,860	*	2 89	÷	100,000

TOTAL CO CONCENTRATIONS (ppm)

	A M Peak Hour	P M Peak Hour	8-Hour
0 Feet from Roadway Edge	7 7	7 8	2 9
25 Feet from Roadway Edge	7 4	7 4	2 6
50 Feet from Roadway Edge	7 3	7 3	2 5

BAY AREA AQMD SIMPLIFIED CALINE4 ANALYSIS; UPDATED WITH EMFAC2007

Project Title:	UC Riverside LRDP
Intersection:	Iowa Avenue and Linden Street
Analysis Condition:	Cumulative Plus Project Conditions (Year 2020)
Nearest Air Monitoring Station measuring CO:	SRA 23 (Metropolitan Riverside County 2)
Background 1-hour CO Concentration (ppm):	7 0
Background 8-hour CO Concentration (ppm):	2 3
Persistence Factor:	0 7
Analysis Year:	2020

		Roadway Type	No of Lanes	Approach/Departure Speed A M	Approach/Departure Speed P M
North-South Roadway:	Iowa Avenue	AT GRADE	4	5	5
East-West Roadway:	Linden Street	AT GRADE	2	5	5

EMFAC2007 COMPOSITE EMISSION FACTORS FOR CO

Air Basin: South Coast County: Riverside
Assumes lowest mean wintertime temperature of 39 degrees F and 55% humidity

	Average Speed (miles per hour)									
Year	5	8	11	14	17	20	23	26	29	32
2010	6 779	6 003	5 379	4 873	4 459	4 123	3 851	3 624	3 435	3 28
2011	6 147	5 456	4 899	4 445	4 074	3 772	3 528	3 322	3 151	3 009
2012	5 585	4 969	4 471	4 064	3 729	3 458	3 238	3 052	2 896	2 767
2013	5 078	4 529	4 082	3 717	3 416	3 172	2 974	2 806	2 664	2 546
2014	4 62	4 129	3 729	3 4	3 13	2 91	2 732	2 58	2 451	2 343
2015	4 218	3 778	3 418	3 121	2 876	2 678	2 517	2 379	2 262	2 163
2020	2 891	2 612	2 38	2 187	2 028	1 899	1 793	1 702	1 624	1 557
2025	2 222	2 013	1 839	1 694	1 574	1 478	1 4	1 332	1 273	1 222
2030	1 902	1 723	1 573	1 449	1 347	1 266	1 201	1 144	1 094	1 051
2035	1 738	1 569	1 428	1 312	1 217	1 143	1 084	1 033	0 987	0 948
2040	1 642	1 476	1 338	1 224	1 133	1 063	1 008	0 96	0 918	0 881

PEAK HOUR TURNING VOLUMES

A M Peak

	N			
	246	783	137	
W	<	v	>	E
155 ^			^	82
212 >			<	172
213 v			v	82
	<	^	>	
	170	801	109	
	S			

P M Peak

	N			
	129	460	174	
W	<	v	>	E
155 ^			^	25
212 >			<	181
213 v			v	128
	<	^	>	
	183	1,168	163	
	S			

Representative Traffic Volumes (Vehicles per Hour)

N-S Road	2,204	N-S Road	2,315
E-W Road	1,168	E-W Road	1,073
Primary Road =	N-S Road	Primary Road =	N-S Road

ROADWAY CO CONTRIBUTIONS

Roadway	Reference CO Concentrations 0 Feet	25 Feet	50 Feet		Traffic Volume		Emission Factor		
A M Peak Hour									
N-S Road	11 9	7 0	5 4	*	2,204	*	2 89	÷	100,000
E-W Road	3 7	2 7	2 2	*	1,168	*	2 89	÷	100,000
P M Peak Hour									
N-S Road	11 9	7 0	5 4	*	2,315	*	2 89	÷	100,000
E-W Road	3 7	2 7	2 2	*	1,073	*	2 89	÷	100,000

TOTAL CO CONCENTRATIONS (ppm)

	A M Peak Hour	P M Peak Hour	8-Hour
0 Feet from Roadway Edge	7 9	7 9	2 9
25 Feet from Roadway Edge	7 5	7 6	2 7
50 Feet from Roadway Edge	7 4	7 4	2 6

BAY AREA AQMD SIMPLIFIED CALINE4 ANALYSIS; UPDATED WITH EMFAC2007

Project Title:	UC Riverside LRDP
Intersection:	Canyon Crest Drive and Linden Street
Analysis Condition:	Cumulative Plus Project Conditions (Year 2020)
Nearest Air Monitoring Station measuring CO:	SRA 23 (Metropolitan Riverside County 2)
Background 1-hour CO Concentration (ppm):	7 0
Background 8-hour CO Concentration (ppm):	2 3
Persistence Factor:	0 7
Analysis Year:	2020

		Roadway Type	No of Lanes	Approach/Departure Speed A M	Approach/Departure Speed P M
North-South Roadway:	Canyon Crest Drive	AT GRADE	4	5	5
East-West Roadway:	Linden Street	AT GRADE	4	5	5

EMFAC2007 COMPOSITE EMISSION FACTORS FOR CO

Air Basin: South Coast County: Riverside
Assumes lowest mean wintertime temperature of 39 degrees F and 55% humidity

	Average Speed (miles per hour)									
Year	5	8	11	14	17	20	23	26	29	32
2010	6 779	6 003	5 379	4 873	4 459	4 123	3 851	3 624	3 435	3 28
2011	6 147	5 456	4 899	4 445	4 074	3 772	3 528	3 322	3 151	3 009
2012	5 585	4 969	4 471	4 064	3 729	3 458	3 238	3 052	2 896	2 767
2013	5 078	4 529	4 082	3 717	3 416	3 172	2 974	2 806	2 664	2 546
2014	4 62	4 129	3 729	3 4	3 13	2 91	2 732	2 58	2 451	2 343
2015	4 218	3 778	3 418	3 121	2 876	2 678	2 517	2 379	2 262	2 163
2020	2 891	2 612	2 38	2 187	2 028	1 899	1 793	1 702	1 624	1 557
2025	2 222	2 013	1 839	1 694	1 574	1 478	1 4	1 332	1 273	1 222
2030	1 902	1 723	1 573	1 449	1 347	1 266	1 201	1 144	1 094	1 051
2035	1 738	1 569	1 428	1 312	1 217	1 143	1 084	1 033	0 987	0 948
2040	1 642	1 476	1 338	1 224	1 133	1 063	1 008	0 96	0 918	0 881

PEAK HOUR TURNING VOLUMES

A M Peak

	N			
	47	355	82	
W	<	v	>	E
51	^		^	43
106	>		<	62
99	v		v	109
	<	^	>	
	105	333	161	
	S			

P M Peak

	N			
	57	550	108	
W	<	v	>	E
76	^		^	126
101	>		<	126
179	v		v	200
	<	^	>	
	149	520	174	
	S			

Representative Traffic Volumes (Vehicles per Hour)

	A M	P M
N-S Road	1,162	1,772
E-W Road	563	835
Primary Road =	N-S Road	N-S Road

ROADWAY CO CONTRIBUTIONS

Roadway	Reference CO Concentrations 0 Feet	25 Feet	50 Feet		Traffic Volume		Emission Factor		
A M Peak Hour									
N-S Road	11 9	7 0	5 4	*	1,162	*	2 89	÷	100,000
E-W Road	3 3	2 6	2 2	*	563	*	2 89	÷	100,000
P M Peak Hour									
N-S Road	11 9	7 0	5 4	*	1,772	*	2 89	÷	100,000
E-W Road	3 3	2 6	2 2	*	835	*	2 89	÷	100,000

TOTAL CO CONCENTRATIONS (ppm)

	A M Peak Hour	P M Peak Hour	8-Hour
0 Feet from Roadway Edge	7 5	7 7	2 8
25 Feet from Roadway Edge	7 3	7 4	2 6
50 Feet from Roadway Edge	7 2	7 3	2 5

BAY AREA AQMD SIMPLIFIED CALINE4 ANALYSIS; UPDATED WITH EMFAC2007

Project Title:	UC Riverside LRDP
Intersection:	Kansas Avenue and University Avenue
Analysis Condition:	Cumulative Plus Project Conditions (Year 2020)
Nearest Air Monitoring Station measuring CO:	SRA 23 (Metropolitan Riverside County 2)
Background 1-hour CO Concentration (ppm):	7 0
Background 8-hour CO Concentration (ppm):	2 3
Persistence Factor:	0 7
Analysis Year:	2020

		Roadway Type	No of Lanes	Approach/Departure Speed A M	Approach/Departure Speed P M
North-South Roadway:	Kansas Avenue	AT GRADE	2	5	5
East-West Roadway:	University Avenue	AT GRADE	4	5	5

EMFAC2007 COMPOSITE EMISSION FACTORS FOR CO

Air Basin: South Coast County: Riverside
Assumes lowest mean wintertime temperature of 39 degrees F and 55% humidity

	Average Speed (miles per hour)									
Year	5	8	11	14	17	20	23	26	29	32
2010	6 779	6 003	5 379	4 873	4 459	4 123	3 851	3 624	3 435	3 28
2011	6 147	5 456	4 899	4 445	4 074	3 772	3 528	3 322	3 151	3 009
2012	5 585	4 969	4 471	4 064	3 729	3 458	3 238	3 052	2 896	2 767
2013	5 078	4 529	4 082	3 717	3 416	3 172	2 974	2 806	2 664	2 546
2014	4 62	4 129	3 729	3 4	3 13	2 91	2 732	2 58	2 451	2 343
2015	4 218	3 778	3 418	3 121	2 876	2 678	2 517	2 379	2 262	2 163
2020	2 891	2 612	2 38	2 187	2 028	1 899	1 793	1 702	1 624	1 557
2025	2 222	2 013	1 839	1 694	1 574	1 478	1 4	1 332	1 273	1 222
2030	1 902	1 723	1 573	1 449	1 347	1 266	1 201	1 144	1 094	1 051
2035	1 738	1 569	1 428	1 312	1 217	1 143	1 084	1 033	0 987	0 948
2040	1 642	1 476	1 338	1 224	1 133	1 063	1 008	0 96	0 918	0 881

PEAK HOUR TURNING VOLUMES

A M Peak

	N			
	80	50	37	
W	<	v	>	E
71	^		^	34
619	>		<	592
30	v		v	9
	<	^	>	
	38	62	13	
	S			

P M Peak

	N			
	109	144	86	
W	<	v	>	E
94	^		^	39
1,390	>		<	891
89	v		v	39
	<	^	>	
	48	72	50	
	S			

Representative Traffic Volumes (Vehicles per Hour)

	A M		P M	
N-S Road	334		544	
E-W Road	1,430		2,621	
Primary Road =	E-W Road		E-W Road	

ROADWAY CO CONTRIBUTIONS

Roadway	Reference CO Concentrations 0 Feet	25 Feet	50 Feet		Traffic Volume		Emission Factor		
A M Peak Hour									
N-S Road	3 7	2 7	2 2	*	334	*	2 89	÷	100,000
E-W Road	11 9	7 0	5 4	*	1,430	*	2 89	÷	100,000
P M Peak Hour									
N-S Road	3 7	2 7	2 2	*	544	*	2 89	÷	100,000
E-W Road	11 9	7 0	5 4	*	2,621	*	2 89	÷	100,000

TOTAL CO CONCENTRATIONS (ppm)

	A M Peak Hour	P M Peak Hour	8-Hour
0 Feet from Roadway Edge	7 5	8 0	3 0
25 Feet from Roadway Edge	7 3	7 6	2 7
50 Feet from Roadway Edge	7 2	7 4	2 6

BAY AREA AQMD SIMPLIFIED CALINE4 ANALYSIS; UPDATED WITH EMFAC2007

Project Title:	UC Riverside LRDP
Intersection:	Chicago Avenue and University Avenue
Analysis Condition:	Cumulative Plus Project Conditions (Year 2020)
Nearest Air Monitoring Station measuring CO:	SRA 23 (Metropolitan Riverside County 2)
Background 1-hour CO Concentration (ppm):	7 0
Background 8-hour CO Concentration (ppm):	2 3
Persistence Factor:	0 7
Analysis Year:	2020

		Roadway Type	No of Lanes	Approach/Departure Speed A M	Approach/Departure Speed P M
North-South Roadway:	Chicago Avenue	AT GRADE	4	5	5
East-West Roadway:	University Avenue	AT GRADE	4	5	5

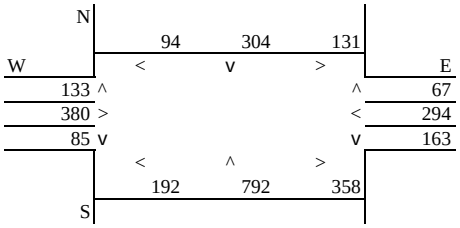
EMFAC2007 COMPOSITE EMISSION FACTORS FOR CO

Air Basin: South Coast County: Riverside
Assumes lowest mean wintertime temperature of 39 degrees F and 55% humidity

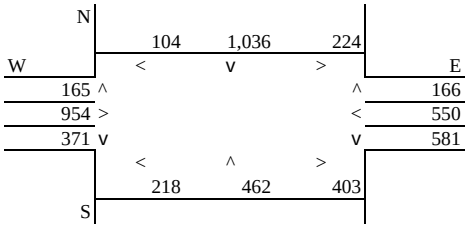
	Average Speed (miles per hour)									
Year	5	8	11	14	17	20	23	26	29	32
2010	6 779	6 003	5 379	4 873	4 459	4 123	3 851	3 624	3 435	3 28
2011	6 147	5 456	4 899	4 445	4 074	3 772	3 528	3 322	3 151	3 009
2012	5 585	4 969	4 471	4 064	3 729	3 458	3 238	3 052	2 896	2 767
2013	5 078	4 529	4 082	3 717	3 416	3 172	2 974	2 806	2 664	2 546
2014	4 62	4 129	3 729	3 4	3 13	2 91	2 732	2 58	2 451	2 343
2015	4 218	3 778	3 418	3 121	2 876	2 678	2 517	2 379	2 262	2 163
2020	2 891	2 612	2 38	2 187	2 028	1 899	1 793	1 702	1 624	1 557
2025	2 222	2 013	1 839	1 694	1 574	1 478	1 4	1 332	1 273	1 222
2030	1 902	1 723	1 573	1 449	1 347	1 266	1 201	1 144	1 094	1 051
2035	1 738	1 569	1 428	1 312	1 217	1 143	1 084	1 033	0 987	0 948
2040	1 642	1 476	1 338	1 224	1 133	1 063	1 008	0 96	0 918	0 881

PEAK HOUR TURNING VOLUMES

A M Peak



P M Peak



Representative Traffic Volumes (Vehicles per Hour)

N-S Road	1,894	N-S Road	3,071
E-W Road	1,393	E-W Road	2,878
Primary Road =	N-S Road	Primary Road =	N-S Road

ROADWAY CO CONTRIBUTIONS

Roadway	Reference CO Concentrations 0 Feet	25 Feet	50 Feet		Traffic Volume		Emission Factor		
A M Peak Hour									
N-S Road	11 9	7 0	5 4	*	1,894	*	2 89	÷	100,000
E-W Road	3 3	2 6	2 2	*	1,393	*	2 89	÷	100,000
P M Peak Hour									
N-S Road	11 9	7 0	5 4	*	3,071	*	2 89	÷	100,000
E-W Road	3 3	2 6	2 2	*	2,878	*	2 89	÷	100,000

TOTAL CO CONCENTRATIONS (ppm)

	A M Peak Hour	P M Peak Hour	8-Hour
0 Feet from Roadway Edge	7 8	8 3	3 2
25 Feet from Roadway Edge	7 5	7 8	2 9
50 Feet from Roadway Edge	7 4	7 7	2 8

BAY AREA AQMD SIMPLIFIED CALINE4 ANALYSIS; UPDATED WITH EMFAC2007

Project Title:	UC Riverside LRDP
Intersection:	Iowa Avenue and University Avenue
Analysis Condition:	Cumulative Plus Project Conditions (Year 2020)
Nearest Air Monitoring Station measuring CO:	SRA 23 (Metropolitan Riverside County 2)
Background 1-hour CO Concentration (ppm):	7 0
Background 8-hour CO Concentration (ppm):	2 3
Persistence Factor:	0 7
Analysis Year:	2020

		Roadway Type	No of Lanes	Approach/Departure Speed A M	Approach/Departure Speed P M
North-South Roadway:	Iowa Avenue	AT GRADE	4	5	5
East-West Roadway:	University Avenue	AT GRADE	4	5	5

EMFAC2007 COMPOSITE EMISSION FACTORS FOR CO

Air Basin: South Coast County: Riverside
Assumes lowest mean wintertime temperature of 39 degrees F and 55% humidity

	Average Speed (miles per hour)									
Year	5	8	11	14	17	20	23	26	29	32
2010	6 779	6 003	5 379	4 873	4 459	4 123	3 851	3 624	3 435	3 28
2011	6 147	5 456	4 899	4 445	4 074	3 772	3 528	3 322	3 151	3 009
2012	5 585	4 969	4 471	4 064	3 729	3 458	3 238	3 052	2 896	2 767
2013	5 078	4 529	4 082	3 717	3 416	3 172	2 974	2 806	2 664	2 546
2014	4 62	4 129	3 729	3 4	3 13	2 91	2 732	2 58	2 451	2 343
2015	4 218	3 778	3 418	3 121	2 876	2 678	2 517	2 379	2 262	2 163
2020	2 891	2 612	2 38	2 187	2 028	1 899	1 793	1 702	1 624	1 557
2025	2 222	2 013	1 839	1 694	1 574	1 478	1 4	1 332	1 273	1 222
2030	1 902	1 723	1 573	1 449	1 347	1 266	1 201	1 144	1 094	1 051
2035	1 738	1 569	1 428	1 312	1 217	1 143	1 084	1 033	0 987	0 948
2040	1 642	1 476	1 338	1 224	1 133	1 063	1 008	0 96	0 918	0 881

PEAK HOUR TURNING VOLUMES

A M Peak

	N			
	115	402	196	
W	<	v	>	E
161	^		^	248
797	>		<	548
79	v		v	102
	<	^	>	
	77	852	122	
	S			

P M Peak

	N			
	205	966	354	
W	<	v	>	E
267	^		^	203
1,263	>		<	999
112	v		v	98
	<	^	>	
	112	542	106	
	S			

Representative Traffic Volumes (Vehicles per Hour)

	A M		P M	
N-S Road	1,974		N-S Road	2,537
E-W Road	2,013		E-W Road	3,023
Primary Road =	E-W Road		Primary Road =	E-W Road

ROADWAY CO CONTRIBUTIONS

	Reference CO Concentrations				Traffic		Emission		
Roadway	0 Feet	25 Feet	50 Feet		Volume		Factor		
A M Peak Hour									
N-S Road	3 3	2 6	2 2	*	1,974	*	2 89	÷	100,000
E-W Road	11 9	7 0	5 4	*	2,013	*	2 89	÷	100,000
P M Peak Hour									
N-S Road	3 3	2 6	2 2	*	2,537	*	2 89	÷	100,000
E-W Road	11 9	7 0	5 4	*	3,023	*	2 89	÷	100,000

TOTAL CO CONCENTRATIONS (ppm)

	A M Peak Hour	P M Peak Hour	8-Hour
0 Feet from Roadway Edge	7 9	8 3	3 2
25 Feet from Roadway Edge	7 6	7 8	2 9
50 Feet from Roadway Edge	7 4	7 6	2 7

BAY AREA AQMD SIMPLIFIED CALINE4 ANALYSIS; UPDATED WITH EMFAC2007

Project Title:	UC Riverside LRDP
Intersection:	University Village and University Avenue
Analysis Condition:	Cumulative Plus Project Conditions (Year 2020)
Nearest Air Monitoring Station measuring CO:	SRA 23 (Metropolitan Riverside County 2)
Background 1-hour CO Concentration (ppm):	7 0
Background 8-hour CO Concentration (ppm):	2 3
Persistence Factor:	0 7
Analysis Year:	2020

		Roadway Type	No of Lanes	Approach/Departure Speed A M	Approach/Departure Speed P M
North-South Roadway:	University Village	AT GRADE	2	5	5
East-West Roadway:	University Avenue	AT GRADE	4	5	5

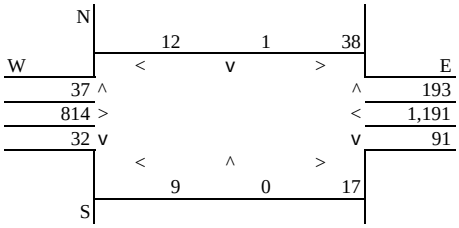
EMFAC2007 COMPOSITE EMISSION FACTORS FOR CO

Air Basin: South Coast County: Riverside
Assumes lowest mean wintertime temperature of 39 degrees F and 55% humidity

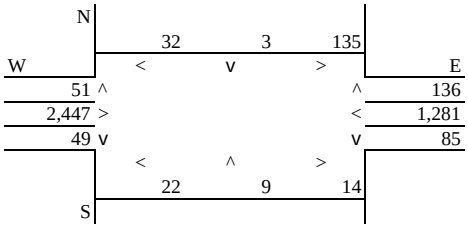
	Average Speed (miles per hour)									
Year	5	8	11	14	17	20	23	26	29	32
2010	6 779	6 003	5 379	4 873	4 459	4 123	3 851	3 624	3 435	3 28
2011	6 147	5 456	4 899	4 445	4 074	3 772	3 528	3 322	3 151	3 009
2012	5 585	4 969	4 471	4 064	3 729	3 458	3 238	3 052	2 896	2 767
2013	5 078	4 529	4 082	3 717	3 416	3 172	2 974	2 806	2 664	2 546
2014	4 62	4 129	3 729	3 4	3 13	2 91	2 732	2 58	2 451	2 343
2015	4 218	3 778	3 418	3 121	2 876	2 678	2 517	2 379	2 262	2 163
2020	2 891	2 612	2 38	2 187	2 028	1 899	1 793	1 702	1 624	1 557
2025	2 222	2 013	1 839	1 694	1 574	1 478	1 4	1 332	1 273	1 222
2030	1 902	1 723	1 573	1 449	1 347	1 266	1 201	1 144	1 094	1 051
2035	1 738	1 569	1 428	1 312	1 217	1 143	1 084	1 033	0 987	0 948
2040	1 642	1 476	1 338	1 224	1 133	1 063	1 008	0 96	0 918	0 881

PEAK HOUR TURNING VOLUMES

A M Peak



P M Peak



Representative Traffic Volumes (Vehicles per Hour)

N-S Road	281	N-S Road	366
E-W Road	2,344	E-W Road	4,098
Primary Road =	E-W Road	Primary Road =	E-W Road

ROADWAY CO CONTRIBUTIONS

Roadway	Reference CO Concentrations 0 Feet	25 Feet	50 Feet		Traffic Volume		Emission Factor		
A M Peak Hour									
N-S Road	3 7	2 7	2 2	*	281	*	2 89	÷	100,000
E-W Road	11 9	7 0	5 4	*	2,344	*	2 89	÷	100,000
P M Peak Hour									
N-S Road	3 7	2 7	2 2	*	366	*	2 89	÷	100,000
E-W Road	11 9	7 0	5 4	*	4,098	*	2 89	÷	100,000

TOTAL CO CONCENTRATIONS (ppm)

	A M Peak Hour	P M Peak Hour	8-Hour
0 Feet from Roadway Edge	7 8	8 4	3 3
25 Feet from Roadway Edge	7 5	7 9	2 9
50 Feet from Roadway Edge	7 4	7 7	2 8

BAY AREA AQMD SIMPLIFIED CALINE4 ANALYSIS; UPDATED WITH EMFAC2007

Project Title:	UC Riverside LRDP
Intersection:	I-215 Southbound Ramps and University Avenue
Analysis Condition:	Cumulative Plus Project Conditions (Year 2020)
Nearest Air Monitoring Station measuring CO:	SRA 23 (Metropolitan Riverside County 2)
Background 1-hour CO Concentration (ppm):	7 0
Background 8-hour CO Concentration (ppm):	2 3
Persistence Factor:	0 7
Analysis Year:	2020

		Roadway Type	No of Lanes	Approach/Departure Speed A M	Approach/Departure Speed P M
North-South Roadway:	I-215 Southbound Ramps	AT GRADE	0	5	5
East-West Roadway:	University Avenue	AT GRADE	4	5	5

EMFAC2007 COMPOSITE EMISSION FACTORS FOR CO

Air Basin: South Coast County: Riverside
Assumes lowest mean wintertime temperature of 39 degrees F and 55% humidity

	Average Speed (miles per hour)									
Year	5	8	11	14	17	20	23	26	29	32
2010	6 779	6 003	5 379	4 873	4 459	4 123	3 851	3 624	3 435	3 28
2011	6 147	5 456	4 899	4 445	4 074	3 772	3 528	3 322	3 151	3 009
2012	5 585	4 969	4 471	4 064	3 729	3 458	3 238	3 052	2 896	2 767
2013	5 078	4 529	4 082	3 717	3 416	3 172	2 974	2 806	2 664	2 546
2014	4 62	4 129	3 729	3 4	3 13	2 91	2 732	2 58	2 451	2 343
2015	4 218	3 778	3 418	3 121	2 876	2 678	2 517	2 379	2 262	2 163
2020	2 891	2 612	2 38	2 187	2 028	1 899	1 793	1 702	1 624	1 557
2025	2 222	2 013	1 839	1 694	1 574	1 478	1 4	1 332	1 273	1 222
2030	1 902	1 723	1 573	1 449	1 347	1 266	1 201	1 144	1 094	1 051
2035	1 738	1 569	1 428	1 312	1 217	1 143	1 084	1 033	0 987	0 948
2040	1 642	1 476	1 338	1 224	1 133	1 063	1 008	0 96	0 918	0 881

PEAK HOUR TURNING VOLUMES

A M Peak

	N			
	658	30	293	
W	<	v	>	E
0	^		^	0
579	>		<	1,149
435	v		v	82
	<	^	>	
	0	0	0	
	S			

P M Peak

	N			
	323	212	98	
W	<	v	>	E
0	^		^	0
1,199	>		<	1,296
1,500	v		v	348
	<	^	>	
	0	0	0	
	S			

Representative Traffic Volumes (Vehicles per Hour)

N-S Road	981	N-S Road	2,060
E-W Road	2,821	E-W Road	4,318
Primary Road =	E-W Road	Primary Road =	E-W Road

ROADWAY CO CONTRIBUTIONS

Roadway	Reference CO Concentrations 0 Feet	25 Feet	50 Feet		Traffic Volume		Emission Factor		
A M Peak Hour									
N-S Road	0 0	0 0	0 0	*	981	*	2 89	÷	100,000
E-W Road	11 9	7 0	5 4	*	2,821	*	2 89	÷	100,000
P M Peak Hour									
N-S Road	0 0	0 0	0 0	*	2,060	*	2 89	÷	100,000
E-W Road	11 9	7 0	5 4	*	4,318	*	2 89	÷	100,000

TOTAL CO CONCENTRATIONS (ppm)

	A M Peak Hour	P M Peak Hour	8-Hour
0 Feet from Roadway Edge	8 0	8 5	3 3
25 Feet from Roadway Edge	7 6	7 9	2 9
50 Feet from Roadway Edge	7 4	7 7	2 8

BAY AREA AQMD SIMPLIFIED CALINE4 ANALYSIS; UPDATED WITH EMFAC2007

Project Title:	UC Riverside LRDP
Intersection:	I-215 Northbound Ramps and University Avenue
Analysis Condition:	Cumulative Plus Project Conditions (Year 2020)
Nearest Air Monitoring Station measuring CO:	SRA 23 (Metropolitan Riverside County 2)
Background 1-hour CO Concentration (ppm):	7 0
Background 8-hour CO Concentration (ppm):	2 3
Persistence Factor:	0 7
Analysis Year:	2020

		Roadway Type	No of Lanes	Approach/Departure Speed A M	Approach/Departure Speed P M
North-South Roadway:	I-215 Northbound Ramps	AT GRADE	0	5	5
East-West Roadway:	University Avenue	AT GRADE	4	5	5

EMFAC2007 COMPOSITE EMISSION FACTORS FOR CO

Air Basin: South Coast County: Riverside
Assumes lowest mean wintertime temperature of 39 degrees F and 55% humidity

	Average Speed (miles per hour)									
Year	5	8	11	14	17	20	23	26	29	32
2010	6 779	6 003	5 379	4 873	4 459	4 123	3 851	3 624	3 435	3 28
2011	6 147	5 456	4 899	4 445	4 074	3 772	3 528	3 322	3 151	3 009
2012	5 585	4 969	4 471	4 064	3 729	3 458	3 238	3 052	2 896	2 767
2013	5 078	4 529	4 082	3 717	3 416	3 172	2 974	2 806	2 664	2 546
2014	4 62	4 129	3 729	3 4	3 13	2 91	2 732	2 58	2 451	2 343
2015	4 218	3 778	3 418	3 121	2 876	2 678	2 517	2 379	2 262	2 163
2020	2 891	2 612	2 38	2 187	2 028	1 899	1 793	1 702	1 624	1 557
2025	2 222	2 013	1 839	1 694	1 574	1 478	1 4	1 332	1 273	1 222
2030	1 902	1 723	1 573	1 449	1 347	1 266	1 201	1 144	1 094	1 051
2035	1 738	1 569	1 428	1 312	1 217	1 143	1 084	1 033	0 987	0 948
2040	1 642	1 476	1 338	1 224	1 133	1 063	1 008	0 96	0 918	0 881

PEAK HOUR TURNING VOLUMES

A M Peak

	N			
	730	0	200	
W	<	v	>	E
194	^		^	106
891	>		<	377
0	v		v	0
	<	^	>	
	0	0	0	
	S			

P M Peak

	N			
	674	0	157	
W	<	v	>	E
582	^		^	293
720	>		<	969
0	v		v	0
	<	^	>	
	0	0	0	
	S			

Representative Traffic Volumes (Vehicles per Hour)

N-S Road	1,230	N-S Road	1,706
E-W Road	2,192	E-W Road	2,945
Primary Road =	E-W Road	Primary Road =	E-W Road

ROADWAY CO CONTRIBUTIONS

Roadway	Reference CO Concentrations 0 Feet	25 Feet	50 Feet		Traffic Volume		Emission Factor		
A M Peak Hour									
N-S Road	0 0	0 0	0 0	*	1,230	*	2 89	÷	100,000
E-W Road	11 9	7 0	5 4	*	2,192	*	2 89	÷	100,000
P M Peak Hour									
N-S Road	0 0	0 0	0 0	*	1,706	*	2 89	÷	100,000
E-W Road	11 9	7 0	5 4	*	2,945	*	2 89	÷	100,000

TOTAL CO CONCENTRATIONS (ppm)

	A M Peak Hour	P M Peak Hour	8-Hour
0 Feet from Roadway Edge	7 8	8 0	3 0
25 Feet from Roadway Edge	7 4	7 6	2 7
50 Feet from Roadway Edge	7 3	7 5	2 6

BAY AREA AQMD SIMPLIFIED CALINE4 ANALYSIS; UPDATED WITH EMFAC2007

Project Title:	UC Riverside LRDP
Intersection:	Lot 1 and Campus Drive
Analysis Condition:	Cumulative Plus Project Conditions (Year 2020)
Nearest Air Monitoring Station measuring CO:	SRA 23 (Metropolitan Riverside County 2)
Background 1-hour CO Concentration (ppm):	7 0
Background 8-hour CO Concentration (ppm):	2 3
Persistence Factor:	0 7
Analysis Year:	2020

		Roadway Type	No of Lanes	Approach/Departure Speed A M	Approach/Departure Speed P M
North-South Roadway:	Lot 1	AT GRADE	2	5	5
East-West Roadway:	Campus Drive	AT GRADE	0	5	5

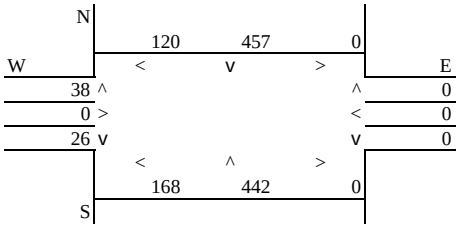
EMFAC2007 COMPOSITE EMISSION FACTORS FOR CO

Air Basin: South Coast County: Riverside
Assumes lowest mean wintertime temperature of 39 degrees F and 55% humidity

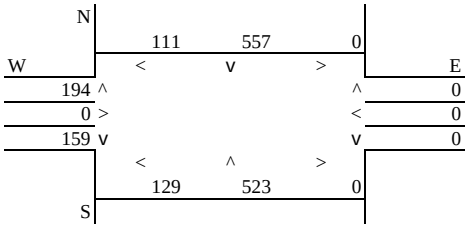
	Average Speed (miles per hour)									
Year	5	8	11	14	17	20	23	26	29	32
2010	6 779	6 003	5 379	4 873	4 459	4 123	3 851	3 624	3 435	3 28
2011	6 147	5 456	4 899	4 445	4 074	3 772	3 528	3 322	3 151	3 009
2012	5 585	4 969	4 471	4 064	3 729	3 458	3 238	3 052	2 896	2 767
2013	5 078	4 529	4 082	3 717	3 416	3 172	2 974	2 806	2 664	2 546
2014	4 62	4 129	3 729	3 4	3 13	2 91	2 732	2 58	2 451	2 343
2015	4 218	3 778	3 418	3 121	2 876	2 678	2 517	2 379	2 262	2 163
2020	2 891	2 612	2 38	2 187	2 028	1 899	1 793	1 702	1 624	1 557
2025	2 222	2 013	1 839	1 694	1 574	1 478	1 4	1 332	1 273	1 222
2030	1 902	1 723	1 573	1 449	1 347	1 266	1 201	1 144	1 094	1 051
2035	1 738	1 569	1 428	1 312	1 217	1 143	1 084	1 033	0 987	0 948
2040	1 642	1 476	1 338	1 224	1 133	1 063	1 008	0 96	0 918	0 881

PEAK HOUR TURNING VOLUMES

A M Peak



P M Peak



Representative Traffic Volumes (Vehicles per Hour)

N-S Road	1,093	N-S Road	1,385
E-W Road	352	E-W Road	593
Primary Road =	N-S Road	Primary Road =	N-S Road

ROADWAY CO CONTRIBUTIONS

Roadway	Reference CO Concentrations 0 Feet	25 Feet	50 Feet		Traffic Volume		Emission Factor		
A M Peak Hour									
N-S Road	14 0	7 6	5 7	*	1,093	*	2 89	÷	100,000
E-W Road	0 0	0 0	0 0	*	352	*	2 89	÷	100,000
P M Peak Hour									
N-S Road	14 0	7 6	5 7	*	1,385	*	2 89	÷	100,000
E-W Road	0 0	0 0	0 0	*	593	*	2 89	÷	100,000

TOTAL CO CONCENTRATIONS (ppm)

	A M Peak Hour	P M Peak Hour	8-Hour
0 Feet from Roadway Edge	7 4	7 6	2 7
25 Feet from Roadway Edge	7 2	7 3	2 5
50 Feet from Roadway Edge	7 2	7 2	2 5

BAY AREA AQMD SIMPLIFIED CALINE4 ANALYSIS; UPDATED WITH EMFAC2007

Project Title:	UC Riverside LRDP
Intersection:	Chicago Avenue and Martin Luther King Boulevard
Analysis Condition:	Cumulative Plus Project Conditions (Year 2020)
Nearest Air Monitoring Station measuring CO:	SRA 23 (Metropolitan Riverside County 2)
Background 1-hour CO Concentration (ppm):	7 0
Background 8-hour CO Concentration (ppm):	2 3
Persistence Factor:	0 7
Analysis Year:	2020

		Roadway Type	No of Lanes	Approach/Departure Speed A M	Approach/Departure Speed P M
North-South Roadway:	Chicago Avenue	AT GRADE	4	5	5
East-West Roadway:	Martin Luther King Boulevard	AT GRADE	4	5	5

EMFAC2007 COMPOSITE EMISSION FACTORS FOR CO

Air Basin: South Coast County: Riverside
Assumes lowest mean wintertime temperature of 39 degrees F and 55% humidity

	Average Speed (miles per hour)									
Year	5	8	11	14	17	20	23	26	29	32
2010	6 779	6 003	5 379	4 873	4 459	4 123	3 851	3 624	3 435	3 28
2011	6 147	5 456	4 899	4 445	4 074	3 772	3 528	3 322	3 151	3 009
2012	5 585	4 969	4 471	4 064	3 729	3 458	3 238	3 052	2 896	2 767
2013	5 078	4 529	4 082	3 717	3 416	3 172	2 974	2 806	2 664	2 546
2014	4 62	4 129	3 729	3 4	3 13	2 91	2 732	2 58	2 451	2 343
2015	4 218	3 778	3 418	3 121	2 876	2 678	2 517	2 379	2 262	2 163
2020	2 891	2 612	2 38	2 187	2 028	1 899	1 793	1 702	1 624	1 557
2025	2 222	2 013	1 839	1 694	1 574	1 478	1 4	1 332	1 273	1 222
2030	1 902	1 723	1 573	1 449	1 347	1 266	1 201	1 144	1 094	1 051
2035	1 738	1 569	1 428	1 312	1 217	1 143	1 084	1 033	0 987	0 948
2040	1 642	1 476	1 338	1 224	1 133	1 063	1 008	0 96	0 918	0 881

PEAK HOUR TURNING VOLUMES

A M Peak

	N			
	208	257	83	
W	<	v	>	E
357	^		^	180
719	>		<	779
152	v		v	48
	<	^	>	
	820	1,077	270	
	S			

P M Peak

	N			
	535	1,282	440	
W	<	v	>	E
363	^		^	147
1,551	>		<	700
919	v		v	295
	<	^	>	
	162	363	74	
	S			

Representative Traffic Volumes (Vehicles per Hour)

N-S Road	2,624	N-S Road	3,130
E-W Road	3,035	E-W Road	4,230
Primary Road =	E-W Road	Primary Road =	E-W Road

ROADWAY CO CONTRIBUTIONS

Roadway	Reference CO Concentrations 0 Feet	25 Feet	50 Feet		Traffic Volume		Emission Factor		
A M Peak Hour									
N-S Road	3 3	2 6	2 2	*	2,624	*	2 89	÷	100,000
E-W Road	11 9	7 0	5 4	*	3,035	*	2 89	÷	100,000
P M Peak Hour									
N-S Road	3 3	2 6	2 2	*	3,130	*	2 89	÷	100,000
E-W Road	11 9	7 0	5 4	*	4,230	*	2 89	÷	100,000

TOTAL CO CONCENTRATIONS (ppm)

	A M Peak Hour	P M Peak Hour	8-Hour
0 Feet from Roadway Edge	8 3	8 8	3 5
25 Feet from Roadway Edge	7 8	8 1	3 1
50 Feet from Roadway Edge	7 6	7 9	2 9

BAY AREA AQMD SIMPLIFIED CALINE4 ANALYSIS; UPDATED WITH EMFAC2007

Project Title:	UC Riverside LRDP
Intersection:	Iowa Avenue and Martin Luther King Boulevard
Analysis Condition:	Cumulative Plus Project Conditions (Year 2020)
Nearest Air Monitoring Station measuring CO:	SRA 23 (Metropolitan Riverside County 2)
Background 1-hour CO Concentration (ppm):	7 0
Background 8-hour CO Concentration (ppm):	2 3
Persistence Factor:	0 7
Analysis Year:	2020

		Roadway Type	No of Lanes	Approach/Departure Speed A M	Approach/Departure Speed P M
North-South Roadway:	Iowa Avenue	AT GRADE	0	5	5
East-West Roadway:	Martin Luther King Boulevard	AT GRADE	4	5	5

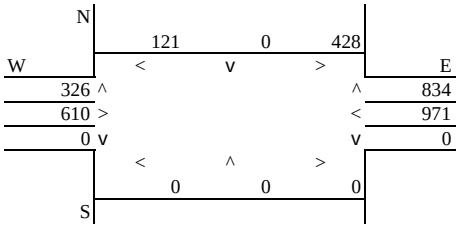
EMFAC2007 COMPOSITE EMISSION FACTORS FOR CO

Air Basin: South Coast County: Riverside
Assumes lowest mean wintertime temperature of 39 degrees F and 55% humidity

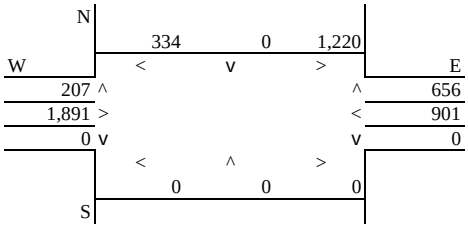
	Average Speed (miles per hour)									
Year	5	8	11	14	17	20	23	26	29	32
2010	6 779	6 003	5 379	4 873	4 459	4 123	3 851	3 624	3 435	3 28
2011	6 147	5 456	4 899	4 445	4 074	3 772	3 528	3 322	3 151	3 009
2012	5 585	4 969	4 471	4 064	3 729	3 458	3 238	3 052	2 896	2 767
2013	5 078	4 529	4 082	3 717	3 416	3 172	2 974	2 806	2 664	2 546
2014	4 62	4 129	3 729	3 4	3 13	2 91	2 732	2 58	2 451	2 343
2015	4 218	3 778	3 418	3 121	2 876	2 678	2 517	2 379	2 262	2 163
2020	2 891	2 612	2 38	2 187	2 028	1 899	1 793	1 702	1 624	1 557
2025	2 222	2 013	1 839	1 694	1 574	1 478	1 4	1 332	1 273	1 222
2030	1 902	1 723	1 573	1 449	1 347	1 266	1 201	1 144	1 094	1 051
2035	1 738	1 569	1 428	1 312	1 217	1 143	1 084	1 033	0 987	0 948
2040	1 642	1 476	1 338	1 224	1 133	1 063	1 008	0 96	0 918	0 881

PEAK HOUR TURNING VOLUMES

A M Peak



P M Peak



Representative Traffic Volumes (Vehicles per Hour)

N-S Road	1,709	N-S Road	2,417
E-W Road	2,843	E-W Road	4,668
Primary Road =	E-W Road	Primary Road =	E-W Road

ROADWAY CO CONTRIBUTIONS

Roadway	Reference CO Concentrations 0 Feet	25 Feet	50 Feet		Traffic Volume		Emission Factor		
A M Peak Hour									
N-S Road	0 0	0 0	0 0	*	1,709	*	2 89	÷	100,000
E-W Road	11 9	7 0	5 4	*	2,843	*	2 89	÷	100,000
P M Peak Hour									
N-S Road	0 0	0 0	0 0	*	2,417	*	2 89	÷	100,000
E-W Road	11 9	7 0	5 4	*	4,668	*	2 89	÷	100,000

TOTAL CO CONCENTRATIONS (ppm)

	A M Peak Hour	P M Peak Hour	8-Hour
0 Feet from Roadway Edge	8 0	8 6	3 4
25 Feet from Roadway Edge	7 6	7 9	3 0
50 Feet from Roadway Edge	7 4	7 7	2 8

BAY AREA AQMD SIMPLIFIED CALINE4 ANALYSIS; UPDATED WITH EMFAC2007

Project Title:	UC Riverside LRDP
Intersection:	Lot 30 and Martin Luther King Boulevard
Analysis Condition:	Cumulative Plus Project Conditions (Year 2020)
Nearest Air Monitoring Station measuring CO:	SRA 23 (Metropolitan Riverside County 2)
Background 1-hour CO Concentration (ppm):	7 0
Background 8-hour CO Concentration (ppm):	2 3
Persistence Factor:	0 7
Analysis Year:	2020

		Roadway Type	No of Lanes	Approach/Departure Speed A M	Approach/Departure Speed P M
North-South Roadway:	Lot 30	AT GRADE	2	5	5
East-West Roadway:	Martin Luther King Boulevard	AT GRADE	4	5	5

EMFAC2007 COMPOSITE EMISSION FACTORS FOR CO

Air Basin: South Coast County: Riverside
Assumes lowest mean wintertime temperature of 39 degrees F and 55% humidity

	Average Speed (miles per hour)									
Year	5	8	11	14	17	20	23	26	29	32
2010	6 779	6 003	5 379	4 873	4 459	4 123	3 851	3 624	3 435	3 28
2011	6 147	5 456	4 899	4 445	4 074	3 772	3 528	3 322	3 151	3 009
2012	5 585	4 969	4 471	4 064	3 729	3 458	3 238	3 052	2 896	2 767
2013	5 078	4 529	4 082	3 717	3 416	3 172	2 974	2 806	2 664	2 546
2014	4 62	4 129	3 729	3 4	3 13	2 91	2 732	2 58	2 451	2 343
2015	4 218	3 778	3 418	3 121	2 876	2 678	2 517	2 379	2 262	2 163
2020	2 891	2 612	2 38	2 187	2 028	1 899	1 793	1 702	1 624	1 557
2025	2 222	2 013	1 839	1 694	1 574	1 478	1 4	1 332	1 273	1 222
2030	1 902	1 723	1 573	1 449	1 347	1 266	1 201	1 144	1 094	1 051
2035	1 738	1 569	1 428	1 312	1 217	1 143	1 084	1 033	0 987	0 948
2040	1 642	1 476	1 338	1 224	1 133	1 063	1 008	0 96	0 918	0 881

PEAK HOUR TURNING VOLUMES

A M Peak

	N			
	21	0	40	
W	<	v	>	E
433 ^			^	188
919 >			<	1,742
0 v			v	12
	<	^	>	
	5	0	0	
	S			

P M Peak

	N			
	378	0	293	
W	<	v	>	E
74 ^			^	65
2,747 >			<	1,367
0 v			v	12
	<	^	>	
	0	0	0	
	S			

Representative Traffic Volumes (Vehicles per Hour)

N-S Road	682	N-S Road	810
E-W Road	3,120	E-W Road	4,566
Primary Road =	E-W Road	Primary Road =	E-W Road

ROADWAY CO CONTRIBUTIONS

Roadway	Reference CO Concentrations 0 Feet	25 Feet	50 Feet		Traffic Volume		Emission Factor		
A M Peak Hour									
N-S Road	3 7	2 7	2 2	*	682	*	2 89	÷	100,000
E-W Road	11 9	7 0	5 4	*	3,120	*	2 89	÷	100,000
P M Peak Hour									
N-S Road	3 7	2 7	2 2	*	810	*	2 89	÷	100,000
E-W Road	11 9	7 0	5 4	*	4,566	*	2 89	÷	100,000

TOTAL CO CONCENTRATIONS (ppm)

	A M Peak Hour	P M Peak Hour	8-Hour
0 Feet from Roadway Edge	8 1	8 7	3 5
25 Feet from Roadway Edge	7 7	8 0	3 0
50 Feet from Roadway Edge	7 5	7 8	2 8

BAY AREA AQMD SIMPLIFIED CALINE4 ANALYSIS; UPDATED WITH EMFAC2007

Project Title:	UC Riverside LRDP
Intersection:	Canyon Crest Drive and Martin Luther King Boulevard
Analysis Condition:	Cumulative Plus Project Conditions (Year 2020)
Nearest Air Monitoring Station measuring CO:	SRA 23 (Metropolitan Riverside County 2)
Background 1-hour CO Concentration (ppm):	7 0
Background 8-hour CO Concentration (ppm):	2 3
Persistence Factor:	0 7
Analysis Year:	2020

		Roadway Type	No of Lanes	Approach/Departure Speed A M	Approach/Departure Speed P M
North-South Roadway:	Canyon Crest Drive	AT GRADE	4	5	5
East-West Roadway:	Martin Luther King Boulevard	AT GRADE	4	5	5

EMFAC2007 COMPOSITE EMISSION FACTORS FOR CO

Air Basin: South Coast County: Riverside
Assumes lowest mean wintertime temperature of 39 degrees F and 55% humidity

	Average Speed (miles per hour)									
Year	5	8	11	14	17	20	23	26	29	32
2010	6 779	6 003	5 379	4 873	4 459	4 123	3 851	3 624	3 435	3 28
2011	6 147	5 456	4 899	4 445	4 074	3 772	3 528	3 322	3 151	3 009
2012	5 585	4 969	4 471	4 064	3 729	3 458	3 238	3 052	2 896	2 767
2013	5 078	4 529	4 082	3 717	3 416	3 172	2 974	2 806	2 664	2 546
2014	4 62	4 129	3 729	3 4	3 13	2 91	2 732	2 58	2 451	2 343
2015	4 218	3 778	3 418	3 121	2 876	2 678	2 517	2 379	2 262	2 163
2020	2 891	2 612	2 38	2 187	2 028	1 899	1 793	1 702	1 624	1 557
2025	2 222	2 013	1 839	1 694	1 574	1 478	1 4	1 332	1 273	1 222
2030	1 902	1 723	1 573	1 449	1 347	1 266	1 201	1 144	1 094	1 051
2035	1 738	1 569	1 428	1 312	1 217	1 143	1 084	1 033	0 987	0 948
2040	1 642	1 476	1 338	1 224	1 133	1 063	1 008	0 96	0 918	0 881

PEAK HOUR TURNING VOLUMES

A M Peak

	N			
	101	122	66	
W	<	v	>	E
224	^		^	108
293	>		<	494
473	v		v	125
	<	^	>	
	1,553	619	516	
	S			

P M Peak

	N			
	305	741	215	
W	<	v	>	E
256	^		^	71
1,354	>		<	382
1,561	v		v	188
	<	^	>	
	525	276	150	
	S			

Representative Traffic Volumes (Vehicles per Hour)

	A M		P M	
N-S Road	3,408		N-S Road	3,441
E-W Road	3,138		E-W Road	4,383
Primary Road =	N-S Road		Primary Road =	E-W Road

ROADWAY CO CONTRIBUTIONS

Roadway	Reference CO Concentrations 0 Feet	25 Feet	50 Feet		Traffic Volume		Emission Factor		
A M Peak Hour									
N-S Road	11 9	7 0	5 4	*	3,408	*	2 89	÷	100,000
E-W Road	3 3	2 6	2 2	*	3,138	*	2 89	÷	100,000
P M Peak Hour									
N-S Road	3 3	2 6	2 2	*	3,441	*	2 89	÷	100,000
E-W Road	11 9	7 0	5 4	*	4,383	*	2 89	÷	100,000

TOTAL CO CONCENTRATIONS (ppm)

	A M Peak Hour	P M Peak Hour	8-Hour
0 Feet from Roadway Edge	8 5	8 8	3 6
25 Feet from Roadway Edge	7 9	8 1	3 1
50 Feet from Roadway Edge	7 7	7 9	2 9

BAY AREA AQMD SIMPLIFIED CALINE4 ANALYSIS; UPDATED WITH EMFAC2007

Project Title:	UC Riverside LRDP
Intersection:	I-215 Southbound Ramps and Martin Luther King Boulevard
Analysis Condition:	Cumulative Plus Project Conditions (Year 2020)
Nearest Air Monitoring Station measuring CO:	SRA 23 (Metropolitan Riverside County 2)
Background 1-hour CO Concentration (ppm):	7 0
Background 8-hour CO Concentration (ppm):	2 3
Persistence Factor:	0 7
Analysis Year:	2020

		Roadway Type	No of Lanes	Approach/Departure Speed A M	Approach/Departure Speed P M
North-South Roadway:	I-215 SB Ramps	AT GRADE	2	5	5
East-West Roadway:	Martin Luther King Boulevard	AT GRADE	4	5	5

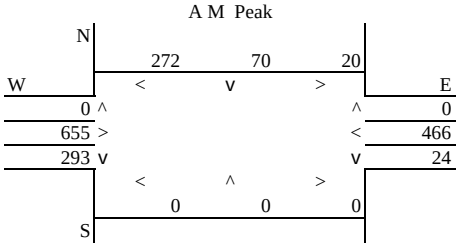
EMFAC2007 COMPOSITE EMISSION FACTORS FOR CO

Air Basin: South Coast County: Riverside
Assumes lowest mean wintertime temperature of 39 degrees F and 55% humidity

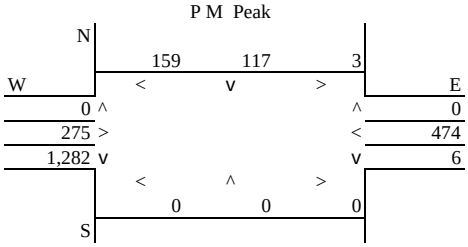
	Average Speed (miles per hour)									
Year	5	8	11	14	17	20	23	26	29	32
2010	6 779	6 003	5 379	4 873	4 459	4 123	3 851	3 624	3 435	3 28
2011	6 147	5 456	4 899	4 445	4 074	3 772	3 528	3 322	3 151	3 009
2012	5 585	4 969	4 471	4 064	3 729	3 458	3 238	3 052	2 896	2 767
2013	5 078	4 529	4 082	3 717	3 416	3 172	2 974	2 806	2 664	2 546
2014	4 62	4 129	3 729	3 4	3 13	2 91	2 732	2 58	2 451	2 343
2015	4 218	3 778	3 418	3 121	2 876	2 678	2 517	2 379	2 262	2 163
2020	2 891	2 612	2 38	2 187	2 028	1 899	1 793	1 702	1 624	1 557
2025	2 222	2 013	1 839	1 694	1 574	1 478	1 4	1 332	1 273	1 222
2030	1 902	1 723	1 573	1 449	1 347	1 266	1 201	1 144	1 094	1 051
2035	1 738	1 569	1 428	1 312	1 217	1 143	1 084	1 033	0 987	0 948
2040	1 642	1 476	1 338	1 224	1 133	1 063	1 008	0 96	0 918	0 881

PEAK HOUR TURNING VOLUMES

A M Peak



P M Peak



Representative Traffic Volumes (Vehicles per Hour)

	A M		P M	
N-S Road	387		N-S Road	1,405
E-W Road	1,686		E-W Road	2,190
Primary Road =	E-W Road		Primary Road =	E-W Road

ROADWAY CO CONTRIBUTIONS

Roadway	Reference CO Concentrations 0 Feet	25 Feet	50 Feet		Traffic Volume		Emission Factor		
A M Peak Hour									
N-S Road	3 7	2 7	2 2	*	387	*	2 89	÷	100,000
E-W Road	11 9	7 0	5 4	*	1,686	*	2 89	÷	100,000
P M Peak Hour									
N-S Road	3 7	2 7	2 2	*	1,405	*	2 89	÷	100,000
E-W Road	11 9	7 0	5 4	*	2,190	*	2 89	÷	100,000

TOTAL CO CONCENTRATIONS (ppm)

	A M Peak Hour	P M Peak Hour	8-Hour
0 Feet from Roadway Edge	7 6	7 9	2 9
25 Feet from Roadway Edge	7 4	7 6	2 7
50 Feet from Roadway Edge	7 3	7 4	2 6

BAY AREA AQMD SIMPLIFIED CALINE4 ANALYSIS; UPDATED WITH EMFAC2007

Project Title:	UC Riverside LRDP
Intersection:	Chicago Avenue and Central Avenue
Analysis Condition:	Cumulative Plus Project Conditions (Year 2020)
Nearest Air Monitoring Station measuring CO:	SRA 23 (Metropolitan Riverside County 2)
Background 1-hour CO Concentration (ppm):	7 0
Background 8-hour CO Concentration (ppm):	2 3
Persistence Factor:	0 7
Analysis Year:	2020

		Roadway Type	No of Lanes	Approach/Departure Speed A M	Approach/Departure Speed P M
North-South Roadway:	Chicago Avenue	AT GRADE	4	5	5
East-West Roadway:	Central Avenue	AT GRADE	2	5	5

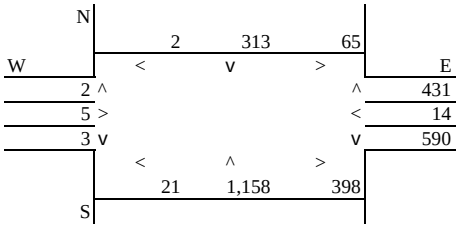
EMFAC2007 COMPOSITE EMISSION FACTORS FOR CO

Air Basin: South Coast County: Riverside
Assumes lowest mean wintertime temperature of 39 degrees F and 55% humidity

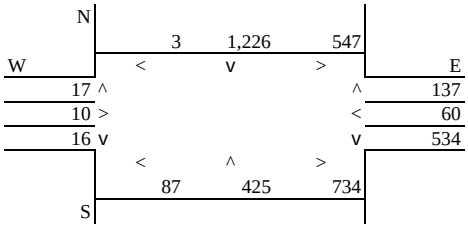
	Average Speed (miles per hour)									
Year	5	8	11	14	17	20	23	26	29	32
2010	6 779	6 003	5 379	4 873	4 459	4 123	3 851	3 624	3 435	3 28
2011	6 147	5 456	4 899	4 445	4 074	3 772	3 528	3 322	3 151	3 009
2012	5 585	4 969	4 471	4 064	3 729	3 458	3 238	3 052	2 896	2 767
2013	5 078	4 529	4 082	3 717	3 416	3 172	2 974	2 806	2 664	2 546
2014	4 62	4 129	3 729	3 4	3 13	2 91	2 732	2 58	2 451	2 343
2015	4 218	3 778	3 418	3 121	2 876	2 678	2 517	2 379	2 262	2 163
2020	2 891	2 612	2 38	2 187	2 028	1 899	1 793	1 702	1 624	1 557
2025	2 222	2 013	1 839	1 694	1 574	1 478	1 4	1 332	1 273	1 222
2030	1 902	1 723	1 573	1 449	1 347	1 266	1 201	1 144	1 094	1 051
2035	1 738	1 569	1 428	1 312	1 217	1 143	1 084	1 033	0 987	0 948
2040	1 642	1 476	1 338	1 224	1 133	1 063	1 008	0 96	0 918	0 881

PEAK HOUR TURNING VOLUMES

A M Peak



P M Peak



Representative Traffic Volumes (Vehicles per Hour)

N-S Road	2,483	N-S Road	3,022
E-W Road	1,503	E-W Road	2,022
Primary Road =	N-S Road	Primary Road =	N-S Road

ROADWAY CO CONTRIBUTIONS

Roadway	Reference CO Concentrations 0 Feet	25 Feet	50 Feet		Traffic Volume		Emission Factor		
A M Peak Hour									
N-S Road	11 9	7 0	5 4	*	2,483	*	2 89	÷	100,000
E-W Road	3 7	2 7	2 2	*	1,503	*	2 89	÷	100,000
P M Peak Hour									
N-S Road	11 9	7 0	5 4	*	3,022	*	2 89	÷	100,000
E-W Road	3 7	2 7	2 2	*	2,022	*	2 89	÷	100,000

TOTAL CO CONCENTRATIONS (ppm)

	A M Peak Hour	P M Peak Hour	8-Hour
0 Feet from Roadway Edge	8 0	8 3	3 2
25 Feet from Roadway Edge	7 6	7 8	2 8
50 Feet from Roadway Edge	7 5	7 6	2 7

BAY AREA AQMD SIMPLIFIED CALINE4 ANALYSIS; UPDATED WITH EMFAC2007

Project Title:	UC Riverside LRDP
Intersection:	Canyon Crest Drive and Central Avenue
Analysis Condition:	Cumulative Plus Project Conditions (Year 2020)
Nearest Air Monitoring Station measuring CO:	SRA 23 (Metropolitan Riverside County 2)
Background 1-hour CO Concentration (ppm):	7 0
Background 8-hour CO Concentration (ppm):	2 3
Persistence Factor:	0 7
Analysis Year:	2020

		Roadway Type	No of Lanes	Approach/Departure Speed A M	Approach/Departure Speed P M
North-South Roadway:	Canyon Crest Drive	AT GRADE	4	5	5
East-West Roadway:	Central Avenue	AT GRADE	4	5	5

EMFAC2007 COMPOSITE EMISSION FACTORS FOR CO

Air Basin: South Coast County: Riverside
Assumes lowest mean wintertime temperature of 39 degrees F and 55% humidity

	Average Speed (miles per hour)									
Year	5	8	11	14	17	20	23	26	29	32
2010	6 779	6 003	5 379	4 873	4 459	4 123	3 851	3 624	3 435	3 28
2011	6 147	5 456	4 899	4 445	4 074	3 772	3 528	3 322	3 151	3 009
2012	5 585	4 969	4 471	4 064	3 729	3 458	3 238	3 052	2 896	2 767
2013	5 078	4 529	4 082	3 717	3 416	3 172	2 974	2 806	2 664	2 546
2014	4 62	4 129	3 729	3 4	3 13	2 91	2 732	2 58	2 451	2 343
2015	4 218	3 778	3 418	3 121	2 876	2 678	2 517	2 379	2 262	2 163
2020	2 891	2 612	2 38	2 187	2 028	1 899	1 793	1 702	1 624	1 557
2025	2 222	2 013	1 839	1 694	1 574	1 478	1 4	1 332	1 273	1 222
2030	1 902	1 723	1 573	1 449	1 347	1 266	1 201	1 144	1 094	1 051
2035	1 738	1 569	1 428	1 312	1 217	1 143	1 084	1 033	0 987	0 948
2040	1 642	1 476	1 338	1 224	1 133	1 063	1 008	0 96	0 918	0 881

PEAK HOUR TURNING VOLUMES

A M Peak

	N			
	22	271	101	
W	<	v	>	E
26	^		^	280
360	>		<	717
77	v		v	96
	<	^	>	
	188	1,328	185	
	S			

P M Peak

	N			
	79	1,031	389	
W	<	v	>	E
49	^		^	140
877	>		<	532
250	v		v	142
	<	^	>	
	125	504	143	
	S			

Representative Traffic Volumes (Vehicles per Hour)

N-S Road	2,145	N-S Road	2,195
E-W Road	1,739	E-W Road	2,223
Primary Road =	N-S Road	Primary Road =	E-W Road

ROADWAY CO CONTRIBUTIONS

Roadway	Reference CO Concentrations 0 Feet	25 Feet	50 Feet		Traffic Volume		Emission Factor		
A M Peak Hour									
N-S Road	11 9	7 0	5 4	*	2,145	*	2 89	÷	100,000
E-W Road	3 3	2 6	2 2	*	1,739	*	2 89	÷	100,000
P M Peak Hour									
N-S Road	3 3	2 6	2 2	*	2,195	*	2 89	÷	100,000
E-W Road	11 9	7 0	5 4	*	2,223	*	2 89	÷	100,000

TOTAL CO CONCENTRATIONS (ppm)

	A M Peak Hour	P M Peak Hour	8-Hour
0 Feet from Roadway Edge	7 9	8 0	3 0
25 Feet from Roadway Edge	7 6	7 6	2 7
50 Feet from Roadway Edge	7 4	7 5	2 6

APPENDIX 4.10

Noise Model Calculations

Project Name
On-Site Noise Contours
Existing Conditions

ROADWAY NAME / Segment	Number of Lanes in Each Direction	Median Width	ADT Volume	Design Speed (mph)	Alpha Factor (1)	Vehicle Mix: Medium Trucks	Vehicle Mix: Heavy Trucks	Distance from Center of Roadway: CNEL at 75 Feet	DISTANCE TO CONTOUR: 75 CNEL	70 CNEL	65 CNEL	60 CNEL
ROADWAY NAME												
MLK/14th Street												
Canyon Crest Drive to Iowa Avenue	2	0	22,310	35	0	1.8%	0.7%	66.5	-	-	104	325
Iowa Avenue to Chicago Avenue	2	0	20,072	35	0	1.8%	0.7%	66.0	-	-	94	293
Chicago Avenue												
MLK to University Avenue	2	0	17,660	35	0	1.8%	0.7%	65.4	-	-	83	258
University Avenue to Blaine Street	2	0	16,696	35	0	1.8%	0.7%	65.2	-	-	79	244
University Avenue												
I-215 to Iowa Avenue	2	0	20,500	35	0	1.8%	0.7%	66.1	-	-	96	299
Iowa Avenue to Chicago Avenue	2	0	20,148	35	0	1.8%	0.7%	66.0	-	-	94	294
Iowa Avenue												
MLK to University Avenue	2	0	12,003	35	0	1.8%	0.7%	63.8	-	-	-	176
University Avenue to Blaine Street	2	0	18,761	35	0	1.8%	0.7%	65.7	-	-	88	274

Notes:

(1) Alpha Factor: Coefficient of absorption relating to the effects of the ground surface An alpha factor of 0 indicates that the site is an acoustically "hard" site, such as aspalt An alpha factor of 0 5 indicates that the site is an acoustically "soft" site such, as heavily vegetated ground cover

"-" = contour is located within the roadway lanes or within 75 feet of the roadway centerline

Noise levels and distances to contours do not assume any natural or constructed barriers that may attenuate noise

Assumed 24-Hour Traffic Distribution:	**Day**	**Evening**	**Night**	**Total**
Total ADT Volumes	77 70%	12 70%	9 60%	100 00%
Medium-Duty Trucks	87 43%	5 05%	7 52%	100 00%
Heavy-Duty Trucks	89 10%	2 84%	8 06%	100 00%

Notes to Modeler: The 24-hour traffic distribution and vehicle mix percentages are defaults. For project-specific numbers, obtain the 24-hour traffic distribution, vehicle mix percentages, and traffic volumes from the traffic engineer. For state and federal highways, obtain this information from the Caltrans website. Column G under Notes: should total 100%. Some jurisdictions have different distributions by roadway type, so check with that jurisdiction. An example is Riverside County.

Project Name
On-Site Noise Contours
Existing - 2020 Plus Project Conditions

ROADWAY NAME / Segment	Number of Lanes in Each Direction	Median Width	ADT Volume	Design Speed (mph)	Alpha Factor (1)	Vehicle Mix: Medium Trucks	Vehicle Mix: Heavy Trucks	Distance from Center of Roadway: CNEL at 75 Feet	DISTANCE TO CONTOUR: 75 CNEL	70 CNEL	65 CNEL	60 CNEL
ROADWAY NAME												
MLK/14th Street												
Canyon Crest Drive to Iowa Avenue	2	0	31,873	35	0	1.8%	0.7%	68.0	-	-	148	461
Iowa Avenue to Chicago Avenue	2	0	25,814	35	0	1.8%	0.7%	67.1	-	-	121	375
Chicago Avenue												
MLK to University Avenue	2	0	22,780	35	0	1.8%	0.7%	66.6	-	-	107	331
University Avenue to Blaine Street	2	0	20,974	35	0	1.8%	0.7%	66.2	-	-	98	305
University Avenue												
I-215 to Iowa Avenue	2	0	29,880	35	0	1.8%	0.7%	67.7	-	-	139	433
Iowa Avenue to Chicago Avenue	2	0	26,860	35	0	1.8%	0.7%	67.3	-	-	125	390
Iowa Avenue												
MLK to University Avenue	2	0	17,191	35	0	1.8%	0.7%	65.3	-	-	81	251
University Avenue to Blaine Street	2	0	25,434	35	0	1.8%	0.7%	67.0	-	-	119	369

Notes:

(1) Alpha Factor: Coefficient of absorption relating to the effects of the ground surface An alpha factor of 0 indicates that the site is an acoustically "hard" site, such as aspalt An alpha factor of 0 5 indicates that the site is an acoustically "soft" site such, as heavily vegetated ground cover

"-" = contour is located within the roadway lanes or within 75 feet of the roadway centerline

Noise levels and distances to contours do not assume any natural or constructed barriers that may attenuate noise

Assumed 24-Hour Traffic Distribution:	**Day**	**Evening**	**Night**	**Total**
Total ADT Volumes	77 70%	12 70%	9 60%	100 00%
Medium-Duty Trucks	87 43%	5 05%	7 52%	100 00%
Heavy-Duty Trucks	89 10%	2 84%	8 06%	100 00%

Notes to Modeler: The 24-hour traffic distribution and vehicle mix percentages are defaults. For project-specific numbers, obtain the 24-hour traffic distribution, vehicle mix percentages, and traffic volumes from the traffic engineer. For state and federal highways, obtain this information from the Caltrans website. Column G under Notes: should total 100%. Some jurisdictions have different distributions by roadway type, so check with that jurisdiction. An example is Riverside County.

APPENDIX 4.14

Traffic Impact Analysis

TRAFFIC IMPACT ANALYSIS FOR UNIVERSITY OF CALIFORNIA - RIVERSIDE LONG RANGE DEVELOPMENT PLAN EIR AMENDMENT

Prepared for:

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July 2011

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I. EXECUTIVE SUMMARY

PROJECT DESCRIPTION

This traffic analysis considers a number of recent changes to the previously approved 2005 Long Range Development Plan (LRDP) for University of California, Riverside in Riverside, California. These changes include:

1. A change in the designation of a 38.7-acre site located at the northeast corner of Iowa Avenue and Martin Luther King, Jr. Boulevard (MLK) on the West Campus from *Housing*, *Parking* and *Academic* to *School of Medicine (SOM)* to allow a medical school and associated uses to support the school on the site.

2. A change in the location of two future parking facilities and deletion of the location of one parking facility in the West Campus academic core. This change in the parking facility location is not anticipated to result in the change in the overall number of parking spaces associated with the Campus or the overall Campus enrollment.

3. A modification to the major open space configuration in the West Campus academic core to include the reconfiguration of the "Grove" concept to the "Gage Canal Mall" concept and the inclusion of the West Campus Mall; the extension of the 100-foot wide landscape buffer along the north side of MLK between Cranford Avenue and Chicago Avenue and extension of the Northwest and Southwest Malls from Cranford Avenue to Chicago Avenue.

4. The re-designation of the land uses of several parcels to accommodate land uses displaced by the major changes listed above, including the designation of the Campus Reserve site as *Housing* and *Open Space.*

5. The incorporation of previously approved land use amendments and map changes into the 2005 LRDP Land Use map, including incorporation of recently obtained housing on the East Campus and reconfiguration of residential and open space land uses on the East Campus to provide new student housing.

From the perspective of this analysis, the primary change is the change in land use designation for the School of Medicine Site. The change in the parking space location is anticipated to result in some redistribution of traffic volumes traveling to various locations within the Campus. However, the change in parking facility location is not anticipated to change the overall number of vehicles parked on Campus or the number of vehicles traveling to and from the Campus on a daily basis.

EXISTING CONDITIONS ANALYSIS

The following intersections were identified to be operating at a deficient Level of Service (LOS) during our evaluation of existing conditions:

- Third Street/Chicago Avenue (AM Peak hour)
- Blaine Street/Rustin Avenue (AM Peak hour)
- Martin Luther King, Jr. Boulevard/Chicago Avenue (AM and PM Peak hour)
- Martin Luther King, Jr. Boulevard/Canyon Crest Drive (AM and PM Peak hour)

- Central Avenue/Chicago Avenue (AM and PM Peak hour)
- Watkins Drive/SR-60 Northbound On-Ramp (AM Peak hour)

PROJECT IMPACTS

Project impacts were evaluated for intersections, roadway segments, bicycles, pedestrians, transit, and site access/circulation. Intersection and roadway impacts were analyzed for the Existing Plus Project and Cumulative With Project scenarios. Impacts were identified related to a number of study intersections as noted in Table ES-1 below for both the Existing Plus Project and Cumulative With Project scenarios. No impacts were identified for roadway segments, bicycles, pedestrians, transit, and site access/circulation.

TABLE ES-1
INTERSECTION RESULTS SUMMARY

Study Intersection	Analysis Scenarios where Impact Occurs	Significance After Mitigation
Third Avenue/Chicago Avenue	Existing Plus Project Cumulative With Project	Significant and Unavoidable Significant and Unavoidable
Blaine Street/Iowa Avenue	Existing Plus Project Cumulative With Project	Significant and Unavoidable Significant and Unavoidable
Linden Street/Iowa Avenue	Existing Plus Project Cumulative With Project	Significant and Unavoidable Significant and Unavoidable
University Avenue/Kansas Avenue	Cumulative With Project	Significant and Unavoidable
Chicago Avenue/University Avenue	Existing Plus Project Cumulative With Project	Significant and Unavoidable Significant and Unavoidable
University Avenue/Iowa Avenue	Existing Plus Project Cumulative With Project	Significant and Unavoidable Significant and Unavoidable
University Avenue/University Village	Existing Plus Project Cumulative With Project	Significant and Unavoidable Significant and Unavoidable
University Avenue/I-215 SB On-Ramps	Existing Plus Project Cumulative With Project	Significant and Unavoidable Significant and Unavoidable
University Avenue/I-215 NB On-Ramps	Existing Plus Project Cumulative With Project	Significant and Unavoidable Significant and Unavoidable
Campus Drive/Lot 1 Driveway	Existing Plus Project Cumulative With Project	Less Than Significant Less Than Significant
Martin Luther King, Jr. Boulevard/Chicago Avenue	Existing Plus Project Cumulative With Project	Significant and Unavoidable Significant and Unavoidable
Martin Luther King, Jr. Boulevard/Iowa Avenue	Existing Plus Project Cumulative With Project	Significant and Unavoidable Significant and Unavoidable
Martin Luther King, Jr. Boulevard/Lot 30 Driveway	Existing Plus Project Cumulative With Project	Significant and Unavoidable Significant and Unavoidable
Martin Luther King, Jr. Boulevard/Canyon Crest Drive	Existing Plus Project Cumulative With Project	Significant and Unavoidable Significant and Unavoidable
Central Avenue/Chicago Avenue	Existing Plus Project Cumulative With Project	Significant and Unavoidable Significant and Unavoidable

Central Avenue/Canyon Crest Drive	Cumulative With Project	Significant and Unavoidable
Linden Street/Canyon Crest Drive	Cumulative With Project	Significant and Unavoidable
Martin Luther King, Jr. Boulevard/I-215 SB Ramps	Cumulative With Project	Significant and Unavoidable
Source: Fehr and Peers, 2011.		

1. ANALYSIS PARAMETERS

This chapter outlines the geographic scope of the traffic impact analysis, including the study intersections and roadways, and the analysis methodologies and significance criteria employed in this study.

PROJECT DESCRIPTION

This traffic analysis considers a number of recent changes to the previously approved 2005 Long Range Development Plan (LRDP) for University of California, Riverside in Riverside, California. These changes include:

1. A change in the designation of a 38.7-acre site located at the northeast corner of Iowa Avenue and Martin Luther King, Jr. Boulevard (MLK) on the West Campus from *Housing*, *Parking* and *Academic* to *School of Medicine (SOM)* to allow a medical school and associated uses to support the school on the site.

2. A change in the location of two future parking facilities and deletion of the location of one parking facility in the West Campus academic core. This change in the parking facility location is not anticipated to result in the change in the overall number of parking spaces associated with the Campus or the overall Campus enrollment.

3. A modification to the major open space configuration in the West Campus academic core to include the reconfiguration of the "Grove" concept to the "Gage Canal Mall" concept and the inclusion of the West Campus Mall; the extension of the 100-foot wide landscape buffer along the north side of MLK between Cranford Avenue and Chicago Avenue and extension of the Northwest and Southwest Malls from Cranford Avenue to Chicago Avenue.

4. The re-designation of the land uses of several parcels to accommodate land uses displaced by the major changes listed above, including the designation of the Campus Reserve site as *Housing* and *Open Space.*

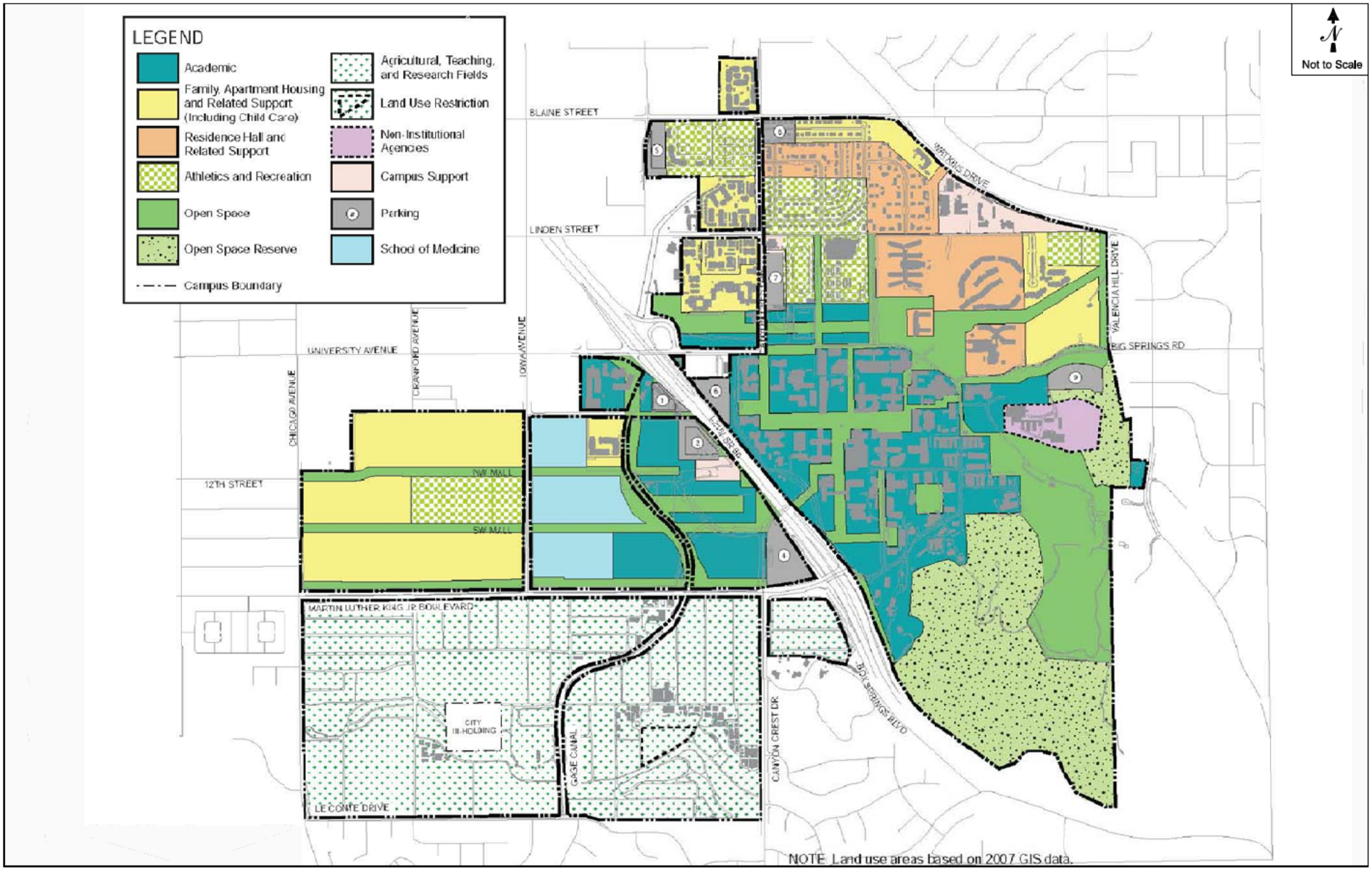
5. The incorporation of previously approved land use amendments and map changes into the 2005 LRDP Land Use map including incorporation of recently obtained housing on the East Campus and reconfiguration of residential and open space land uses on the East Campus to provide new student housing.

From the perspective of this analysis, the primary change is the change in land use designation for the School of Medicine Site. The change in the parking space location is anticipated to result in some redistribution of traffic volumes traveling to various locations within the Campus. However, the change in parking facility location is not anticipated to change the overall number of vehicles parked on Campus or the number of vehicles traveling to and from the Campus on a daily basis.

The LRDP Land Use Plan is provided as Figure 1.

PROJECT STUDY AREA

The project study area is roughly bounded by Central Avenue to the south, Third Street to the north, Kansas avenue to the west, and Watkins Drive to the east. The school of medicine site is located at the Northeast Corner of Iowa Avenue and Martin Luther King, Jr. Boulevard.



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SITE PLAN
FIGURE 1

PROJECT DRIVEWAYS AND ROADWAYS

Major roadways in the project study area include:

- Martin Luther King, Jr. Boulevard
- University Avenue
- Chicago Avenue
- Iowa Avenue
- Canyon Crest Avenue
- I-215/SR-60

Specific roadway segments included in the analysis are as follows:

- Martin Luther King, Jr. Drive/14th Street
  - Canyon Crest Drive to Iowa Avenue
  - Iowa Avenue to Chicago Avenue
- Chicago Avenue
  - Martin Luther King, Jr. Boulevard to University Avenue
  - University Avenue to Blaine Street
- University Avenue
  - I-215 to Iowa Avenue
  - Iowa Avenue to Chicago Avenue
- Iowa Avenue
  - Martin Luther King, Jr. Boulevard to University Avenue
  - University Avenue to Blaine Avenue

PROJECT STUDY INTERSECTIONS

Within the study area, the following intersections were selected for analysis based on a review of the roadway network, the likely approach and departure routes for the project traffic, their proximity to the project site, and initial input received from the project team:

1. Blaine Street/Canyon Crest Drive
2. Blaine Street/Watkins Drive
3. Linden Street/Canyon Crest Drive
4. University Avenue/Kansas Ave
5. Central Ave/Chicago Ave
6. Central Ave/Canyon Crest Drive
7. Central Ave/Box Springs Boulevard
8. Big Springs Road/Watkins Drive
9. Le Conte Drive/Chicago Ave
10. Central Ave/SR60 SBR
11. Central Ave/SR60 NBR
12. Linden Street/Aberdeen Dr
13. Big Springs Rd/Campus Dr

14. Parking Lot 1/Campus Dr
15. Campus Dr/Canyon Crest Dr
16. Campus Dr/Citrus Dr
17. Eucalyptus Dr/Campus Dr
18. Blaine Street/Rustin Avenue
19. University Avenue/University Village
20. Chicago Avenue/Third Street
21. Iowa Avenue/Blaine Street
22. Iowa Avenue/Linden Street
23. Chicago Avenue/University Avenue
24. Iowa Avenue/University Avenue
25. I-215 SB Ramp/University Avenue
26. I-215 NB Ramp/University Avenue
27. Chicago Avenue/Martin Luther King Jr. Drive
28. Iowa Avenue/Martin Luther King Jr. Drive
29. Lot 30/Martin Luther King Jr. Drive
30. Canyon Crest Drive/Martin Luther King Jr. Drive
31. I-215 SB Ramps/Martin Luther King Jr. Drive
32. I-215 NB Ramps/Martin Luther King Jr. Drive

The project study intersections are shown on Figure 2.

ANALYSIS SCENARIOS

Our analysis scenarios include the existing operations and Cumulative conditions, which reflects the Buildout year for the amended 2005 LRDP, which is assumed to be 2020. The analysis scenarios are:

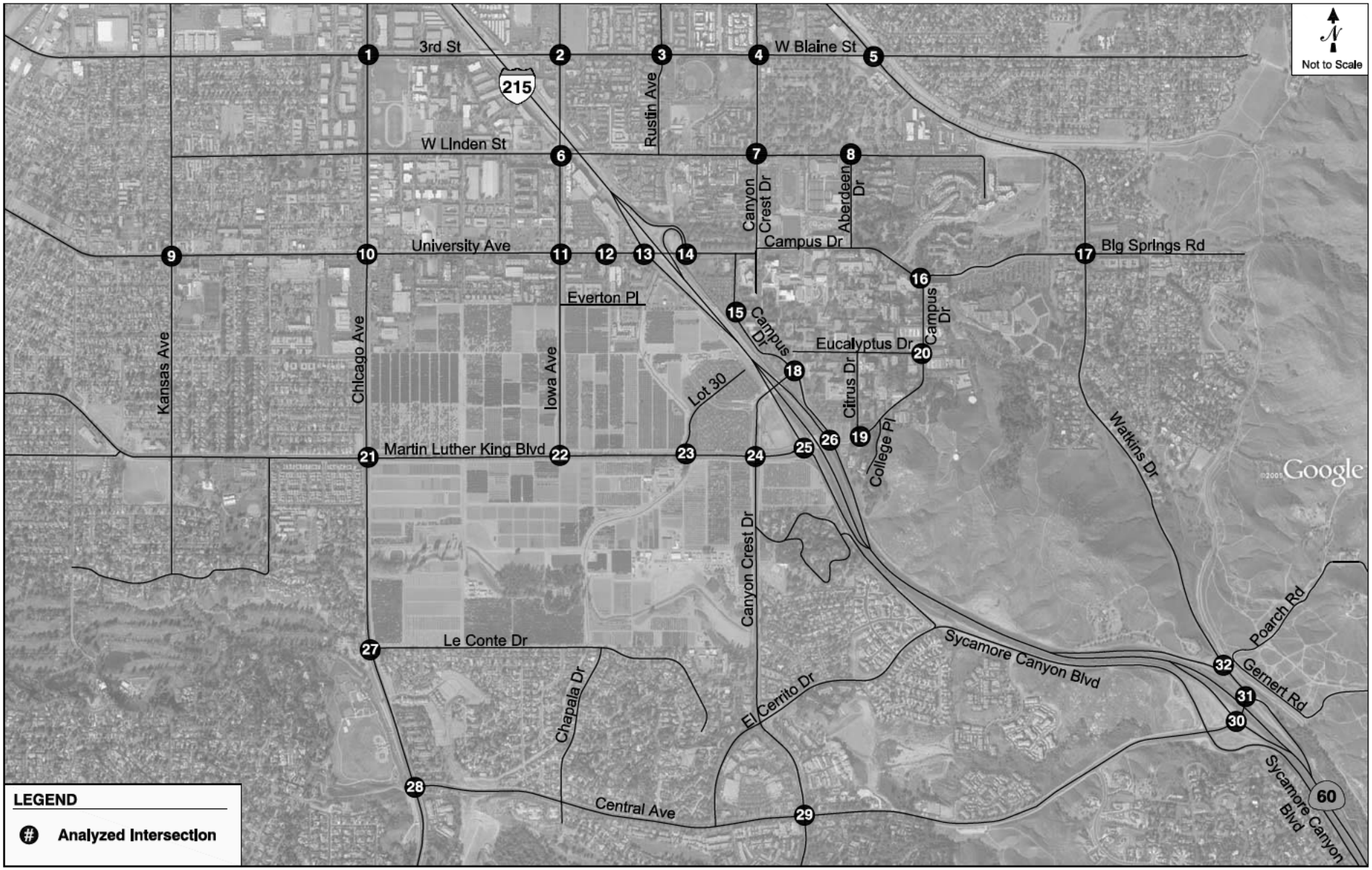
- Existing
- Existing Plus Project
- Cumulative
- Cumulative Plus Project

One issue that was discussed with the Project Team was the Cumulative Scenario Year. The City of Riverside had requested that the Cumulative Analysis reflect 2025 Conditions, which is the same Year as analyzed in the City of Riverside General Plan. Based on consultations with the Project Team, it was determined that it would be problematic to analyze 2025 as the Cumulative Scenario Year since UCR enrollment projections only extend to 2020. The decision to employ this approach was communicated to the City of Riverside.

ANALYSIS METHODOLOGIES

Operations

The intersection analysis employs a methodology based on empirical research conducted by the Transportation Research Board and other authorities.



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ANALYZED INTERSECTIONS

FIGURE 2

Signalized intersection operations are evaluated using methodologies provided in the 2000 Highway Capacity Manual (HCM) (Transportation Research Board). These methodologies assess average control delays and then assign a corresponding letter grade that represents the overall condition of the intersection. These grades range from level of service (LOS) A (minimal delay) to LOS F (excessive congestion). LOS E represents at-capacity operations. For this study, levels of service are calculated using Synchro 6.0 software, which implements 2000 HCM methodologies. Synchro software allows the input of signal timing and coordination data to more accurately reflect actual conditions. Descriptions of the LOS letter grades for signalized intersections are provided in Table 1. Table 2 provides the LOS value at various levels of delay for unsignalized intersections.

TABLE 1
SIGNALIZED INTERSECTION LOS CRITERIA

Level of Service	Description	Delay (Seconds)
A	Operations with very low delay occurring with favorable progression and/or short cycle length.	≤ 15.0
B	Operations with low delay occurring with good progression and/or short cycle lengths.	> 15.0 to 25.0
C	Operations with average delays resulting from fair progression and/or longer cycle lengths. Individual cycle failures begin to appear.	> 25.0 to 35.0
D	Operations with longer delays due to a combination of unfavorable progression, long cycle lengths, or high V/C ratios. Many vehicles stop and individual cycle failures are noticeable.	> 35.0 to 55.0
E	Operations with high delay values indicating poor progression, long cycle lengths, and high V/C ratios. Individual cycle failures are frequent occurrences. This is considered to be the limit of acceptable delay.	> 55.0 to 80.0
F	Operation with delays unacceptable to most drivers occurring due to over saturation, poor progression, or very long cycle lengths.	> 80.0

Note: The San Bernardino CMP guidelines consider all intersections with a V/C ratio above 1.0 to be operating at LOS F, regardless of delay LOS.
Source: *Highway Capacity Manual* (Transportation Research Board, 2000).

TABLE 2
UNSIGNALIZED INTERSECTION LOS CRITERIA

Level of Service	Description	Delay
A	Little or no delays	≤ 10.0
B	Short traffic delays	> 10.0 to 15.0
C	Average traffic delays	> 15.0 to 25.0
D	Long traffic delays	> 25.0 to 35.0
E	Very long traffic delays	> 35.0 to 50.0
F	Extreme traffic delays with intersection capacity exceeded	> 50.0

Source: *Highway Capacity Manual* (Transportation Research Board, 2000).

SIGNIFICANCE CRITERIA

Intersections

The lead agency for this project is the University of California, Riverside (UCR). UCR is governed by the University of California Board of Regents and has the authority to establish its own set of significance criteria. However, to maintain consistency with the City of Riverside, the City's significance criteria were used for intersections within its jurisdiction. For campus intersections, the University of California used its own set of significance criteria. Table 3 summarizes the significance criteria for City and University intersections.

TABLE 3
INTERSECTION LOS CRITERIA

Level of Service	City Significance Criteria[1]	University Significance Criteria
A	>10 seconds increased delay	
B	>10.0 seconds increased delay	
C	>8.0 seconds increased delay	
D	>5.0 seconds increased delay	
E	>2.0 seconds increased delay	Significant Impact
F	>1.0 second increased delay	Significant Impact

Notes:
1 – Average delay is calculated for signalized and all-way stop controlled intersections. Worst approach delay is calculated for side street stop controlled intersections.
Source: *City of Riverside Traffic Impact Analysis Preparation Guide, University of California Riverside LRDP EIR*

As shown in the table, a significant impact at City intersections occurs when project traffic causes additional delay at an intersection above a certain threshold. For University intersections, a significant impact occurs when the intersection operates at LOS E or F, regardless of the amount of new project trips that travel through the intersection.

CMP Facilities

The latest CMP document defines an acceptable LOS threshold for CMP facilities at LOS E. For purposes of this analysis, an impact to a freeway segment occurs if either:

- The LOS on a freeway segment decreases from LOS E to LOS F with the addition of project traffic; or
- For a freeway segment that operates at LOS F prior to addition of project traffic, the V/C ratio increases by 0.01 or more as a result of the addition of project traffic

Alternative Modes

1. Transit impacts are considered significant if:

    a. A project or project-related mitigation disrupts existing transit services or facilities. This includes disruptions caused by proposed-project driveways on transit streets and impacts to transit stops/shelters; and impacts to transit operations from traffic improvements proposed or resulting from a project.
    b. A project interferes with planned transit services or facilities.
    c. A project conflicts or creates inconsistencies with adopted transit system plans, guidelines, policies or standards.
    d. A project creates demand for public transit services above the capacity which is provided, or planned.

2. Bicycle impacts are considered significant if:

    a. A project disrupts existing bicycle facilities.
    b. A project interferes with planned bicycle facilities. This includes failure to dedicate right-of-way for planned on- and off-street bicycle facilities included in an adopted Bicycle Master Plan or to contribute toward construction of planned bicycle facilities along the project's frontages.
    c. A project conflicts or creates inconsistencies with adopted bicycle system plans, guidelines, policies or standards.

3. Pedestrian impacts are considered significant if:

    a. A project disrupts existing pedestrian facilities. This can include adding new vehicular, pedestrian or bicycle traffic to an area experiencing pedestrian safety concerns such as an adjacent crosswalk or school, particularly if the added traffic reduces the number of pedestrian acceptable gaps at unsignalized crossings or cause queues to spillback through pedestrian crossings.
    b. A project interferes with planned pedestrian facilities. In existing and/or planned urbanized areas, main streets or pedestrian districts, this can include impacts to the quality of the walking environment.
    c. A project conflicts or creates inconsistencies with adopted pedestrian system plans, guidelines, policies or standards.

Site Plan Review

Project site plans and proposed off-site improvements, including mitigation, were reviewed for consistency with local design standards, parking codes, and other adopted guidelines. Project impacts were considered significant if:

    a. Project designs for on-site circulation, access and parking areas fail to meet industry standard design guidelines.
    b. A project fails to provide a sufficient quantity of on-site parking for vehicles. This analysis will consider both the anticipated parking demand and the parking.
    c. A project fails to provide a sufficient quantity of on-site parking for bicycles.

d. A project fails to provide accessible and safe pedestrian connections between buildings and to adjacent streets and transit facilities.

e. A project fails to provide adequate accessibility for service and delivery trucks on-site including access to truck loading areas.

f. A project violates access management standards (e.g., driveway spacing, signal spacing, sight distance, etc.) in a way that causes an adverse effect on the environment or reduction in public safety

2. EXISTING CONDITIONS

This chapter discusses the existing transportation conditions in the project study area. This discussion addresses the roadway network, the bus and rail transit network, the existing bicycle and pedestrian facilities, and current intersection operations.

UNIVERSITY OF CALIFORNIA, RIVERSIDE

UCR is located in Riverside, California, near the Canyon Crest neighborhood. The university was established in 1954 with a student body of 117 and a planned capacity of 150. Today, there are over 18,000 students enrolled at the school, and the student enrollment doubled between 1997 and 2007.

UCR is governed by the University of California Board of Regents, which oversees all of the University of California campuses. The Board of Regents' mandate is to accommodate the top 12.5% of high school graduates in the state of California who choose to pursue a postsecondary degree. The state of California had seen rapid growth among secondary students in California, and anticipated future growth among high school students. As such, in 2000, the Board of Regents asked each UC school to prepare a Long Range Development Plan (LRDP) to provide a plan for accommodating future growth in the UC system.

UCR released its LRDP and its Environmental Impact Report in 2005. In 2008, UCR released a West Campus Infrastructure Development Study and a Campus Aggregate Master Planning Study. The former study included an assessment of traffic impacts. Both reports included discussion about a proposed medical school on the west portion of the UCR campus, which currently houses citrus fields.

EXISTING ROADWAY FACILITIES

On-Campus Roadways

Aberdeen Drive—Aberdeen Drive is a two-lane divided campus roadway with bike lanes. No parking is allowed on this access road, which is located on the north side of campus.

Linden Street—On the UCR campus, Linden Street is a two-lane undivided roadway with bike lanes between Canyon Crest Drive and Aberdeen Drive and a 40 mph speed limit.

Campus Drive Loop—Campus Drive is subdivided into four segments: North, East, South, and
West, but operationally it is in fact a two-way loop road encircling most of the campus academic core (there is no road between the Surge building and Campus Crest Drive). West Campus Drive is a four-lane divided roadway between University avenue and Hinderaker Hall near the information kiosk, but the remainder of the loop is a two-lane undivided roadway providing access to parking lots in and adjacent to the academic core. There is no through connection from North Campus Drive to University Avenue and Canyon Crest on the west side of campus. No parking is allowed on Campus Drive itself. The road is posted as a bike route, but no pavement striping is provided. North and West Campus Drive have a sidewalk on both sides of the street, while East Campus Drive has a sidewalk on only one side, and South Campus Drive has no sidewalk. The speed limit on Campus Drive is 15 mph.

Citrus Drive—Citrus Drive is a north/south two-lane undivided roadway between Eucalyptus Drive and South Campus Drive. Perpendicular parking along the west side of this street includes both metered spaces and unmetered preferred spaces. Citrus Drive provides access to UCR's Graduate School of Management.

Eucalyptus Drive—Eucalyptus Drive is an east/west two-lane undivided roadway linking Citrus and East Campus Drive. There is a sidewalk on each side of the street, but no bicycle lanes and no parking. Eucalyptus Drive provides access to the service/delivery area of Rivera Library.

Big Springs Road—Big Springs Road is an east/west two-lane partly divided roadway linking East Campus Drive and Valencia Hill Drive and then Watkins Drive. Big Springs Road provides an entranceway to the UCR campus from the east, with bicycle lanes and no parking along its entire length. From Valencia Hill Drive east it is a city street.

Iowa Street —On the UCR campus, Iowa Avenue is a four-lane divided arterial with an 88-foot curb-curb width, a 45 mph speed limit, and bicycle lanes. South of University Avenue, Iowa Street has two lanes, undivided.

Martin Luther King Boulevard —On the UCR campus, Martin Luther King Boulevard is a four-lane divided arterial with an 88-foot curb-curb width, a 50-mph speed limit and bicycle lanes.

Canyon Crest Drive —Canyon Crest Drive is a four-lane undivided arterial with a 88-foot curb-to-curb width, a 45 mph speed limit and bicycle lanes south of Martin Luther King Boulevard. Canyon Crest becomes a four-lane divided roadway about ½ mile south of Martin Luther King Boulevard.

Off-Campus Roadways

Spruce Street—Spruce Street is an east/west roadway extending from Downtown Riverside to Watkins Drive. Spruce Street is constructed as a major/primary arterial with four vehicle lanes (alternating divided/undivided), and a speed limit of 40 mph. East of Iowa Avenue, Spruce Street becomes a two-lane, undivided roadway with a speed limit of 25 mph. There are no bicycle lanes on Spruce Street.

Blaine Street—Blaine Street is an east/west roadway extending from Downtown Riverside (as Third Street) to the UCR campus ending at Watkins Drive. Blaine Street is constructed to its General Plan cross-section as a Major Arterial, with four vehicle lanes, bike lanes, and no curbside parking within its 88-foot curb-to-curb width. The speed limit on Blaine Street is 40 mph. Blaine Street has a full diamond interchange with the I-215/SR-60 freeway.

Linden Street—Linden Street is an east/west roadway extending from Kansas Avenue to the UCR campus. West of Canyon Crest Drive, Linden Street is a public roadway, while east of that point it is within UCR's jurisdiction. Linden Street is currently constructed as a Secondary Street, with two undivided vehicle lanes within its 66-foot curb-to-curb width. Linden Street has bike lanes and curbside parking along portions of its length within the City's jurisdiction. The speed limit on Linden Street is 35 to 40 mph.

University Avenue—University Avenue is an east/west divided roadway extending from Downtown Riverside to the UCR campus. University Avenue is constructed to its General Plan cross-section as a Major Arterial, with four vehicle lanes within its 88-foot curb-to-curb width. University Avenue has bike lanes along portions of its length. The speed limit on University Avenue is 35 to 40 mph. University Avenue has a modified diamond interchange with the I-215/SR-60 freeway.

Martin Luther King Boulevard—Martin Luther King Boulevard is an east/west roadway extending from Downtown Riverside (as 14th Street) to the UCR campus at Canyon Crest Drive. Martin Luther King Boulevard and beyond to Sycamore Canyon Boulevard is constructed to its General Plan cross-section as a Major Arterial, with four vehicle lanes, bike lanes, and median within its 110-foot curb-to-curb width. Speed limit is 35 mph west of Chicago Avenue and 50 mph east of Chicago Avenue. Martin Luther King Boulevard has a partial interchange with the I-215/SR-60 freeway. The freeway interchange will undergo demolition and new construction to provide full diamond interchange with Martin Luther King Boulevard under the freeway in the future.

Central Avenue—Central Avenue is an east/west roadway extending from Chicago Avenue to the I-215/SR-60 freeway. Central Avenue is constructed to its General Plan cross-section as a Major Arterial, with four vehicle lanes and bike lanes within its 88-foot curb-to-curb width. The speed limit on Central is 45 to 55 mph. Central Avenue has a full modified diamond interchange with the I-215/SR-60 freeway at Watkins Drive.

Kansas Street—Kansas Street is an undivided north/south roadway located west of Chicago Avenue with 1 lane each way and a speed limit of 35 mph. North of Blaine Street, Kansas Street has two lanes each way with a speed limit of 35 mph. North of the railroad tracks the roadway reverts to one lane each way. There are no bicycle lanes on Kansas Street. Curbside parking is permitted on most segments.

Chicago Avenue—Chicago Avenue is one of the primary north/south roadways in the eastern part of the City. In the study area it extends from beyond Central Avenue to past the I-215/SR-60 freeway near Spruce Street (Chicago Avenue has no freeway interchange). Chicago Avenue is constructed to its General Plan cross-section as a Major Arterial, with four vehicle lanes within its 110-foot divided curb-to-curb width north of University Avenue. Chicago Avenue has a speed limit of 40 mph.

Iowa Avenue—Iowa Avenue is a north/south roadway extending from Martin Luther King Boulevard at the UCR campus to beyond Spruce Street. Adjacent to the UCR campus, Iowa Avenue is a two lane secondary street with a 66-foot curb-to-curb width, a 45 mph speed limit, and no bicycle lanes. North of Everton Place, Iowa Avenue is a 110-foot Major Arterial with four vehicle lanes, bike lanes on some segments, and median just north of University Avenue. Iowa Avenue has no freeway interchange.

Canyon Crest Drive—Canyon Crest Drive is one of the primary north/south access roadways in the City with a portion, not under the City's jurisdiction, going through the UCR campus, with West Campus Drive forming a link between the discontinuous north and south segments of the roadway. Within the City jurisdiction south of Martin Luther King Boulevard, Canyon Crest Drive is constructed to its General Plan cross-section as a Major Arterial, with four vehicle lanes within its 110-foot divided curb-to-curb width and a speed limit of 45 mph. There is no bicycle lane on Canyon Crest south of Central Avenue. North of University Avenue, Canyon Crest Drive is a Major Arterial, with four undivided vehicle lanes, bike lanes, and very limited parking within its 88-foot curb-to-curb width.

Watkins Drive—Watkins Drive is a northwest/southeast roadway forming the northeastern boundary of the UCR campus. Watkins Drive is constructed as an Arterial, with four undivided vehicle lanes, bike lanes, and a 45 mph speed limit. South of Blaine Street, Watkins Drive is currently striped as a two-lane undivided roadway with bike lanes within its 88-foot curb-to-curb width. Watkins Drive is a two-lane divided roadway south of Valencia Hills Drive, with bicycle lanes and a 35 mph speed limit. Parallel parking is allowed on both sides of the street. Watkins Drive is reduced to a two-lane undivided roadway in the Box Springs area with bike lanes and no parking. Watkins has a full diamond interchange with the I-215/SR-60 freeway at Central Avenue.

Big Springs Drive—Big Springs Drive is a two-lane partially divided roadway extending through the eastern part of the UCR campus and entering the City's jurisdiction at Valencia Hill Drive. Big Springs Drive then extends into the

Box Springs area, ending at the RCTC railroad tracks. There is parking on both sides of the road and a speed limit of 35 mph.

I-215/SR-60—Interstate 215/State Route 60 are two north-south freeways, which merge between their junction with SR-91 to the north and Box Springs Road to the south. I-215, which provides service to San Bernardino and San Diego counties, varies between a four- and eight-lane roadway, and terminates at I-15 to both the north in Devore and the south in Murrieta. SR-60 provides service to San Bernardino and Los Angeles counties, and terminates at I-10 in both Los Angeles to the west and Beaumont to the east. The roadway varies between four and eight lanes in width. Proximate to the campus, I-215 and SR-60 function as one freeway, with three travel lanes in each direction.

SR-91—State Route 91 has a major interchange with I-215 and SR-60 north of the University. This freeway has three mixed-flow lanes in each direction at this point, with HOV lanes west of the downtown area. SR-91 has a major interchange at University Avenue.

Lot 30 – Lot 30 has a two-lane roadway that begins at its intersection with Martin Luther King, Jr. Boulevard. The roadway then terminates at a large parking lot, which provides parking for UCR students and staff.

PUBLIC BUS TRANSIT FACILITIES

There are eleven transit lines which operate within the project study area. The lines are operated by Riverside Transit Agency (RTA), which provides service within Riverside County. RTA offers both traditional bus routes and "CommuterLink" routes, the latter of which operate during peak commute periods and terminate at major transit hubs.

- RTA Line 1 – Line 1 provides service between the cities of Riverside and Corona. Proximate to the project site, Line 1 travels along Canyon Crest Drive and University Avenue. Line 1 connects UCR with two other post-secondary schools: Riverside Community College and California Baptist University. Line 1 also provides service to the Downtown Riverside and West Corona Metrolink Stations and Downtown Riverside Transit Terminal, and to shopping at Riverside Plaza and the Galleria at Tyler. Line 1 operates at 20- to 30-minute headways during the weekday, and at 30-minute headways on weekends.

- RTA Line 10 – Line 10 provides service within the City of Riverside. Proximate to the project site, Line 10 travels along Blaine Street, with a stop on the eastern portion of UCR's campus. Line 10 provides service to the Downtown Riverside Transit Terminal, Riverside Community College and La Sierra University, and to Tyler Galleria and downtown Riverside. Line 10 operates at 60-minute headways on weekdays and 75-minute headways on weekends.

- RTA Line 13 – Line 13 provides service within the City of Riverside. Near the project site, Line 13 travels along Martin Luther King, Jr. Boulevard and Chicago Avenue. Line 13 also has stops at the Downtown Riverside Transit Terminal, Riverside Airport, and Galleria at Tyler. Line 13 operates at 60-minute headways on weekdays and 50-minute headways on weekends.

- RTA Line 14 – Line 14 provides service within the City of Riverside, between UCR and the Galleria at Tyler. Near the project site, Line 14 travels along Blaine Street. Line 14 provides service to the Downtown Riverside Transit Terminal, Galleria at Tyler, Riverside Medical Clinic, and Riverside Auto Center. It operates at 30-minute to 75-minute headways on weekdays, and at 75-minute headways on weekends.

- RTA Line 16 – Line 16 connects the cities of Moreno Valley and Riverside. Proximate to the project site, Line 16 travels along Canyon Crest Drive and University Avenue. Line 16 provides service to the Downtown Riverside Metrolink station, and to the Downtown Riverside Transit Terminal. This route also provides connections to the March Air Reserve Base. Line 16 operates at 30-minute headways on weekdays, and at 42-minute headways on weekends.

- RTA Line 22 – Line 22 connects the cities of Riverside, Perris, and Lake Elsinore. Near the project site, Line 22 travels along University Avenue and Chicago Avenue. Line 22 provides service to the Downtown Riverside Transit Terminal and Lake Elsinore Outlet Center. It operates at 60-minute headways on weekdays and 80-minute headways on weekends.

- RTA Line 25 – Line 25 connects the cities of Riverside, Colton, Grand Terrace, and Loma Linda. Near the project site, Line 25 travels along University Avenue and Iowa Avenue. Line 22 also stops at the Downtown Riverside Transit Center and Loma Linda University. Line 25 operates at approximately 70-minute headways on weekdays and weekends.

- RTA Line 51 – Line 51, the "Crest Cruiser" provides service within the Canyon Crest and UCR area, connecting the Canyon Crest Town Center with the UCR campus. Near the project site, Line 51 runs along University Avenue and Chicago Avenue. This line operates at 20-minute headways on weekdays only.

- RTA Line 53 – Line 53, the "Bear Runner" provides service within the Canyon Crest and UCR area, connecting the Canyon Crest Town Center with the UCR campus. Near the project site, Line 53 runs along University Avenue, Martin Luther King, Jr. Boulevard, Chicago Avenue, and Campus Drive. This line operates at approximately 30 minute headways Monday through Thursday.

- RTA Line 204 – Line 204 is a "CommuterLink" route and provides service between the cities of Riverside, Ontario, and Montclair. Line 205 travels along University Avenue, Iowa Avenue, and Canyon Crest Drive near the UCR campus. Line 25 terminates at the Montclair Metrolink station and also has a stop at the Downtown Riverside Transit Terminal. Line 204 runs during the weekday morning and evening commute periods at 40- to 50-minute headways.

- RTA Line 208 – Line 208 is a "CommuterLink" route that provides service between the cities of Riverside, Moreno Valley, Perris, Sun City, Menifee, Murrieta, and Temecula. Line 208 stops at the intersection of Lot 30 and Martin Luther King, Jr. Boulevard near the project site. Line 208 also has stops at the Downtown Riverside Transit Terminal and the Downtown Riverside Metrolink station. It operates at 30- to 45-minute headways during the weekday morning and evening commute periods.

- RTA Line 210 – Line 210 is a "CommuterLink" route that provides service between the cities of Riverside, Moreno Valley, Calimesa, Beaumont, and Banning. Line 210 runs along Martin Luther King, Jr. Boulevard proximate to the project site, and stops at the Downtown Riverside Transit Terminal and Downtown Riverside Metrolink Station. Line 210 operates at 30-minute to one-hour headways westbound in the morning commute period, and at 45- to 50-minute headways eastbound in the evening commute period, during weekdays only.

EXISTING RAIL FACILITIES

Metrolink operates a commuter rail service within Southern California. There is a Metrolink Station in downtown Riverside, approximately 1.5 miles from UCR. Many RTA lines, provide service between the train station and the

campus. RTA lines also provide service to Metrolink Stations in Corona and Montclair. Additionally, Amtrak trains also stop at this station. The following train lines provide service to the Downtown Riverside station:

- Metrolink 91 Line – The 91 line provides service between Los Angeles and San Bernardino, primarily traveling adjacent to SR-91. This line operates primarily during peak commute periods, with headways varying between 30-minutes and 3-hours. The 91 line provides service on weekdays and weekends, and is generally interchangeable with the Riverside Line.

- Metrolink Inland Empire-Orange County Line – The Inland Empire-Orange County line provides service between San Bernardino and Oceanside, in Northern San Diego County. This line travels through Orange County, with headways varying between 30 minutes and three hours. The Inland Empire-Orange County line operates on both weekdays and weekends.

- Metrolink Riverside Line – The Riverside Line provides service between Los Angeles and Riverside. It operates at headways varying between 30 minutes and three hours, and is largely interchangeable with the 91 line.

- Amtrak Southwest Chief – The Southwest Chief line provides rail service between the metropolitan areas of Chicago, Kansas City, Denver, Las Vegas, Albuquerque, and Los Angeles. The train runs daily, stopping at the Riverside station in the early morning.

ALTERNATIVE MODE FACILITIES

UCR offers vanpool and carpool programs as part of its travel demand management program. These services offered are described below:

- Vanpool Program – UCR currently offers twenty-five vanpools to its students, faculty, and staff. UCR vanpools have 7-9 seats, and travel between the campus and cities where a direct public transit route is generally unavailable. UCR vanpools originate in Los Angeles, Orange, San Bernardino and Riverside counties, and provide service as far as Victorville to the north, West Los Angeles to the west, Temecula to the South, and Palm Springs to the east. Riders meet at one location in their city of origin in the morning, and leave the campus at a fixed time. The cost for riding in a vanpool depends on leasing and operating costs, with each rider contributing equally. Riders must commit to using a vanpool for the entire academic year to be eligible to ride. At present, most vanpools operated by UCR are full, and many have waitlists of interested riders as well. UCR offers free vanpool parking on campus as one incentive to riders.

- Carpool Program – Graduate students, staff, and faculty who choose to carpool to campus can register their vehicles to receive a carpool permit. The permit allows for reduced parking fees and up to 24 days of complimentary on-campus parking. All carpool participants are responsible for a portion of the parking costs, so the carpool program has a system for all riders to contribute parking fees through pre-tax payroll deductions. Additionally, the campus provides designated carpool spaces within each lot.

- Guaranteed Ride Home – UCR offers a guaranteed ride home program for carpool and vanpool members. This is an alternative transportation program intended to be used in emergency situations – such as when a member becomes ill at work, is faced with unscheduled overtime, or has a family emergency. UCR's Fleet Services provides the member with a one-day vehicle rental in these situations.

BICYCLE/PEDESTRIAN NETWORK

All of the roadways within the project study area have sidewalks on both sides of the roadway, with the exception of University Avenue near the I-215 ramps and Martin Luther King, Jr. Boulevard near the I-215 ramps, where there are sidewalks on one side of the roadway. Additionally, there are pedestrian "walk/don't walk" indicators at all of the signalized intersections and marked crosswalks at these locations as well.

Class II bicycle lanes are found along the following roadways proximate to the project site:

- Martin Luther King, Jr. Boulevard – Ottawa Avenue to Canyon Crest Drive
- University Avenue – Ottawa Avenue to Iowa Avenue
- Linden Street – Kansas Avenue to Avocado Street
- Iowa Avenue – University Avenue to Blaine Street
- Canyon Crest Drive – Central Avenue to Martin Luther King, Jr. Boulevard

TRAFFIC DATA COLLECTION

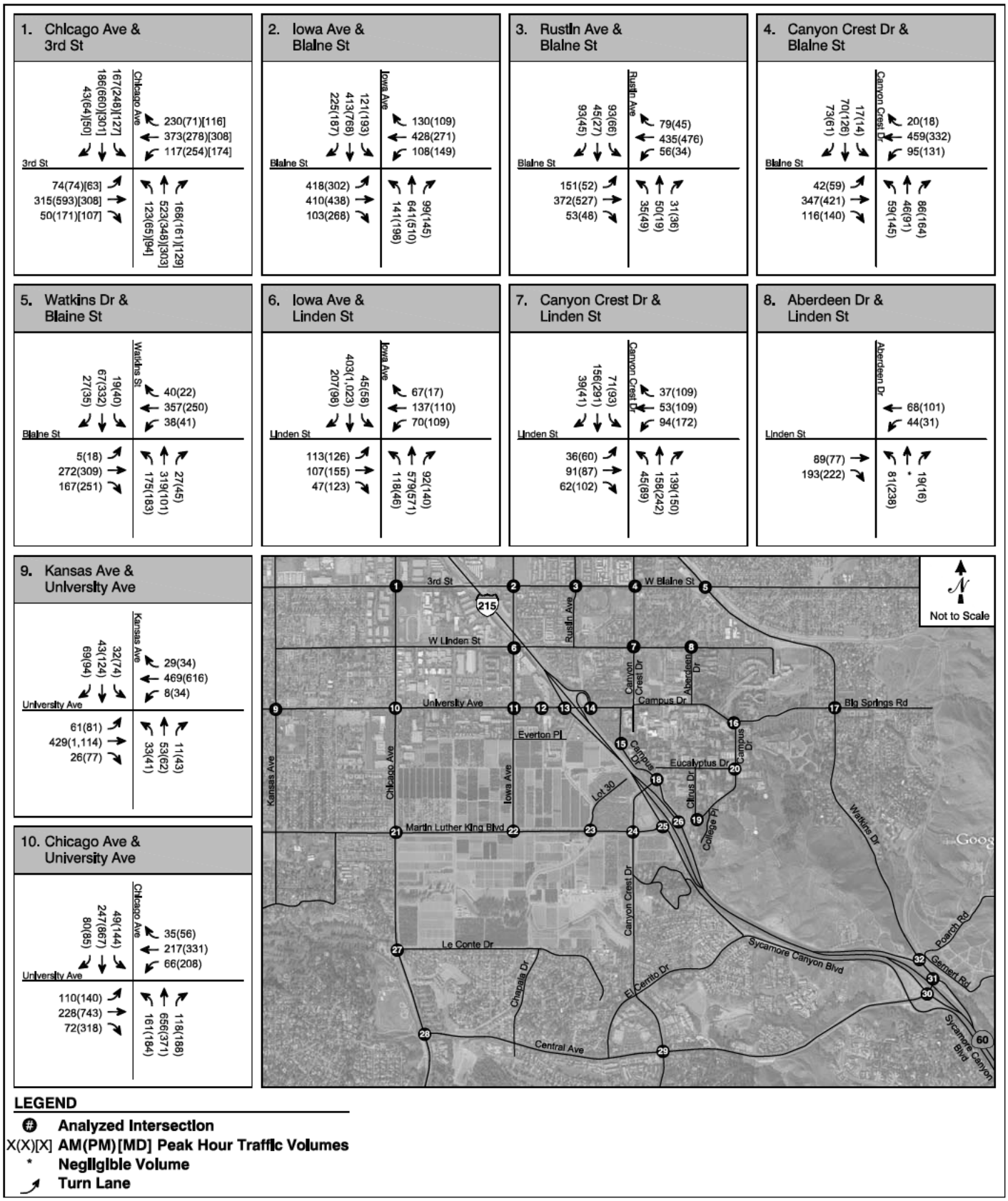
Intersection traffic counts were collected in January 2008 from 7:00 to 9:00 AM and from 4:00 to 6:00 PM. Additional intersection counts were collected in September 2009 and October 2010. The highest one-hour peak of traffic volumes during the morning, Mid-day, and evening hours were shown on Figures 3A-D and are documented in Appendix A. The existing lane configurations at the time the traffic data was collected are also shown on Figures 4A-D.

Existing signal timings were obtained from the City of Riverside and Caltrans. All peak hour factors used in the assessment were field measured.

EXISTING INTERSECTION CONDITIONS

As shown in Table 4, most of the intersections currently operate at an acceptable Level of Service of D or better during the AM and PM peak periods. The following intersections currently operate at a deficient Level of Service during one or more peak period:

- Third Street/Chicago Avenue (AM Peak hour)
- Blaine Street/Rustin Avenue (AM Peak hour)
- Martin Luther King, Jr. Boulevard/Chicago Avenue (AM and PM Peak hour)
- Martin Luther King, Jr. Boulevard/Canyon Crest Drive (AM and PM Peak hour)
- Central Avenue/Chicago Avenue (AM and PM Peak hour)
- Watkins Drive/SR-60 Northbound On-Ramp (AM Peak hour)



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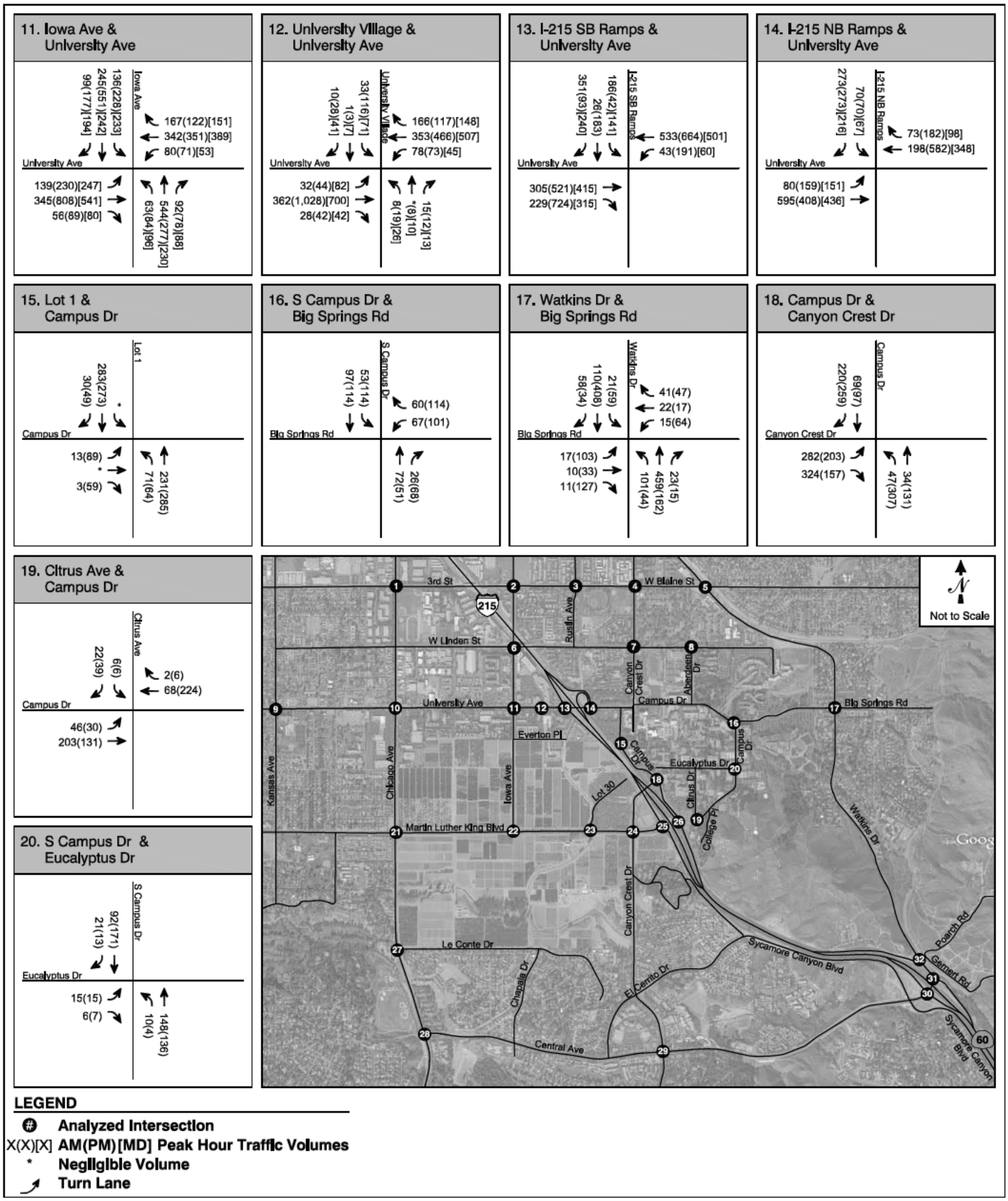
EXISTING CONDITIONS PEAK HOUR TRAFFIC VOLUMES

FIGURE 3A



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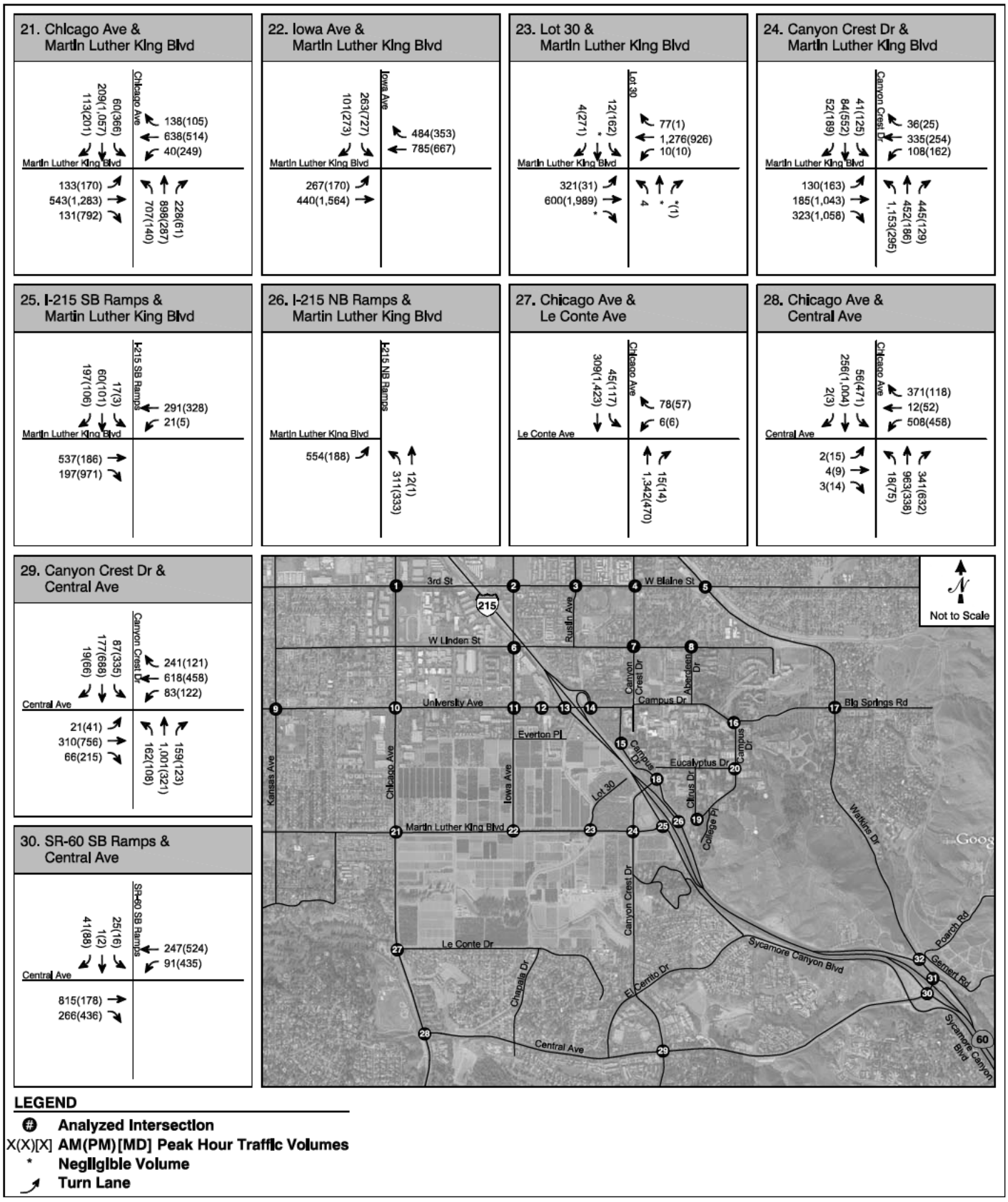
EXISTING CONDITIONS PEAK HOUR TRAFFIC VOLUMES

FIGURE 3B



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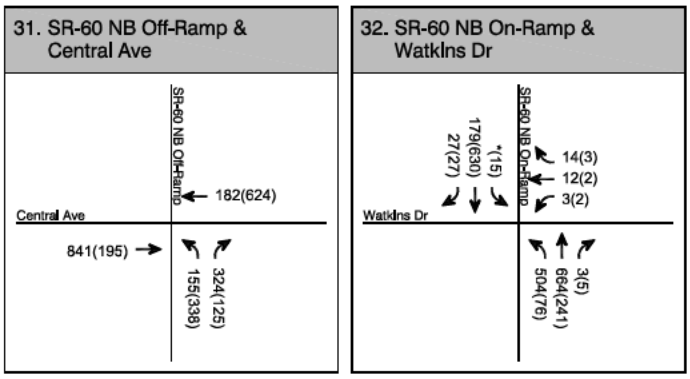
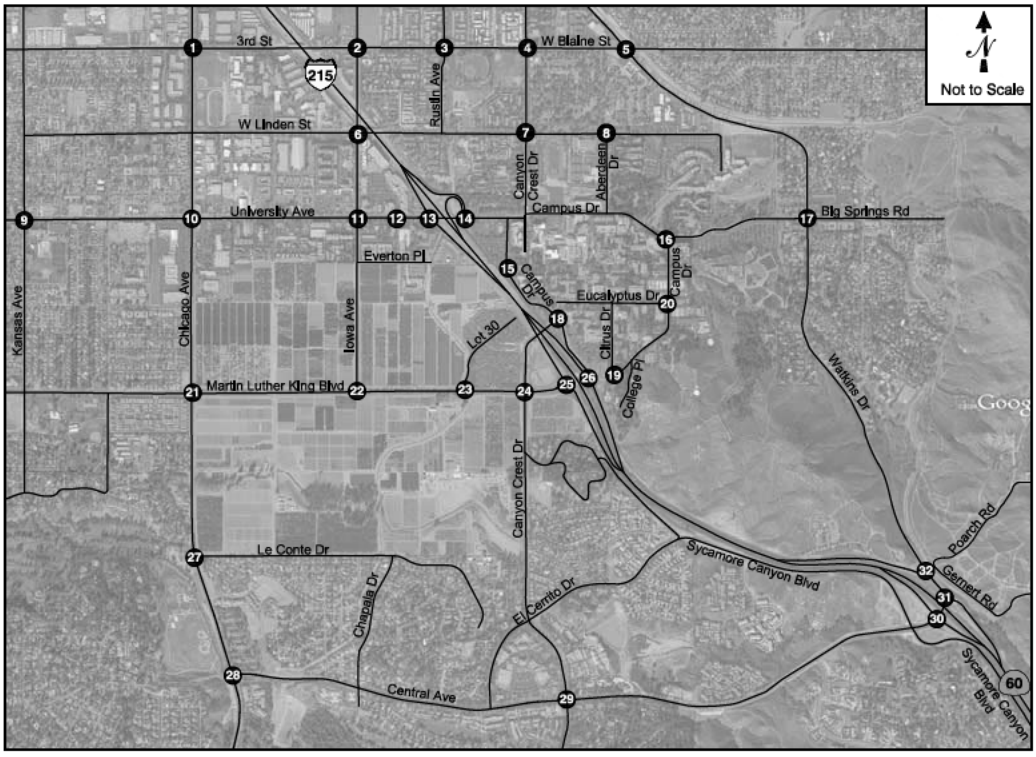
EXISTING CONDITIONS PEAK HOUR TRAFFIC VOLUMES

FIGURE 3C





LEGEND

- (#) **Analyzed Intersection**
- X(X)[X] **AM(PM)[MD] Peak Hour Traffic Volumes**
- * **Negligible Volume**
- **Turn Lane**

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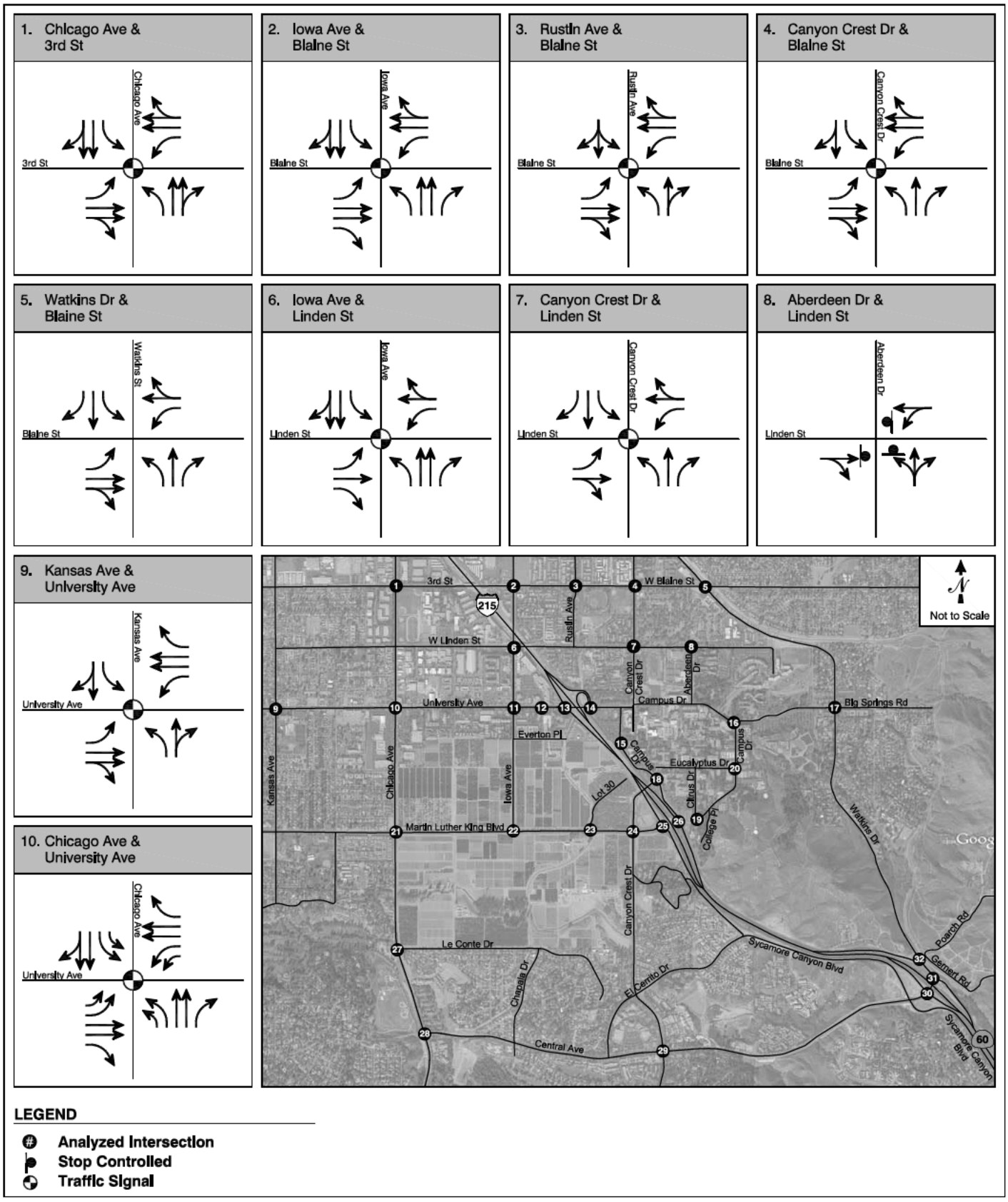
EXISTING CONDITIONS
PEAK HOUR TRAFFIC VOLUMES

FIGURE 3D



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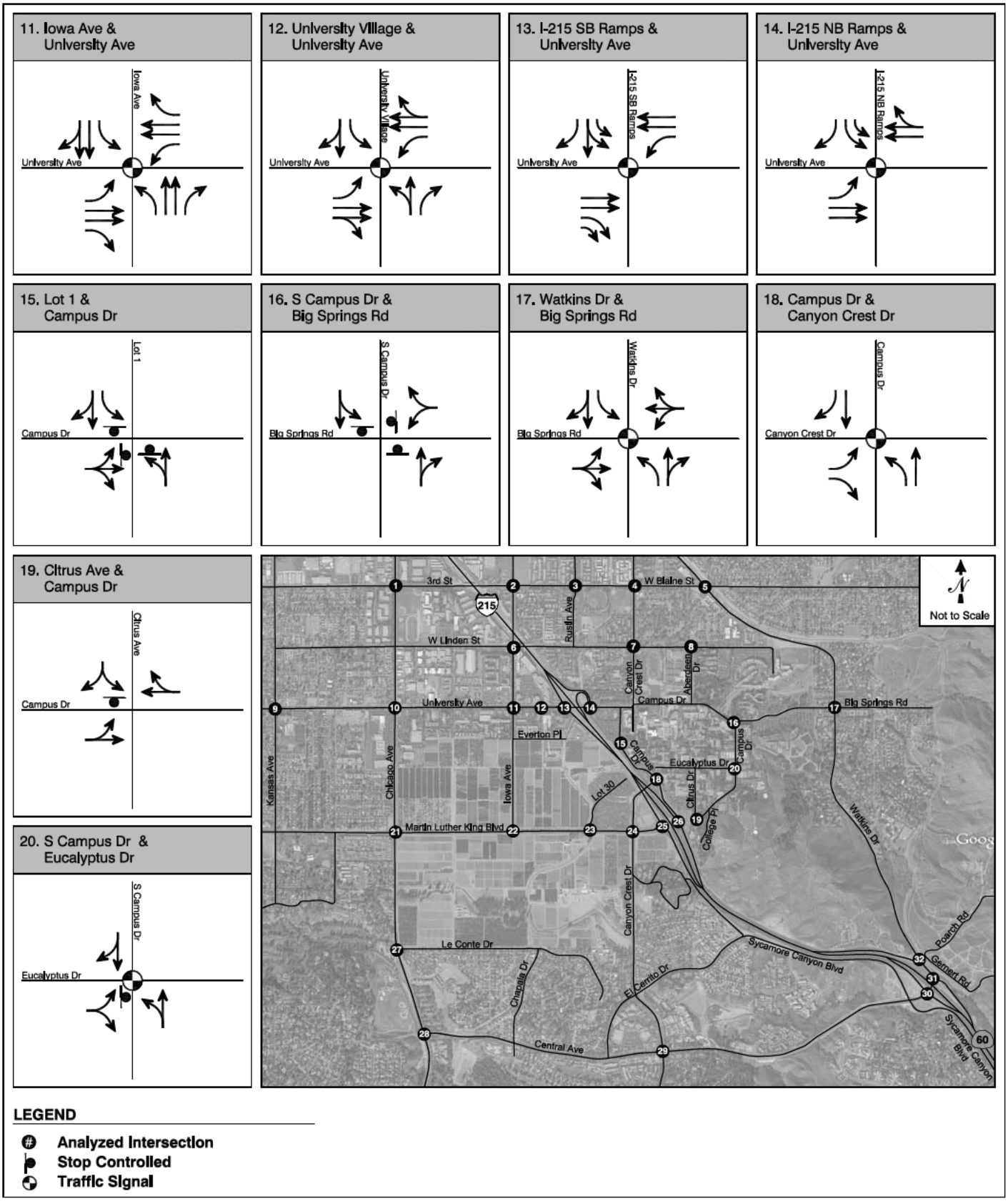
LANE CONFIGURATIONS

FIGURE 4A



LEGEND

- **Analyzed Intersection**
- **Stop Controlled**
- **Traffic Signal**

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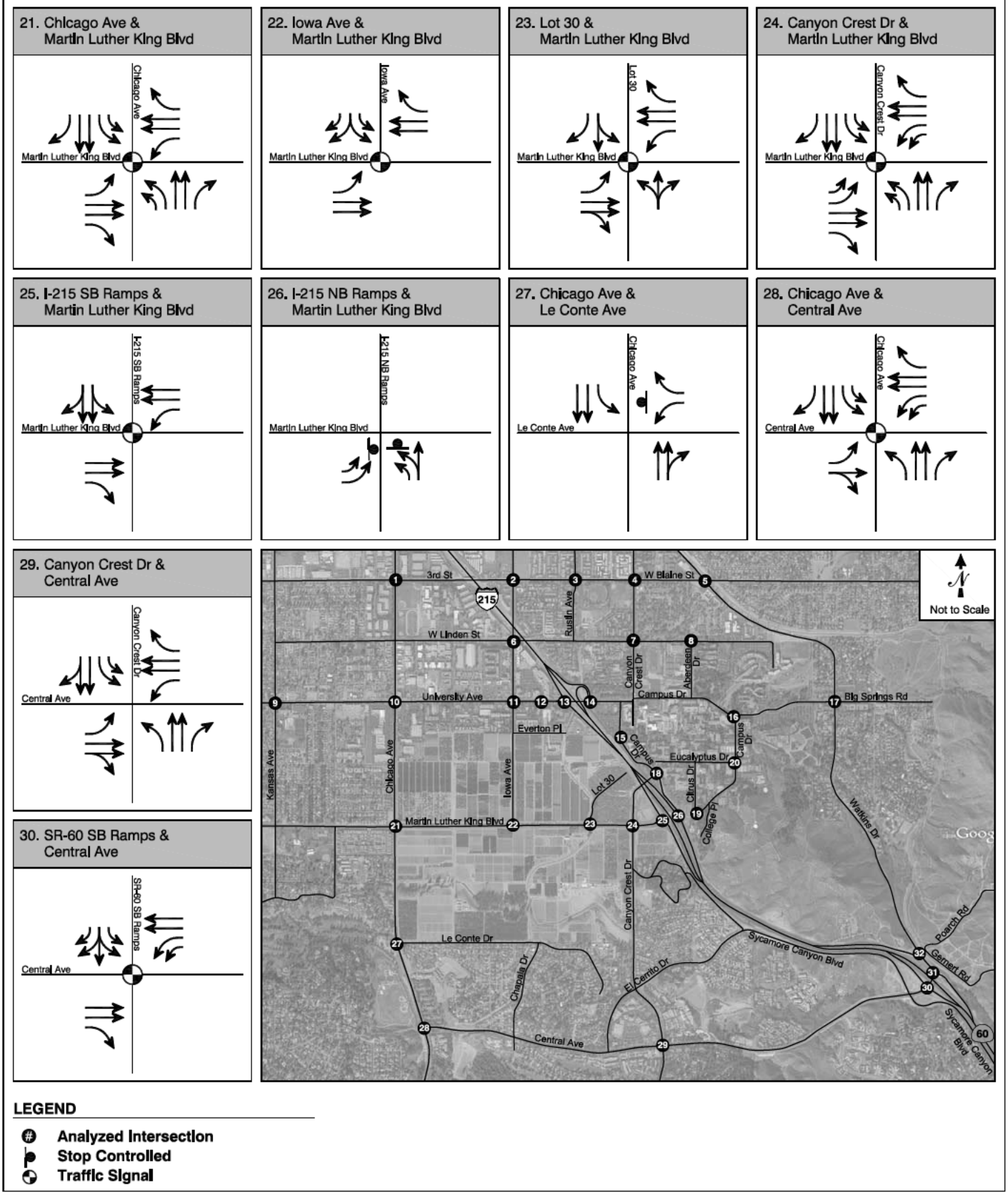
LANE CONFIGURATIONS

FIGURE 4B



LEGEND

- **Analyzed Intersection**
- **Stop Controlled**
- **Traffic Signal**

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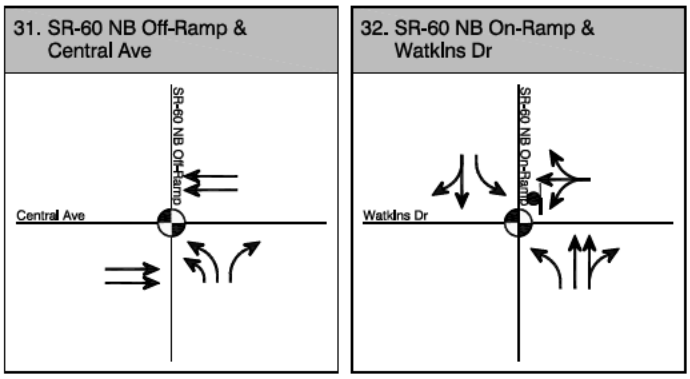
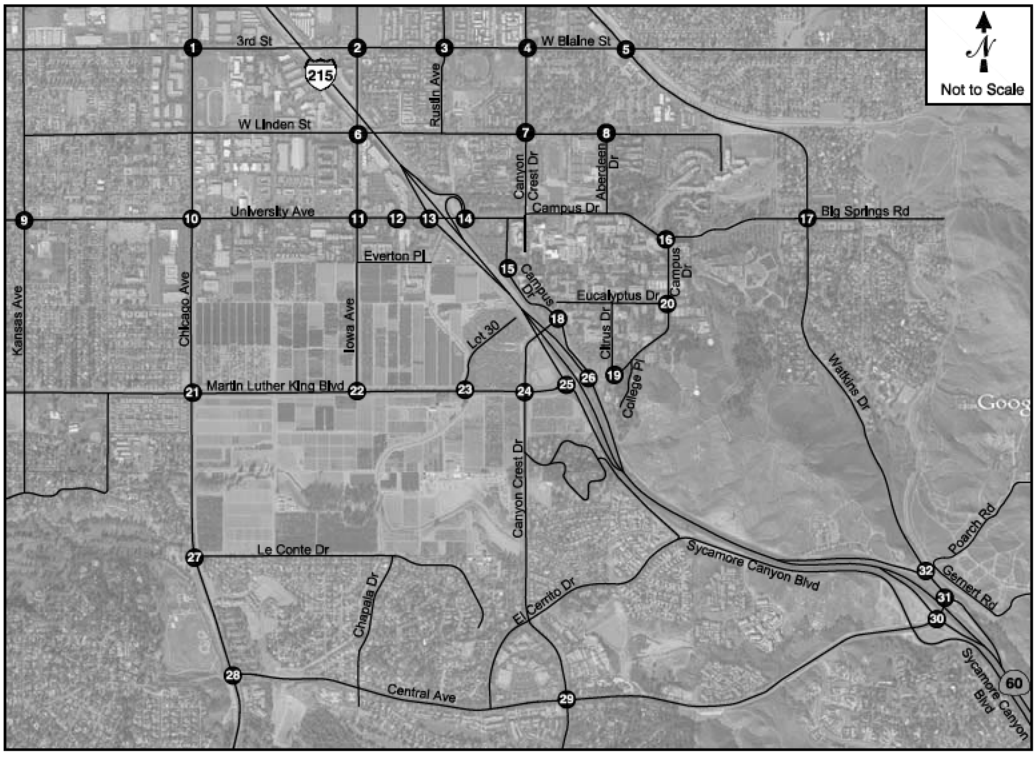
LANE CONFIGURATIONS

FIGURE 4C





LEGEND

- **Analyzed Intersection**
- **Stop Controlled**
- **Traffic Signal**

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LANE CONFIGURATIONS

FIGURE 4D

TABLE 4
INTERSECTION LEVELS OF SERVICE – EXISTING AM AND PM PEAK HOUR

Intersection	Control	AM Peak hour		PM Peak hour	
		Delay[1]	LOS	Delay[1]	LOS
Third Street/Chicago Avenue	Signalized	**>80**	**F**	50.2	D
Blaine Street/Iowa Avenue	Signalized	44.0	D	35.5	D
Blaine Street/Rustin Avenue	Signalized	**64.6**	**E**	20.7	C
Blaine Street/Canyon Crest Drive	Signalized	19.5	B	22.0	C
Blaine Street/Watkins Drive	Signalized	27.1	C	31.2	C
Linden Street/Iowa Avenue	Signalized	23.9	C	40.9	D
Linden Street/Canyon Crest Drive	Signalized	25.0	C	28.3	C
Linden Street/Aberdeen Drive	AWSC	8.9	A	10.9	B
University Avenue/Kansas Avenue	Signalized	15.1	B	39.2	D
University Avenue/Chicago Avenue	Signalized	33.8	C	47.5	D
University Avenue/Iowa Avenue	Signalized	32.0	C	41.2	D
University Avenue/University Village	Signalized	13.6	B	16.7	B
University Avenue/I-215 SB Ramps	Signalized	18.7	B	16.7	B
University Avenue/I-215 NB Ramps	Signalized	18.0	B	21.1	C
Parking Lot 1/Campus Drive	AWSC	10.8	B	30.8	D
Big Springs Rd/Campus Drive	AWSC	8.7	A	9.5	A
Big Springs Road/Watkins Drive	Signalized	14.2	B	11.1	B
Canyon Crest Drive/Campus Drive	Signalized	9.2	A	16.6	B
Citrus Drive/Campus Drive	SSSC	9.6	A	10.9	B
Eucalyptus Drive/Campus Drive	SSSC	10.4	B	11.2	B
Martin Luther King, Jr. Boulevard/Chicago Avenue	Signalized	48.7	D	**>80**	**F**
Martin Luther King, Jr. Boulevard/Iowa Avenue	Signalized	22.3	C	48.7	D

TABLE 4
INTERSECTION LEVELS OF SERVICE – EXISTING AM AND PM PEAK HOUR

Intersection	Control	AM Peak hour		PM Peak hour	
		Delay[1]	LOS	Delay[1]	LOS
Martin Luther King, Jr. Boulevard/Lot 30	Signalized	25.5	C	26.5	C
Martin Luther King, Jr. Boulevard/Canyon Crest Drive	Signalized	**>80**	**F**	**>80**	**F**
Martin Luther King, Jr. Boulevard/I-215 SB Ramps	Signalized	18.3	B	17.6	B
Martin Luther King, Jr. Boulevard/I-215 NB Ramps	AWSC	13.0	B	9.9	A
Le Conte Drive/Chicago Avenue	SSSC	22.3	C	14.0	B
Central Avenue/Chicago Avenue	Signalized	**>80**	**F**	30.0	C
Central Avenue/Canyon Crest Drive	Signalized	35.6	D	40.6	D
Central Avenue/SR-60 SB Ramps	Signalized	17.7	B	15.2	B
Central Avenue/SR-60 NB Off Ramp	Signalized	19.8	B	16.8	B
Watkins Drive/SR-60 NB On Ramp	SSSC	**>50**	**F**	20.9	C

Notes:
Deficient Intersections are shown in Bold
1- Delay for intersections based on application of *2000 Highway Capacity Manual* Methodology. Delay was calculated using Synchro 6.0 software.
Source: Fehr & Peers, 2010

Table 5 documents the Mid-Day Peak hour delay and LOS results.

TABLE 5
INTERSECTION LEVELS OF SERVICE – EXISTING MID-DAY PEAK HOUR

Intersection	Control	Mid-Day Peak hour	
		Delay[1]	LOS
Third Street/Chicago Avenue	Signalized	32.5	C
University Avenue/Iowa Avenue	Signalized	40.4	D
University Avenue/University Village	Signalized	15.8	B
University Avenue/I-215 SB Ramps	Signalized	16.9	B
University Avenue/I-215 NB Ramps	Signalized	19.2	B

Notes:
1- Delay for intersections based on application of *2000 Highway Capacity Manual* Methodology. Delay was calculated using Synchro 6.0 software.
Source: Fehr & Peers, 2010

The LOS calculations for the AM, Mid-Day, and PM Peak hour are attached in Appendix B.

ROADWAY SEGMENT OPERATIONS

As shown in Table 6 below, all of the existing study area roadway segments operate better than LOS D.

TABLE 6
ROADWAY SEGMENT VOLUMES AND OPERATIONS

Roadway	Classification	LOS D Volume	Existing Volume	LOS
MLK/14th St.				
Canyon Crest Dr to Iowa	110 ft Arterial (4 lanes)	33,000	22,310	D or Better
Iowa Ave to Chicago Ave	110 ft Arterial (4 lanes)	33,000	20,072	D or Better
Chicago Ave				
Martin Luther King Blvd to	110 ft Arterial (4 lanes)	33,000	17,660	D or Better
University Ave to Blaine St	110 ft Arterial (4 lanes)	33,000	16,696	D or Better
University Ave				
I-215 to Iowa Ave	100 ft Arterial (4 lanes)	33,000	20,500	D or Better
Iowa Ave to Chicago Ave	100 ft Arterial (4 lanes)	33,000	20,148	D or Better
Iowa Ave				
Martin Luther King Blvd to	110 ft Arterial (4 lanes)	33,000	12,003	D or Better
University Ave to Blaine St	110 ft Arterial (4 lanes)	33,000	18,761	D or Better

Notes:
1- Delay for intersections based on application of *2000 Highway Capacity Manual* Methodology. Delay was calculated using Synchro 6.0 software.
Source: Fehr & Peers, 2010

3. PROJECT TRAFFIC ANALYSIS

This chapter documents changes in traffic volumes which result from the proposed changes in the UCR LRDP. The primary topic of consideration is the proposed School of Medicine, for which detailed trip generation, distribution, and assignment information is presented.

PROJECT DESCRIPTION

This traffic analysis considers a number of recent changes to the previously approved 2005 Long Range Development Plan (LRDP) for University of California, Riverside in Riverside, California. These changes include:

1. A change in the designation of a 38.7 acre site located at the northeast corner of Iowa Avenue and Martin Luther King, Jr. Boulevard (MLK) on the West Campus from *Housing*, *Parking* and *Academic* to *School of Medicine (SOM)* to allow a medical school and associated uses to support the school on the site.

2. A change in the location of two future parking facilities and deletion of the location of one parking facility in the West Campus academic core. This change in the parking facility location is not anticipated to result in the change in the overall number of parking spaces associated with the Campus or the overall Campus enrollment.

3. A modification to the major open space configuration in the West Campus academic core to include the reconfiguration of the "Grove" concept to the "Gage Canal Mall" concept and the inclusion of the West Campus Mall; the extension of the 100-foot wide landscape buffer along the north side of MLK between Cranford Avenue and Chicago Avenue and extension of the Northwest and Southwest Malls from Cranford Avenue to Chicago Avenue.

4. The re-designation of the land uses of several parcels to accommodate land uses displaced by the major changes listed above, including the designation of the Campus Reserve site as *Housing* and *Open Space.*

5. The incorporation of previously approved land use amendments and map changes into the 2005 LRDP Land Use map including incorporation of recently obtained housing on the East Campus and reconfiguration of residential and open space land uses on the East Campus to provide new student housing.

From the perspective of this analysis, the primary change is the change in land use designation for the School of Medicine Site. The change in the parking space location is anticipated to result in some redistribution of traffic volumes traveling to various locations within the Campus. However, the change in parking facility location is not anticipated to change the overall number of vehicles parked on Campus or the number of vehicles traveling to and from the Campus on a daily basis.

PROJECT TRIP GENERATION

Estimated the trip generation for the School of Medicine required a specialized approach as this use is one which has not been studied extensively. Additionally, many medical schools operate in various ways with some schools co-located with large hospitals and other located separately from large health care facilities. We therefore determined that the most appropriate method to evaluate trip generation would entail reviewing the travel characteristics of each activity associated with the School of Medicine, estimating travel behavior for that activity,

and summarizing the trips for all activities. Activities that are anticipated to occur at the School of Medicine include:

- Instructional activities involving students and faculty
- Research
- Medical Education
- Medical Offices

Based on information provided by UCR, the total number of persons at the School of Medicine would exceed 6,000 including:

- 400 Students
- 150 Faculty
- 150 Principal Investigators
- 838 Staff Engaged in Medical Education/Research
- 2,794 Persons Employed in the Medical Offices
- 719 Persons Supporting Ambulatory Care
- 1,202 Patients and Visitors

Once we identify the various activities associated with the School of Medicine and the population levels, it is important to consider any potential overlap between the populations. The issue of overlap is a key one since the standard engineering reference manuals which document trip rates provide date for land uses in terms of one variable such as the number of students or employees. For example, the standard trip rates for an educational institution report the overall number of trips expressed in units such as number of students or number of employees. Both the per student trip rate and the per employee trip rate includes all types of trips (students, employees, and visitors). For medical facilities, similar calculations are done in which the total trips associated with the site (staff, patients, and visitors) are expressed in common terms such as per employee or per square footage. Therefore, a key consideration in evaluating the project trips is the extent to which overlap may occur between categories and how best to account for any overlap.

To reduce the likelihood that our analysis would include overlap of trips, we applied the following process:

- We first determined which activities would occur separately from each other and which would be combined. Our assumptions for the activities are as follows:
    - We assumed that the students and medical educators/researchers would overlap and therefore would estimate trip generation for these populations combined.
    - We assumed that the doctors would be included in the activities associated with Ambulatory Care. We considered that it might be overly conservative to include both trips associated with the Doctors and Ambulatory Care personnel separately.

- We assumed that the patient/visitor travel would be included in any estimates for the Medical Offices and the Ambulatory Care offices. The trip rates for both of these uses include both staff and patient travel.

Table 7 documents the final trip generation estimates for the School of Medicine based on the provided population and the assumptions listed above for the AM and PM Peak hours. All trip rates were taken from the Institute of Transportation Engineers *Trip Generation*, 8th Edition, which is the most recent trip generation reference available.

Table 8 provides the Mid-day Trip rates for each of the land uses. As ITE does not provide Mid-day trip rates for many of these uses, the Mid-day trip rates were defined as follows:

- We averaged the AM and PM trip rates since it is common for many persons who travel to/from work locations to also leave during lunch time.
- The overall trip rate was evenly split to yield the In and Out percentages since it is likely that everyone who would leave the site for lunch would also be reentering the site after lunch.

Table 9 documents the Trip Generation for the AM and PM Peak hours while Table 10 provides the Trip Generation for the Mid-day Peak hour.

TABLE 7
AM AND PM PEAK HOUR TRIP RATE

Land Use Category	ITE Code	Population	AM In	AM Out	AM Total	PM In	PM Out	PM Total
School of Medicine Students	550	400	0.17	0.04	0.21	0.06	0.14	0.21
Medical Doctors	N/A	150	Included in Trip Rate for Ambulatory Clinic					
Investigators	760	150	0.37	0.06	0.43	0.04	0.37	0.41
Medical Educators/Researchers	N/A	838	Included in Trip Rate for Students					
Medical Office	720	2,794	0.42	0.11	0.53	0.36	0.70	1.06
Ambulatory Clinic	630	719	0.45	0.45	0.9	0.50	0.73	1.23
Patients/Visitors	N/A	1,202	Included in Trip Rate for Ambulatory Clinic					
Non-School of Medicine Students	N/A	3,854	0.065	0.015	0.080	0.014	0.054	0.068
Non-School of Medicine Faculty and Staff	N/A	2,532	0.384	0.106	0.490	0.287	0.430	0.717
Non-School of Medicine Other Individuals	N/A	788	Included in Trip Rate for Non-School of Medicine Faculty and Staff					

Source: Fehr & Peers, 2010

TABLE 8
MID-DAY PEAK HOUR TRIP RATE

Land Use Category	ITE Code	Population	Mid-Day In	Mid-Day Out	Mid-Day Total
School of Medicine and Other Students	550	400	0.105	0.105	0.21
Medical Doctors	N/A	150	Included in Trip Rate for Ambulatory Clinic		
Investigators	760	150	0.21	0.21	0.42
Medical Educators/Researchers	N/A	838	Included in Trip Rate for Students		
Medical Office	720	2,794	0.375	0.375	0.75
Ambulatory Clinic	630	719	0.525	0.525	1.05
Patients/Visitors	N/A	1,202	Included in Trip Rate for Ambulatory Clinic		
Non-School of Medicine Students	550	3,854	0.026	0.026	0.052
Non-School of Medicine Faculty and Staff		2,532	0.209	0.209	0.418
Non-School of Medicine Other Individuals	N/A	788	Included in Trip Rate for Non-School of Medicine Students		

Source:
Fehr & Peers, 2011
Source: Fehr & Peers, 2011

TABLE 9
AM AND PM PEAK HOUR TRIP GENERATION

Land Use Category	ITE Code	Population	AM In	AM Out	AM Total	PM In	PM Out	PM Total
School of Medicine Students	550	400	67	17	84	25	59	84
Medical Doctors	N/A	150	Included in Trip Generation for Ambulatory Clinic					
Investigators	760	150	55	9	65	6	55	62
Medical Educators/Researchers	N/A	838	Included in Trip Generation for Students					
Medical Office	720	2,794	1,170	311	1,481	1,007	1,955	2,962
Ambulatory Clinic	630	719	324	324	647	363	522	884
Patients/Visitors	N/A	1,202	Included in Trip Generation for Ambulatory Clinic					
Other Students (Non-School of Medicine)	N/A	3,854	251	58	309	54	208	262
Non-School of Medicine Faculty and Staff	N/A	2,532	972	268	1,240	727	1,089	1,816
Non-School of Medicine Other Individuals	N/A	788	Included in Trip Rate for Non-School of Medicine Students					
Totals	**N/A**	**16,026**	2, 839	987	3,826	2,182	3,888	6,070

Source: Fehr & Peers, 2011

TABLE 10
MID-DAY PEAK HOUR TRIP GENERATION

Land Use Category	ITE Code	Population	Mid-Day In	Mid-Day Out	Mid-Day Total
School of Medicine Students	550	400	42	42	84
Medical Doctors	N/A	150	Included in Trip Generation for Ambulatory Clinic		
Investigators	760	150	84	84	168
Medical Educators/Researchers	N/A	838	Included in Trip Generation for Students		
Medical Office	720	2,794	150	150	300
Ambulatory Clinic	630	719	210	210	420
Patients/Visitors	N/A	1,202	Included in Trip Generation for Ambulatory Clinic		
Other Students (Non-School of Medicine)	N/A	3,854	100	100	200
Non-School of Medicine Faculty and Staff	N/A	2,532	529	529	1058
Non-School of Medicine Other Individuals	N/A	788	Included in Trip Rate for Non-School of Medicine Students		
Totals	**N/A**	**16,026**	**1,115**	**1,115**	**2,230**

Source: Fehr & Peers, 2011

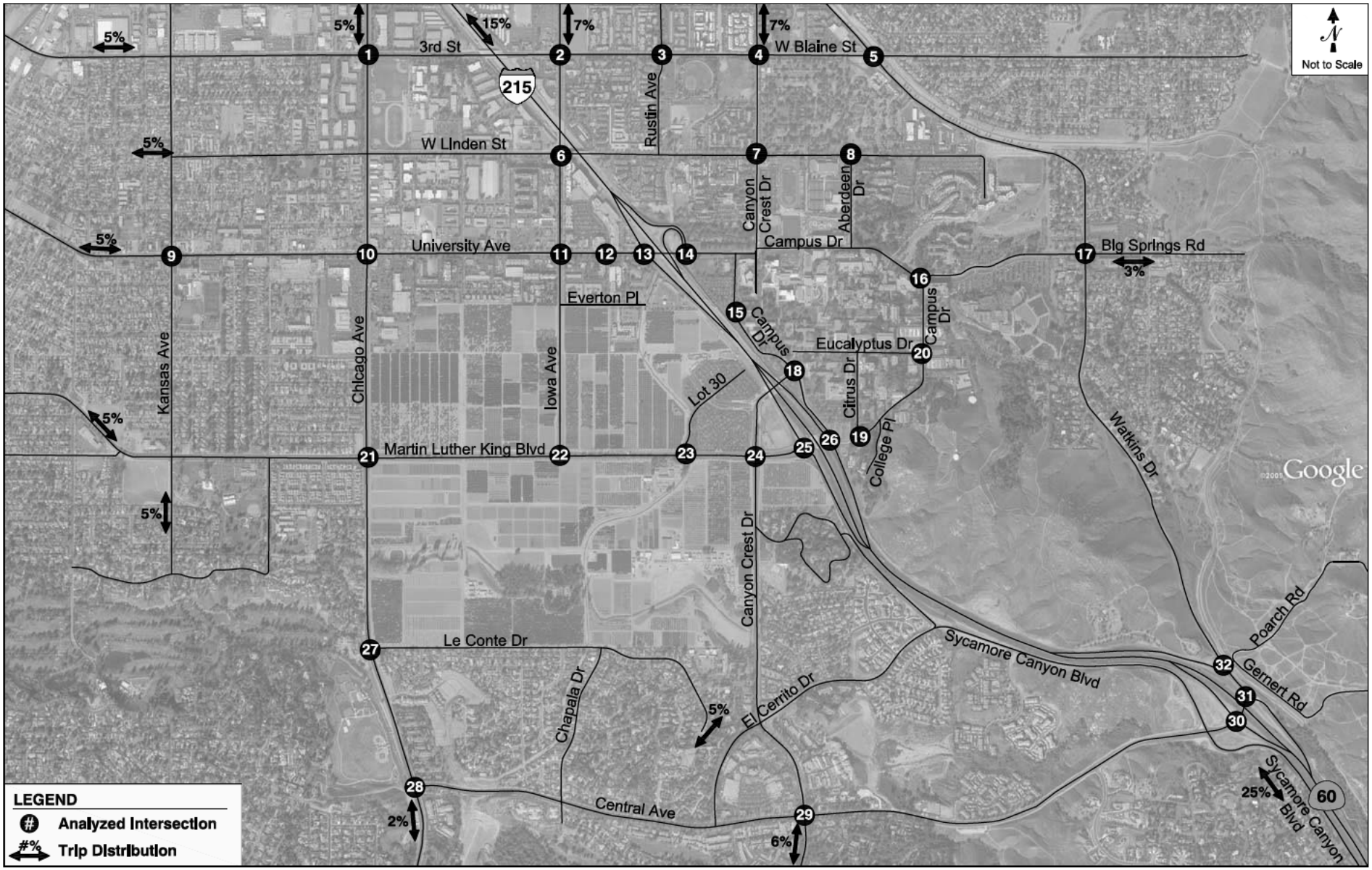
PROJECT TRIP DISTRIBUTION

Once we identified the trip generation for the various Peak hour periods, we estimated the trip distribution based on various sources, including data provided by the 2005 Long Range Development Plan Environmental Impact Report (EIR) and other more recent studies. The Project Trip Distribution is shown on Figure 5.

PROJECT TRIP ASSIGNMENT

The Project Trip Assignment is shown on Figures 6A-D, which provide the AM, Mid-day, and PM Peak hour trip assignment for each of the study intersections by individual turn movement.

Please note that our review of likely travel patterns to and from the School of Medicine site indicate that there is at least one study intersection through which no project trips are anticipated to travel. This intersection (Watkins Drive/SR-60 Northbound On-Ramp) is included in the subsequent analysis at the request of the City of Riverside but is not anticipated to carry any project traffic. No impacts and mitigations are therefore identified at this location.



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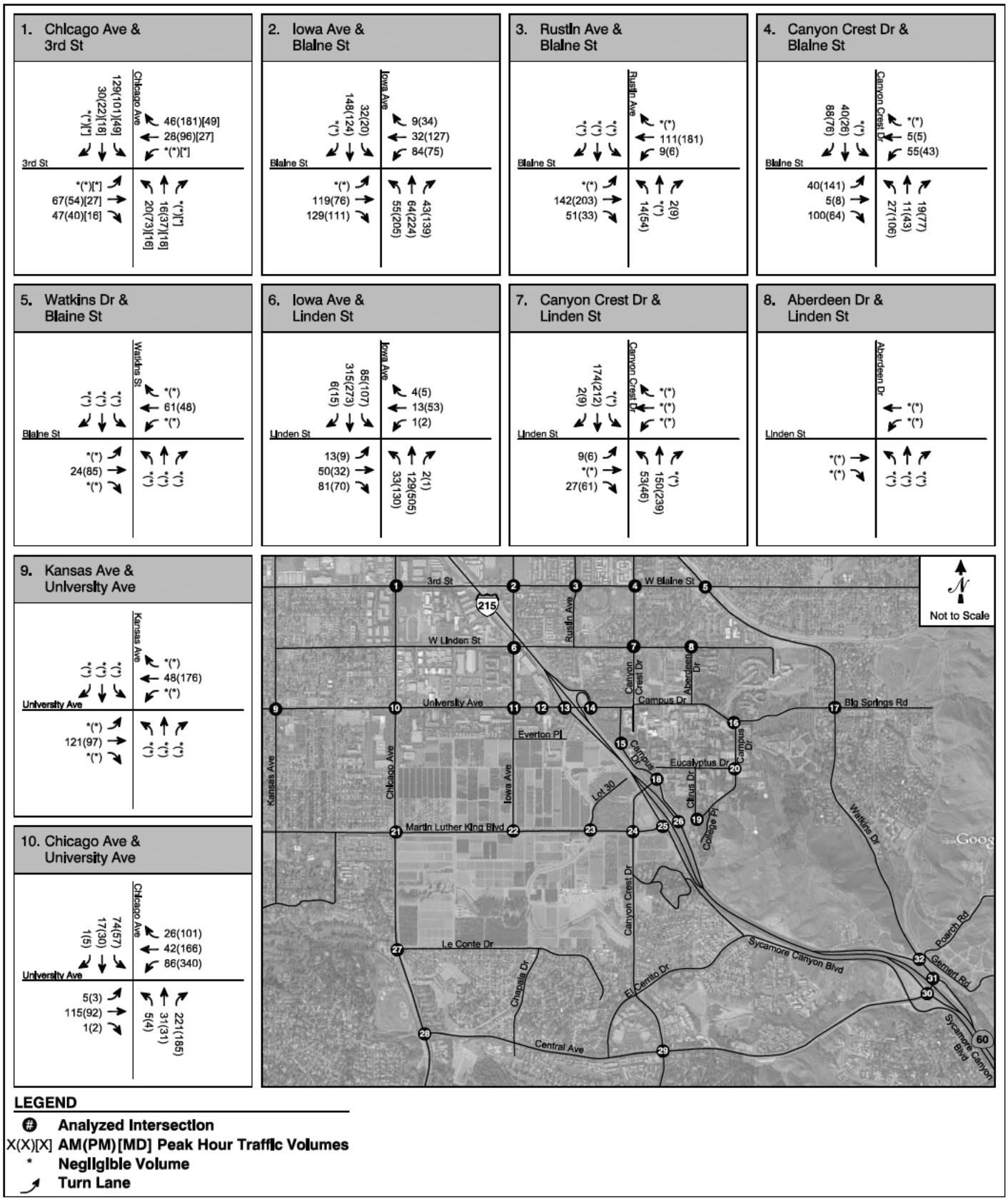
PROJECT TRIP DISTRIBUTION

FIGURE 5



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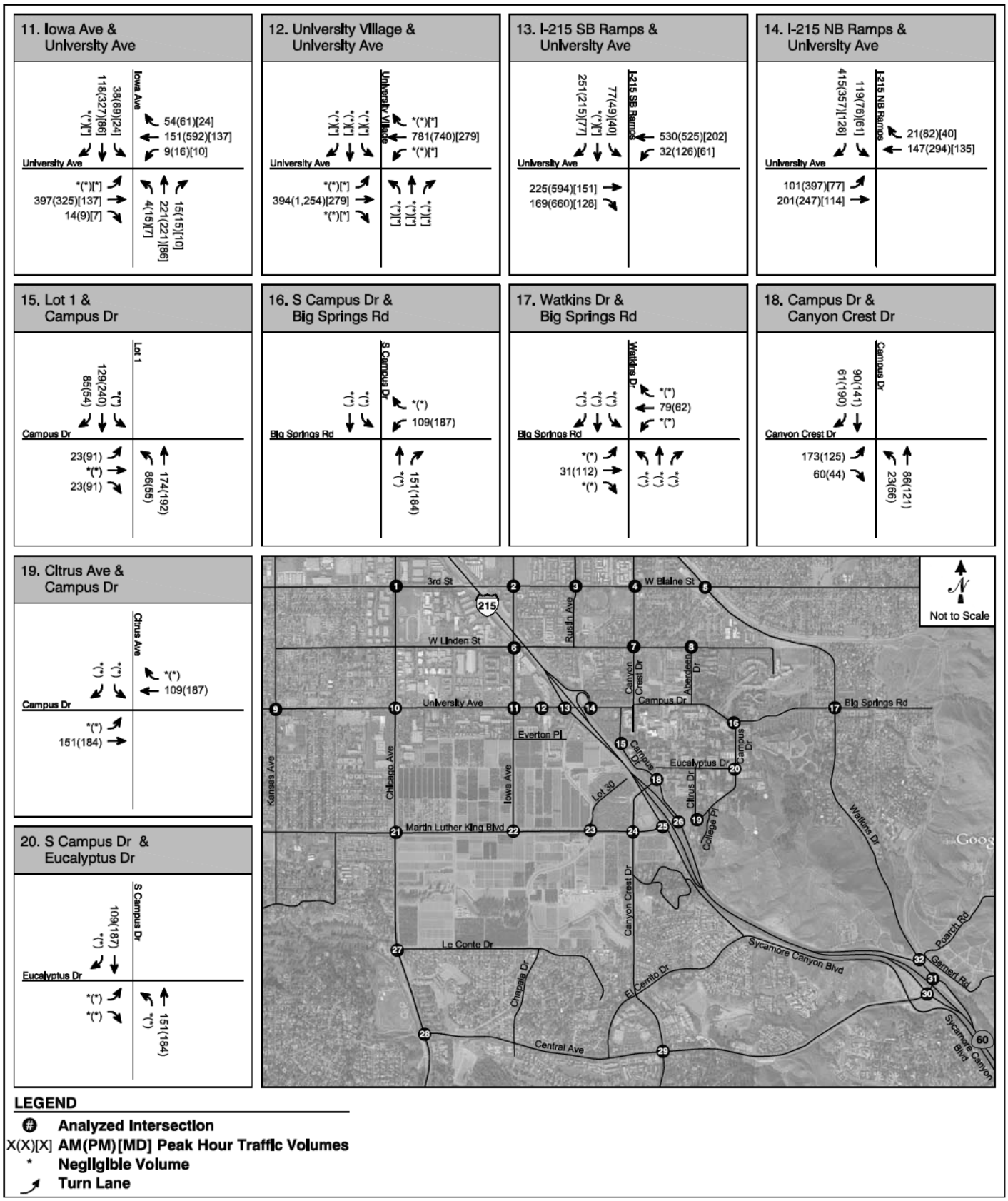
PROJECT ONLY CONDITIONS PEAK HOUR TRAFFIC VOLUMES

FIGURE 6A



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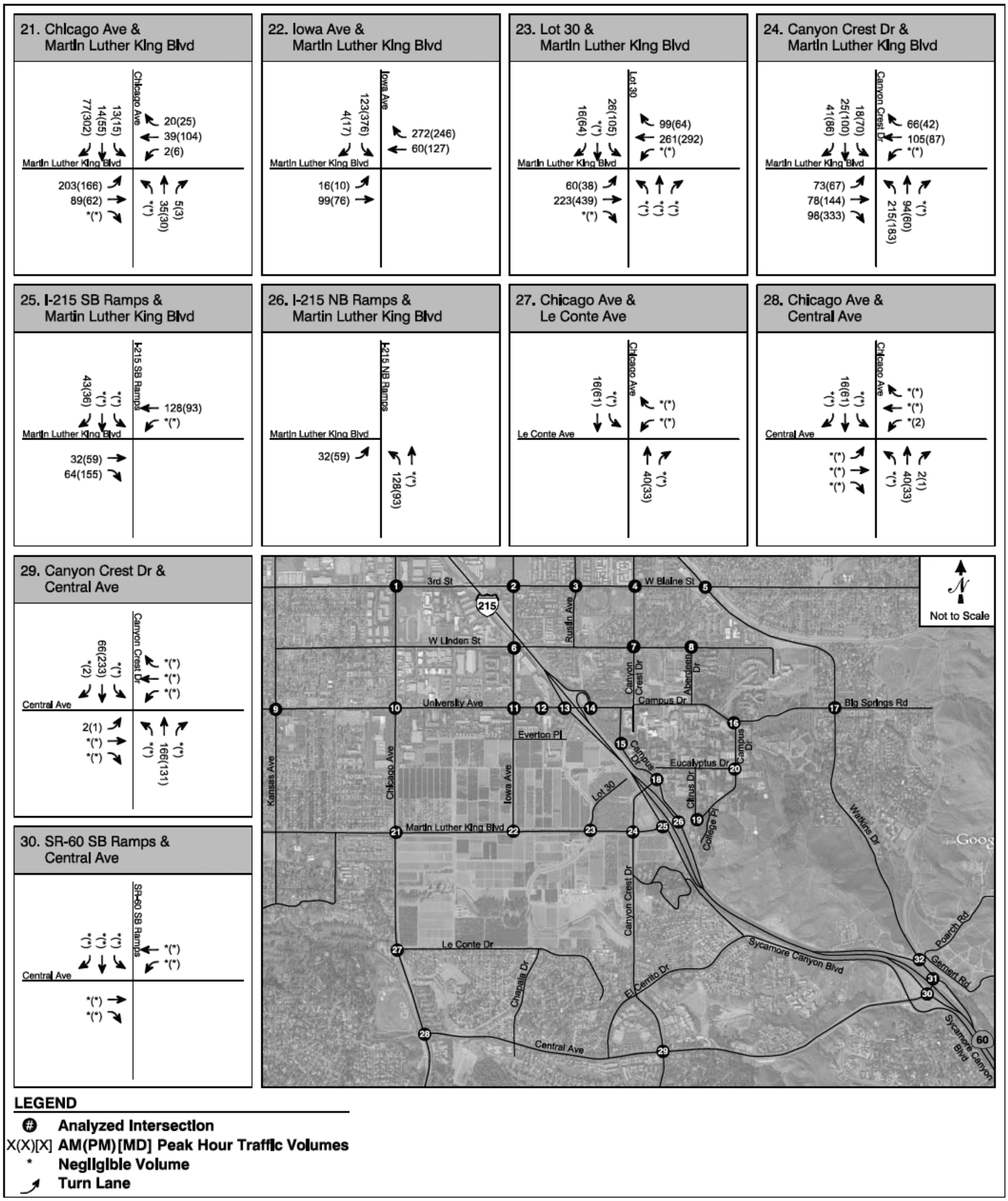
PROJECT ONLY CONDITIONS PEAK HOUR TRAFFIC VOLUMES

FIGURE 6B



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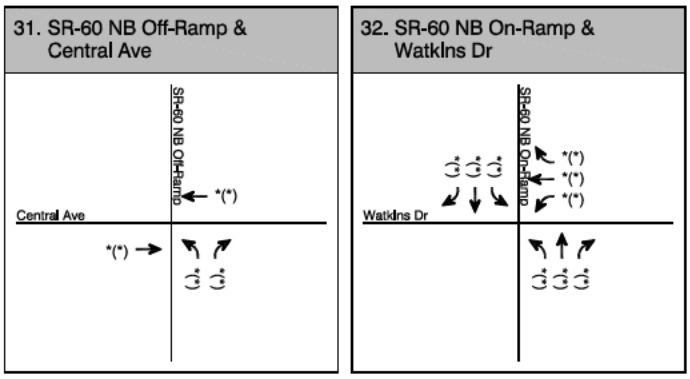
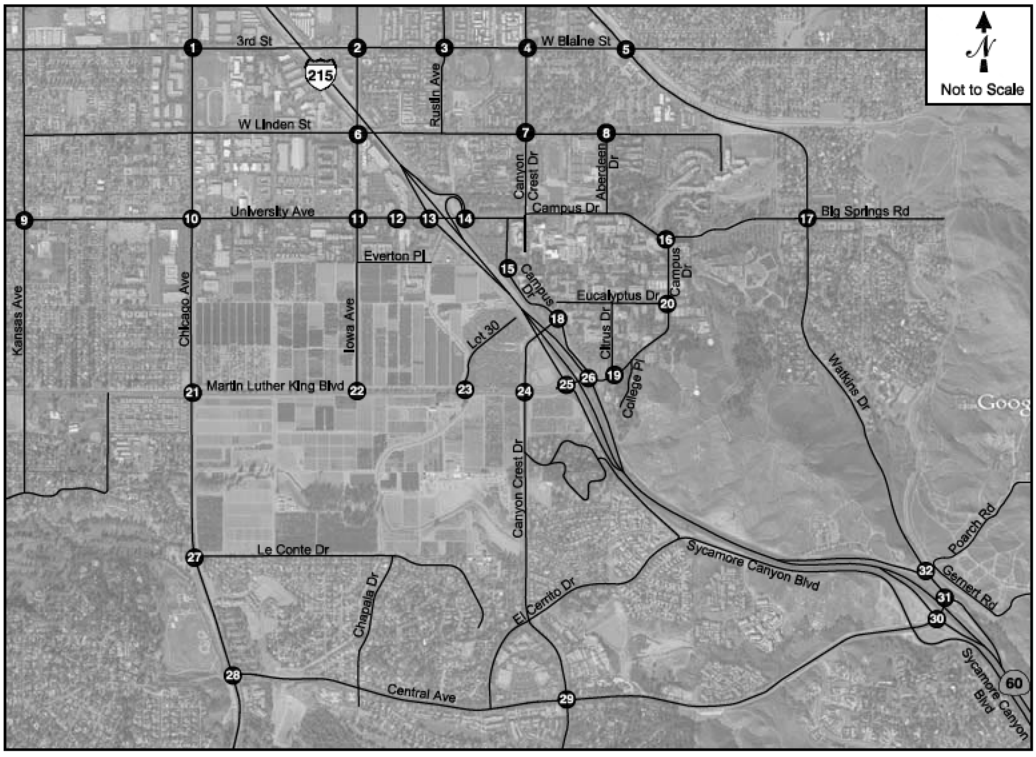
PROJECT ONLY CONDITIONS PEAK HOUR TRAFFIC VOLUMES

FIGURE 6C





LEGEND

- (#) **Analyzed Intersection**
- X(X)[X] **AM(PM)[MD] Peak Hour Traffic Volumes**
- * **Negligible Volume**
- **Turn Lane**

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PROJECT ONLY CONDITIONS PEAK HOUR TRAFFIC VOLUMES

FIGURE 6D

4. EXISTING PLUS PROJECT IMPACTS

This section documents the project impacts for the Existing Plus Project Analysis. This scenario reflects the addition of Project Traffic to the Existing Traffic Volumes. As all of the additional vehicle trips generated under the amended 2005 LRDP are not expected to be added to the study area transportation network immediately following approval of the proposed amendment, an existing plus project trips analysis is an unrealistic analysis. Nonetheless given the recent Sunnyvale decision, such an analysis was conducted that evaluated the project's traffic impacts on study intersections under existing plus project conditions. As this is an unrealistic scenario, this analysis is included for informational purposes only.

TRAFFIC VOLUMES

The Existing Plus Project traffic volumes are shown on Figures 7A-7D. These volumes reflect the addition of Project Traffic to the Existing Traffic volumes.

INTERSECTION OPERATIONS AND PROJECT IMPACTS

Table 11 documents the intersection level of service for the AM and PM peak hours. This table also reports the increase in delay which occurs during the peak hours as well.

TABLE 11
INTERSECTION LEVELS OF SERVICE – EXISTING PLUS PROJECT AM AND PM PEAK HOUR

Intersection	Control	AM Peak hour			PM Peak hour		
		Delay[1]	LOS	Δ Delay	Delay[1]	LOS	Δ Delay
Third Street/Chicago Avenue	Signalized	>80	F	>1	>80	F	>1
Blaine Street/Iowa Avenue	Signalized	**65.4**	**E**	**21.4**	**70.7**	**E**	**35.2**
Blaine Street/Rustin Avenue	Signalized	63.5	E	-1.1	22.7	C	2.0
Blaine Street/Canyon Crest Drive	Signalized	21.5	C	2.0	26.6	C	4.6
Blaine Street/Watkins Drive	Signalized	29.5	C	2.4	34.0	C	2.8
Linden Street/Iowa Avenue	Signalized	**41.9**	**D**	**18.0**	**>80**	**F**	**>1**
Linden Street/Canyon Crest Drive	Signalized	25.0	C	0.0	32.6	C	4.3
Linden Street/Aberdeen Drive	AWSC	8.9	A	0.0	10.9	B	0.0
University Avenue/Kansas Avenue	Signalized	14.4	B	-0.7	41.2	D	2.0
University Avenue/Chicago Avenue	Signalized	34.9	C	1.1	**>80**	**F**	**>1**
University Avenue/Iowa Avenue	Signalized	36.1	D	4.1	**55.6**	**E**	**14.4**
University Avenue/University Village	Signalized	11.9	B	-1.7	**41.9**	**D**	**25.2**

TABLE 11
INTERSECTION LEVELS OF SERVICE – EXISTING PLUS PROJECT AM AND PM PEAK HOUR

Intersection	Control	AM Peak hour			PM Peak hour		
		Delay[1]	LOS	Δ Delay	Delay[1]	LOS	Δ Delay
University Avenue/I-215 SB Ramps	Signalized	25.8	C	7.1	**50.2**	**D**	**33.5**
University Avenue/I-215 NB Ramps	Signalized	21.5	C	3.5	**>80**	**F**	**>1**
Parking Lot 1/Campus Drive	AWSC	**33.0**	**D**	**22.2**	**>80**	**F**	**>1**
Big Springs Rd/Campus Drive	AWSC	11.2	B	2.5	15.2	C	5.7
Big Springs Road/Watkins Drive	Signalized	13.6	B	-0.6	12.1	B	1.0
Canyon Crest Drive/Campus Drive	Signalized	11.7	B	2.5	15.2	B	-1.4
Citrus Drive/Campus Drive	SSSC	11.1	B	1.5	14.5	B	3.6
Eucalyptus Drive/Campus Drive	SSSC	13.5	B	3.1	17.3	B	6.1
Martin Luther King, Jr. Boulevard/Chicago	Signalized	**>80**	**F**	**>1**	**>80**	**F**	**>1**
Martin Luther King, Jr. Boulevard/Iowa	Signalized	28.3	C	6.0	**>80**	**F**	**>1**
Martin Luther King, Jr. Boulevard/Lot 30	Signalized	31.1	C	5.6	**63.3**	**E**	**36.8**
Martin Luther King, Jr. Boulevard/Canyon Crest Drive	Signalized	**>80**	**F**	**>1**	**>80**	**F**	**>1**
Martin Luther King, Jr. Boulevard/I-215 SB Ramps	Signalized	18.4	B	0.1	20.6	C	3.0
Martin Luther King, Jr. Boulevard/I-215 NB Ramps	AWSC	15.9	C	2.9	11.6	B	1.7
Le Conte Drive/Chicago Avenue	SSSC	23.4	C	1.1	14.7	B	0.7
Central Avenue/Chicago Avenue	Signalized	**>80**	**F**	**>1**	29.9	C	-0.1
Central Avenue/Canyon Crest Drive	Signalized	35.4	D	-0.2	45.2	D	4.6
Central Avenue/SR-60 SB Ramps	Signalized	17.7	B	0.0	15.2	B	0.0
Central Avenue/SR-60 NB Off Ramp	Signalized	19.8	B	0.0	16.8	B	0.0
Watkins Drive/SR-60 NB On Ramp	SSSC	**>50**	**F**	**<1**	20.9	C	0.0

TABLE 11
INTERSECTION LEVELS OF SERVICE – EXISTING PLUS PROJECT AM AND PM PEAK HOUR

Intersection	Control	AM Peak hour			PM Peak hour		
		Delay[1]	LOS	Δ Delay	Delay[1]	LOS	Δ Delay

Notes:
Deficient Intersections are shown in Bold.
Impacted Intersections are Shaded.

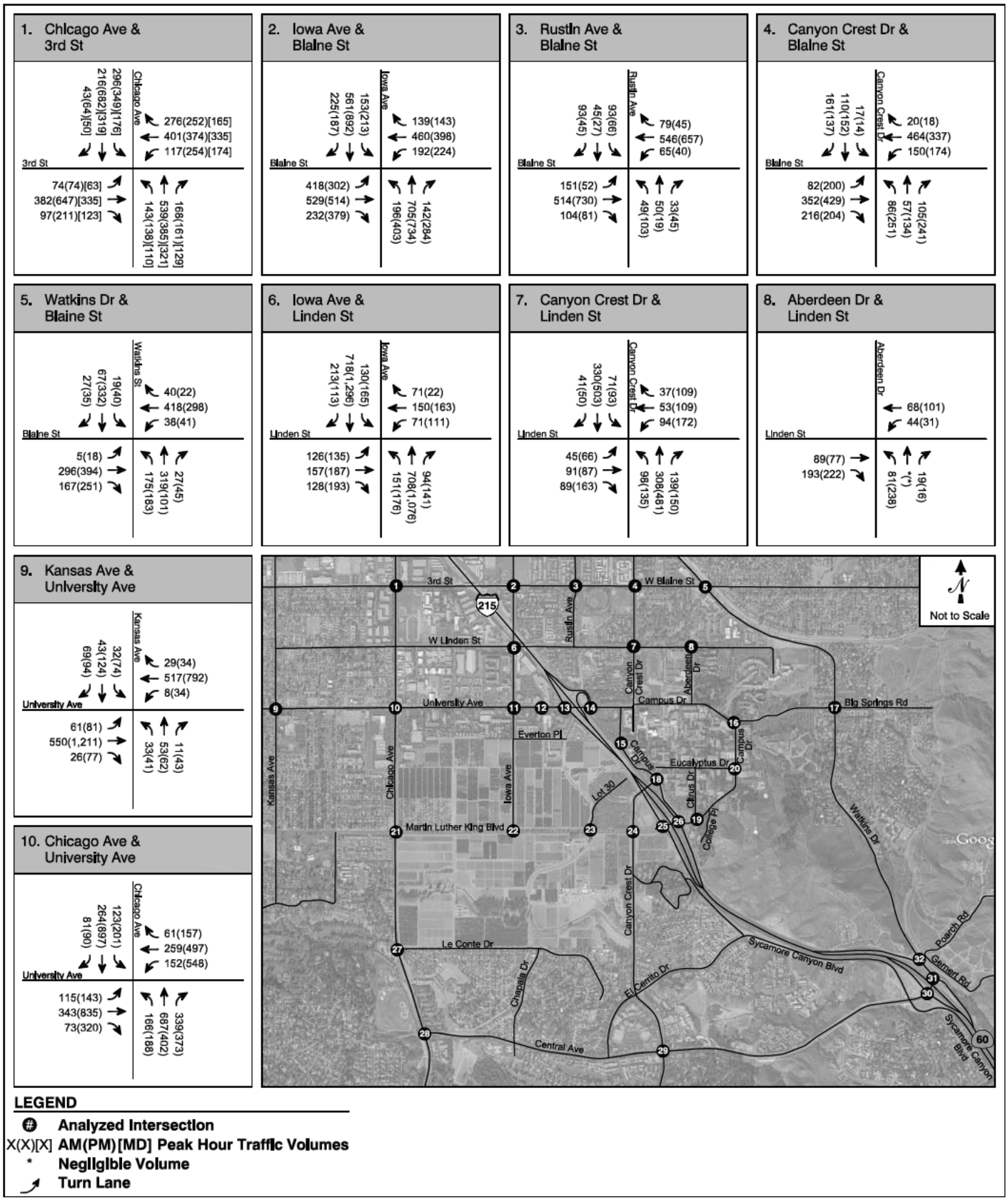
1- Delay for intersections based on application of *2000 Highway Capacity Manual* Methodology. Delay was calculated using Synchro 6.0 software.
Source: Fehr & Peers, 2011

Table 12 reports the Existing plus Project results for the Mid-day peak hour.

TABLE 12
INTERSECTION LEVELS OF SERVICE – EXISTING PLUS PROJECT
MID-DAY PEAK HOUR

Intersection	Control	AM Peak hour		
		Delay[1]	LOS	∆ Delay
Third Street/Chicago Avenue	Signalized	34.4	C	1.9
University Avenue/Iowa Avenue	Signalized	41.8	D	1.4
University Avenue/University Village	Signalized	14.7	B	-1.1
University Avenue/I-215 SB Ramps	Signalized	19.0	B	2.1
University Avenue/I-215 NB Ramps	Signalized	22.0	C	2.8

Notes:
1- Delay for intersections based on application of *2000 Highway Capacity Manual* Methodology. Delay was calculated using Synchro 6.0 software.
Source: Fehr & Peers, 2010



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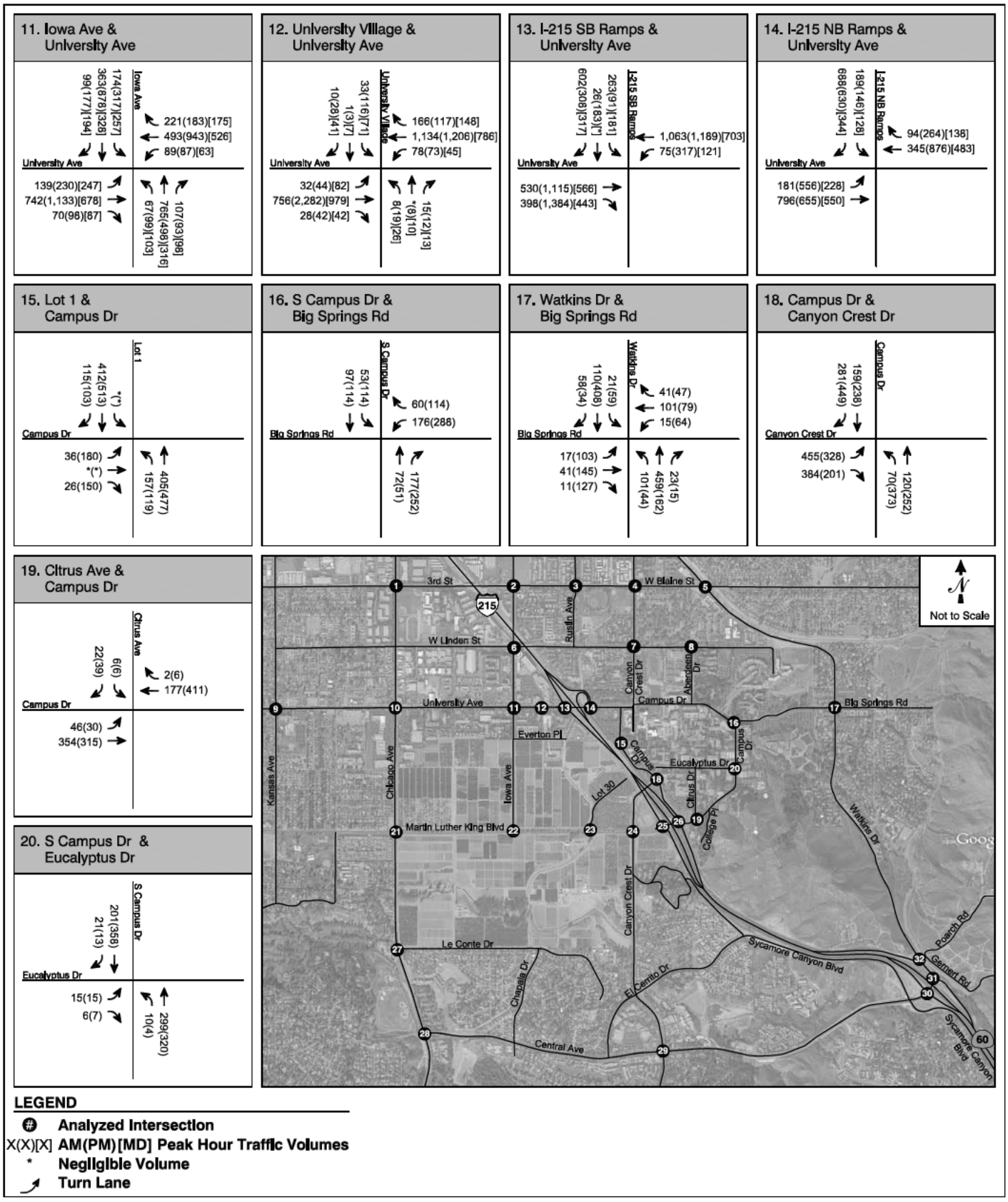
EXISTING PLUS PROJECT CONDITIONS PEAK HOUR TRAFFIC VOLUMES

FIGURE 7A



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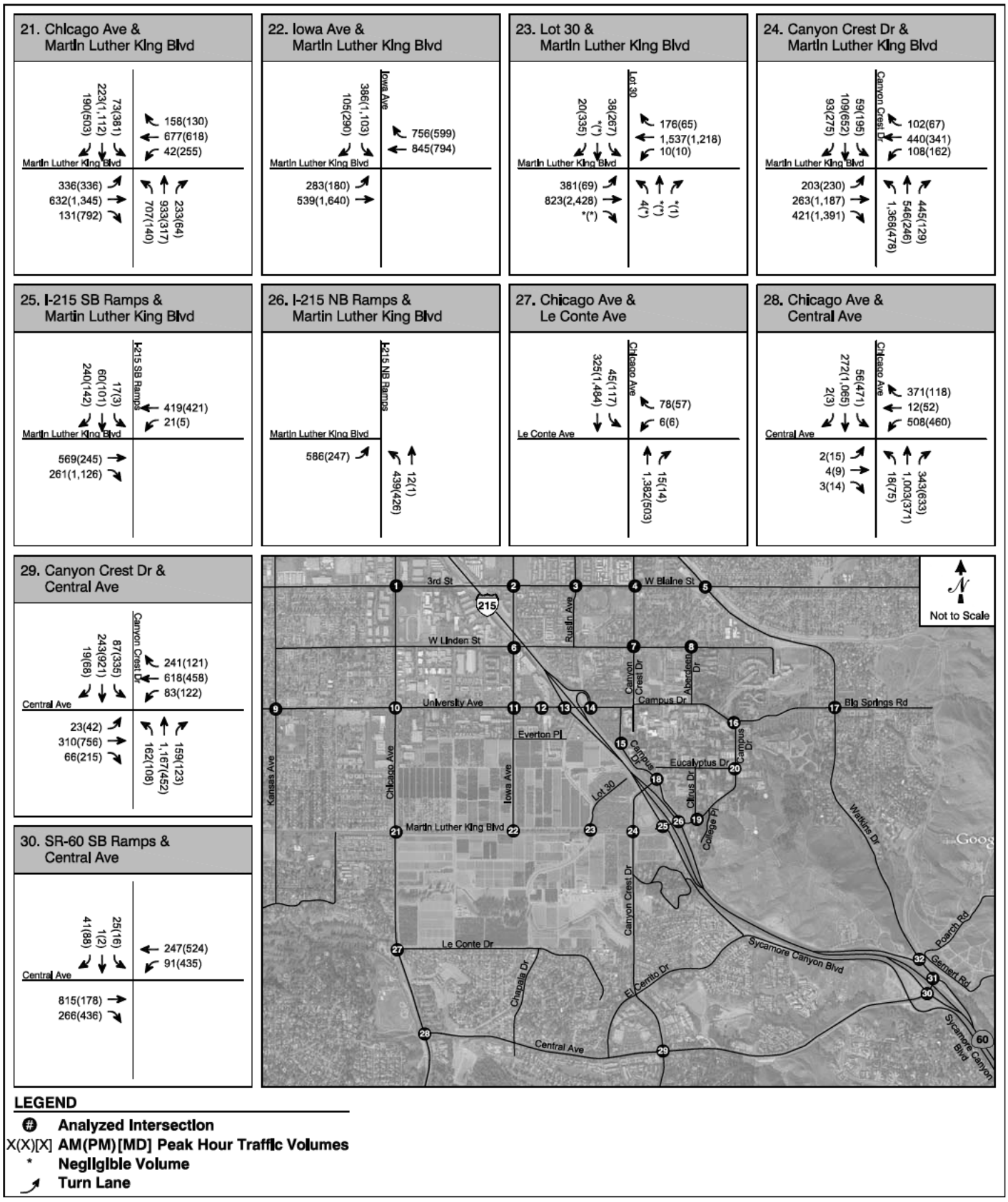
EXISTING PLUS PROJECT CONDITIONS PEAK HOUR TRAFFIC VOLUMES

FIGURE 7B



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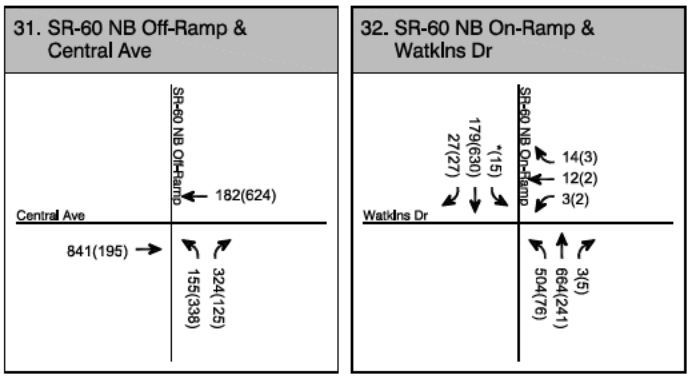
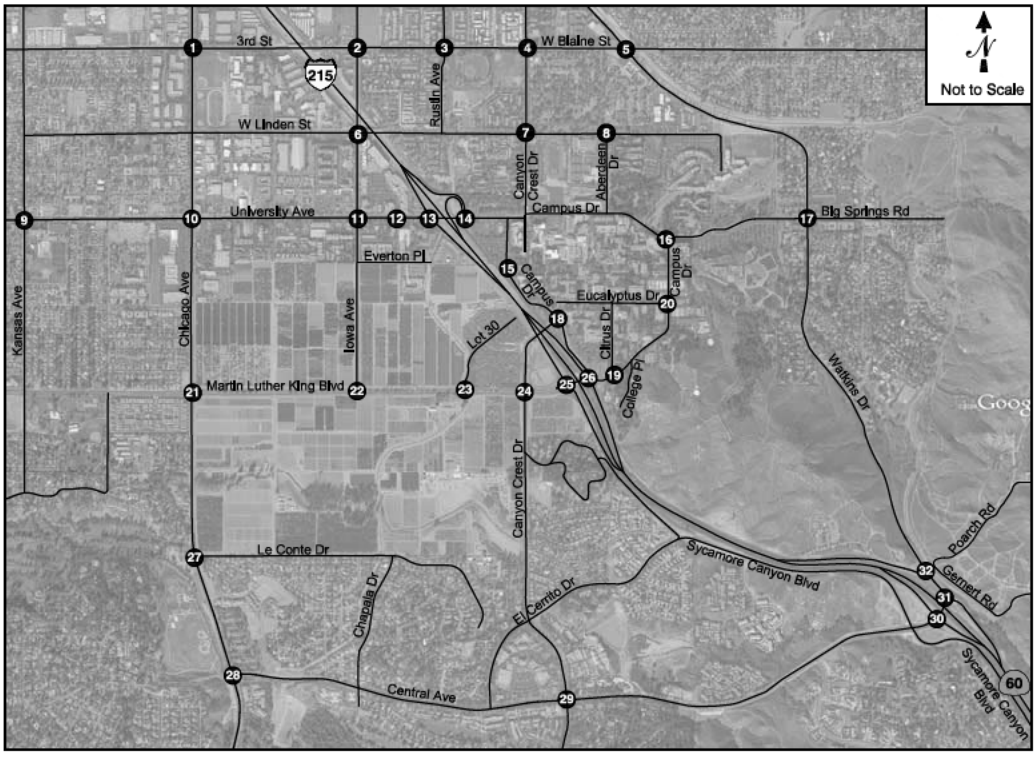
EXISTING PLUS PROJECT CONDITIONS PEAK HOUR TRAFFIC VOLUMES

FIGURE 7C





LEGEND

- (#) **Analyzed Intersection**
- X(X)[X] **AM(PM)[MD] Peak Hour Traffic Volumes**
- * **Negligible Volume**
- **Turn Lane**

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EXISTING PLUS PROJECT CONDITIONS PEAK HOUR TRAFFIC VOLUMES

FIGURE 7D

INTERSECTION IMPACTS

Intersection impacts are identified using two sets of significance criteria, based on the location of the intersection. For those roadways under the jurisdiction of the City of Riverside, the following significance criteria are employed:

- For an intersection operating at LOS A or LOS B after the addition of project traffic, an increase of more than 10 seconds of intersection delay is considered a significant impact
- For an intersection operating at LOS C, an increase of more than 8 seconds of intersection delay is considered a significant impact
- For an intersection operating at LOS D, an increase of more than 5 seconds of intersection delay is considered a significant impact
- For an intersection operating at LOS E, an increase of more than 2 seconds of intersection delay is considered a significant impact
- For an intersection operating at LOS F, an increase of more than 1 second of intersection delay is considered a significant impact

For University intersections, a significant impact occurs when the intersection operates at LOS E or F, regardless of the amount of new project trips that travel through the intersection.

Impact #A1- Third Street/Chicago Avenue Intersection

Impact: With the addition of project traffic, this intersection operates at LOS F during the AM and PM Peak hours. As the increase in delay is greater than the City's accepted threshold with an increase of more than one seconds in both the AM and PM peak hours, a significant traffic impact occurs. The City's accepted threshold for an LOS E intersection is an allowable increase of only 2 seconds. As the increase in delay is greater than one second, an impact occurs.

Mitigation: Mitigating this impact during the AM and PM peak hours requires a reconfiguration of intersection to add a right-turn lane northbound and southbound. There are currently northbound and southbound through/right turn-lanes. This mitigation measure anticipates that these separate right turn lanes would be constructed and the existing through/right lanes would be converted to through lanes. Our review of field conditions indicates that there is sufficient land available for the addition of these turn lanes. With the implementation of this mitigation measure, the AM peak hour would improve to LOS E and the PM peak hour would improve to LOS D.

While this mitigation would be considered physically feasible in that it could be implemented for the AM and PM Peak hours, there is an issue of jurisdictional control in that the City of Riverside currently maintains control over this intersection. Since any physical improvements would require the concurrence of the City and the University cannot guarantee their implementation, we have therefore concluded that the impact would be significant and unavoidable.

Significance after Mitigation: *Significant and Unavoidable*

Impact #A2: Blaine Street/Iowa Avenue Intersection

Impact: With the addition of project traffic, this intersection operates at LOS E during both the AM and PM peak hours. The increase in delay resulting from project traffic is greater than 2 seconds in both the AM and PM peak hours. As the allowable increase in delay for an LOS E intersection is 2 seconds, a significant traffic impact occurs.

Mitigation: Mitigating this impact requires adding a second left-turn lane to the northbound and southbound approaches. Our review of field conditions indicates that there is sufficient right-of-way to accommodate this additional left-turn lane. Additionally, the westbound through/right lane would be separated into a through lane and a right-turn lane, the signal timings would be optimized, and the eastbound and westbound phasings would be modified to allow protected and permitted left turns. With the implementation of this mitigation measure, the LOS would improve to D during the AM peak hour and D during the PM peak hour.

While this mitigation would be considered physically feasible in that it could be implemented, there is an issue of jurisdictional control in that the City of Riverside currently maintains control over this intersection. Since any physical improvements would require the concurrence of the City and the University cannot guarantee their implementation, we have therefore concluded that the impact would be significant and unavoidable.

Significance after Mitigation: *Significant and Unavoidable*

Impact #A3: Linden Street/Iowa Avenue Intersection

Impact: The addition of project traffic causes the intersection to operate at LOS E in the AM peak hour and LOS F in the PM peak hour. The increase in delay from project traffic exceeds the threshold of significance. Therefore a significant impact occurs at this location.

Mitigation: Mitigating this impact would require changing the southbound approach to add a right-turn lane which currently has a through/right-turn lane. With the addition of this right-turn lane, the existing through/right-turn lane would be converted into a through lane. From our review of field conditions, it appears that there is sufficient area to accommodate widening at this approach. With the implementation of this mitigation measure, the LOS would improve to C in the AM peak hour and D in the PM peak hour.

While this mitigation would be considered physically feasible in that it could be implemented, there is an issue of jurisdictional control in that the City of Riverside currently maintains control over this intersection. Since any physical improvements would require the concurrence of the City and the University cannot guarantee their implementation, we have therefore concluded that the impact would be significant and unavoidable.

Significance after Mitigation: *Significant and Unavoidable*

Impact #A4: University Avenue/Chicago Avenue Intersection

Impact: The addition of project traffic increases the delay at this intersection by 32 seconds in the PM peak hour which exceeds the City's allowable threshold of 5 seconds at an LOS D intersection. Therefore a significant impact occurs at this location.

Mitigation: Mitigating this impact would require the optimization of intersection splits. While this mitigation would be considered physically feasible in that it could be implemented, there is an issue of jurisdictional control in that the City of Riverside currently maintains control over this intersection. Since any physical improvements would require the concurrence of the City and the University cannot guarantee their implementation, we have therefore concluded that the impact would be significant and unavoidable.

Significance after Mitigation: *Significant and Unavoidable*

Impact #A5: University Avenue/Iowa Avenue Intersection

Impact: The addition of project traffic causes an increase in delay of 8 seconds as compared to the No Project conditions in the PM peak hour. As this intersection operates at LOS D prior to the addition of project traffic, the allowable increase is only 5 seconds. Therefore, a significant impact occurs resulting from the addition of project traffic.

Mitigation: Mitigating this impact will require the addition of a second southbound left-turn lane, a second dedicated thru lane and a dedicated right turn lane, and a comprehensive retiming of the traffic signal at this intersection. There is sufficient area at the intersection to make the turning lane improvements. If this mitigation measure is implemented, then the intersection would operate at LOS D.

Similar to other mitigation measures, there are issues of intersection jurisdiction in which the City of Riverside would have to agree to implement both the additional turn lane and the signal retiming. Since this improvement would require concurrence of the City and the University cannot guarantee its implementation, we have therefore concluded that the impact would be significant and unavoidable.

Significance after Mitigation: *Significant and Unavoidable*

Impact #A6: University Avenue/University Village

Impact: The addition of project traffic causes the delay to increase by nearly 18 seconds at an intersection that operates at LOS B prior to the addition of project traffic. As the allowable increase in delay is 10 seconds, a significant impact occurs. This impact occurs in the PM peak hour.

Mitigation: Mitigating this impact is problematic since the increase in delay is relatively high and reducing the impact would require extensive reconstruction of the intersection. Given the location of adjacent buildings, such a comprehensive reconstruction would not appear to be physically feasible. The selection of an appropriate mitigation measure is compounded by the fact this impact occurs at an intersection which is experiencing little overall delay. The impact occurs solely because of the selected significance criteria, which allow impacts to occur at LOS A or B conditions. Given these considerations, we have concluded that there is no feasible mitigation and this impact is significant and unavoidable.

Significance after Mitigation: *Significant and Unavoidable*

Impact #A7: University Avenue/I-215 Southbound Ramps

Impact: The addition of project traffic causes the delay to increase at this location by more than 5 seconds at an intersection that operates at LOS D in the PM Peak hour prior to the addition of project traffic. As the allowable increase in delay is 5 seconds, a significant impact occurs.

Mitigation: Mitigating this impact is problematic since the increase in delay is relatively high and reducing the impact would require extensive reconstruction of the intersection. Given the current configuration of the intersection, such a comprehensive reconstruction would not appear to be physically feasible. The selection of an appropriate mitigation measure is compounded by the fact this impact occurs at an intersection which is experiencing little overall delay. The impact occurs solely because of the selected significance criteria, which allow impacts to occur at LOS A or B conditions. Given these considerations, we have concluded that there is no feasible mitigation and this impact is significant and unavoidable.

Significance after Mitigation: *Significant and Unavoidable*

Impact #A8: University Avenue/I-215 Northbound Ramps

Impact: The addition of project traffic increases the delay at this location by 53 seconds during the PM Peak hour. Prior to the addition of project traffic, the intersection operates at LOS C. After the addition of project traffic, the intersection operates at LOS E. Since the increase in delay is greater than the 2 seconds allowed by the City of Riverside, a significant impact occurs in the PM Peak hour.

Mitigation: Mitigating this impact would require the addition of several lanes at this intersection, to the point where this mitigation measure would no longer be physically feasible. Therefore, we conclude that the impact is significant and unavoidable.

Significance after Mitigation: *Significant and Unavoidable*

Impact #A9: Parking Lot 1/Campus Drive

Impact: The addition of project traffic degrades intersection operations at this location to LOS F during the PM peak hour. Since this intersection is located on university property, a significant impact arises if an intersection degrades to LOS F. Under this impact criteria, there is an impact at this location.

Mitigation: Mitigating this impact will require the reconfiguration of the Eastbound approach to add a lane. Prior to this reconstruction, the Eastbound approach currently has a joint use left/through/right-turn lane. After this reconstruction, the intersection would be configured with a joint left-turn/through lane with a separate right-turn lane. Additionally, the intersection would need to be signalized. After the implementation of this mitigation, the intersection would operate at LOS B.

Unlike the other proposed mitigation measures, this mitigation measure is both feasible and can be implemented by the University in that the improvement can be constructed by the University without requiring the concurrence of the City of Riverside or the California Department of Transportation, as with the other mitigation measures. As such, we would consider this impact to be Less than Significant with its implementation.

Significance after Mitigation: *Less than Significant*

Impact #A10: Martin Luther King, Jr. Boulevard/Chicago Avenue

Impact: The addition of project traffic causes the delay to increase in the AM and PM peak hours by more than 1 second. With the addition of project traffic, the intersection operates at LOS F during both peak hours. Since the increase in delay is greater than the 1 seconds allowed by the City of Riverside, a significant impact occurs in the AM and PM Peak hours.

Mitigation: Mitigating this impact will require the reconstruction of the intersection to add through lanes in the Northbound and Southbound direction, a westbound left-turn lane and the optimization of intersection splits. With the implementation of this mitigation measure, the intersection would operate at LOS D during the AM peak hour. The intersection would still operate at LOS F during the PM peak hour, but would not increase in delay relative to the no project scenario.

There appears to be sufficient land to accommodate this widening based on our review of field conditions. Similar to other mitigation measures, there are issues of intersection jurisdiction in which the City of Riverside would have to agree to implement both the additional turn lane and the signal retiming. Since this improvement would

require concurrence of the City and the University cannot guarantee its implementation, we have therefore concluded that the impact would be significant and unavoidable.

Significance after Mitigation: *Significant and Unavoidable*

Impact #A11: Martin Luther King, Jr. Boulevard/Iowa Avenue

Impact: The addition of project traffic causes the delay to increase in the PM peak hour by more than 30 seconds at an LOS D intersection where the allowable increase is only 5 seconds. Since the increase in delay is greater than the allowable increase, a significant traffic impact occurs in the PM peak hour.

Mitigation: Mitigating this impact will require retiming of the intersection to provide additional time for certain intersection movements. The signal timing would have to be implemented by the City of Riverside. If this improvement was implemented, the LOS would improve to D in the PM peak hour.

While this mitigation is certainly feasible, there are again issues of jurisdictional control in that any retiming would have to be implemented by the City of Riverside as the City maintains the traffic signal at this location and is responsible for the selection and modification of any timing. Since this improvement would require concurrence of the City and the University cannot guarantee its implementation, we have therefore concluded that the impact would be significant and unavoidable.

Significance after Mitigation: *Significant and Unavoidable*

Impact #A12: Martin Luther King, Jr. Boulevard/Lot 30

Impact: The addition of project traffic causes the delay to increase by more than 15 seconds in the PM peak hour. Since the increase is greater than the allowable increase a significant impact occurs.

Mitigation: Mitigating this impact requires the addition of a through-lane on the eastbound approach. With the implementation of this measure, the LOS would improve to C in the PM peak hour. Since this improvement would require concurrence of the City and the University cannot guarantee its implementation, we have therefore concluded that the impact would be significant and unavoidable.

Significance After Mitigation: *Significant and Unavoidable*

Impact #A13: Martin Luther King, Jr. Boulevard/Canyon Crest Drive

Impact: The addition of project traffic causes the delay to increase by more than 1 second in the AM and PM peak hours. Prior to the addition of project traffic, this intersection operates at LOS F during both peak hours. Since the increase in delay is greater than the allowable threshold, a significant traffic impact occurs.

Mitigation: Mitigating this impact requires the addition of through lanes in the Northbound and Southbound direction and a second eastbound right-turn lane. With the implementation of this measure, the LOS would improve to LOS D in the PM peak hour. The LOS would remain at F for the AM peak hour, though there would be no increase in the delay which removes the impact in the AM peak hour.

Since this improvement would require concurrence of the City and the University cannot guarantee its implementation, we have therefore concluded that the impact would be significant and unavoidable.

Significance After Mitigation: *Significant and Unavoidable*

Impact #A14: Central Avenue/Chicago Avenue

Impact: The addition of project traffic causes the delay at this intersection to increase by more than 1 second at an intersection that would operate at LOS F before and after the inclusion of project traffic in the AM Peak hour. Since the allowable increase is only 1 second, a significant impact occurs.

Mitigation: Mitigating this impact would require a major reconstruction of the intersection to include additional improvements such as an additional northbound and southbound through lanes, converting eastbound and westbound to operate as a split-phase signal, adding a right-turn overlap for the northbound right-turn lane, and retiming the traffic signal to account for these new improvements. With the implementation of this mitigation measure, the intersection would still operate at LOS F but there would be no increase in delay.

Similar to other mitigation measures, there are issues of intersection jurisdiction in which the City of Riverside would have to agree to implement both the additional turn lane and the signal retiming. Since this improvement would require concurrence of the City and the University cannot guarantee its implementation, we have therefore concluded that the impact would be significant and unavoidable.

Significance after Mitigation: *Significant and Unavoidable*

ROADWAY SEGMENT ANALYSIS AND PROJECT IMPACTS

Table 13 provides the roadway segment volumes and operations. As shown in the table, all the roadway segments operate at better than LOS D, and no significant impact was identified for this scenario.

TABLE 13
ROADWAY SEGMENT VOLUMES AND OPERATIONS

Roadway	Classification	LOS D Volume	Existing Plus Volume	LOS	Significant Impact?
MLK/14th St.					
Canyon Crest Dr to Iowa	110 ft Arterial (4 lanes)	33,000	28,292	D or Better	No
Iowa Ave to Chicago Ave	110 ft Arterial (4 lanes)	33,000	22,529	D or Better	No
Chicago Ave					
Martin Luther King Blvd to	110 ft Arterial (4 lanes)	33,000	19,946	D or Better	No
University Ave to Blaine St	110 ft Arterial (4 lanes)	33,000	18,294	D or Better	No
University Ave					
I-215 to Iowa Ave	100 ft Arterial (4 lanes)	33,000	26,590	D or Better	No
Iowa Ave to Chicago Ave	100 ft Arterial (4 lanes)	33,000	23,626	D or Better	No
Iowa Ave					
Martin Luther King Blvd to	110 ft Arterial (4 lanes)	33,000	15,265	D or Better	No
University Ave to Blaine St	110 ft Arterial (4 lanes)	33,000	22,423	D or Better	No

Source: Fehr & Peers, 2011

5. CUMULATIVE SCENARIO PROJECT IMPACTS

This section documents the project impacts under the Cumulative Scenario, which is anticipated to occur in the Year 2020.

YEAR 2020 AMBIENT GROWTH

One key issue related to the future traffic conditions within the study area is the likely ambient growth that would occur on land outside of UCR that might travel through one or more of the study intersections. This ambient growth could include:

- Increase in through traffic traveling on major roadways such as University Avenue
- Increased activity at any existing non-UCR land uses
- Redevelopment of any non-UCR land use parcels
- Development on any currently vacant parcels

To determine the appropriate increase in traffic, we consulted several sources including the previous LRDP Update, the Riverside County Travel Demand Model (RivTAM), and the City of Riverside General Plan. After reviewing the various sources and consulting with City of Riverside Staff, we determined that the most appropriate tool to use to estimate the amount of future non-UCR growth in the study area would be the City of Riverside General Plan.

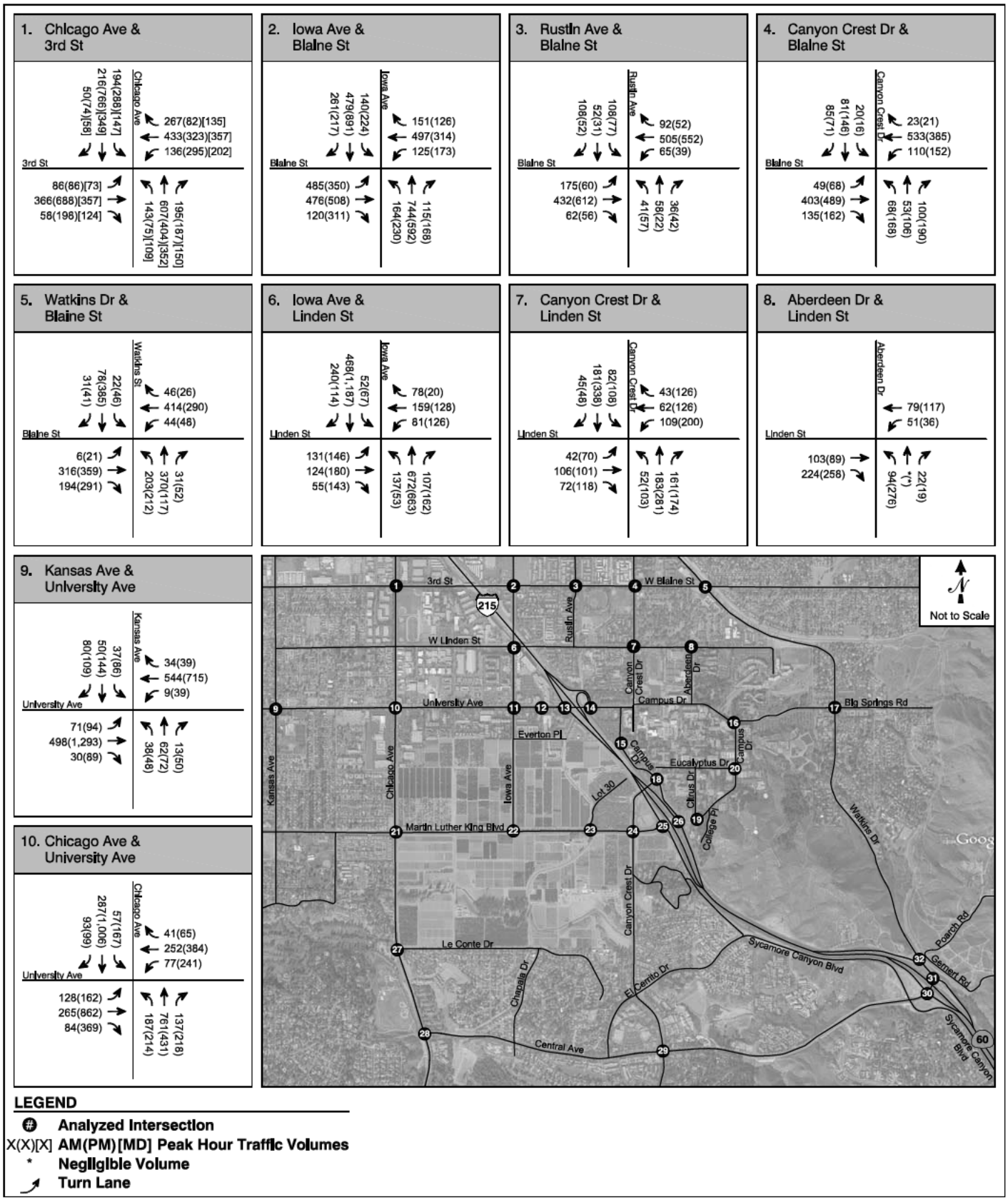
However, it was determined that the volumes from the City of Riverside General Plan could not be directly extracted as the General Plan had a horizon year of 2025 and this study's Cumulative Scenario extends only to 2020. As such, we calculated a yearly Growth Rate based on the increase in traffic as noted by the General Plan and applied that yearly Growth Rate out to 2020. The yearly growth rate was calculated to be 1.5% per year, which yielded an overall growth of approximately 16%. This was applied to the intersections throughout the study area.

TRAFFIC VOLUMES

The Cumulative Background or No Project Volumes which include the ambient growth are provided on Figures 8A-8D. The Cumulative With Project Volumes, which result from the addition of Project Volumes to the Background or No Project volumes, are shown on Figures 9A-9D.

ROADWAY IMPROVEMENTS

There are no planned or programmed construction projects related to roadways in the study area for year 2020.



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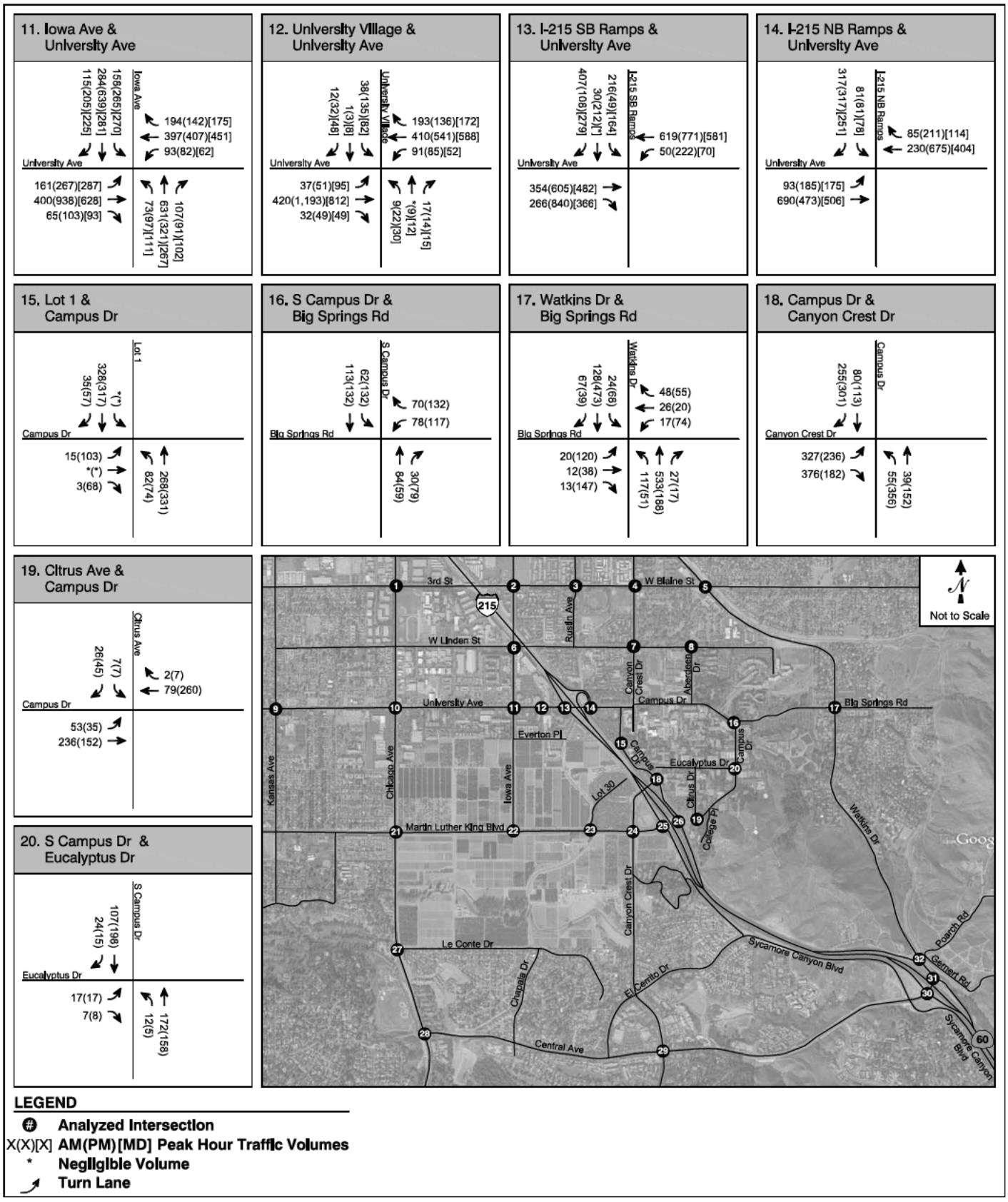
CUMULATIVE BASE CONDITIONS (YEAR 2020) PEAK HOUR TRAFFIC VOLUMES

FIGURE 8A



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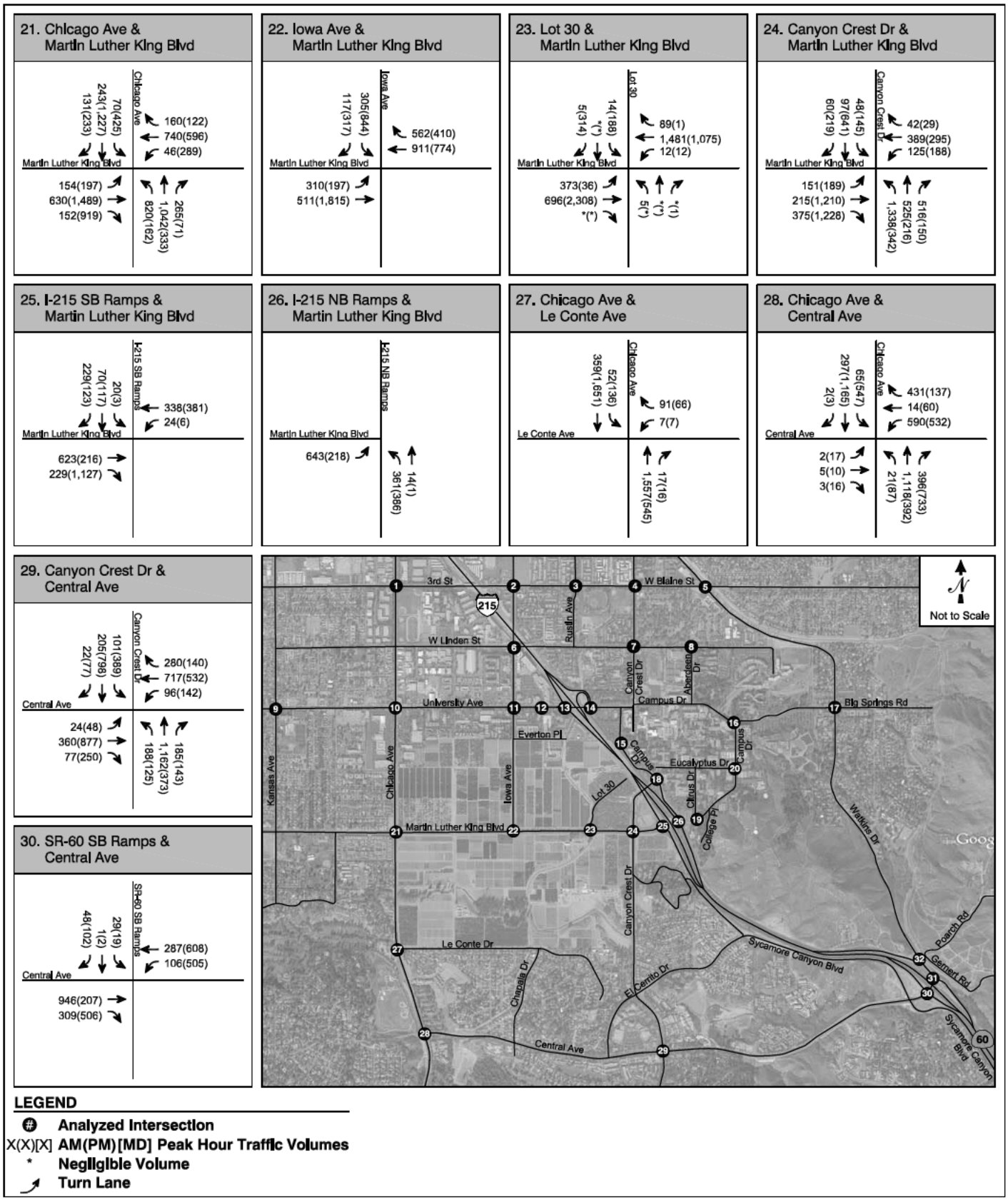
CUMULATIVE BASE CONDITIONS (YEAR 2020) PEAK HOUR TRAFFIC VOLUMES

FIGURE 8B



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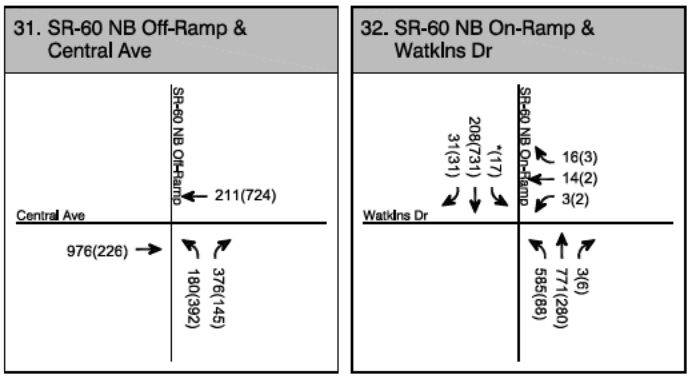
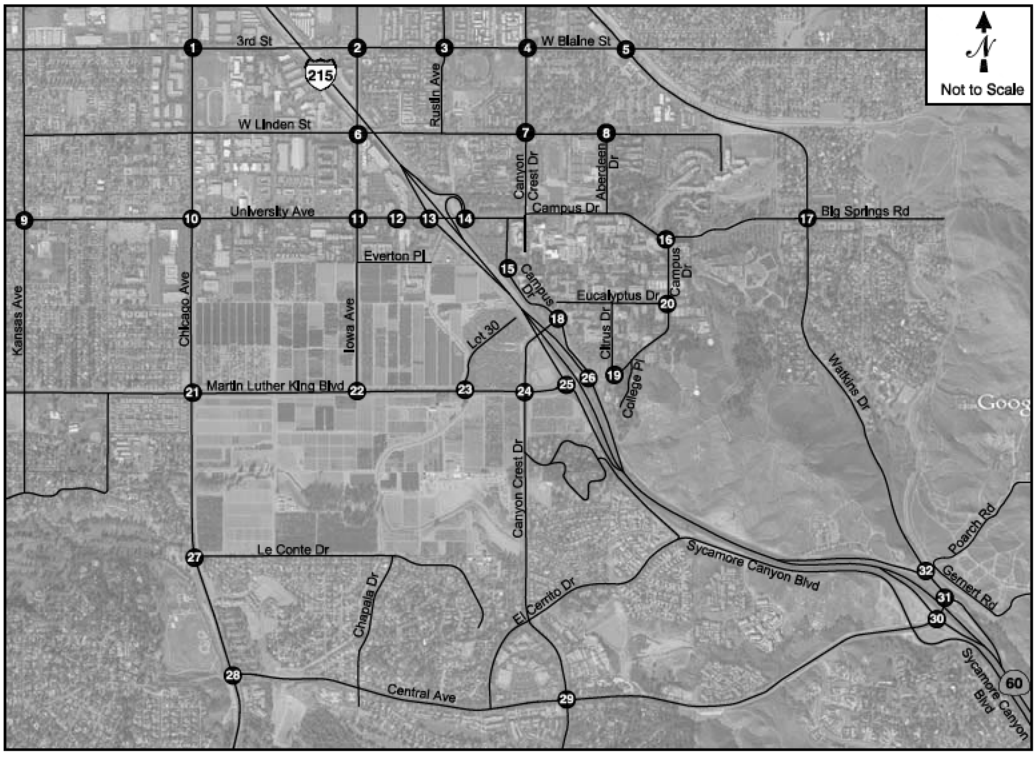
CUMULATIVE BASE CONDITIONS (YEAR 2020) PEAK HOUR TRAFFIC VOLUMES

FIGURE 8C





LEGEND

- (#) **Analyzed Intersection**
- X(X)[X] **AM(PM)[MD] Peak Hour Traffic Volumes**
- * **Negligible Volume**
- **Turn Lane**

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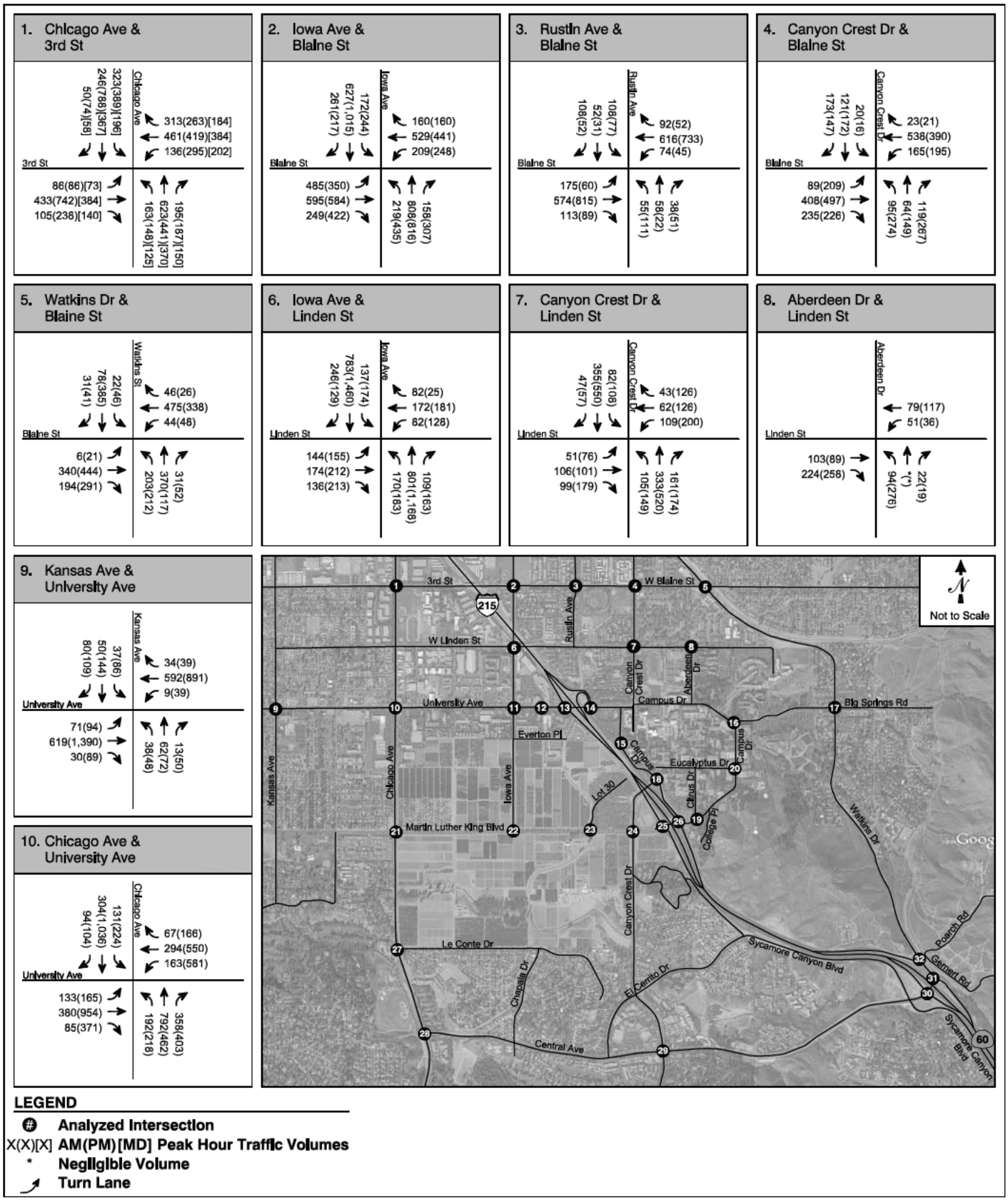
CUMULATIVE BASE CONDITIONS (YEAR 2020) PEAK HOUR TRAFFIC VOLUMES

FIGURE 8D



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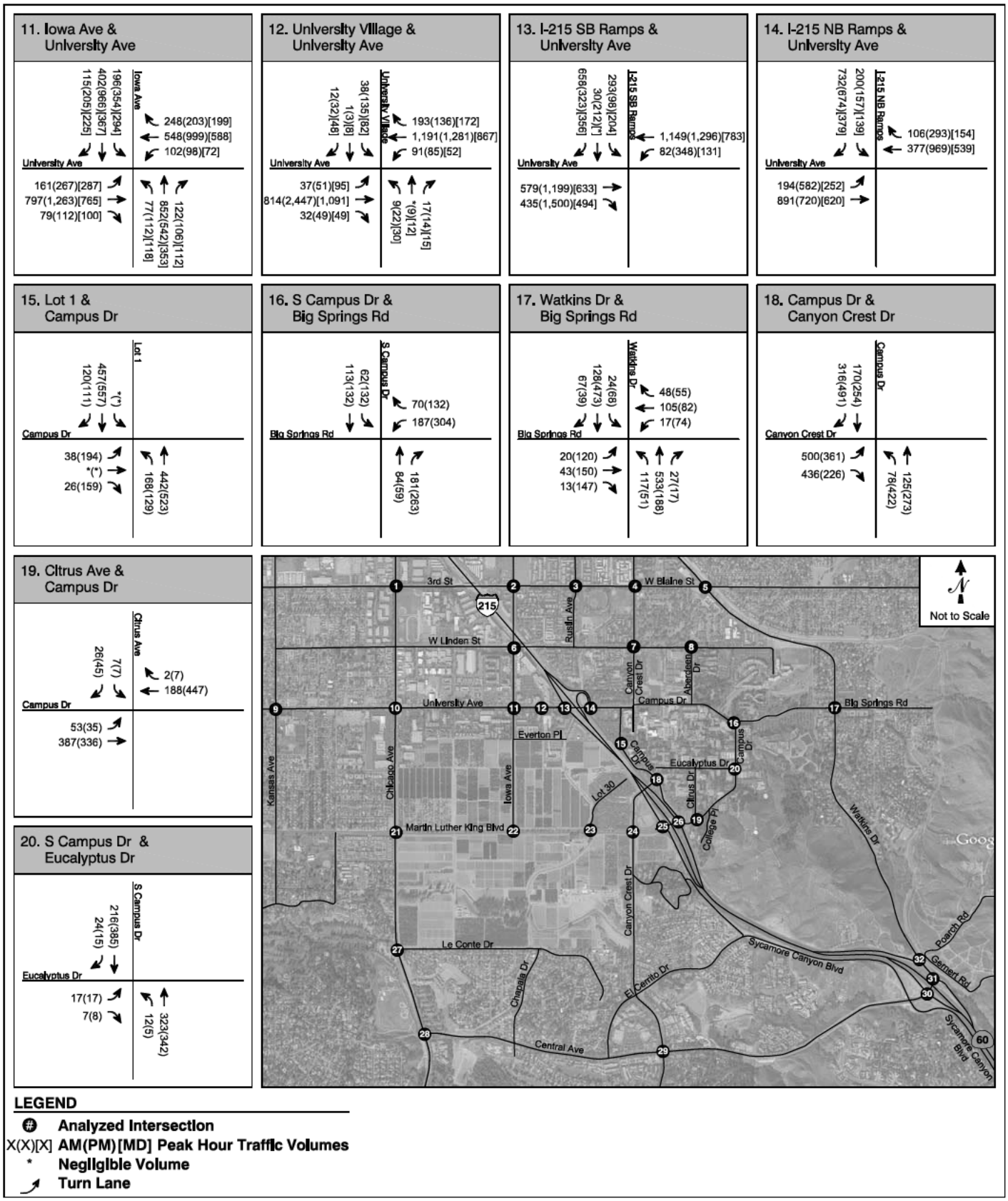
CUMULATIVE PLUS PROJECT CONDITIONS (YEAR 2020) PEAK HOUR TRAFFIC VOLUMES

FIGURE 9A



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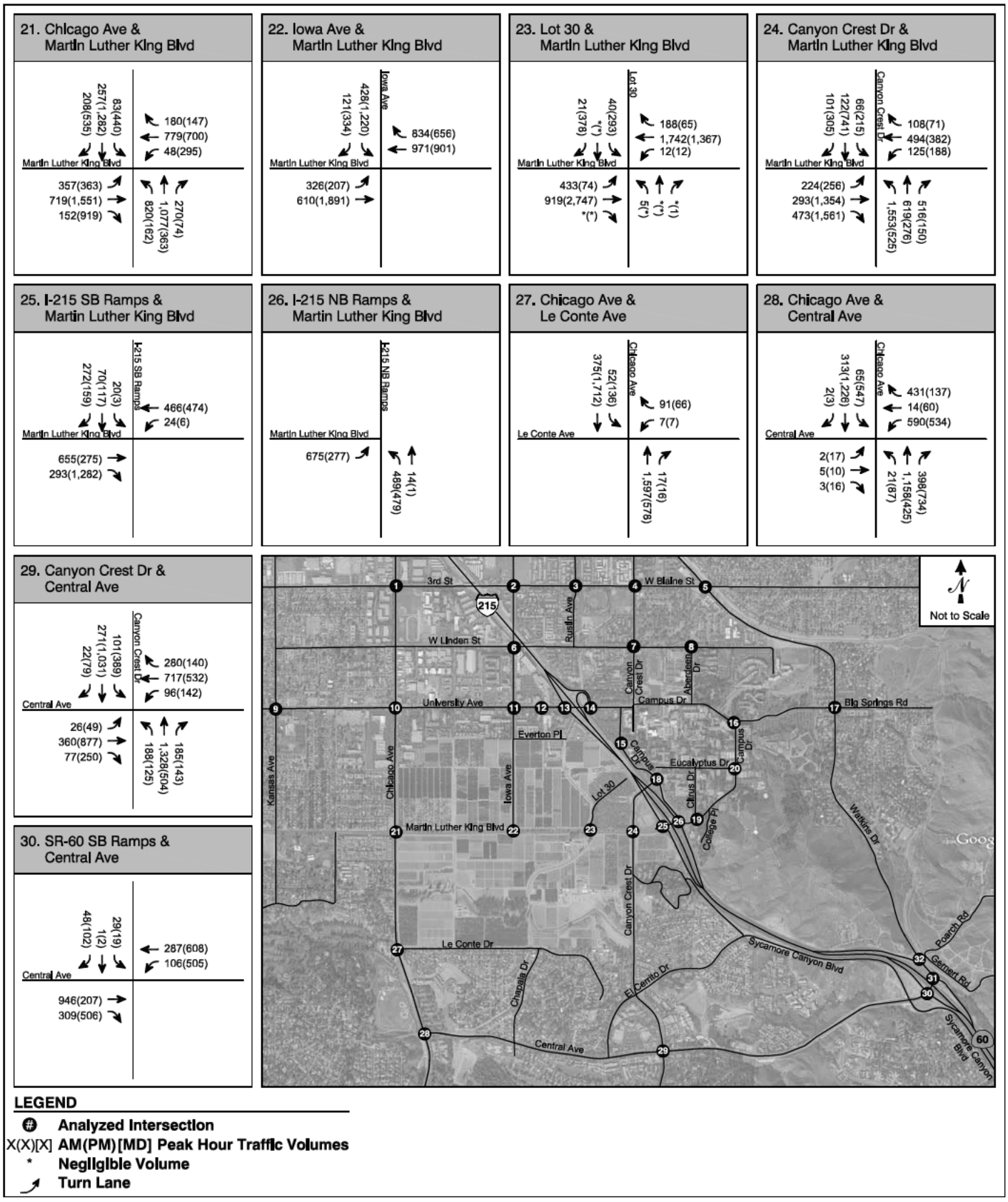
CUMULATIVE PLUS PROJECT CONDITIONS (YEAR 2020) PEAK HOUR TRAFFIC VOLUMES

FIGURE 9B



LEGEND

- (#) **Analyzed Intersection**
- X(X)[X] **AM(PM)[MD] Peak Hour Traffic Volumes**
- * **Negligible Volume**
- **Turn Lane**

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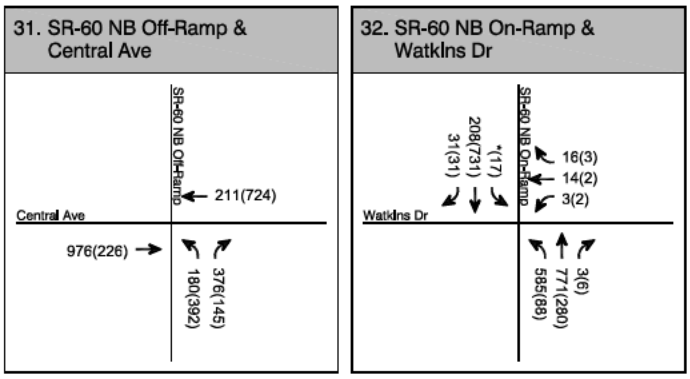
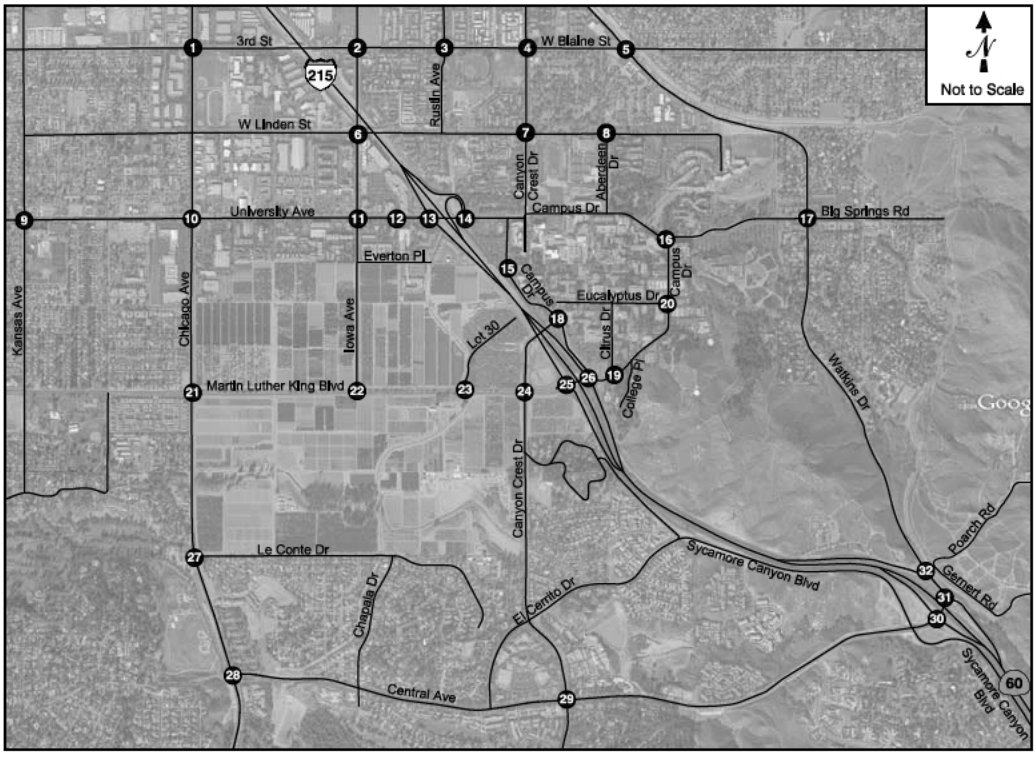
CUMULATIVE PLUS PROJECT CONDITIONS (YEAR 2020) PEAK HOUR TRAFFIC VOLUMES

FIGURE 9C





LEGEND

- (#) **Analyzed Intersection**
- X(X)[X] **AM(PM)[MD] Peak Hour Traffic Volumes**
- * **Negligible Volume**
- **Turn Lane**

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CUMULATIVE PLUS PROJECT CONDITIONS (YEAR 2020) PEAK HOUR TRAFFIC VOLUMES

FIGURE 9D

INTERSECTION OPERATIONS AND PROJECT IMPACTS

Table 14 documents the Cumulative No Project LOS and Delay for the AM and PM Peak hours. Table 15 provides the Cumulative No Project LOS and Delay for the Mid-day Peak hour. Table 16 details the LOS and delay for the Cumulative with Project Scenario in the AM and PM Peak hours. Table 17 describes the LOS and delay for the Mid-day Peak hour for the Cumulative with Project Scenario.

TABLE 14
INTERSECTION LEVELS OF SERVICE – CUMULATIVE NO PROJECT AM AND PM PEAK HOUR

Intersection	Control	AM Peak hour		PM Peak hour	
		Delay[1]	LOS	Delay[1]	LOS
Third Street/Chicago Avenue	Signalized	**>80**	**F**	**72.6**	**E**
Blaine Street/Iowa Avenue	Signalized	**67.4**	**E**	46.5	D
Blaine Street/Rustin Avenue	Signalized	**>80**	**F**	22.4	C
Blaine Street/Canyon Crest Drive	Signalized	20.3	C	23.8	C
Blaine Street/Watkins Drive	Signalized	28.4	C	34.5	C
Linden Street/Iowa Avenue	Signalized	29.5	C	76.3	E
Linden Street/Canyon Crest Drive	Signalized	24.5	C	30.5	C
Linden Street/Aberdeen Drive	AWSC	9.5	A	12.7	B
University Avenue/Kansas Avenue	Signalized	15.8	B	47.0	D
University Avenue/Chicago Avenue	Signalized	34.2	C	**64.0**	**E**
University Avenue/Iowa Avenue	Signalized	33.7	C	44.0	D
University Avenue/University Village	Signalized	13.8	B	18.4	B
University Avenue/I-215 SB Ramps	Signalized	19.4	B	18.7	B
University Avenue/I-215 NB Ramps	Signalized	18.6	B	23.1	C
Parking Lot 1/Campus Drive	AWSC	12.2	B	**>80**	**F**
Big Springs Rd/Campus Drive	AWSC	9.1	A	10.3	B
Big Springs Road/Watkins Drive	Signalized	20.0	C	12.8	B
Canyon Crest Drive/Campus Drive	Signalized	9.7	A	12.0	B
Citrus Drive/Campus Drive	SSSC	9.8	A	11.6	B

TABLE 14
INTERSECTION LEVELS OF SERVICE – CUMULATIVE NO PROJECT AM AND PM PEAK HOUR

Intersection	Control	AM Peak hour		PM Peak hour	
		Delay[1]	LOS	Delay[1]	LOS
Eucalyptus Drive/Campus Drive	SSSC	10.9	B	11.8	B
Martin Luther King, Jr. Boulevard/Chicago Avenue	Signalized	**66.0**	**E**	**>80**	**F**
Martin Luther King, Jr. Boulevard/Iowa Avenue	Signalized	26.3	C	**62.7**	**E**
Martin Luther King, Jr. Boulevard/Lot 30	Signalized	30.4	C	**46.4**	**D**
Martin Luther King, Jr. Boulevard/Canyon Crest Drive	Signalized	**>80**	**F**	**>80**	**F**
Martin Luther King, Jr. Boulevard/I-215 SB Ramps	Signalized	18.4	B	21.8	C
Martin Luther King, Jr. Boulevard/I-215 NB Ramps	AWSC	15.7	C	10.7	B
Le Conte Drive/Chicago Avenue	SSSC	31.1	D	17.0	C
Central Avenue/Chicago Avenue	Signalized	**>80**	**F**	34.4	C
Central Avenue/Canyon Crest Drive	Signalized	40.5	D	**61.7**	**E**
Central Avenue/SR-60 SB Ramps	Signalized	18.0	B	17.0	B
Central Avenue/SR-60 NB Off Ramp	Signalized	20.8	C	17.2	B
Watkins Drive/SR-60 NB On Ramp	SSSC	**>50**	**F**	26.5	D

Notes:
Deficient Intersections are shown in Bold
1- Delay for intersections based on application of *2000 Highway Capacity Manual* Methodology. Delay was calculated using Synchro 6.0 software.
Source: Fehr & Peers, 2011

TABLE 15
INTERSECTION LEVELS OF SERVICE – CUMULATIVE NO PROJECT MID-DAY PEAK HOUR

Intersection	Control	Mid- day Peak hour	
		Delay[1]	LOS
Third Street/Chicago Avenue	Signalized	35.3	D
University Avenue/Iowa Avenue	Signalized	41.8	D
University Avenue/University Village	Signalized	16.8	B
University Avenue/I-215 SB Ramps	Signalized	17.3	B
University Avenue/I-215 NB Ramps	Signalized	19.8	B

Notes:
1- Delay for intersections based on application of *2000 Highway Capacity Manual* Methodology. Delay was calculated using Synchro 6.0 software.
Source: Fehr & Peers, 2011

TABLE 16
INTERSECTION LEVELS OF SERVICE – CUMULATIVE WITH PROJECT AM AND PM PEAK HOUR

Intersection	Control	AM Peak hour			PM Peak hour		
		Delay[1]	LOS	Δ Delay	Delay[1]	LOS	Δ Delay
Third Street/Chicago Avenue	Signalized	>80	F	>1	>80	F	>1
Blaine Street/Iowa Avenue	Signalized	>80	F	>1	>80	F	>1
Blaine Street/Rustin Avenue	Signalized	>80	F	<1	23.4	C	1.0
Blaine Street/Canyon Crest Drive	Signalized	22.9	C	2.6	31.7	C	7.9
Blaine Street/Watkins Drive	Signalized	30.9	C	2.5	37.8	D	3.3
Linden Street/Iowa Avenue	Signalized	67.9	E	38.4	>80	F	>1
Linden Street/Canyon Crest Drive	Signalized	27.1	C	2.6	42.9	D	12.2
Linden Street/Aberdeen Drive	AWSC	9.5	A	0.0	12.7	B	0.0
University Avenue/Kansas Avenue	Signalized	15.3	B	-0.5	54.7	D	7.7
University Avenue/Chicago Avenue	Signalized	35.4	D	1.2	>80	F	>1
University Avenue/Iowa Avenue	Signalized	40.5	D	6.8	78.0	E	34.0
University Avenue/University Village	Signalized	12.8	B	-1.0	71.5	E	53.1
University Avenue/I-215 SB Ramps	Signalized	30.3	C	10.9	74.8	E	56.1
University Avenue/I-215 NB Ramps	Signalized	23.1	C	4.5	>80	F	>1
Parking Lot 1/Campus Drive	AWSC	49.7	E	37.5	>80	F	>1
Big Springs Rd/Campus Drive	AWSC	12.2	B	3.1	18.3	C	8.0
Big Springs Road/Watkins Drive	Signalized	19.0	B	-1.0	13.9	B	1.1
Canyon Crest Drive/Campus Drive	Signalized	13.2	B	3.5	23.6	C	11.6
Citrus Drive/Campus Drive	SSSC	11.5	B	1.7	15.8	C	4.2
Eucalyptus Drive/Campus Drive	SSSC	14.2	B	3.3	18.8	C	7.0
Martin Luther King, Jr. Boulevard/Chicago	Signalized	>80	F	>1	>80	F	>1
Martin Luther King, Jr. Boulevard/Iowa	Signalized	29.2	C	2.9	>80	F	>1
Martin Luther King, Jr. Boulevard/Lot 30	Signalized	54.3	D	23.9	>80	F	>1

TABLE 16
INTERSECTION LEVELS OF SERVICE – CUMULATIVE WITH PROJECT AM AND PM PEAK HOUR

Intersection	Control	AM Peak hour			PM Peak hour		
		Delay[1]	LOS	Δ Delay	Delay[1]	LOS	Δ Delay
Martin Luther King, Jr. Boulevard/Canyon Crest Drive	Signalized	**>80**	**F**	**>1**	**>80**	**F**	**>1**
Martin Luther King, Jr. Boulevard/I-215 SB Ramps	Signalized	18.4	B	0.0	**35.3**	**D**	**13.5**
Martin Luther King, Jr. Boulevard/I-215 NB Ramps	AWSC	19.9	C	4.2	12.9	B	2.2
Le Conte Drive/Chicago Avenue	SSSC	33.1	D	2.0	18.1	C	1.1
Central Avenue/Chicago Avenue	Signalized	**>80**	**F**	**>1**	34.5	C	0.1
Central Avenue/Canyon Crest Drive	Signalized	40.5	D	0.0	**>80**	**F**	**>1**
Central Avenue/SR-60 SB Ramps	Signalized	18.0	B	0.0	17.0	B	0.0
Central Avenue/SR-60 NB Off Ramp	Signalized	20.8	C	0.0	17.2	B	0.0
Watkins Drive/SR-60 NB On Ramp	SSSC	**>50**	**F**	**<1**	26.5	D	0.0

Notes:
Deficient Intersections are shown in Bold.
Impacted Intersections are shaded.

1- Delay for intersections based on application of *2000 Highway Capacity Manual* Methodology. Delay was calculated using Synchro 6.0 software.
Source: Fehr & Peers, 2010

TABLE 17
INTERSECTION LEVELS OF SERVICE – CUMULATIVE WITH PROJECT
MID-DAY PEAK HOUR

Intersection	Control	AM Peak hour		
		Delay[1]	LOS	Δ Delay
Third Street/Chicago Avenue	Signalized	37.7	D	2.4
University Avenue/Iowa Avenue	Signalized	44.6	D	2.8
University Avenue/University Village	Signalized	16.3	B	0.5
University Avenue/I-215 SB Ramps	Signalized	19.7	B	2.4
University Avenue/I-215 NB Ramps	Signalized	23.2	C	3.4

Notes:
1- Delay for intersections based on application of *2000 Highway Capacity Manual* Methodology. Delay was calculated using Synchro 6.0 software.
Source: Fehr & Peers, 2011

INTERSECTION IMPACTS

Intersection impacts are identified using two sets of significance criteria, based on the location of the intersection. For those roadways under the jurisdiction of the City of Riverside, the following significance criteria are employed:

- For an intersection operating at LOS A or LOS B after the addition of project traffic, an increase of more than 10 seconds of intersection delay is considered a significant impact
- For an intersection operating at LOS C, an increase of more than 8 seconds of intersection delay is considered a significant impact
- For an intersection operating at LOS D, an increase of more than 5 seconds of intersection delay is considered a significant impact
- For an intersection operating at LOS E, an increase of more than 2 seconds of intersection delay is considered a significant impact
- For an intersection operating at LOS F, an increase of more than 1 seconds of intersection delay is considered a significant impact

For University intersections, a significant impact occurs when with the addition of project traffic, the intersection operations decline from an acceptable LOS (LOS A through D) to LOS E or F.

Impact #A15- Third Street/Chicago Avenue Intersection

Impact: This intersection operates at LOS F during the AM peak hour and LOS E during the PM peak hour. After the addition of project traffic, the intersection will operate at LOS F during the AM and PM peak hours. The increase in delay is greater than 1 second in each peak hour, which is indicative of a significant impact.

Mitigation: Mitigating this impact requires a reconfiguration of intersection to add a right-turn lane northbound and southbound. There are currently northbound and southbound through/right turn-lanes. This mitigation measure anticipates that these separate right--turn lanes would be constructed and the existing through/right lanes would be converted to through lanes. Our review of field conditions indicates that there is sufficient land available for the addition of these turn lanes. Additionally, the traffic signal would have to be retimed to account for these new travel lanes. With the implementation of this mitigation measure, the AM and PM peak hour level of service would improve from F in both peak hours to E in both.

While this mitigation would be considered physically feasible in that it could be implemented, there is an issue of jurisdictional control in that the City of Riverside currently maintains control over this intersection. Since any physical improvements would require the concurrence of the City and the University cannot guarantee their implementation, we have therefore concluded that the impact would be Significant and Unavoidable. Additionally, the retiming of the intersection would require concurrence of the City and the University cannot guarantee the implementation of any timing changes as well.

Significance after Mitigation: *Significant and Unavoidable*

Impact #A16: Blaine Street/Iowa Avenue Intersection

Impact: With the addition of project traffic, this intersection operates at LOS F during both the AM and PM peak hours. The increase in delay resulting from project traffic is greater than 1 second during both peak hours. This increase is greater than the allowable one; therefore a significant traffic impact occurs.

Mitigation: Mitigating this impact requires adding a second left-turn lane to the northbound approach. Additionally, a Westbound right-turn lane would be required which would allow the existing through/right-turn lane to be operated as a through lane. Our review of field conditions indicates that there is sufficient right-of-way to accommodate these additional lanes. Additionally, the cycle length at the intersection during the PM peak hour would increase from 100 to 130 seconds. With the implementation of this mitigation measure, the LOS would improve to E in the AM peak hour and LOS D during the PM peak hour.

While this mitigation would be considered physically feasible in that it could be implemented, there is an issue of jurisdictional control in that the City of Riverside currently maintains control over this intersection. Since any physical improvements would require the concurrence of the City and the University cannot guarantee their implementation, we have therefore concluded that the impact would be significant and unavoidable.

Significance after Mitigation: *Significant and Unavoidable*

Impact #A17: Linden Street/Iowa Avenue Intersection

Impact: The addition of project traffic causes the intersection to operate at LOS E in the AM peak hour and LOS F in the PM peak hour. The increase in delay is nearly 30 seconds during both peak hours, which is indicative of a significant impact based on City of Riverside significance criteria.

Mitigation: Mitigating this impact would require changing the southbound approach to add a right-turn lane which currently has a through/right-turn lane. With the addition of this right-turn lane, the existing through/right-turn lane would be converted into a through lane. Additionally, the signal timing would have to be optimized to allow for this new lane configuration. From our review of field conditions, it appears that there is sufficient area to accommodate this right-turn lane. With the implementation of this mitigation measure, the LOS would improve to C in the AM peak hour and LOS D in the PM peak hour.

While this mitigation would be considered physically feasible in that it could be implemented, there is an issue of jurisdictional control in that the City of Riverside currently maintains control over this intersection. Since any physical improvements would require the concurrence of the City and the University cannot guarantee their implementation, we have therefore concluded that the impact would be significant and unavoidable.

Significance after Mitigation: *Significant and Unavoidable*

Impact #A18: University Avenue/Kansas Avenue Intersection

Impact: The addition of project traffic increases the delay at this intersection by nearly 8 seconds at an LOS D intersection during the PM peak hour. As the allowable increase is only 5 seconds, a significant traffic impact occurs.

Mitigation: Mitigating this impact would require a retiming of the traffic signal to provide additional green time to better accommodate the additional traffic traveling through this intersection. If this mitigation measure is implemented, then the intersection would operate at LOS D with an increase of less than 5 seconds.

While this mitigation is certainly feasible, there are again issues of jurisdictional control in that any retiming would have to be implemented by the City of Riverside as the City maintains the traffic signal at this location and is responsible for the selection and modification of any timing. Since this improvement would require concurrence of the City and the University cannot guarantee its implementation, we have therefore concluded that the impact would be significant and unavoidable.

Significance after Mitigation: *Significant and Unavoidable*

Impact #A19: University Avenue/Chicago Avenue Intersection

Impact: The addition of project traffic increases the delay at this intersection by more than 2 seconds in the PM peak hour which exceeds the City's allowable threshold of 2 seconds at an LOS E intersection. With this increase in delay, the intersection would operate at LOS F during the PM peak hour with the additional project traffic. Therefore a significant impact occurs at this location.

Mitigation: Mitigating this impact would require a retiming of the traffic signal to provide additional green time to better accommodate the additional traffic traveling through this intersection. If this mitigation measure is implemented, then the intersection would operate at LOS E.

While this mitigation is certainly feasible, there are again issues of jurisdictional control in that any retiming would have to be implemented by the City of Riverside as the City maintains the traffic signal at this location and is responsible for the selection and modification of any timing. Since this improvement would require concurrence of the City and the University cannot guarantee its implementation, we have therefore concluded that the impact would be significant and unavoidable.

Significance after Mitigation: *Significant and Unavoidable*

Impact #A20: University Avenue/Iowa Avenue Intersection

Impact: The addition of project traffic causes an increase in delay of 6.8 and 34 seconds as compared to the No Project conditions in the AM and PM peak hours, respectively. As this intersection operates at LOS D in the AM and LOS E in the PM, the allowable increase is only 5 seconds and 2 seconds, respectively. Therefore, a significant impact occurs resulting from the addition of project traffic.

Mitigation: Even with the reconstruction of this intersection to increase the number of lanes at the southbound approach, where there is potential right-of way, the increase in intersection delay would still be greater than the significance threshold. Therefore, this impact is considered to be significant and unavoidable.

Significance after Mitigation: *Significant and Unavoidable*

Impact #A21: University Avenue/University Village

Impact: The addition of project traffic causes the delay to increase by approximately 53 seconds at an intersection that operates at LOS B prior to the addition of project traffic. As the allowable increase in delay is 10 seconds, a significant impact occurs. This impact occurs in the PM peak hour.

Mitigation: Mitigating this impact is problematic since the increase in delay is relatively high and reducing the impact would require extensive reconstruction of the intersection. Given the location of adjacent buildings, such a comprehensive reconstruction would not appear to be physically feasible. The selection of an appropriate mitigation measure is compounded by the fact this impact occurs at an intersection which is experiencing little overall delay. The impact occurs solely because of the selected significance criteria, which allow impacts to occur

at LOS A or B conditions. Given these considerations, we have concluded that there is no feasible mitigation and this impact is significant and unavoidable.

Significance after Mitigation: *Significant and Unavoidable*

Impact #A22: University Avenue/I-215 Southbound Ramps

Impact: The addition of project traffic causes the delay to increase at this location by nearly 11 seconds in the AM peak hour and 56 seconds in the PM peak hour. As these increases exceed the City's allowable thresholds, a significant traffic impact occurs.

Mitigation: Mitigating this impact is problematic since the increase in delay is relatively high and reducing the impact would require extensive reconstruction of the intersection. Given the current configuration of the intersection, such a comprehensive reconstruction would not appear to be physically feasible. The selection of an appropriate mitigation measure is compounded by the fact this impact occurs at an intersection which is experiencing little overall delay. The impact occurs solely because of the selected significance criteria, which allow impacts to occur at LOS A or B conditions. Given these considerations, we have concluded that there is no feasible mitigation and this impact is significant and unavoidable.

Significance after Mitigation: *Significant and Unavoidable*

Impact #A23: University Avenue/I-215 Northbound Ramps

Impact: The addition of project traffic increases the delay at this location more than 50 seconds during the PM peak hour. Prior to the addition of project traffic, the intersection operates at LOS C. After the addition of project traffic, the intersection operates at LOS F. Since the increase in delay is greater than the 8 seconds allowed by the City of Riverside, a significant impact occurs in the PM peak hour.

Mitigation: Mitigating this impact would require the addition of several lanes at this intersection, to the point where this mitigation measure would no longer be physically feasible. Therefore, we can conclude that the impact is therefore significant and unavoidable.

Significance after Mitigation: *Significant and Unavoidable*

Impact #A24: Parking Lot 1/Campus Drive

Impact: Prior to and after the addition of project traffic, this intersection will operate at LOS E in the AM peak hour and LOS F in the PM peak hour. As this intersection is considered to be within the boundary of the Campus, any increase in traffic at an LOS E or F intersection is considered to be a significant impact.

Mitigation: Mitigating this impact will require the reconfiguration of the eastbound approach to add a lane. Prior to this reconstruction, the eastbound approach currently has a joint use left/through/right-turn lane. After this reconstruction, the intersection would be configured with a joint left-turn/through lane with a separate right-turn lane. Additionally, this intersection would need to be signalized. After the implementation of this mitigation, the intersection would operate at LOS A in the AM peak hour and LOS C in the PM peak hour.

Unlike the other proposed mitigation measures, this mitigation measure is both feasible and can be implemented by the University in that the improvement can be constructed by the University without requiring the concurrence of the City of Riverside or the California Department of Transportation, as with the other mitigation measures. As such, we would consider this impact to be less than significant with its implementation.

Significance after Mitigation: *Less than Significant*

Impact #A25: Martin Luther King, Jr. Boulevard/Chicago Avenue

Impact: The addition of project traffic causes the intersection to operate at LOS F during the AM and PM peak hours. Since the project added traffic increases the intersection delay by more than 1 second, a significant impact occurs.

Mitigation: Mitigating this impact will require the reconstruction of the intersection to add through lanes in the northbound and southbound direction. Additionally, a second westbound left-turn lane would be required. With the implementation of this mitigation measure, the intersection would operate at LOS E during both the AM and PM peak hours.

While this mitigation would be considered physically feasible in that it could be implemented, there is an issue of jurisdictional control in that the City of Riverside currently maintains control over this intersection. Since any physical improvements would require the concurrence of the City and the University cannot guarantee their implementation, we have therefore concluded that the impact would be significant and unavoidable.

Significance after Mitigation: *Significant and Unavoidable*

Impact #A26: Martin Luther King, Jr. Boulevard/Iowa Avenue

Impact: The addition of project traffic causes the delay to increase in the PM peak hour by more than 1 second at an LOS F intersection where the allowable increase is only 5 seconds. Since the increase in delay is greater than the allowable increase, a significant traffic impact occurs in the PM peak hour.

Mitigation: Mitigating this impact will require retiming of the intersection to provide additional time for certain intersection movements. If this improvement was implemented, the LOS would improve to D in the PM peak hour.

While this mitigation is certainly feasible, there are again issues of jurisdictional control in that any retiming would have to be implemented by the City of Riverside as the City maintains the traffic signal at this location and is responsible for the selection and modification of any timing. Since this improvement would require concurrence of the City and the University cannot guarantee its implementation, we have therefore concluded that the impact would be significant and unavoidable.

Significance after Mitigation: *Significant and Unavoidable*

Impact #A27: Martin Luther King, Jr. Boulevard/Lot 30

Impact: The addition of project traffic causes the delay to increase by more than 5 seconds in the AM peak hour and more than 1 second in the PM peak hour. Since the increase is greater than the allowable increase, a significant impact occurs.

Mitigation: Mitigating this impact requires the addition of a through-lane on the eastbound approach. An additional westbound through lane would also be required. Additionally, during the PM peak hour the signal

timings would need to be modified to include a right-turn overlap phase on the southbound approach. With the implementation of this measure, the LOS would improve to C in the AM and PM peak hours.

While this mitigation is certainly feasible, there are again issues of jurisdictional control in that any physical improvements or retiming would have to be implemented by the City of Riverside as the City maintains this intersection. Since this improvement would require concurrence of the City and the University cannot guarantee its implementation, we have therefore concluded that the impact would be significant and unavoidable.

Significance after Mitigation: *Significant and Unavoidable*

Impact #A28: Martin Luther King, Jr. Boulevard/Canyon Crest Drive

Impact: The addition of project traffic causes the delay to increase by more than 1 second in the AM and PM peak hours. Prior to the addition of project traffic, this intersection operates at LOS F during both peak hours. Since the increase in delay is greater than the allowable threshold, a significant traffic impact occurs.

Mitigation: Mitigating this impact requires the addition of through lanes in the northbound and southbound direction and a second eastbound right-turn lane. With the implementation of this measure, the LOS would improve to LOS E in the PM peak hour. The LOS would remain at F for the AM peak hour, though there would be no increase in the delay which removes the impact in the AM peak hour.

While this mitigation is certainly feasible, there are again issues of jurisdictional control in that any physical mitigations would have to be implemented by the City of Riverside as the City maintains this intersection. Since this improvement would require concurrence of the City and the University cannot guarantee its implementation, we have therefore concluded that the impact would be significant and unavoidable.

Significance after Mitigation: *Significant and Unavoidable*

Impact #A29: Central Avenue/Chicago Avenue

Impact: The addition of project traffic causes the delay at this intersection to increase by more than 1 second at an intersection that would operate at LOS F before and after the addition of project traffic in the AM peak hour. Since the allowable increase is only 1 second, a significant impact occurs.

Mitigation: Mitigating this impact would require a major reconstruction of the intersection to include additional improvements such as additional northbound and southbound through lanes, converting eastbound and westbound to operate as a split-phase signal, and retiming the traffic signal to account for these new improvements. With the implementation of this mitigation measure, the intersection would still operate at LOS F but there would be no increase in delay.

Similar to other mitigation measures, there are issues of intersection jurisdiction in which the City of Riverside would have to agree to implement both the additional turn lane and the signal retiming. Since this improvement would require concurrence of the City and the University cannot guarantee its implementation, we have therefore concluded that the impact would be significant and unavoidable.

Significance after Mitigation: *Significant and Unavoidable*

Impact #A30: Central Avenue/Canyon Crest Drive

Impact: The addition of project traffic causes the delay at this intersection to increase by more than 1 second at an intersection that would operate at LOS F before and after the addition of project traffic in the AM Peak hour. Since the allowable increase is only 1 second, a significant impact occurs.

Mitigation: Mitigating this impact would require a major reconstruction of the intersection to include additional improvements such as additional northbound and southbound through lanes, converting eastbound and westbound to operate as a split-phase signal, adding a right-turn overlap for the northbound right-turn lane, and retiming the traffic signal to account for these new improvements. With the implementation of this mitigation measure, the intersection would still operate at LOS F but there would be no increase in delay.

Similar to other mitigation measures, there are issues of intersection jurisdiction in which the City of Riverside would have to agree to implement both the additional turn lane and the signal retiming. Since this improvement would require concurrence of the City and the University cannot guarantee its implementation, we have therefore concluded that the impact would be significant and unavoidable.

Significance after Mitigation: *Significant and Unavoidable*

Impact #A31: Linden Street/Canyon Crest Drive

Impact: The addition of project traffic causes the delay at this intersection to increase by more than 5 seconds at an intersection that would operate at LOS D after the addition of project traffic in the PM peak hour. Since the allowable increase is 5 seconds, a significant impact occurs.

Mitigation: This intersection is currently built out, so there is not ample right-of-way to reconfigure the intersection. While retiming the signal splits would improve delay, it would not reduce the delay to a less-than-significant level. Therefore, this impact is considered significant and unavoidable.

Significance after Mitigation: *Significant and Unavoidable*

Impact #A32: Martin Luther King, Jr. Boulevard/I-215 SB Ramps

Impact: The addition of project traffic causes the delay at this intersection to increase by more than 5 seconds at an intersection that would operate at LOS D after the addition of project traffic in the PM peak hour. Since the allowable increase is 5 seconds, a significant impact occurs.

Mitigation: Mitigating this impact would require a retiming of traffic signals to optimize intersection splits. Additionally, the signal cycle would need to increase from 100 seconds to 140 seconds. With these improvements the intersection would operate at LOS C with the addition of project traffic. Since this improvement would require the concurrence of Caltrans and the University cannot guarantee its implementation, we have concluded that the impact would be significant and unavoidable.

Significance after Mitigation: *Significant and Unavoidable*

ROADWAY SEGMENT ANALYSIS AND PROJECT IMPACTS

Table 18 provides the roadway segment volumes and operations for the Cumulative No Project Scenario. Table 19 documents the roadway segment analysis for the Cumulative with Project Scenario. As shown in the Table below, the segments operate at better than LOS D and no significant impact was identified for this scenario.

TABLE 18
CUMULATIVE NO PROJECT ROADWAY SEGMENT VOLUMES AND OPERATIONS

Roadway	Classification	LOS D Volume	Cumulative Volume	LOS
MLK/14th St				
Canyon Crest Dr to Iowa	110 ft Arterial (4 lanes)	33,000	25,891	D or Better
Iowa Ave to Chicago Ave	110 ft Arterial (4 lanes)	33,000	23,294	D or Better
Chicago Ave				
Martin Luther King Blvd to	110 ft Arterial (4 lanes)	33,000	20,494	D or Better
University Ave to Blaine St	110 ft Arterial (4 lanes)	33,000	19,376	D or Better
University Ave				
I-215 to Iowa Ave	100 ft Arterial (4 lanes)	33,000	23,790	D or Better
Iowa Ave to Chicago Ave	100 ft Arterial (4 lanes)	33,000	23,382	D or Better
Iowa Ave				
Martin Luther King Blvd to	110 ft Arterial (4 lanes)	33,000	13,929	D or Better
University Ave to Blaine St	110 ft Arterial (4 lanes)	33,000	21,772	D or Better

Notes:
1- Delay for intersections based on application of *2000 Highway Capacity Manual* Methodology. Delay was calculated using Synchro 6.0 software.
Source: Fehr & Peers, 2010

TABLE 19
ROADWAY SEGMENT VOLUMES AND OPERATIONS
CUMULATIVE WITH PROJECT

Roadway	Classification	LOS D Volume	Cumulative With Project Volume	LOS	Significant Impact?
MLK/14th St					
Canyon Crest Dr to Iowa	110 ft Arterial (4 lanes)	33,000	31,873	D or Better	No
Iowa Ave to Chicago Ave	110 ft Arterial (4 lanes)	33,000	25,814	D or Better	No
Chicago Ave					
Martin Luther King Blvd to	110 ft Arterial (4 lanes)	33,000	22,780	D or Better	No
University Ave to Blaine St	110 ft Arterial (4 lanes)	33,000	20,974	D or Better	No
University Ave					
I-215 to Iowa Ave	100 ft Arterial (4 lanes)	33,000	29,880	D or Better	No
Iowa Ave to Chicago Ave	100 ft Arterial (4 lanes)	33,000	26,860	D or Better	No
Iowa Ave					
Martin Luther King Blvd to	110 ft Arterial (4 lanes)	33,000	17,191	D or Better	No
University Ave to Blaine St	110 ft Arterial (4 lanes)	33,000	25,434	D or Better	No

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Source: Fehr & Peers, 2010

6. TRANSIT SYSTEM - PROJECT IMPACTS

This chapter discusses impacts related to the transit system. Potential impacts could include disruptions to existing transit service, interference with planned transit facilities, conflicts with adopted transit system plans, guidelines, policies, or standards, and creation of demand for public transit above the available capacity.

DISRUPTIONS TO EXISTING TRANSIT SERVICE

Significance Criteria

The following significance criteria were applied to determine if the project is responsible for a disruption of existing transit services or facilities:

> A significant impact occurs if a project or project-related mitigation disrupts existing transit services or facilities. This includes disruptions caused by proposed project driveways on transit streets and impacts to transit stops/shelters; and impacts to transit operations from traffic improvements proposed or resulting from a project.

Project Impact

As noted in our review of existing transit routes, there are a number of routes which currently run through and around the campus. From our review of the proposed land use changes, we can conclude that none of the proposed land use configurations would significantly disrupt any of the existing transit routes. Therefore, the impact is less than significant.

INTERFERENCE WITH PLANNED TRANSIT SERVICES

Significance Criteria

The following significance criteria were applied:

> A significant impact occurs if a project interferes with planned transit services or facilities.

Project Impact

Based on our review of existing documents, we could find no planned transit facilities that are planned for the project site in the future; therefore the impact is less than significant.

PROJECT CONFLICTS OR CREATES INCONSISTENCIES WITH ADOPTED TRANSIT SYSTEM PLANS, GUIDELINES, POLICIES, OR STANDARDS

Significance Criteria

The following significance criteria regarding consistency with adopted transit plans, guidelines, policies, or standards were applied:

A significant impact occurs if a project conflicts or creates inconsistencies with adopted transit system plans, guidelines, policies, or standards.

Project Impact

Based on our review of the proposed project, we can conclude that the project does not conflict with these policies or other policies related to transit. The impact is therefore less than significant and no mitigation is required.

DEMAND FOR PUBLIC TRANSIT SERVICES ABOVE CAPACITY

Significance Criteria

The following significance criteria were applied:

A significant impact occurs if the project creates demand for public transit service above the capacity which is provided, or planned.

Project Impact

There is extensive transit service provided to the University that includes 11 RTA routes. Given this extensive service which is provided to the University currently, it is anticipated that there will be sufficient transit service to accommodate the proposed growth at the University.

In addition to the existing transit service, additional transit service is being proposed in conjunction with the School of Medicine including:

- Adjusting current bus schedules and routes to account for the School of Medicine
- Extending the current UPASS system to include medical students, faculty, and staff

Based on these considerations, no significant impact is anticipated to occur.

7. BICYCLE NETWORK - PROJECT IMPACTS

This chapter reviews project related impacts on the bicycle network in the study area. Potential impacts include disruptions on existing facilities, interference with planned facilities, and conflicts with adopted plans, guidelines, policies, or standards relating to bicycles.

DISRUPTIONS TO EXISTING FACILITIES

Significance Criteria

The following significance criteria were applied:

> A significant impact occurs if a project disrupts existing bicycle facilities.

Project Impact

As noted in our review of existing facilities, there are several bicycle routes within the study area. It is anticipated that the project would not affect the operation of any of these existing facilities. Therefore, no significant impact would occur.

PROJECT INTERFERES WITH PLANNED BICYCLE FACILITIES

Significance Criteria

The following significance criteria were applied to determine if the project conflicts with planned facilities:

> A significant impact occurs if a project interferes with planned bicycle facilities. This includes failure to dedicate right-of-way for planned on- and off-street bicycle facilities included in an adopted Bicycle Master Plan or to contribute towards construction of planned bicycle facilities along the project frontage.

Project Impact

Based on our review of available documents, there appear to be no planned bicycle facilities along the School of Medicine frontage; therefore the impact is less than significant.

PROJECT CONFLICTS WITH ADOPTED BICYCLE SYSTEM PLANS, GUIDELINES, POLICIES, OR STANDARDS

Significance Criteria

> A significant impact occurs if the project conflicts or creates inconsistencies with adopted bicycle system, plans, guidelines, policies, or standards.

Project Impact

The City of Riverside General Plan contains several policy statements related to bicycles including:

Policy CCM-10.2: Incorporate bicycle and pedestrian trails and bicycle racks in future development projects

Policy CCM-10.5: Promote the health benefits of using a bicycle or walking as a means of transportation

Policy CCM-10.12: Encourage bicycling as a commute mode to school, work, etc.

The proposed project incorporates numerous measures which are consistent with the policies outlined above. For example, the Gage Canal Mall concept would include both extensive bicycle and pedestrian facilities. The School of Medicine is proposed to include bicycle racks, lockers, and showers for bicycle commuters. Therefore, we would conclude that there is no conflict with these policy statements. Therefore, no significant impact occurs.

8. PEDESTRIAN NETWORK - PROJECT IMPACTS

This chapter reviews project related impacts on the pedestrian network in the study area. Potential impacts include disruptions on existing facilities, interference with planned facilities, and conflicts with adopted plans, guidelines, policies, or standards relating to pedestrians.

DISRUPTIONS TO EXISTING FACILITIES

Significance Criteria

The following significance criteria were applied:

> A significant impact occurs if a project disrupts existing pedestrian facilities. This can include adding new vehicular, pedestrian, or bicycle traffic at locations experiencing pedestrian safety concerns such as an adjacent crosswalk or school, particularly if the added traffic reduces the number of pedestrian acceptable gaps at an unsignalized crossing or causes queues to spillback through pedestrian crossings.

Project Impact

Our review of the project as descried indicates that there are no conflicts with existing pedestrian facilities. Therefore, no significant impact occurs.

PROJECT INTERFERES WITH PLANNED PEDESTRIAN FACILITIES

Significance Criteria

The following significance criteria were applied to determine if the project conflicts with planned facilities:

> A significant impact occurs if a project interferes with pedestrian facilities. In existing or planned urbanized areas, main streets or pedestrian districts, this can include impacts to the quality of the walking environment.

Project Impact

We could find no conflicts with any planned pedestrian facilities that would be affected by the project. Therefore no significant impact occurs.

PROJECT CONFLICTS WITH ADOPTED PEDESTRIAN SYSTEM PLANS, GUIDELINES, POLICIES, OR STANDARDS

Significance Criteria

A significant impact occurs if a project conflicts or creates inconsistencies with adopted pedestrian system plans, guidelines, policies, or standards.

Project Impact

Similar to bicycling, the City of Riverside General Plan contains several references to pedestrians in the policy statements including:

> Policy CCM-10.2: Incorporate bicycle and pedestrian trails and bicycle racks in future development projects
>
> Policy CCM-10.5: Promote the health benefits of using a bicycle or walking as a means of transportation
>
> Policy CCM-10.6: Encourage pedestrian travel through the creation of sidewalks and street crossings

The project is entirely consistent with these policy statements through the implementation of concepts such as the previously described Gage Canal Mall which would contain pedestrian walkways in addition to any bicycle facilities. The project also restricts vehicular traffic within several areas of the Campus east of Iowa Avenue to promote pedestrian travel. Therefore, we can conclude that the project impact related to this item is less than significant.

9. PROJECT SITE PLAN REVIEW

This chapter reviews the project site plan for and considers on-site circulation and access, on-site parking for vehicles and bicycles, pedestrian connections within the site and to adjacent locations, and access management standards. In many cases, these issues have been evaluated at a Programmatic level as detailed site plans for new facilities, such as the School of Medicine, are not currently available.

PROJECT ON-SITE CIRCULATION AND ACCESS

Significance Criteria

A significant impact occurs if the project designs for on-site circulation, access, and parking areas fail to meet industry standard design guidelines.

Project Impact

This review of on-site circulation and access considers the following items:

1. Are all areas of the site accessible from each other?
2. Is there adequate access for emergency vehicles?

Intra-Site Accessibility

Currently, the University has a high-level of internal accessibility. There are numerous public roadways which traverse the campus including University Avenue, Martin Luther King, Jr. Boulevard, Campus Drive, and other roadways. These public roadways are complemented by a series of internal roadways that are accessible by bicyclists, pedestrians, service vehicles, and emergency vehicles. We would consider the University to have sufficient internal accessibility.

Emergency Vehicle Access

The issue of emergency vehicle access considers both the regional accessibility to the site and access within the site itself. From a regional perspective, the accessibility for emergency vehicles is more than adequate. Emergency vehicles can access the campus via roadways such as I-215 and University Avenue from each of the cardinal directions. Once emergency vehicles have traveled to the site, the internal roadway network allows these vehicles to reach their designated locations. We would therefore consider the University to have sufficient emergency vehicle access.

Based on the considerations above, we would consider that the designs for on-site circulation, access, and parking are sufficient and the impact is less than significant.

ON-SITE AND OFF-SITE PEDESTRIAN CONNECTIONS

Significance Criteria

A significant impact occurs if project fails to provide accessible and safe pedestrian connections between buildings and to adjacent streets and transit facilities.

Project Impact

As we noted in our review of pedestrian impacts, the project would improve pedestrian accessibility within the Campus through the development of the Gage Canal area, which would provide pedestrian walkways. The School of Medicine site would also be accessible to pedestrians through the northwest and southwest Pedestrian Malls near Iowa Avenue. We would therefore consider that the impact is less than significant.

10. FREEWAY IMPACT ANALYSIS

APPROACH

The Riverside County Transportation Commission oversees the Riverside County Congestion Management Program (CMP). According to the March 2010 CMP document, the CMP roadway system includes all State highways and a limited number of principal arterials. Within the study area, the following CMP roadways are anticipated to carry some level of project traffic:

- I-215
- State Route 60
- State Route 91

The EIR for the previous LRDP updated competed in 2005, analyzed these same CMP roadways and included the following roadway segments:

- I-215 from State Route 91 to State Route 60 (14 segments)
- State Route 60 (2 segments)
- State Route 91 (2 segments)

EXISTING FREEWAY ANALYSIS

Existing freeway volumes are reported below in Table 20.

TABLE 20
EXISTING
FREEWAY ANALYSIS

Freeway Segment	Peak hour	Existing		
		Volume	LOS	V/C
I-215 NB, s/o 60	AM	7066	D	0.79
	PM	6636	C	0.74
I-215 SB, s/o 60	AM	5894	D	0.79
	PM	5921	D	0.79
I-215 NB, b/w 60 and Central	AM	7455	E	0.99
	PM	6625	D	0.88

	AM	3602	A	0.30
I-215 SB, b/w 60 and Central	PM	7212	C	0.60
	AM	8356	D	0.93
I-215 NB, b/w Central and MLK	PM	6949	D	0.77
	AM	4702	B	0.49
I-215 SB, b/w Central and MLK	PM	8403	D	0.88
	AM	7132	E	0.95
I-215 NB, b/w MLK and University	PM	5919	D	0.79
	AM	5779	C	0.61
I-215 SB, b/w MLK and University	**PM**	**10667**	**F(0)**	**1.12**
	AM	7874	D	0.87
I-215 NB, b/w University and 3rd	PM	6133	C	0.68
	AM	4063	C	0.54
I-215 SB, b/w University and 3rd	PM	6020	D	0.80
	AM	7980	C	0.73
I-215 NB, b/w 3rd and Spruce	PM	5794	B	0.53
	AM	4633	C	0.62
I-215 SB, b/w 3rd and Spruce	PM	6386	D	0.85
	AM	6008	C	0.75
I-215 NB, n/o 91/60	PM	5073	C	0.63
	AM	5598	C	0.70
I-215 SB, n/o 91/60	PM	5235	C	0.65
	AM	4633	C	0.62
60 EB, e/o 215	PM	6586	D	0.88
60 WB, e/o 215	AM	7384	C	0.67

	PM	6541	C	0.59
	AM	5598	C	0.75
60 EB, w/o 91/215	PM	5235	C	0.70
	AM	6008	C	0.75
60 WB, w/o 91/215	PM	5073	C	0.63
	AM	5186	C	0.69
91 EB, w/o 215/60	PM	4229	C	0.56
	AM	6683	C	0.70
91 WB, w/o 215/60	PM	6210	C	0.65

Deficient Intersections are shown in Bold.

Source: Fehr & Peers, 2011

One segment, I-215 Southbound between MLK and University, currently operates unsatisfactorily at LOS F during the PM Peak hour.

EXISTING PLUS PROJECT ANALYSIS

We also evaluated freeway segment operations for the Existing plus Project Scenario. The freeway volumes for the Existing plus Project Scenario were developed by assigning project trips to each of the freeway segments based on the trip distribution and trip assignment previously identified. These project volumes were then added to the Existing Volumes documented previously.

Impact #B1: Existing plus Project Freeway Impacts

As indicated in Table 21, three deficient segments operate at LOS F after the addition of project trips:

- I-215 Northbound, between SR-60 and Central Avenue (AM)
- I-215 Northbound, between Martin Luther King, Jr. Boulevard and University Avenue (AM)
- I-215 Southbound, between Martin Luther King, Jr. Boulevard and University Avenue (PM)

TABLE 21
EXISTING AND EXISTING PLUS PROJECT
FREEWAY ANALYSIS

Freeway Segment	Peak hour	Existing			Existing Plus Project			
		Volume	LOS	V/C	Volume	LOS	V/C	ΔV/C
I-215 NB, s/o 60	AM	7066	D	0.79	7,635	D	0.85	0.06
	PM	6636	C	0.74	7,206	D	0.80	0.06
I-215 SB, s/o 60	AM	5894	D	0.79	6,225	D	0.83	0.05
	PM	5921	D	0.79	6,817	D	0.91	0.12
I-215 NB, b/w 60 and Central	AM	7455	E	0.99	**8,024**	**F(0)**	**1.07**	**0.08**
	PM	6625	D	0.88	7,195	E	0.96	.08
I-215 SB, b/w 60 and Central	AM	3602	A	0.30	3,933	A	0.33	0.03
	PM	7212	C	0.60	8,108	C	.68	0.07
I-215 NB, b/w Central and MLK	AM	8356	D	0.93	8,925	E	0.99	0.06
	PM	6949	D	0.77	7,519	D	0.83	0.06
I-215 SB, b/w Central and MLK	AM	4702	B	0.49	5,033	B	0.53	0.04
	PM	8403	D	0.88	9,299	E	0.98	0.09
I-215 NB, b/w MLK and University	AM	7132	E	0.95	**7,698**	**F(0)**	**1.02**	**0.07**
	PM	5919	D	0.79	6,411	D	0.85	0.07
I-215 SB, b/w MLK and University	AM	5779	C	0.61	6,073	C	0.64	0.03
	PM	**10667**	**F(0)**	**1.12**	**11,452**	**F(0)**	**1.20**	**0.08**
I-215 NB, b/w University and 3rd	AM	7874	D	0.87	7,977	D	0.89	0.01
	PM	6133	C	0.68	6,671	C	0.74	0.06
I-215 SB, b/w University and 3rd	AM	4063	C	0.54	4,214	C	0.56	0.02
	PM	6020	D	0.80	6,284	D	0.84	0.04
I-215 NB, b/w 3rd and Spruce	AM	7980	C	0.73	8,097	C	0.74	0.01

	PM	5794	B	0.53	6,386	C	0.58	0.05
	AM	4633	C	0.62	4,769	C	0.64	0.02
I-215 SB, b/w 3rd and Spruce	PM	6386	D	0.85	6,473	D	0.86	0.01
	AM	6008	C	0.75	6,092	C	0.76	0.01
I-215 NB, n/o 91/60	PM	5073	C	0.63	5,471	C	0.68	0.05
	AM	5598	C	0.70	5,734	C	0.72	0.02
I-215 SB, n/o 91/60	PM	5235	C	0.65	5,322	C	0.66	0.01
	AM	4633	C	0.62	4,666	C	0.62	0.00
60 EB, e/o 215	PM	6586	D	0.88	6,781	D	0.90	0.03
	AM	7384	C	0.67	7,384	C	0.67	0.00
60 WB, e/o 215	PM	6541	C	0.59	6,541	C	0.59	0.00
	AM	5598	C	0.75	5,631	C	0.75	0.00
60 EB, w/o 91/215	PM	5235	C	0.70	5,430	C	0.72	0.03
	AM	6008	C	0.75	6,008	C	0.75	0.00
60 WB, w/o 91/215	PM	5073	C	0.63	5,073	C	0.63	0.00
	AM	5186	C	0.69	5,219	C	0.70	0.00
91 EB, w/o 215/60	PM	4229	C	0.56	4,424	C	0.59	0.03
	AM	6683	C	0.70	6,683	C	0.70	0.00
91 WB, w/o 215/60	PM	6210	C	0.65	6,210	C	0.65	0.00

Deficient segments are shown in Bold.
Impacted segments are shaded.

Source: Fehr & Peers, 2011

CUMULATIVE AND CUMULATIVE WITH PROJECT FREEWAY ANALYSIS

For each of these segments, future traffic volumes were defined as follows:

- We identified the existing freeway traffic volumes, based on the latest data available from Caltrans.
- We increased the freeway volumes through the application of a growth factor to represent ambient or background growth between 2010 and 2020. The application of this growth factor yielded the Cumulative No Project volumes.
- The project trips were assigned to each of the freeway segments based on the trip distribution and trip assignment previously discussed for the Cumulative with Project Scenario.

The freeway volumes, LOS, and V/C ratio for the various segments are presented below for the Cumulative plus Project Scenarios. As noted in the table, the following freeway segments operate at LOS F during either the AM or PM Peak hour in the Cumulative plus Project Scenario:

- I-215 Southbound south of SR-60 (PM)
- I-215 Northbound between SR-60 and Central Avenue (AM and PM)
- I-215 Northbound between Central Avenue and Martin Luther King, Jr. Boulevard (AM)
- I-215 Southbound between Central Avenue and Martin Luther King, Jr. Boulevard (PM)
- I-215 Northbound between Martin Luther King, Jr. Boulevard and University Avenue (AM)
- I-215 Southbound between Martin Luther King, Jr. Boulevard and University Avenue (PM)
- I-215 Northbound between University Avenue and Third Street (AM)
- SR-60 Eastbound east of I-215 (PM)

TABLE 22
FREEWAY ANALYSIS

Freeway Segment	Peak hour	Cumulative No Project			Cumulative + Project			
		Volume	LOS	V/C	Volume	LOS	V/C	ΔV/C
I-215 NB, s/o 60	AM	8200	D	0.91	8769	E	0.98	0.06
	PM	7701	D	0.86	8271	D	0.91	0.05
I-215 SB, s/o 60	AM	6840	D	0.91	7171	E	0.94	0.03
	PM	6871	D	0.92	**7767**	**F(0)**	**1.02**	**0.10**
I-215 NB, b/w 60 and Central	AM	8652	F(0)	1.15	**9221**	**F(0)**	**1.23**	**0.08**
	PM	7688	F(0)	1.03	**8258**	**F(0)**	**1.09**	**0.06**
I-215 SB, b/w 60 and Central	AM	4180	A	0.35	4511	B	0.36	0.02
	PM	8370	C	0.70	9266	C	0.76	0.06

	AM	9697	F(0)	1.08	**10266**	**F(0)**	**1.14**	**0.06**
I-215 NB, b/w Central and MLK	PM	8064	D	0.90	8634	E	0.95	0.05
	AM	5457	C	0.57	5788	C	0.59	0.02
I-215 SB, b/w Central and MLK	PM	9752	F(0)	1.03	**10666**	**F(0)**	**1.10**	**0.08**
	AM	8277	F(0)	1.10	**8843**	**F(0)**	**1.17**	**0.06**
I-215 NB, b/w MLK and University	PM	6869	D	0.92	7361	E	0.97	0.05
	AM	6707	C	0.71	7001	C	0.73	0.02
I-215 SB, b/w MLK and University	PM	12379	F(1)	1.30	**13164**	**F(2)**	**1.37**	**0.07**
	AM	9138	F(0)	1.02	**9241**	**F(0)**	**1.02**	**0.01**
I-215 NB, b/w University and 3rd	PM	7117	D	0.79	7655	D	0.84	0.05
	AM	4715	C	0.63	4866	C	0.64	0.01
I-215 SB, b/w University and 3rd	PM	6986	E	0.93	7250	E	0.97	0.04
	AM	9261	D	0.84	9378	D	0.85	0.01
I-215 NB, b/w 3rd and Spruce	PM	6724	C	0.61	7316	C	0.65	0.04
	AM	5377	C	0.72	5513	C	0.72	0.00
I-215 SB, b/w 3rd and Spruce	PM	7411	E	0.99	7498	E	1.00	0.01
	AM	6972	D	0.87	7056	D	0.88	0.01
I-215 NB, n/o 91/60	PM	5887	C	0.74	6285	C	0.76	0.03
	AM	6496	D	0.81	6632	D	0.81	0.00
I-215 SB, n/o 91/60	PM	6075	C	0.76	6162	C	0.76	0.00
	AM	5377	C	0.72	5410	C	0.72	0.01
60 EB, e/o 215	PM	7643	F(0)	1.02	**7838**	**F(0)**	**1.05**	**0.03**
	AM	8569	D	0.78	8569	D	0.78	0.00
60 WB, e/o 215	PM	7591	C	0.69	7591	C	0.69	0.00
	AM	6496	D	0.87	6529	D	0.87	0.01
60 EB, w/o 91/215	PM	6075	D	0.81	6270	D	0.84	0.03
60 WB, w/o 91/215	AM	6972	D	0.87	6972	D	0.87	0.00

	PM	5887	C	0.74	5887	C	0.74	0.00
	AM	6018	D	0.80	6051	D	0.81	0.00
91 EB, w/o 215/60	PM	4908	C	0.65	5103	C	0.68	0.03
	AM	7756	D	0.82	7756	D	0.82	0.00
91 WB, w/o 215/60	PM	7207	C	0.76	7207	C	0.76	0.00

Deficient segments are shown in Bold.
Impacted segments are shaded.

Source: Fehr & Peers, 2011

IMPACT ANALYSIS - FREEWAY SEGMENTS

Significance Criteria

The latest CMP document defines an acceptable LOS threshold for CMP facilities as LOS E (Page ES-3 of the 2010 CMP). For purposes of this analysis, an impact to a freeway segment occurs if either:

- The LOS on a freeway segment decreases from LOS E to LOS F
- The V/C ratio increases by 0.01 or more on a freeway segment that operates at LOS F prior to the addition of project traffic

Impact: Based on the application of these criteria, significant impacts were identified at the following locations under the Existing Plus Project Scenario:

- I-215 Northbound between SR-60 and Central Avenue (AM and PM)
- I-215 Northbound between Martin Luther King, Jr. Boulevard and University Avenue (AM)
- I-215 Southbound between Martin Luther King, Jr. Boulevard and University Avenue (PM)

The following segments were noted as being significantly impacting under the Cumulative Plus Project Scenario:

- I-215 Southbound south of SR-60 (PM)
- I-215 Northbound between SR-60 and Central Avenue (AM and PM)
- I-215 Northbound between Central Avenue and Martin Luther King, Jr. Boulevard (AM)
- I-215 Southbound between Central Avenue and Martin Luther King, Jr. Boulevard (PM)
- I-215 Northbound between Martin Luther King, Jr. Boulevard and University Avenue (AM)
- I-215 Southbound between Martin Luther King, Jr. Boulevard and University Avenue (PM)
- I-215 Northbound between University Avenue and Third Street (AM)
- SR-60 Eastbound east of I-215 (PM)

Mitigation: We have identified no feasible mitigation measures for the freeway segments impacted by the project. This consideration is based on the following conclusions:

- In many instances, the freeway segments identified above are currently "built-out" and there are no plans to widen or improve these freeway segments. For example, we were unable to find any programmed or funded improvements to widen I-215 beyond its current configuration, where a majority of these impacts were identified.
- There have been recent improvements to I-215, SR-60, and SR-91, particularly at the interchange where the three freeways converge, which further preclude additional improvements beyond what was previously built.
- Those freeways where future improvements are being considered and planned, such as portions of the SR-91 through downtown Riverside, are outside of the study area.
- The cost and scale of freeway expansion is beyond the capacity of any single project to fund and complete on its own.

***Significance after Mitigation**:* The impacts are significant and unavoidable.

APPENDIX A - EXISTING TRAFFIC COUNTS

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

N-S STREET: Aberdeen Dr DATE: 10/13/2010 LOCATION: City of Riverside

E-W STREET: Linden St DAY: WEDNESDAY PROJECT# 10-6098-012

	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
LANES:	0	1	0	0	0	0	0	1	0	0	1	0	
7:00 AM	13		2					11	21	5	13		65
7:15 AM	12		6					14	13	11	8		64
7:30 AM	16		6					19	31	6	6		84
7:45 AM	21		5					23	63	12	13		137
8:00 AM	29		6					19	39	10	17		120
8:15 AM	17		3					20	44	10	21		115
8:30 AM	14		5					27	47	12	17		122
8:45 AM	30		8					9	53	10	11		121
TOTAL VOLUMES =	152	0	41	0	0	0	0	142	311	76	106	0	828
PEAK VOLUMES =	81	0	19	0	0	0	0	89	193	44	68	0	494
PEAK HR. FACTOR:		0.714			0.000			0.820			0.903		0.901

AM Peak Hr Begins at: 745 AM

CONTROL: 3-Way Stop (NB/EB/WB)

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

N-S STREET: Aberdeen Dr DATE: 10/13/2010 LOCATION: City of Riverside

E-W STREET: Linden St DAY: WEDNESDAY PROJECT# 10-6098-012

	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
LANES:	0	1	0	0	0	0	0	1	0	0	1	0	
4:00 PM	70		9					18	34	5	23		159
4:15 PM	66		9					19	47	6	19		166
4:30 PM	60		3					19	62	13	35		192
4:45 PM	44		4					19	50	7	22		146
5:00 PM	70		3					20	55	6	27		181
5:15 PM	64		6					19	55	5	17		166
5:30 PM	62		12					22	38	8	20		162
5:45 PM	51		3					23	59	9	23		168
TOTAL VOLUMES =	487	0	49	0	0	0	0	159	400	59	186	0	1340

PM Peak Hr Begins at: 430 PM

PEAK VOLUMES =	238	0	16	0	0	0	0	77	222	31	101	0	685
PEAK HR. FACTOR:		0.870			0.000			0.923			0.688		0.892

CONTROL: 3-Way Stop (NB/EB/WB)

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

N-S STREET: Aberdeen Dr DATE: 10/13/2010 LOCATION: City of Riverside

E-W STREET: Linden St DAY: WEDNESDAY PROJECT# 10-6098-012

	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
LANES:	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
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TOTAL VOLUMES =	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
	0	0	0	0	0	0	0	0	0	0	0	0	0

NOON Peak Hr Begins at: 0 AM

PEAK VOLUMES =	0	0	0	0	0	0	0	0	0	0	0	0	0
PEAK HR. FACTOR:		0.000			0.000			0.000			0.000		0.000

CONTROL:

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

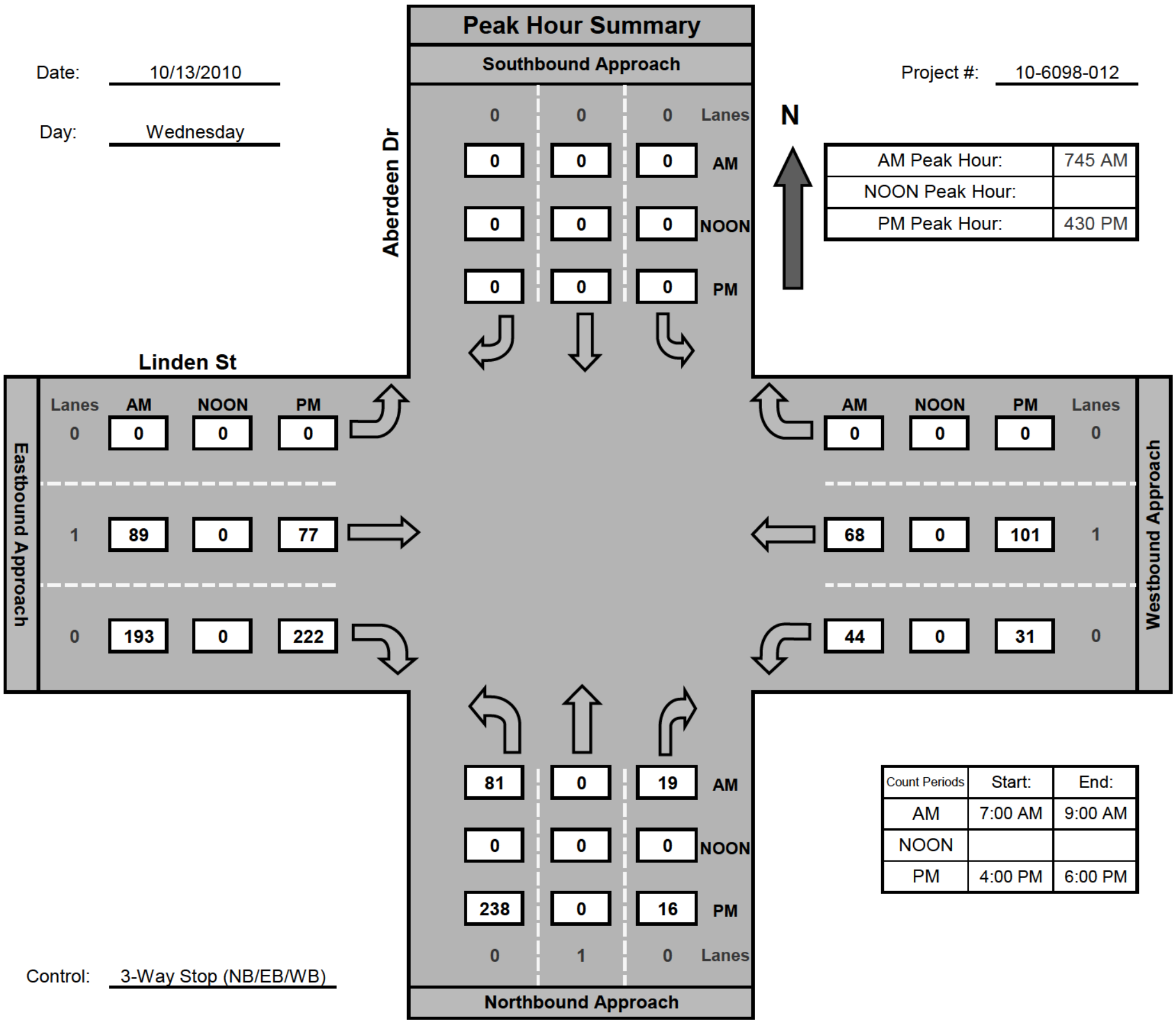
Aberdeen Dr and Linden St , City of Riverside

Date: 10/13/2010

Day: Wednesday

Project #: 10-6098-012

Control: 3-Way Stop (NB/EB/WB)



AM Peak Hour:	745 AM
NOON Peak Hour:	
PM Peak Hour:	430 PM

Count Periods	Start:	End:
AM	7:00 AM	9:00 AM
NOON		
PM	4:00 PM	6:00 PM

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

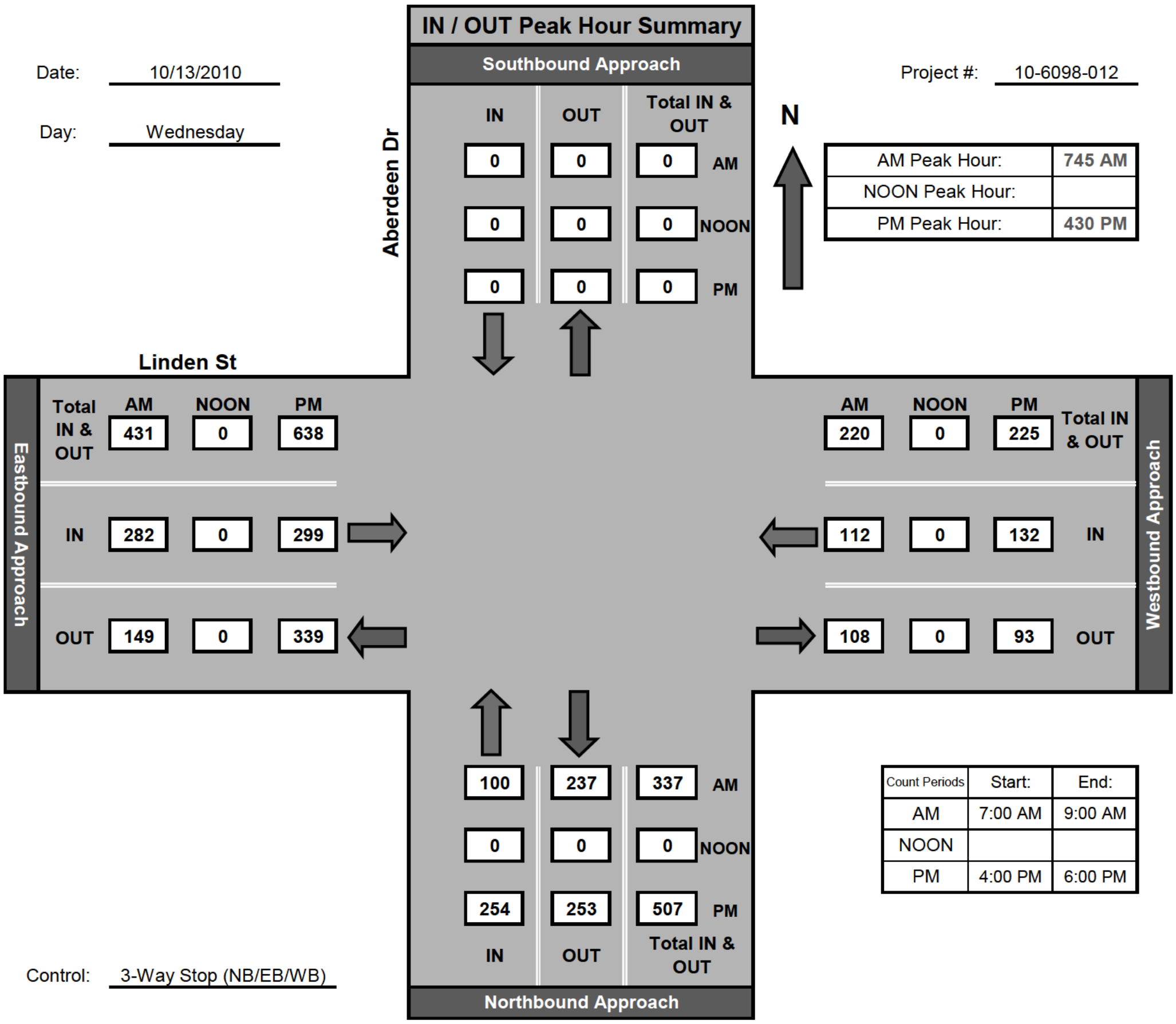
Aberdeen Dr and Linden St , City of Riverside

Date: 10/13/2010

Day: Wednesday

Project #: 10-6098-012

Control: 3-Way Stop (NB/EB/WB)



AM Peak Hour:	745 AM
NOON Peak Hour:	
PM Peak Hour:	430 PM

Count Periods	Start:	End:
AM	7:00 AM	9:00 AM
NOON		
PM	4:00 PM	6:00 PM

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

N-S STREET: Canyon Crest Dr DATE: 10/13/2010 LOCATION: City of Riverside

E-W STREET: Central Ave DAY: WEDNESDAY PROJECT# 10-6098-006

	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
LANES:	1	2	1	2	2	0	1	2	0	1	2	1	
7:00 AM	24	170	27	18	30	2	3	58	10	13	117	41	513
7:15 AM	39	232	35	11	35	5	1	75	15	19	146	58	671
7:30 AM	42	267	36	25	46	5	4	75	12	23	173	55	763
7:45 AM	45	285	46	25	40	6	6	64	16	23	146	76	778
8:00 AM	36	217	42	26	56	3	10	96	23	18	153	52	732
8:15 AM	35	192	33	28	41	15	8	65	15	22	126	53	633
8:30 AM	38	227	36	27	42	12	12	71	19	16	114	57	671
8:45 AM	32	177	22	17	22	10	7	75	9	17	86	64	538
TOTAL VOLUMES =	NL 291	NT 1767	NR 277	SL 177	ST 312	SR 58	EL 51	ET 579	ER 119	WL 151	WT 1061	WR 456	TOTAL 5299

AM Peak Hr Begins at: 715 AM

PEAK VOLUMES =	162	1001	159	87	177	19	21	310	66	83	618	241	2944
PEAK HR. FACTOR:		0.879			0.832			0.769			0.938		0.946

CONTROL: Signalized

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

N-S STREET: Canyon Crest Dr DATE: 10/13/2010 LOCATION: City of Riverside

E-W STREET: Central Ave DAY: WEDNESDAY PROJECT# 10-6098-006

	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
LANES:	1	2	1	2	2	0	1	2	0	1	2	1	
4:00 PM	34	56	18	62	120	15	6	124	34	22	75	17	583
4:15 PM	21	52	30	73	147	13	11	179	37	32	96	28	719
4:30 PM	29	81	31	53	132	16	8	157	39	37	99	29	711
4:45 PM	26	87	18	66	151	12	13	172	50	35	115	39	784
5:00 PM	32	90	27	77	175	18	7	156	40	30	113	35	800
5:15 PM	29	74	36	88	174	14	4	219	64	30	133	28	893
5:30 PM	29	65	32	111	161	19	12	187	49	36	107	33	841
5:45 PM	18	92	28	59	178	15	18	194	62	26	105	25	820
TOTAL VOLUMES =	NL 218	NT 597	NR 220	SL 589	ST 1238	SR 122	EL 79	ET 1388	ER 375	WL 248	WT 843	WR 234	TOTAL 6151

PM Peak Hr Begins at: 500 PM

PEAK VOLUMES =	108	321	123	335	688	66	41	756	215	122	458	121	3354
PEAK HR. FACTOR:		0.926			0.936			0.882			0.918		0.939

CONTROL: Signalized

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

N-S STREET: Canyon Crest Dr DATE: 10/13/2010 LOCATION: City of Riverside

E-W STREET: Central Ave DAY: WEDNESDAY PROJECT# 10-6098-006

	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
LANES:	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
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TOTAL VOLUMES =	0	0	0	0	0	0	0	0	0	0	0	0	0

NOON Peak Hr Begins at: 0 AM

PEAK VOLUMES =	0	0	0	0	0	0	0	0	0	0	0	0	0
PEAK HR. FACTOR:		0.000			0.000			0.000			0.000		0.000

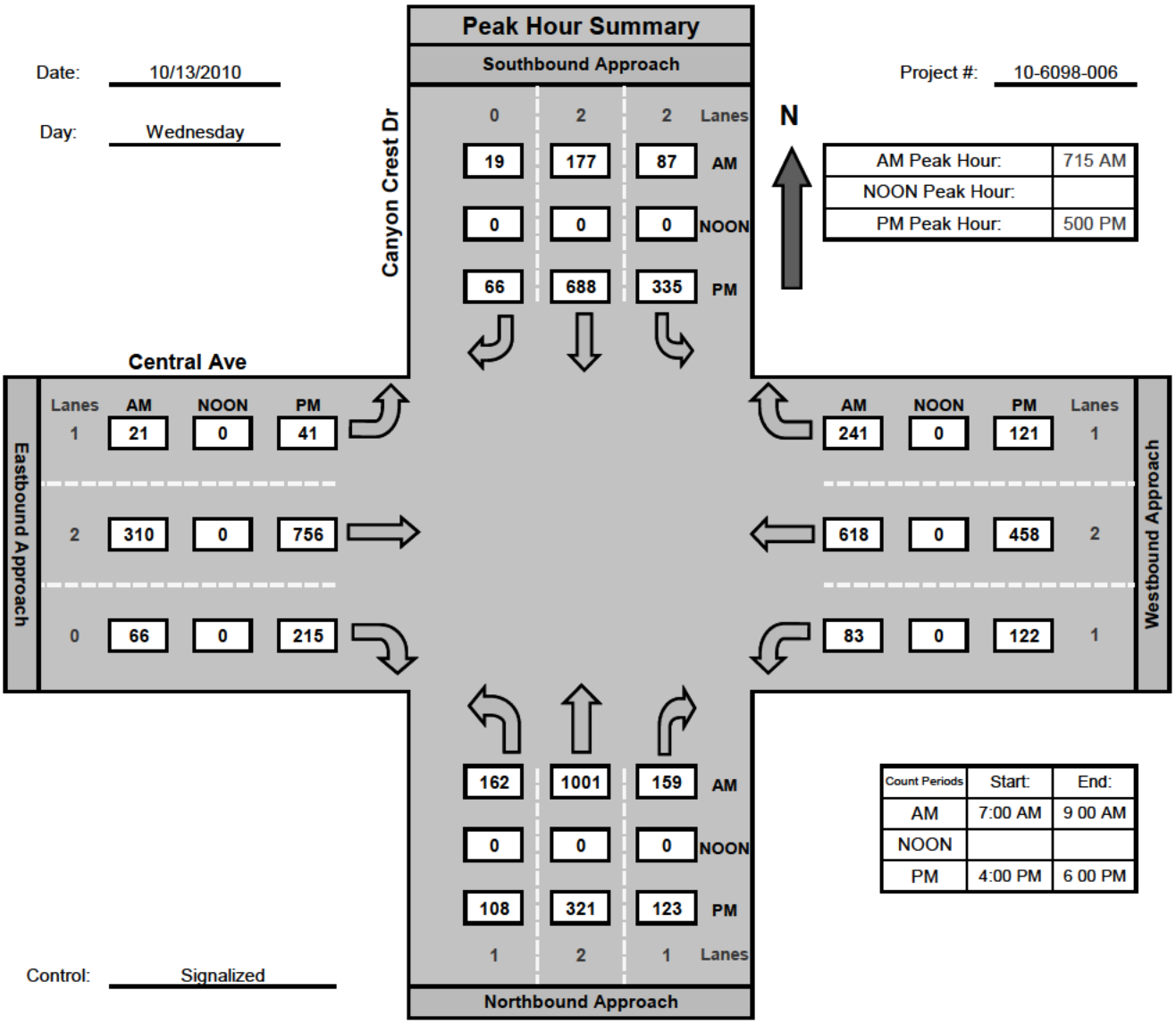
CONTROL:

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

Canyon Crest Dr and Central Ave , City of Riverside



Date: 10/13/2010

Day: Wednesday

Project #: 10-6098-006

AM Peak Hour:	715 AM
NOON Peak Hour:	
PM Peak Hour:	500 PM

Count Periods	Start:	End:
AM	7:00 AM	9 00 AM
NOON		
PM	4:00 PM	6 00 PM

Control: Signalized

Intersection Turning Movement

Prepared by:

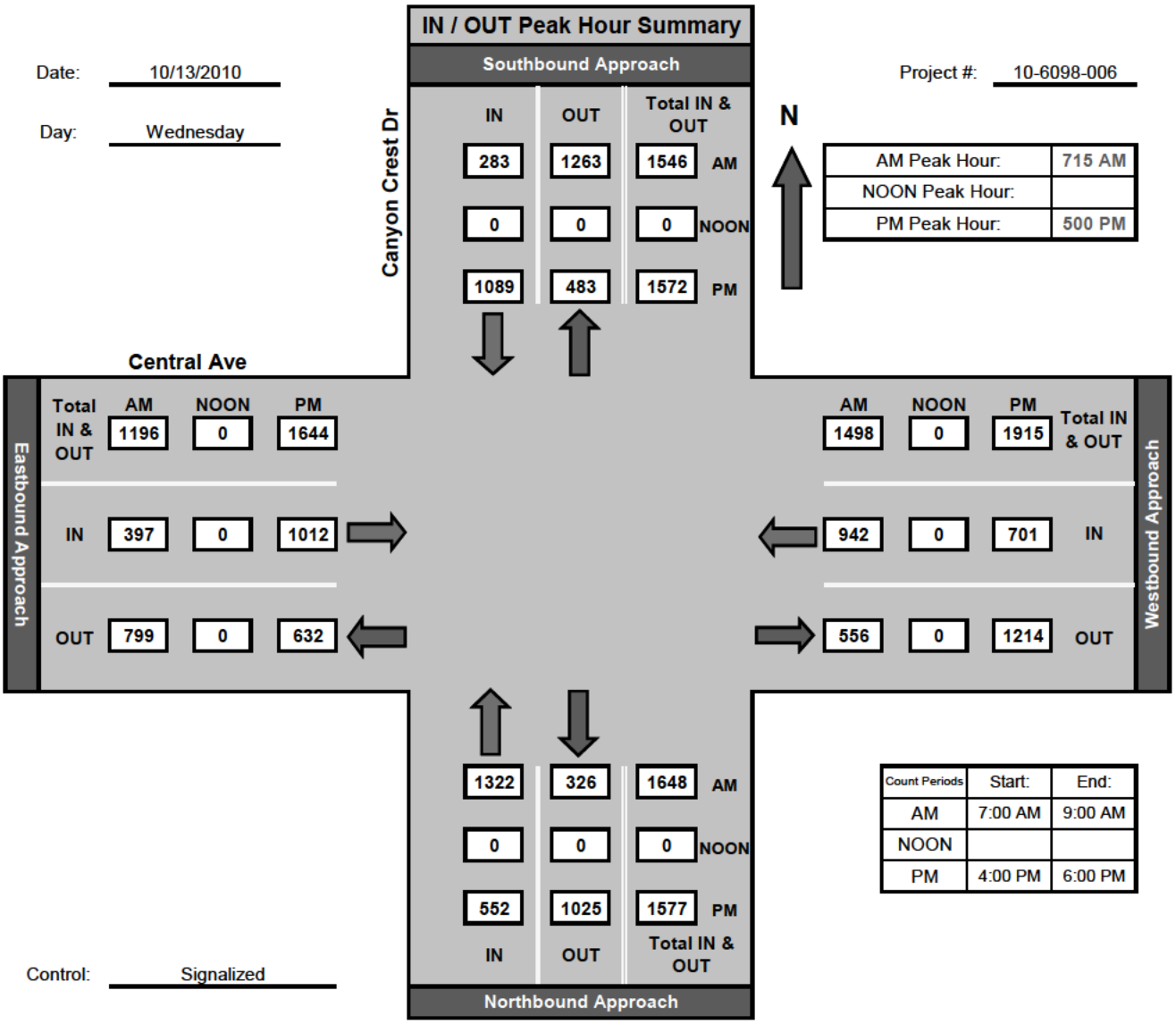
National Data & Surveying Services

Canyon Crest Dr and Central Ave , City of Riverside

Date: 10/13/2010

Day: Wednesday

Project #: 10-6098-006



Count Periods	Start:	End:
AM	7:00 AM	9:00 AM
NOON		
PM	4:00 PM	6:00 PM

Control: Signalized

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

N-S STREET: Campus Dr DATE: 10/13/2010 LOCATION: City of Riverside

E-W STREET: Parking Lot 1 DAY: WEDNESDAY PROJECT# 10-6098-014

	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
LANES:	0	1	0	1	1	0	0	1	0	0	0	0	
7:00 AM	4	31			29	5	0		1				70
7:15 AM	5	36			38	5	1		0				85
7:30 AM	7	40			50	3	1		1				102
7:45 AM	22	61			86	6	4		0				179
8:00 AM	27	82			59	6	5		0				179
8:15 AM	12	45			60	9	1		1				128
8:30 AM	10	43			78	9	3		2				145
8:45 AM	24	33			89	10	1		1				158
TOTAL VOLUMES =	111	371	0	0	489	53	16	0	6	0	0	0	1046

AM Peak Hr Begins at: 745 AM

PEAK VOLUMES =	71	231	0	0	283	30	13	0	3	0	0	0	631
PEAK HR. FACTOR:		0.693			0.851			0.800			0.000		0.881

CONTROL: 2-Way Stop (NB/SB)

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

N-S STREET: Campus Dr DATE: 10/13/2010 LOCATION: City of Riverside

E-W STREET: Parking Lot 1 DAY: WEDNESDAY PROJECT# 10-6098-014

	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
LANES:	0	1	0	1	1	0	0	1	0	0	0	0	
4:00 PM	18	73			61	15	25		6				198
4:15 PM	20	56			57	8	17		8				166
4:30 PM	12	59			61	7	4		6				149
4:45 PM	26	56			46	8	15		7				158
5:00 PM	14	91			85	16	41		16				263
5:15 PM	18	77			64	12	26		23				220
5:30 PM	18	54			60	9	9		12				162
5:45 PM	14	63			64	12	13		8				174
TOTAL VOLUMES =	140	529	0	0	498	87	150	0	86	0	0	0	1490

PM Peak Hr Begins at: 500 PM

PEAK VOLUMES =	64	285	0	0	273	49	89	0	59	0	0	0	819
PEAK HR. FACTOR:		0.831			0.797			0.649			0.000		0.779

CONTROL: 2-Way Stop (NB/SB)

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

N-S STREET: Campus Dr DATE: 10/13/2010 LOCATION: City of Riverside

E-W STREET: Parking Lot 1 DAY: WEDNESDAY PROJECT# 10-6098-014

	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
LANES:	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
12:00 AM													
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TOTAL VOLUMES =	0	0	0	0	0	0	0	0	0	0	0	0	0

NOON Peak Hr Begins at: 0 AM

PEAK VOLUMES =	0	0	0	0	0	0	0	0	0	0	0	0	0
PEAK HR. FACTOR:		0.000			0.000			0.000			0.000		0.000

CONTROL:

Intersection Turning Movement

Prepared by:

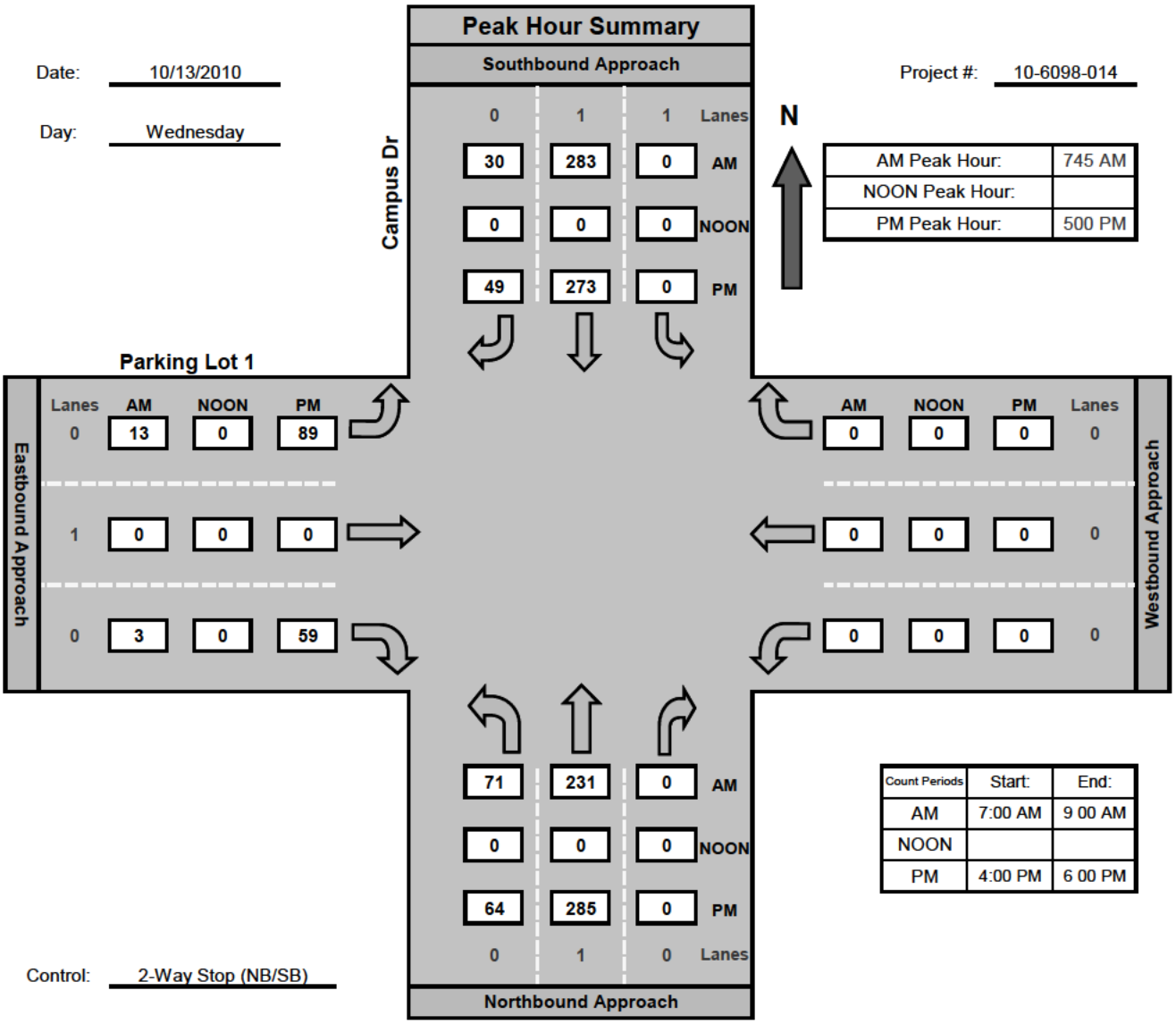
National Data & Surveying Services

Campus Dr and Parking Lot 1 , City of Riverside

Date: 10/13/2010

Day: Wednesday

Project #: 10-6098-014



AM Peak Hour:	745 AM
NOON Peak Hour:	
PM Peak Hour:	500 PM

Count Periods	Start:	End:
AM	7:00 AM	9 00 AM
NOON		
PM	4:00 PM	6 00 PM

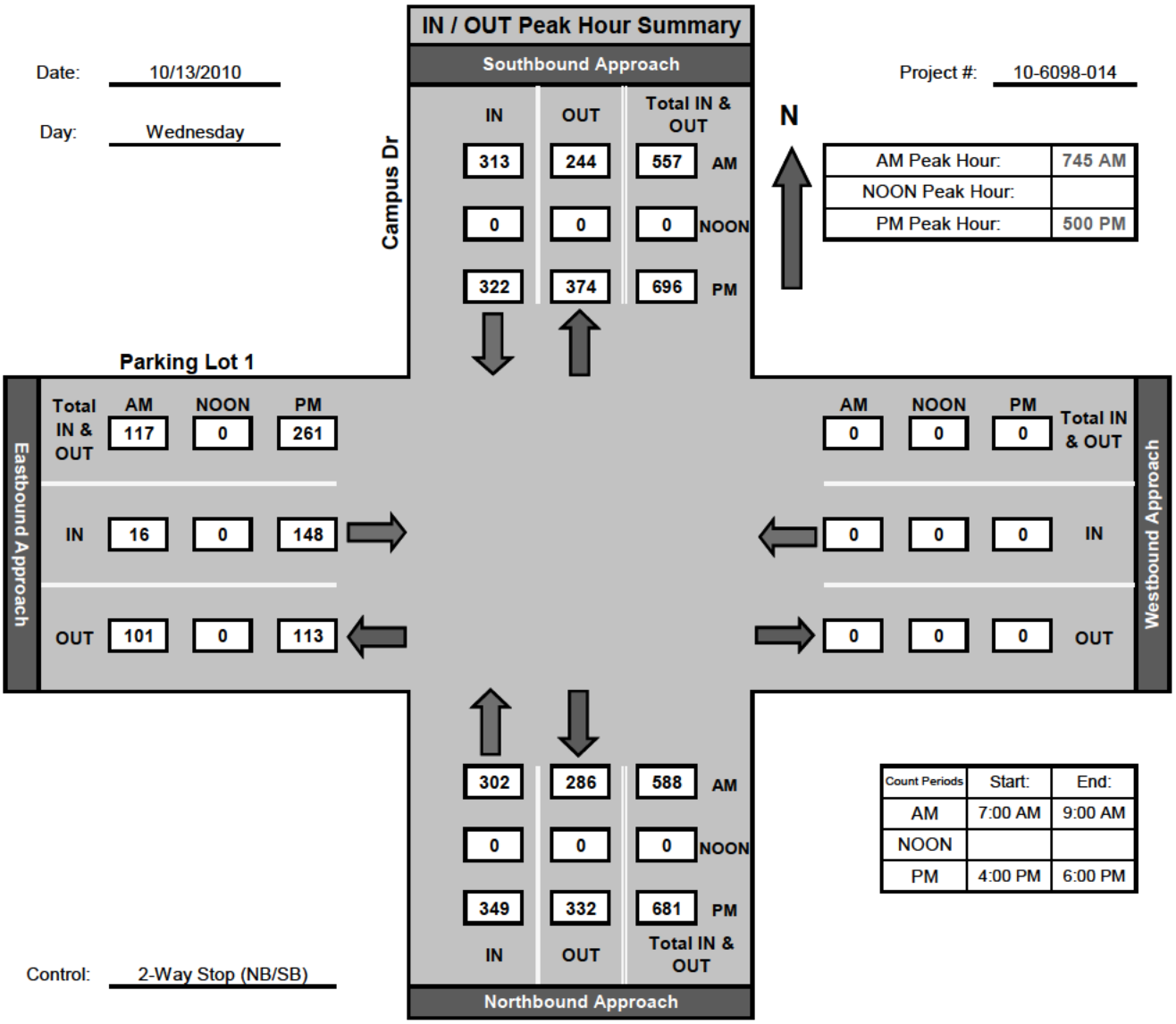
Control: 2-Way Stop (NB/SB)

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

Campus Dr and Parking Lot 1 , City of Riverside



Date: 10/13/2010

Day: Wednesday

Project #: 10-6098-014

AM Peak Hour:	745 AM
NOON Peak Hour:	
PM Peak Hour:	500 PM

Count Periods	Start:	End:
AM	7:00 AM	9:00 AM
NOON		
PM	4:00 PM	6:00 PM

Control: 2-Way Stop (NB/SB)

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

N-S STREET: Campus Dr DATE: 10/13/2010 LOCATION: City of Riverside

E-W STREET: Eucalyptus Dr DAY: WEDNESDAY PROJECT# 10-6098-017

	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
LANES:	0	1	0	0	1	0	0	1	0	0	0	0	
7:00 AM	1	17			7	3	2		1				31
7:15 AM	1	17			11	0	7		3				39
7:30 AM	1	19			16	3	1		1				41
7:45 AM	0	34			20	1	5		2				62
8:00 AM	2	55			23	4	3		1				88
8:15 AM	1	23			18	7	2		0				51
8:30 AM	3	31			13	4	3		1				55
8:45 AM	4	39			38	6	7		4				98
TOTAL VOLUMES =	NL 13	NT 235	NR 0	SL 0	ST 146	SR 28	EL 30	ET 0	ER 13	WL 0	WT 0	WR 0	TOTAL 465

AM Peak Hr Begins at: 800 AM

PEAK VOLUMES =	10	148	0	0	92	21	15	0	6	0	0	0	292
PEAK HR. FACTOR:		0.693			0.642			0.477			0.000		0.745

CONTROL: 1-Way Stop (EB)

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

N-S STREET: Campus Dr DATE: 10/13/2010 LOCATION: City of Riverside

E-W STREET: Eucalyptus Dr DAY: WEDNESDAY PROJECT# 10-6098-017

	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
LANES:	0	1	0	0	1	0	0	1	0	0	0	0	
4:00 PM	4	43			39	4	3		4				97
4:15 PM	2	28			30	5	6		3				74
4:30 PM	0	20			41	5	4		1				71
4:45 PM	3	30			22	5	4		1				65
5:00 PM	1	51			65	2	2		2				123
5:15 PM	1	40			35	4	1		3				84
5:30 PM	1	29			32	1	2		0				65
5:45 PM	1	16			39	6	10		2				74
TOTAL VOLUMES =	13	257	0	0	303	32	32	0	16	0	0	0	653

PM Peak Hr Begins at: 500 PM

PEAK VOLUMES =	4	136	0	0	171	13	15	0	7	0	0	0	346
PEAK HR. FACTOR:		0.673			0.687			0.458			0.000		0.703

CONTROL: 1-Way Stop (EB)

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

N-S STREET: Campus Dr DATE: 10/13/2010 LOCATION: City of Riverside

E-W STREET: Eucalyptus Dr DAY: WEDNESDAY PROJECT# 10-6098-017

	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
LANES:	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
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TOTAL VOLUMES =	0	0	0	0	0	0	0	0	0	0	0	0	0

NOON Peak Hr Begins at: 0 AM

PEAK VOLUMES =	0	0	0	0	0	0	0	0	0	0	0	0	0
PEAK HR. FACTOR:		0.000			0.000			0.000			0.000		0.000

CONTROL:

Intersection Turning Movement

Prepared by:

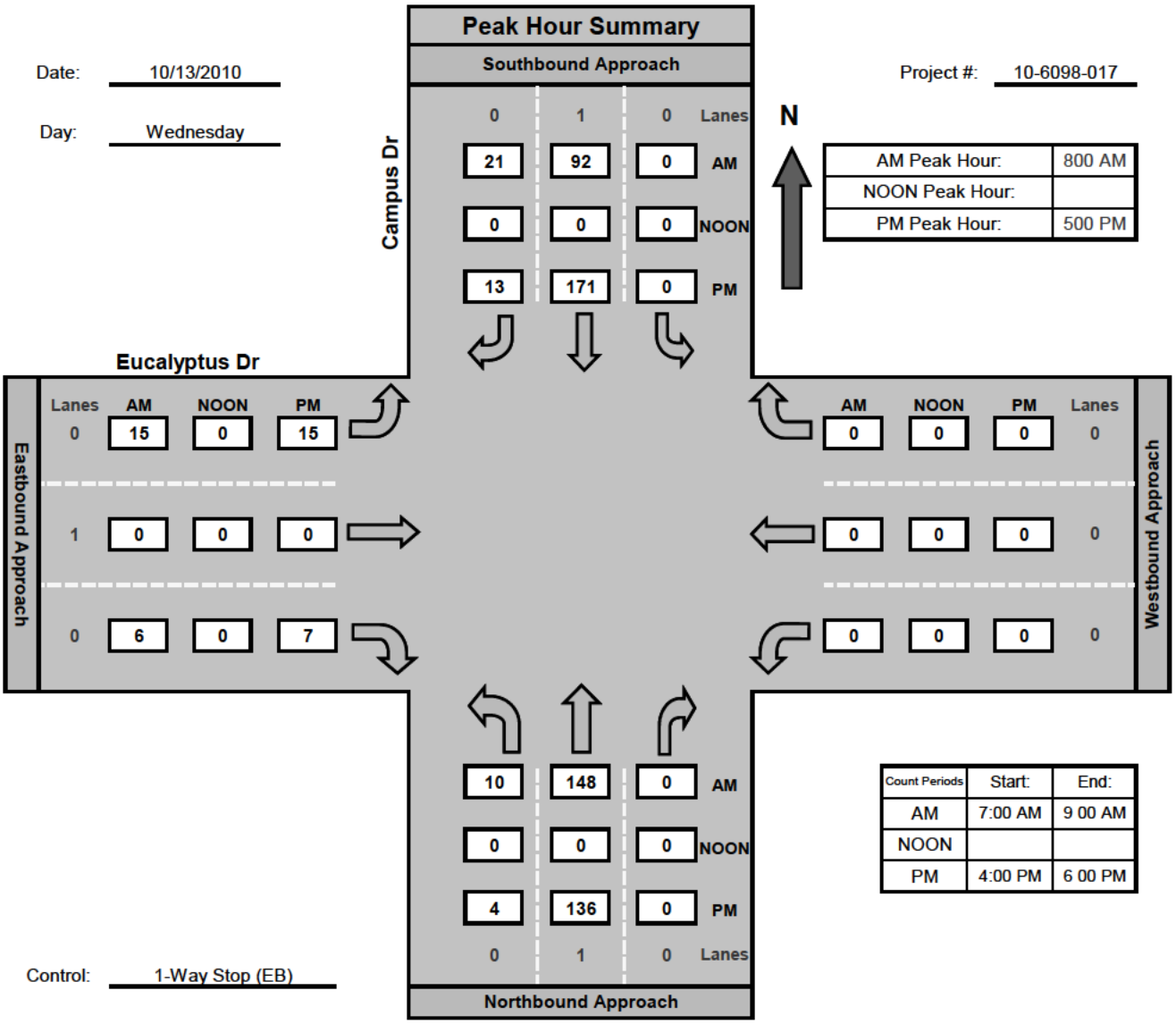
National Data & Surveying Services

Campus Dr and Eucalyptus Dr , City of Riverside

Date: 10/13/2010

Day: Wednesday

Project #: 10-6098-017



AM Peak Hour:	800 AM
NOON Peak Hour:	
PM Peak Hour:	500 PM

Count Periods	Start:	End:
AM	7:00 AM	9 00 AM
NOON		
PM	4:00 PM	6 00 PM

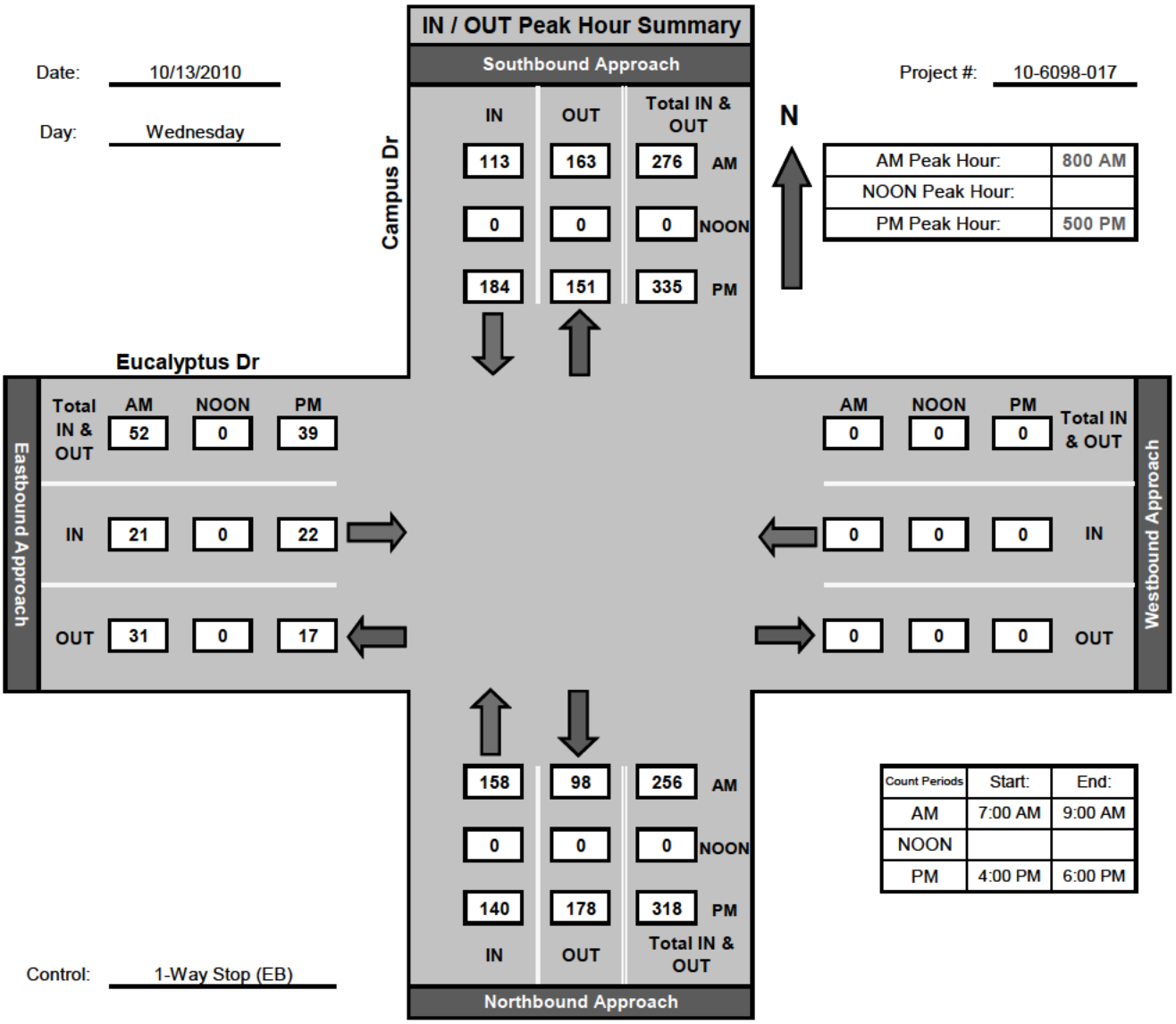
Control: 1-Way Stop (EB)

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

Campus Dr and Eucalyptus Dr , City of Riverside



Date: 10/13/2010

Day: Wednesday

Project #: 10-6098-017

AM Peak Hour:	800 AM
NOON Peak Hour:	
PM Peak Hour:	500 PM

Count Periods	Start:	End:
AM	7:00 AM	9:00 AM
NOON		
PM	4:00 PM	6:00 PM

Control: 1-Way Stop (EB)

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

N-S STREET: Citrus Dr DATE: 10/13/2010 LOCATION: City of Riverside

E-W STREET: Campus Dr DAY: WEDNESDAY PROJECT# 10-6098-016

	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
LANES:	0	0	0	0	1	0	0	1	0	0	1	0	
7:00 AM				1		5	2	19			6	3	36
7:15 AM				2		3	9	17			12	1	44
7:30 AM				0		4	6	34			9	0	53
7:45 AM				3		6	9	61			15	2	96
8:00 AM				1		5	13	68			24	0	111
8:15 AM				1		5	10	38			10	0	64
8:30 AM				1		4	10	49			6	1	71
8:45 AM				3		8	13	48			28	1	101
TOTAL VOLUMES =	NL 0	NT 0	NR 0	SL 12	ST 0	SR 40	EL 72	ET 334	ER 0	WL 0	WT 110	WR 8	TOTAL 576

AM Peak Hr Begins at: 800 AM

PEAK VOLUMES =	0	0	0	6	0	22	46	203	0	0	68	2	347
PEAK HR. FACTOR:		0.000			0.636			0.769			0.603		0.782

CONTROL: 1-Way Stop (SB)

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

N-S STREET: Citrus Dr DATE: 10/13/2010 LOCATION: City of Riverside

E-W STREET: Campus Dr DAY: WEDNESDAY PROJECT# 10-6098-016

	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
LANES:	0	0	0	0	1	0	0	1	0	0	1	0	
4:00 PM				1		12	9	33			59	2	116
4:15 PM				2		5	7	17			35	2	68
4:30 PM				0		16	10	15			44	1	86
4:45 PM				0		13	5	29			38	2	87
5:00 PM				3		16	3	42			87	1	152
5:15 PM				2		6	10	29			57	2	106
5:30 PM				1		4	12	31			42	1	91
5:45 PM				0		8	6	21			45	1	81
TOTAL VOLUMES =	NL 0	NT 0	NR 0	SL 9	ST 0	SR 80	EL 62	ET 217	ER 0	WL 0	WT 407	WR 12	TOTAL 787

PM Peak Hr Begins at: 445 PM

PEAK VOLUMES =	0	0	0	6	0	39	30	131	0	0	224	6	436
PEAK HR. FACTOR:		0.000			0.592			0.894			0.653		0.717

CONTROL: 1-Way Stop (SB)

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

N-S STREET: Citrus Dr DATE: 10/13/2010 LOCATION: City of Riverside

E-W STREET: Campus Dr DAY: WEDNESDAY PROJECT# 10-6098-016

	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
LANES:	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
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TOTAL VOLUMES =	0	0	0	0	0	0	0	0	0	0	0	0	0

NOON Peak Hr Begins at: 0 AM

PEAK VOLUMES =	0	0	0	0	0	0	0	0	0	0	0	0	0
PEAK HR. FACTOR:		0.000			0.000			0.000			0.000		0.000

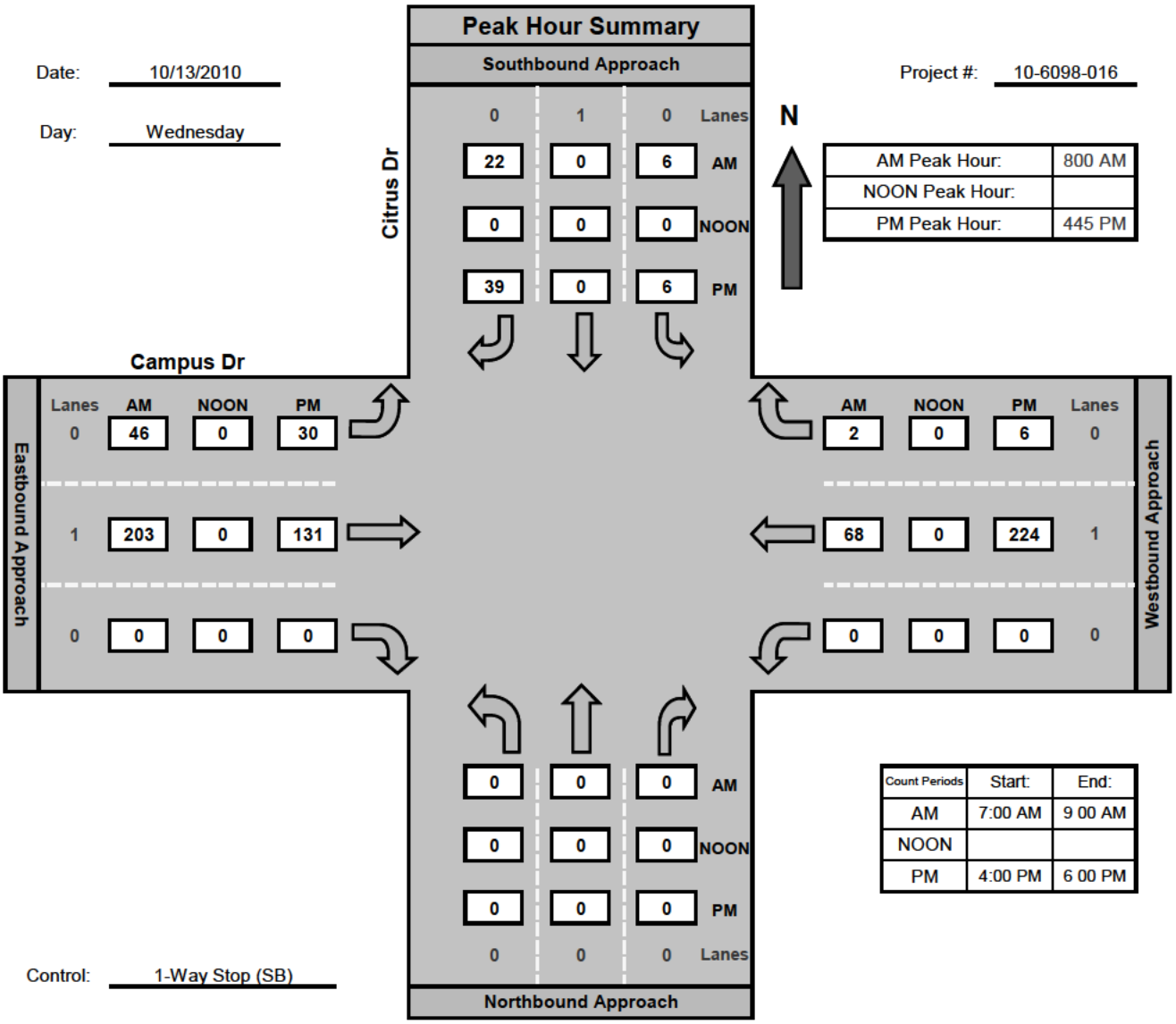
CONTROL:

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

Citrus Dr and Campus Dr , City of Riverside

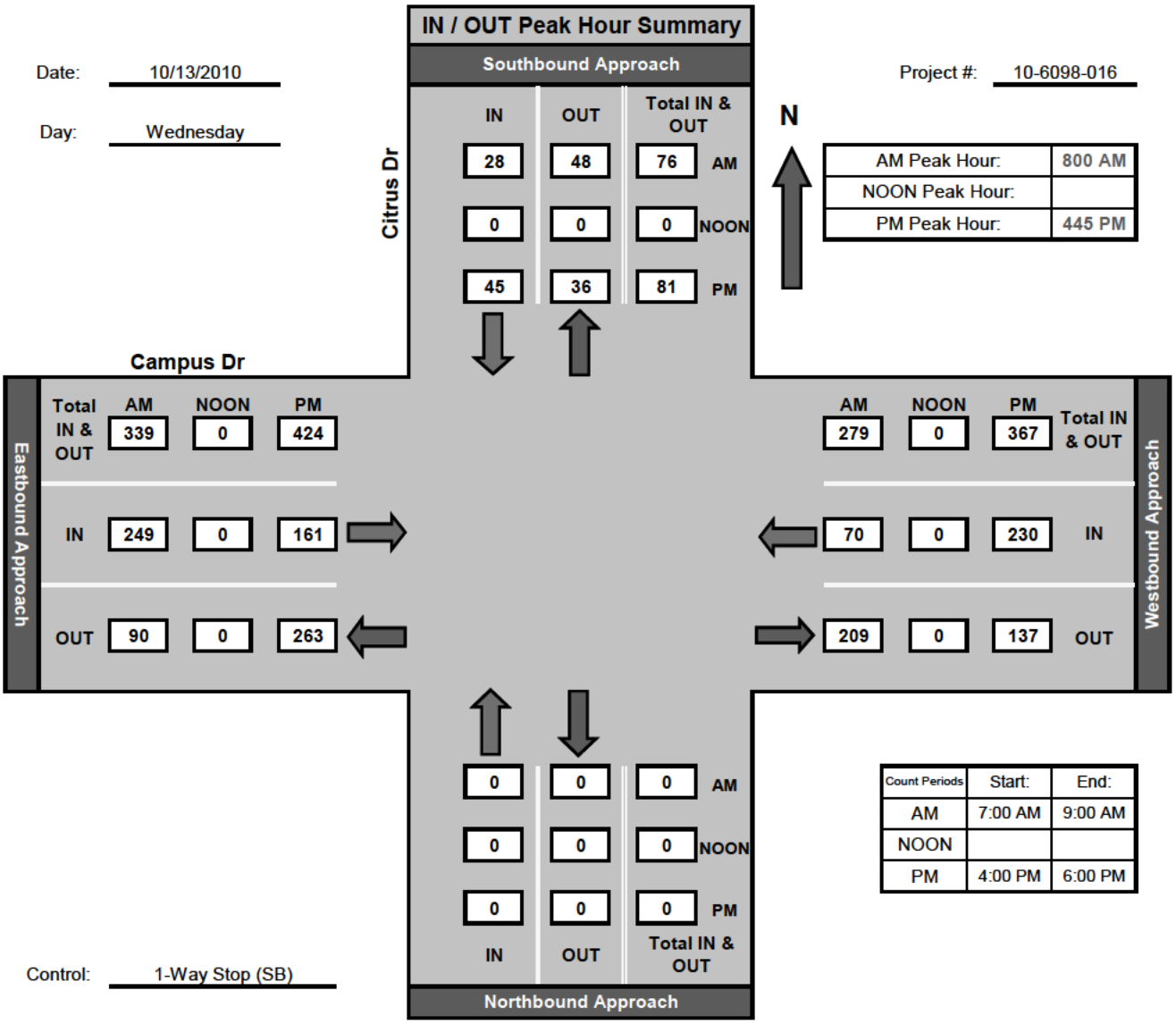


Intersection Turning Movement

Prepared by:

National Data & Surveying Services

Citrus Dr and Campus Dr , City of Riverside



Date: 10/13/2010

Day: Wednesday

Project #: 10-6098-016

AM Peak Hour:	800 AM
NOON Peak Hour:	
PM Peak Hour:	445 PM

Count Periods	Start:	End:
AM	7:00 AM	9:00 AM
NOON		
PM	4:00 PM	6:00 PM

Control: 1-Way Stop (SB)

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

N-S STREET: Canyon Crest Dr DATE: 10/13/2010 LOCATION: City of Riverside

E-W STREET: Campus Dr DAY: WEDNESDAY PROJECT# 10-6098-015

	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
LANES:	1	1	0	0	1	1	1	0	1	0	0	0	
7:00 AM	8	4			6	21	36		25				100
7:15 AM	10	7			8	30	42		31				128
7:30 AM	7	6			10	43	52		60				178
7:45 AM	12	5			17	71	90		93				288
8:00 AM	22	15			16	52	97		90				292
8:15 AM	4	7			16	40	50		65				182
8:30 AM	9	7			20	57	45		76				214
8:45 AM	25	11			29	63	53		69				250
TOTAL VOLUMES =	97	62	0	0	122	377	465	0	509	0	0	0	1632

AM Peak Hr Begins at: 745 AM

PEAK VOLUMES =	47	34	0	0	69	220	282	0	324	0	0	0	976
PEAK HR. FACTOR:		0.547			0.821			0.810			0.000		0.836

CONTROL: Signalized

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

N-S STREET: Canyon Crest Dr DATE: 10/13/2010 LOCATION: City of Riverside

E-W STREET: Campus Dr DAY: WEDNESDAY PROJECT# 10-6098-015

	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
LANES:	1	1	0	0	1	1	1	0	1	0	0	0	
4:00 PM	62	44			28	51	43		38				266
4:15 PM	43	34			19	51	32		27				206
4:30 PM	61	30			26	43	48		28				236
4:45 PM	51	22			23	39	53		56				244
5:00 PM	125	61			39	91	48		42				406
5:15 PM	69	33			16	73	54		22				267
5:30 PM	62	15			19	56	48		37				237
5:45 PM	55	24			18	42	56		31				226
TOTAL VOLUMES =	NL 528	NT 263	NR 0	SL 0	ST 188	SR 446	EL 382	ET 0	ER 281	WL 0	WT 0	WR 0	TOTAL 2088

PM Peak Hr Begins at: 445 PM

PEAK VOLUMES =	307	131	0	0	97	259	203	0	157	0	0	0	1154
PEAK HR. FACTOR:		0.589			0.685			0.826			0.000		0.711

CONTROL: Signalized

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

N-S STREET: Canyon Crest Dr DATE: 10/13/2010 LOCATION: City of Riverside

E-W STREET: Campus Dr DAY: WEDNESDAY PROJECT# 10-6098-015

	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
LANES:	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
12:00 AM													
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TOTAL VOLUMES =	0	0	0	0	0	0	0	0	0	0	0	0	0

NOON Peak Hr Begins at: 0 AM

PEAK VOLUMES =	0	0	0	0	0	0	0	0	0	0	0	0	0
PEAK HR. FACTOR:		0.000			0.000			0.000			0.000		0.000

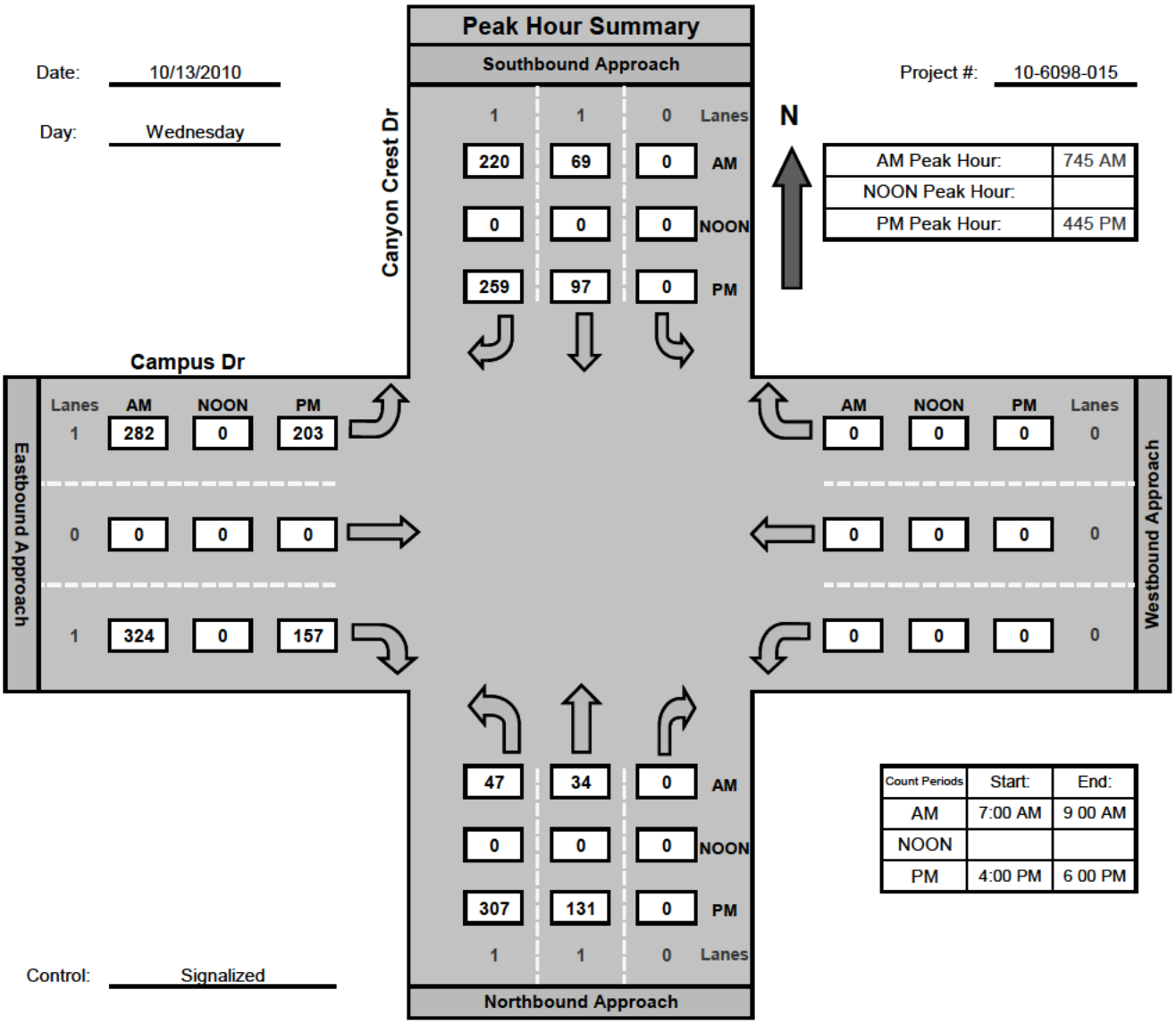
CONTROL:

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

Canyon Crest Dr and Campus Dr , City of Riverside

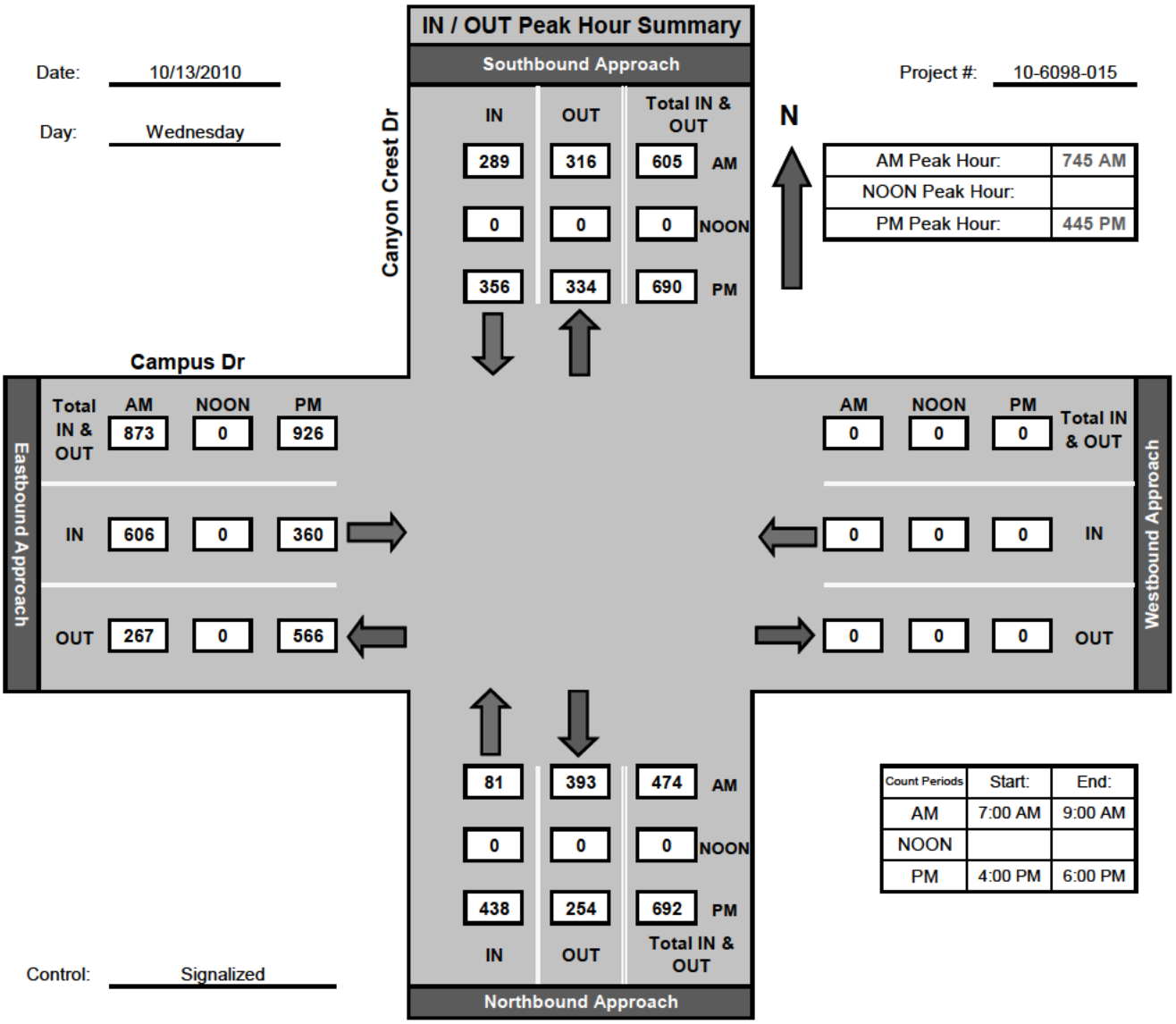


Intersection Turning Movement

Prepared by:

National Data & Surveying Services

Canyon Crest Dr and Campus Dr , City of Riverside



Date: 10/13/2010

Day: Wednesday

Project #: 10-6098-015

AM Peak Hour:	745 AM
NOON Peak Hour:	
PM Peak Hour:	445 PM

Count Periods	Start:	End:
AM	7:00 AM	9:00 AM
NOON		
PM	4:00 PM	6:00 PM

Control: Signalized

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

N-S STREET: Campus Dr DATE: 10/13/2010 LOCATION: City of Riverside

E-W STREET: Big Springs Rd DAY: WEDNESDAY PROJECT# 10-6098-013

	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
LANES:	0	1	0	0	1	0	0	0	0	0	1	0	
7:00 AM		6	6	9	11					4		7	43
7:15 AM		19	4	4	5					10		14	56
7:30 AM		9	1	13	11					15		9	58
7:45 AM		22	7	19	19					19		20	106
8:00 AM		33	6	12	23					16		14	104
8:15 AM		9	4	13	21					13		15	75
8:30 AM		8	7	16	19					15		10	75
8:45 AM		22	9	12	34					23		21	121
TOTAL VOLUMES =	NL 0	NT 128	NR 44	SL 98	ST 143	SR 0	EL 0	ET 0	ER 0	WL 115	WT 0	WR 110	TOTAL 638

AM Peak Hr Begins at: 800 AM

PEAK VOLUMES =	0	72	26	53	97	0	0	0	0	67	0	60	375
PEAK HR. FACTOR:		0.628			0.815			0.000			0.722		0.775

CONTROL: 3-Way Stop (NB/SB/WB)

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

N-S STREET: Campus Dr DATE: 10/13/2010 LOCATION: City of Riverside

E-W STREET: Big Springs Rd DAY: WEDNESDAY PROJECT# 10-6098-013

	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
LANES:	0	1	0	0	1	0	0	0	0	0	1	0	
4:00 PM		28	14	32	25					31		28	158
4:15 PM		19	12	26	21					16		27	121
4:30 PM		20	13	20	32					22		24	131
4:45 PM		4	16	19	14					12		26	91
5:00 PM		16	19	38	37					31		35	176
5:15 PM		9	30	33	22					23		26	143
5:30 PM		14	10	21	24					18		29	116
5:45 PM		12	9	22	31					29		24	127
TOTAL VOLUMES =	NL 0	NT 122	NR 123	SL 211	ST 206	SR 0	EL 0	ET 0	ER 0	WL 182	WT 0	WR 219	TOTAL 1063

PM Peak Hr Begins at: 500 PM

PEAK VOLUMES =	0	51	68	114	114	0	0	0	0	101	0	114	562
PEAK HR. FACTOR:		0.763			0.760			0.000			0.814		0.798

CONTROL: 3-Way Stop (NB/SB/WB)

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

N-S STREET: Campus Dr DATE: 10/13/2010 LOCATION: City of Riverside

E-W STREET: Big Springs Rd DAY: WEDNESDAY PROJECT# 10-6098-013

	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
LANES:	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
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TOTAL VOLUMES =	0	0	0	0	0	0	0	0	0	0	0	0	0

NOON Peak Hr Begins at: 0 AM

PEAK VOLUMES =	0	0	0	0	0	0	0	0	0	0	0	0	0
PEAK HR. FACTOR:		0.000			0.000			0.000			0.000		0.000

CONTROL:

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

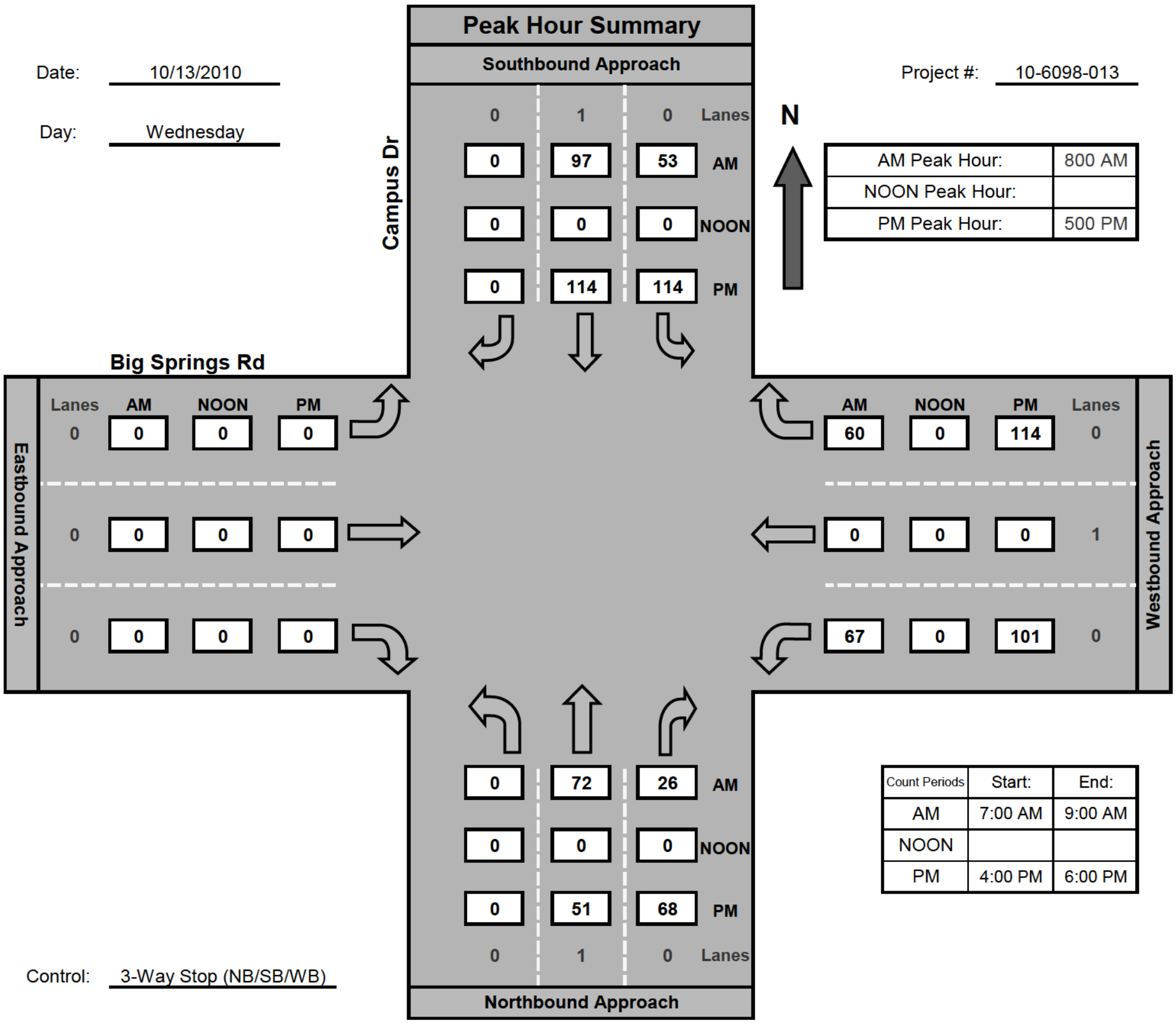
Campus Dr and Big Springs Rd , City of Riverside

Date: 10/13/2010

Day: Wednesday

Project #: 10-6098-013

Control: 3-Way Stop (NB/SB/WB)



AM Peak Hour:	800 AM
NOON Peak Hour:	
PM Peak Hour:	500 PM

Count Periods	Start:	End:
AM	7:00 AM	9:00 AM
NOON		
PM	4:00 PM	6:00 PM

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

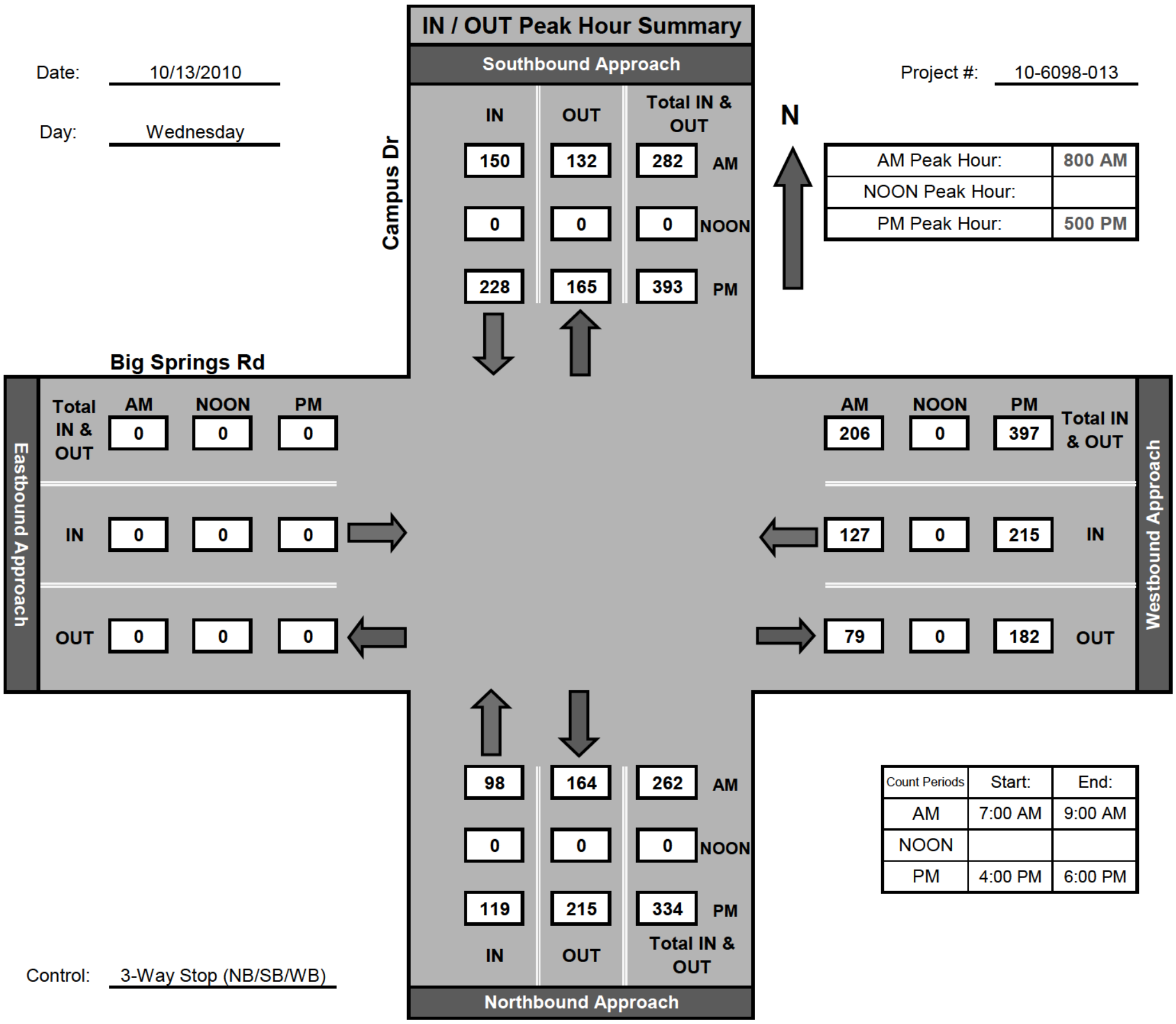
Campus Dr and Big Springs Rd , City of Riverside

Date: 10/13/2010

Day: Wednesday

Project #: 10-6098-013

Control: 3-Way Stop (NB/SB/WB)



AM Peak Hour:	800 AM
NOON Peak Hour:	
PM Peak Hour:	500 PM

Count Periods	Start:	End:
AM	7:00 AM	9:00 AM
NOON		
PM	4:00 PM	6:00 PM

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

N-S STREET: Canyon Crest Dr DATE: 10/13/2010 LOCATION: City of Riverside

E-W STREET: Blaine St DAY: WEDNESDAY PROJECT# 10-6098-001

	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
LANES:	1	1	1	1	1	0	1	2	0	1	2	0	
7:00 AM	9	10	11	0	10	11	4	37	17	7	65	1	182
7:15 AM	9	8	14	1	8	12	4	54	19	13	93	1	236
7:30 AM	14	6	15	4	16	25	3	62	32	21	124	4	326
7:45 AM	9	14	15	2	28	21	15	86	43	33	116	5	387
8:00 AM	23	16	28	5	13	15	16	113	26	24	106	4	389
8:15 AM	13	10	28	6	13	12	8	86	15	17	113	7	328
8:30 AM	11	10	12	2	16	17	14	55	16	30	103	6	292
8:45 AM	16	8	17	4	20	8	4	49	38	27	72	2	265
TOTAL VOLUMES =	NL 104	NT 82	NR 140	SL 24	ST 124	SR 121	EL 68	ET 542	ER 206	WL 172	WT 792	WR 30	TOTAL 2405

AM Peak Hr Begins at: 730 AM

PEAK VOLUMES =	59	46	86	17	70	73	42	347	116	95	459	20	1430
PEAK HR. FACTOR:		0.713			0.784			0.815			0.932		0.919

CONTROL: Signalized

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

N-S STREET: Canyon Crest Dr DATE: 10/13/2010 LOCATION: City of Riverside

E-W STREET: Blaine St DAY: WEDNESDAY PROJECT# 10-6098-001

	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
LANES:	1	1	1	1	1	0	1	2	0	1	2	0	
4:00 PM	27	24	23	2	22	9	13	91	31	13	67	0	322
4:15 PM	27	22	25	5	16	15	8	89	21	12	72	1	313
4:30 PM	33	21	22	2	35	16	13	58	25	25	53	3	306
4:45 PM	19	22	19	2	24	9	16	95	36	23	68	1	334
5:00 PM	40	25	50	3	34	14	18	76	31	32	81	7	411
5:15 PM	48	30	50	6	23	20	10	136	32	23	80	3	461
5:30 PM	36	18	31	2	37	12	16	113	27	33	82	1	408
5:45 PM	21	18	33	3	32	15	15	96	50	43	89	7	422
TOTAL VOLUMES =	NL 251	NT 180	NR 253	SL 25	ST 223	SR 110	EL 109	ET 754	ER 253	WL 204	WT 592	WR 23	TOTAL 2977

PM Peak Hr Begins at: 500 PM

PEAK VOLUMES =	145	91	164	14	126	61	59	421	140	131	332	18	1702
PEAK HR. FACTOR:		0.781			0.985			0.871			0.865		0.923

CONTROL: Signalized

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

N-S STREET: Canyon Crest Dr DATE: 10/13/2010 LOCATION: City of Riverside

E-W STREET: Blaine St DAY: WEDNESDAY PROJECT# 10-6098-001

	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
LANES:	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
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TOTAL VOLUMES =	0	0	0	0	0	0	0	0	0	0	0	0	0

NOON Peak Hr Begins at: 0 AM

PEAK VOLUMES =	0	0	0	0	0	0	0	0	0	0	0	0	0
PEAK HR. FACTOR:		0.000			0.000			0.000			0.000		0.000

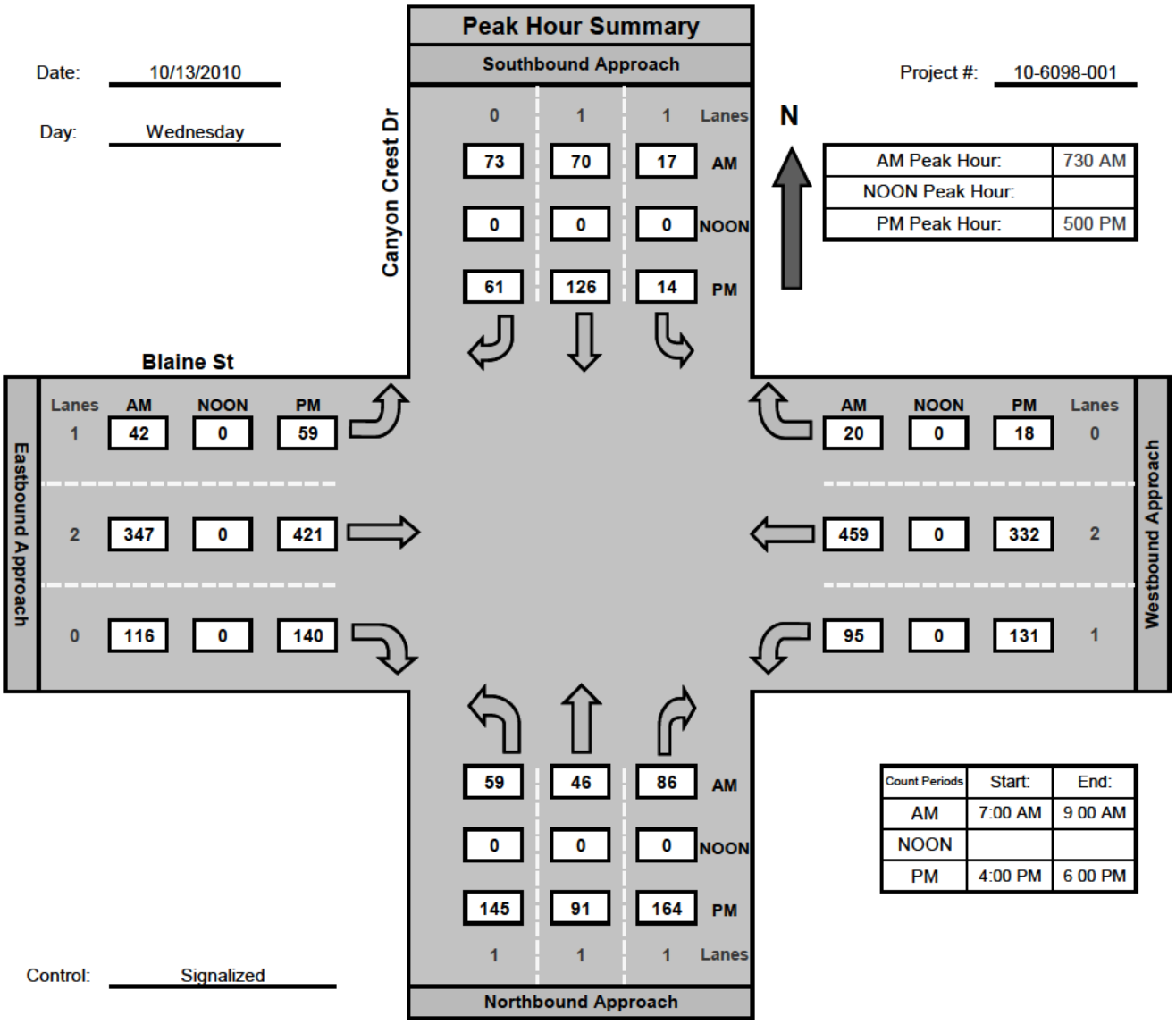
CONTROL:

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

Canyon Crest Dr and Blaine St , City of Riverside



Date: 10/13/2010

Day: Wednesday

Project #: 10-6098-001

AM Peak Hour:	730 AM
NOON Peak Hour:	
PM Peak Hour:	500 PM

Count Periods	Start:	End:
AM	7:00 AM	9 00 AM
NOON		
PM	4:00 PM	6 00 PM

Control: Signalized

Intersection Turning Movement

Prepared by:

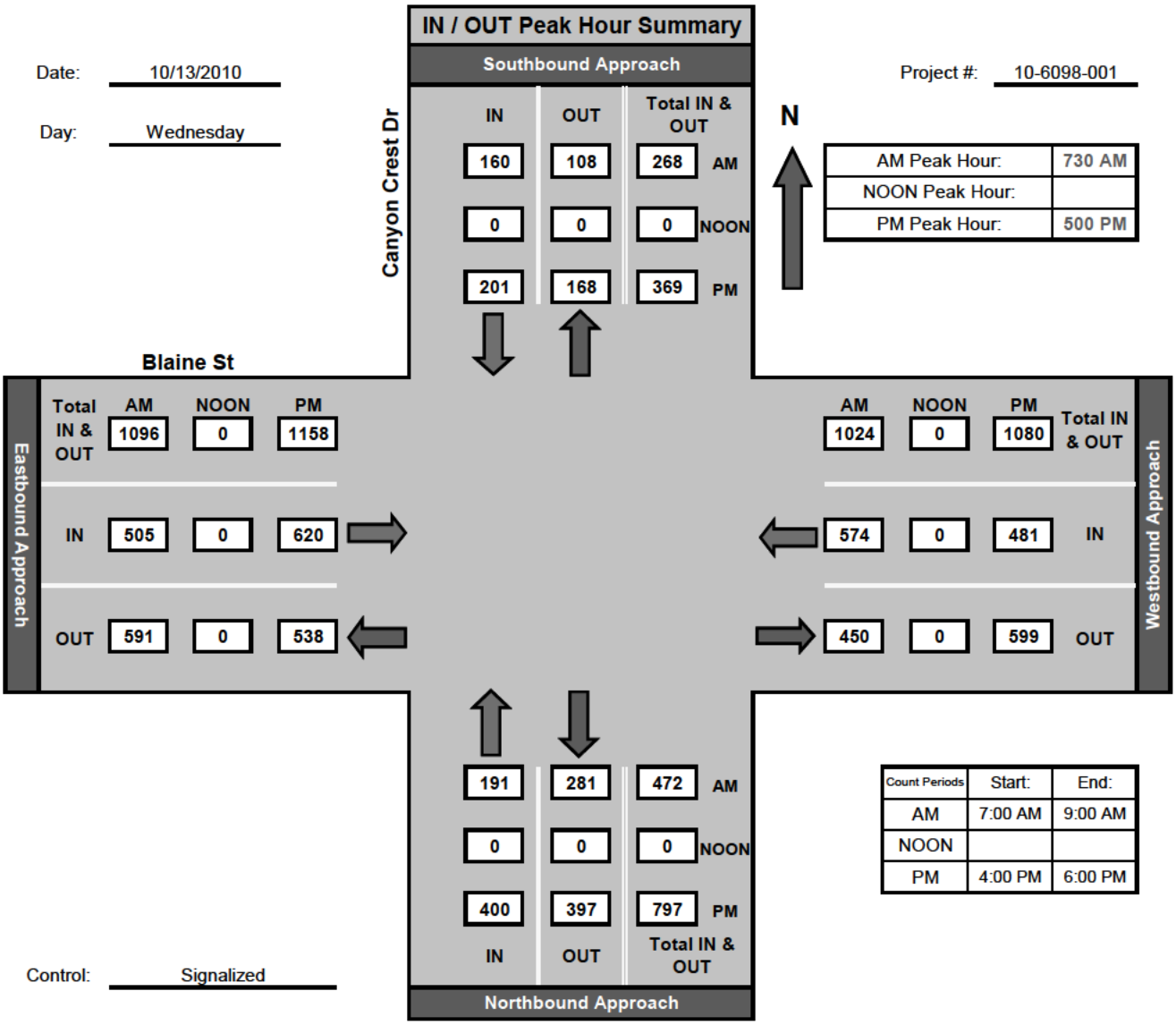
National Data & Surveying Services

Canyon Crest Dr and Blaine St , City of Riverside

Date: 10/13/2010

Day: Wednesday

Project #: 10-6098-001



AM Peak Hour:	730 AM
NOON Peak Hour:	
PM Peak Hour:	500 PM

Count Periods	Start:	End:
AM	7:00 AM	9:00 AM
NOON		
PM	4:00 PM	6:00 PM

Control: Signalized

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

N-S STREET: Central Ave DATE: 10/12/2010 LOCATION: City of Riverside

E-W STREET: SR-60 SB Ramps DAY: TUESDAY PROJECT# 10-6098-009

	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
LANES:	0	2	1	0	2	0	1	0.5	1.5	0	0	0	
7:00 AM		157	49	21	53		3	0	7				290
7:15 AM		168	71	25	59		4	0	13				340
7:30 AM		228	57	22	63		10	0	5				385
7:45 AM		257	66	21	52		4	0	11				411
8:00 AM		162	72	23	73		7	1	12				350
8:15 AM		150	66	22	62		8	1	12				321
8:30 AM		117	65	25	63		5	1	14				290
8:45 AM		78	56	15	65		4	2	13				233
TOTAL VOLUMES =	NL 0	NT 1317	NR 502	SL 174	ST 490	SR 0	EL 45	ET 5	ER 87	WL 0	WT 0	WR 0	TOTAL 2620

AM Peak Hr Begins at: 715 AM

PEAK VOLUMES =	0	815	266	91	247	0	25	1	41	0	0	0	1486
PEAK HR. FACTOR:		0.837			0.880			0.838			0.000		0.904

CONTROL: Signalized

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

N-S STREET: Central Ave DATE: 10/12/2010 LOCATION: City of Riverside

E-W STREET: SR-60 SB Ramps DAY: TUESDAY PROJECT# 10-6098-009

	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
LANES:	0	2	1	0	2	0	1	0.5	1.5	0	0	0	
4:00 PM		46	116	90	104		6	1	27				390
4:15 PM		27	91	107	117		3	1	19				365
4:30 PM		44	82	109	120		6	0	22				383
4:45 PM		48	90	98	131		4	1	22				394
5:00 PM		44	119	109	106		3	0	15				396
5:15 PM		43	120	121	157		3	0	29				473
5:30 PM		43	107	107	130		6	1	22				416
5:45 PM		32	101	91	134		3	1	25				387
TOTAL VOLUMES =	NL 0	NT 327	NR 826	SL 832	ST 999	SR 0	EL 34	ET 5	ER 181	WL 0	WT 0	WR 0	TOTAL 3204

PM Peak Hr Begins at: 445 PM

PEAK VOLUMES =	0	178	436	435	524	0	16	2	88	0	0	0	1679
PEAK HR. FACTOR:		0.942			0.862			0.828			0.000		0.887

CONTROL: Signalized

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

N-S STREET: Central Ave DATE: 10/12/2010 LOCATION: City of Riverside

E-W STREET: SR-60 SB Ramps DAY: TUESDAY PROJECT# 10-6098-009

	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
LANES:	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
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TOTAL VOLUMES =	0	0	0	0	0	0	0	0	0	0	0	0	0

NOON Peak Hr Begins at: 0 AM

PEAK VOLUMES =	0	0	0	0	0	0	0	0	0	0	0	0	0
PEAK HR. FACTOR:		0.000			0.000			0.000			0.000		0.000

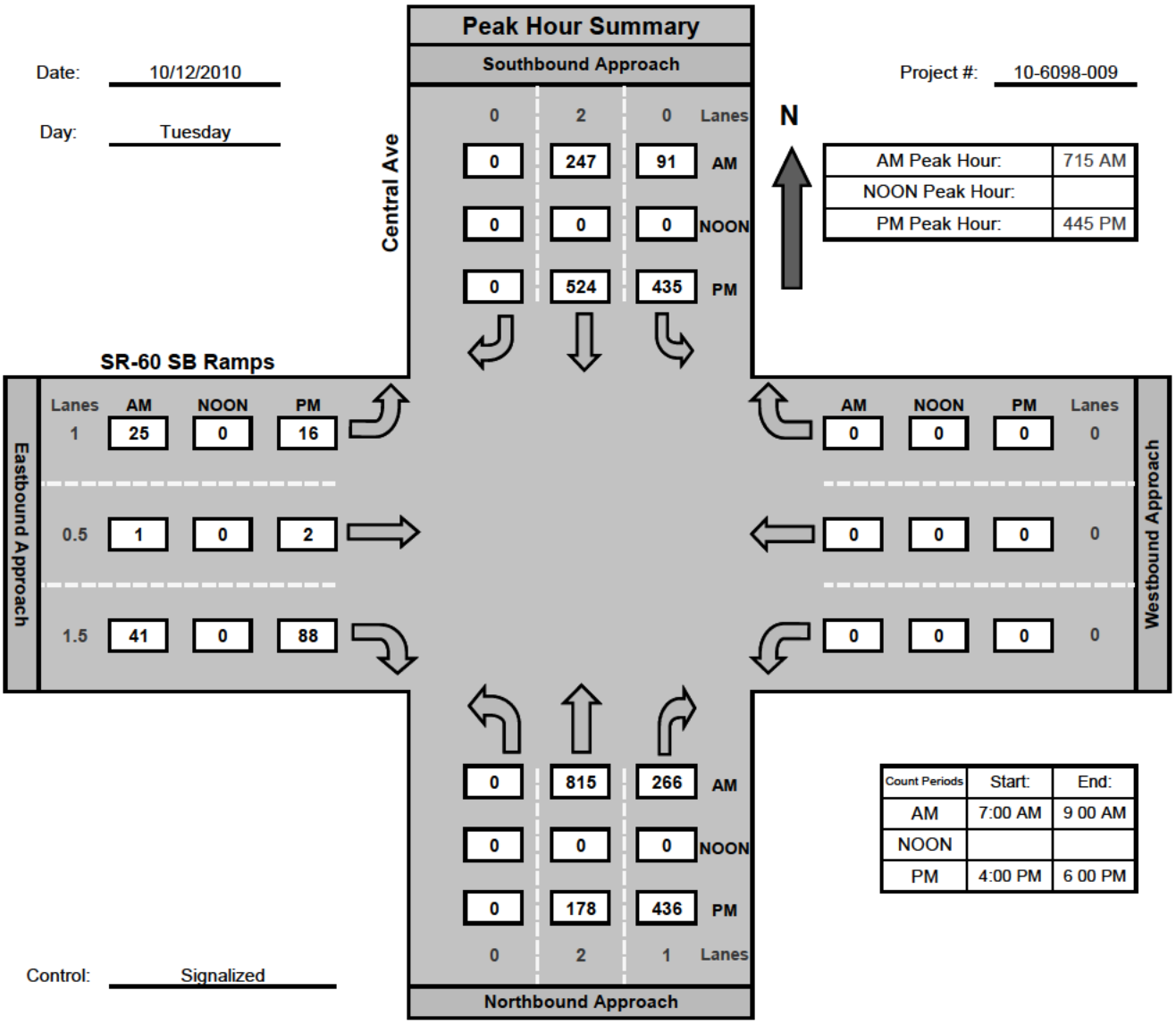
CONTROL:

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

Central Ave and SR-60 SB Ramps , City of Riverside

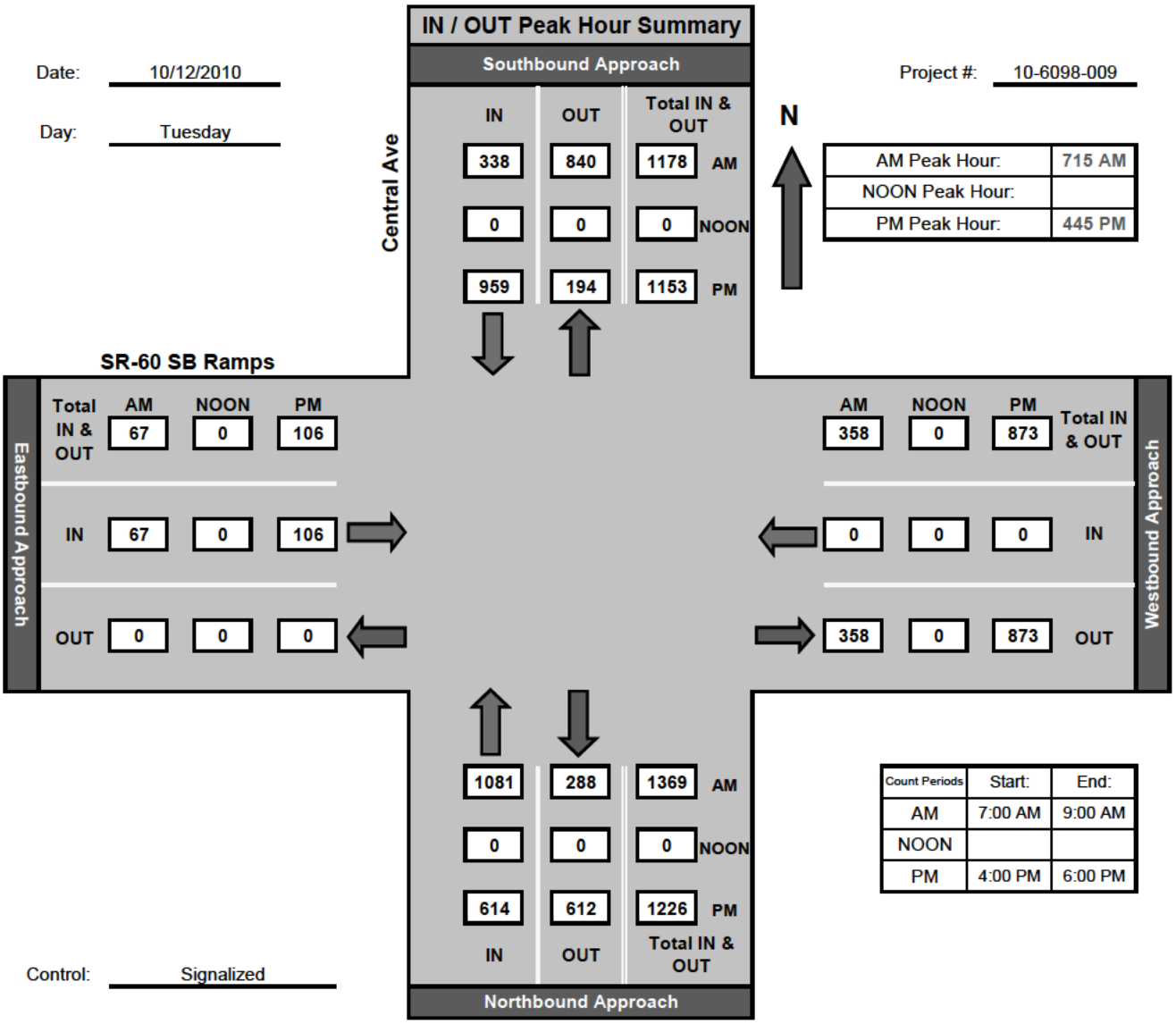


Intersection Turning Movement

Prepared by:

National Data & Surveying Services

Central Ave and SR-60 SB Ramps , City of Riverside



Date: 10/12/2010

Day: Tuesday

Project #: 10-6098-009

AM Peak Hour:	715 AM
NOON Peak Hour:	
PM Peak Hour:	445 PM

Count Periods	Start:	End:
AM	7:00 AM	9:00 AM
NOON		
PM	4:00 PM	6:00 PM

Control: Signalized

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

N-S STREET: Central Ave/Watkins Dr DATE: 10/12/2010 LOCATION: City of Riverside

E-W STREET: SR-60 NB On-Ramp DAY: TUESDAY PROJECT# 10-6098-011

	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
LANES:	1	2	0	1	1	0	0	0	0	0	1	0	
7:00 AM	102	111	0	0	33	10				1	1	1	259
7:15 AM	109	133	0	0	33	1				1	2	1	280
7:30 AM	135	179	1	0	38	11				1	4	8	377
7:45 AM	151	196	0	0	49	9				0	3	5	413
8:00 AM	109	156	2	0	59	6				1	3	0	336
8:15 AM	92	128	1	0	41	8				1	1	2	274
8:30 AM	82	89	0	1	36	5				2	2	1	218
8:45 AM	50	83	1	0	30	5				1	2	1	173
TOTAL VOLUMES =	830	1075	5	1	319	55	0	0	0	8	18	19	2330

AM Peak Hr Begins at: 715 AM

PEAK VOLUMES =	504	664	3	0	179	27	0	0	0	3	12	14	1406
PEAK HR. FACTOR:		0.844			0.792			0.000			0.558		0.851

CONTROL: 1-Way Stop (WB)

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

N-S STREET: Central Ave/Watkins Dr DATE: 10/12/2010 LOCATION: City of Riverside

E-W STREET: SR-60 NB On-Ramp DAY: TUESDAY PROJECT# 10-6098-011

	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
LANES:	1	2	0	1	1	0	0	0	0	0	1	0	
4:00 PM	20	53	3	4	120	5				0	0	0	205
4:15 PM	14	54	1	1	128	1				1	3	0	203
4:30 PM	23	53	2	4	164	1				0	1	1	249
4:45 PM	19	61	0	4	136	10				1	0	1	232
5:00 PM	21	60	2	3	149	7				0	1	1	244
5:15 PM	13	67	1	4	181	9				1	0	0	276
5:30 PM	18	54	2	7	160	7				0	0	0	248
5:45 PM	21	43	1	2	128	8				0	0	3	206
TOTAL VOLUMES =	NL 149	NT 445	NR 12	SL 29	ST 1166	SR 48	EL 0	ET 0	ER 0	WL 3	WT 5	WR 6	TOTAL 1863

PM Peak Hr Begins at: 430 PM

PEAK VOLUMES =	76	241	5	15	630	27	0	0	0	2	2	3	1001
PEAK HR. FACTOR:		0.970			0.866			0.000			0.875		0.907

CONTROL: 1-Way Stop (WB)

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

N-S STREET: Central Ave/Watkins Dr DATE: 10/12/2010 LOCATION: City of Riverside

E-W STREET: SR-60 NB On-Ramp DAY: TUESDAY PROJECT# 10-6098-011

	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
LANES:	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
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TOTAL VOLUMES =	0	0	0	0	0	0	0	0	0	0	0	0	0

NOON Peak Hr Begins at: 0 AM

PEAK VOLUMES =	0	0	0	0	0	0	0	0	0	0	0	0	0
PEAK HR. FACTOR:		0.000			0.000			0.000			0.000		0.000

CONTROL:

Intersection Turning Movement

Prepared by:

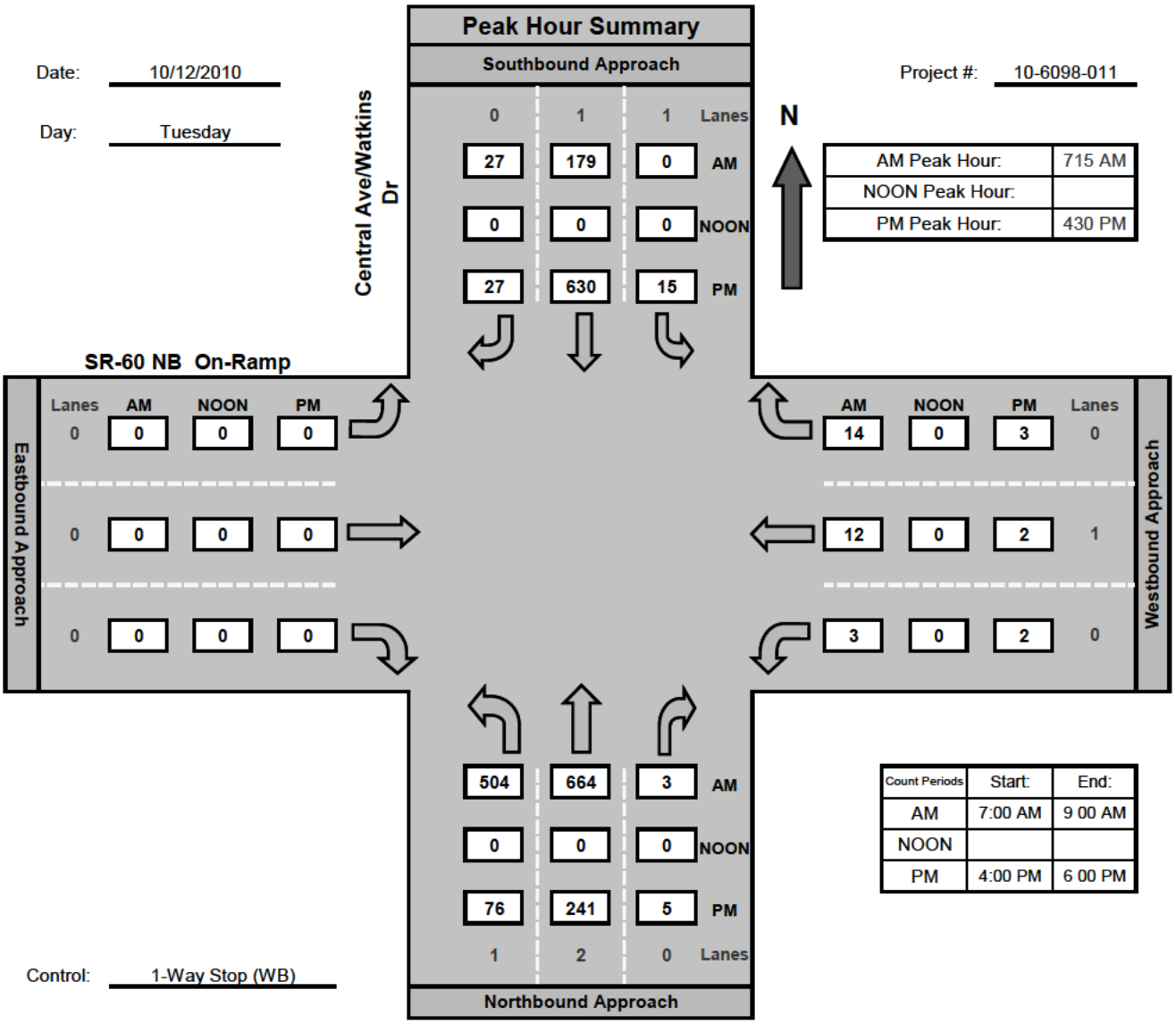
National Data & Surveying Services

Central Ave/Watkins Dr and SR-60 NB On-Ramp , City of Riverside

Date: 10/12/2010

Day: Tuesday

Project #: 10-6098-011



AM Peak Hour:	715 AM
NOON Peak Hour:	
PM Peak Hour:	430 PM

Count Periods	Start:	End:
AM	7:00 AM	9 00 AM
NOON		
PM	4:00 PM	6 00 PM

Control: 1-Way Stop (WB)

Intersection Turning Movement

Prepared by:

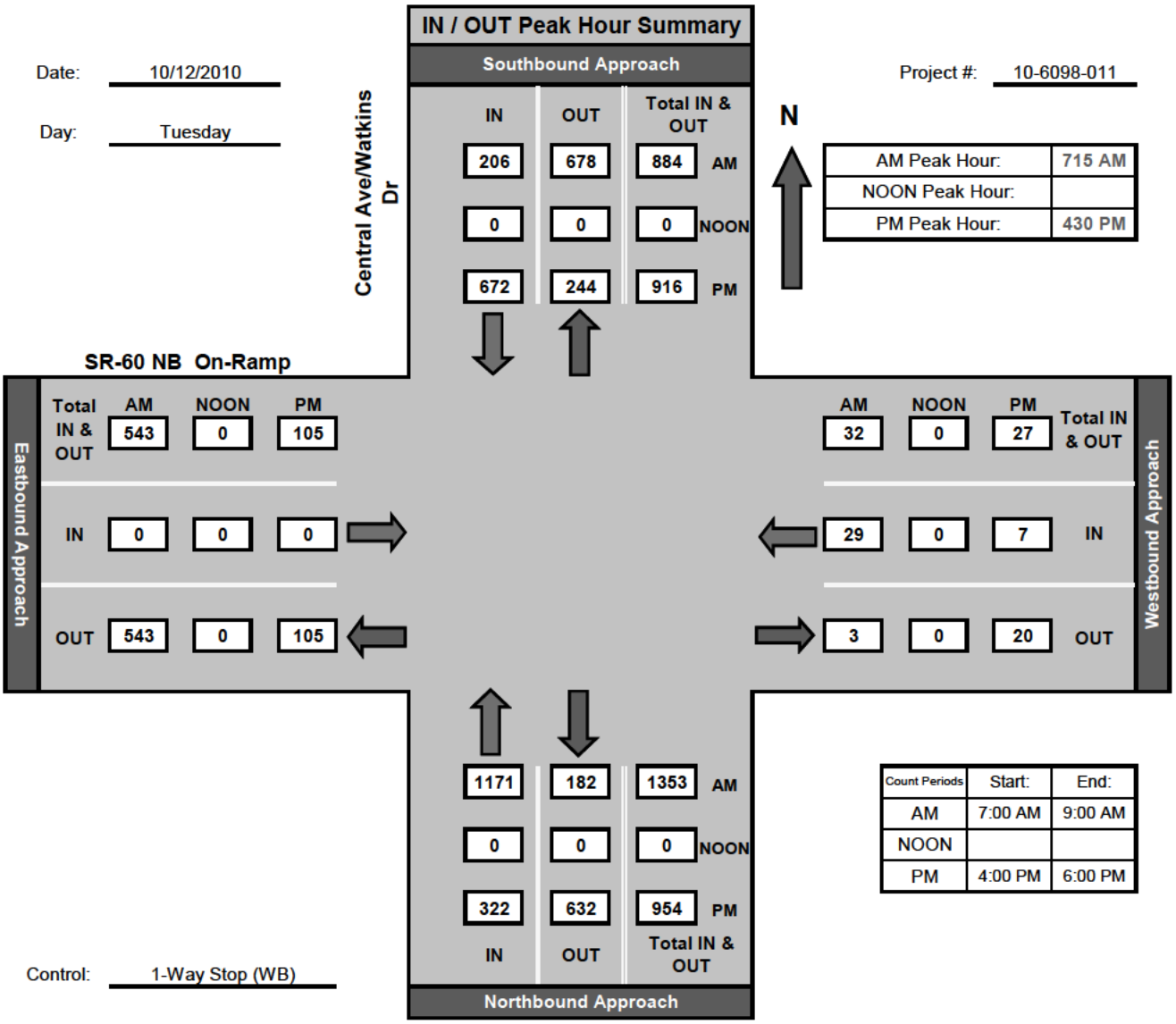
National Data & Surveying Services

Central Ave/Watkins Dr and SR-60 NB On-Ramp , City of Riverside

Date: 10/12/2010

Day: Tuesday

Project #: 10-6098-011



Count Periods	Start:	End:
AM	7:00 AM	9:00 AM
NOON		
PM	4:00 PM	6:00 PM

Control: 1-Way Stop (WB)

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

N-S STREET: Central Ave/Watkins Dr DATE: 10/12/2010 LOCATION: City of Riverside

E-W STREET: SR-60 NB Off-Ramp DAY: TUESDAY PROJECT# 10-6098-010

	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
LANES:	0	2	0	0	2	0	0	0	0	2	0	1	
7:00 AM		158			34					41		59	292
7:15 AM		178			36					47		69	330
7:30 AM		236			37					48		81	402
7:45 AM		253			48					22		87	410
8:00 AM		174			61					38		87	360
8:15 AM		158			44					40		67	309
8:30 AM		120			38					49		52	259
8:45 AM		83			30					50		49	212
TOTAL VOLUMES =	NL 0	NT 1360	NR 0	SL 0	ST 328	SR 0	EL 0	ET 0	ER 0	WL 335	WT 0	WR 551	TOTAL 2574

AM Peak Hr Begins at: 715 AM

PEAK VOLUMES =	0	841	0	0	182	0	0	0	0	155	0	324	1502
PEAK HR. FACTOR:		0.831			0.746			0.000			0.928		0.916

CONTROL: Signalized

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

N-S STREET: Central Ave/Watkins Dr DATE: 10/12/2010 LOCATION: City of Riverside

E-W STREET: SR-60 NB Off-Ramp DAY: TUESDAY PROJECT# 10-6098-010

	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
LANES:	0	2	0	0	2	0	0	0	0	2	0	1	
4:00 PM		54			122					71		27	274
4:15 PM		29			128					90		35	282
4:30 PM		51			163					76		28	318
4:45 PM		52			138					83		27	300
5:00 PM		49			140					77		35	301
5:15 PM		46			187					96		31	360
5:30 PM		48			159					82		32	321
5:45 PM		33			128					82		26	269
TOTAL VOLUMES =	NL 0	NT 362	NR 0	SL 0	ST 1165	SR 0	EL 0	ET 0	ER 0	WL 657	WT 0	WR 241	TOTAL 2425

PM Peak Hr Begins at: 445 PM

PEAK VOLUMES =	0	195	0	0	624	0	0	0	0	338	0	125	1282
PEAK HR. FACTOR:		0.938			0.834			0.000			0.911		0.890

CONTROL: Signalized

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

N-S STREET: Central Ave/Watkins Dr DATE: 10/12/2010 LOCATION: City of Riverside

E-W STREET: SR-60 NB Off-Ramp DAY: TUESDAY PROJECT# 10-6098-010

	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
LANES:	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
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TOTAL VOLUMES =	0	0	0	0	0	0	0	0	0	0	0	0	0

NOON Peak Hr Begins at: 0 AM

PEAK VOLUMES =	0	0	0	0	0	0	0	0	0	0	0	0	0
PEAK HR. FACTOR:		0.000			0.000			0.000			0.000		0.000

CONTROL:

Intersection Turning Movement

Prepared by:

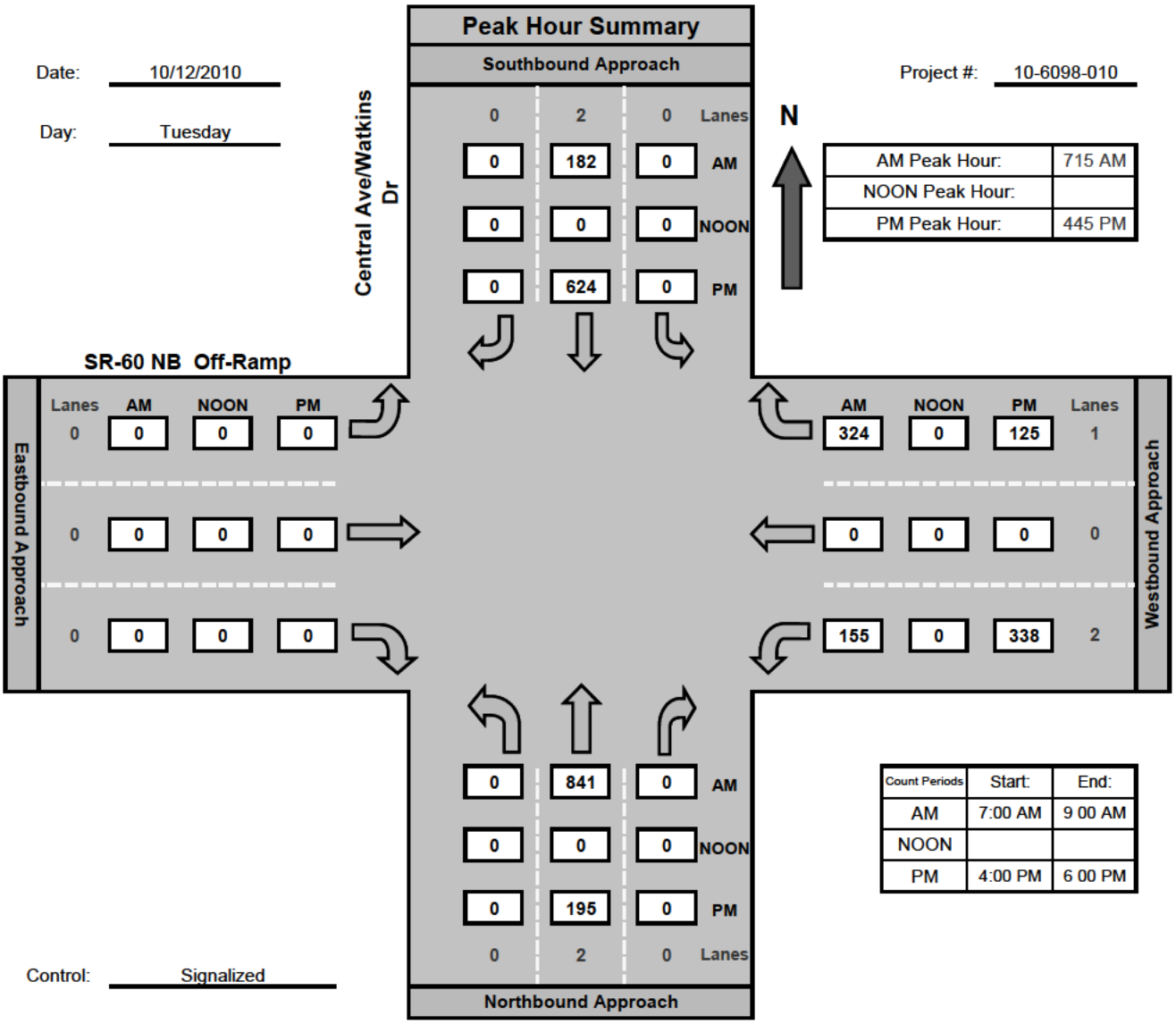
National Data & Surveying Services

Central Ave/Watkins Dr and SR-60 NB Off-Ramp , City of Riverside

Date: 10/12/2010

Day: Tuesday

Project #: 10-6098-010



AM Peak Hour:	715 AM
NOON Peak Hour:	
PM Peak Hour:	445 PM

Count Periods	Start:	End:
AM	7:00 AM	9 00 AM
NOON		
PM	4:00 PM	6 00 PM

Control: Signalized

Intersection Turning Movement

Prepared by:

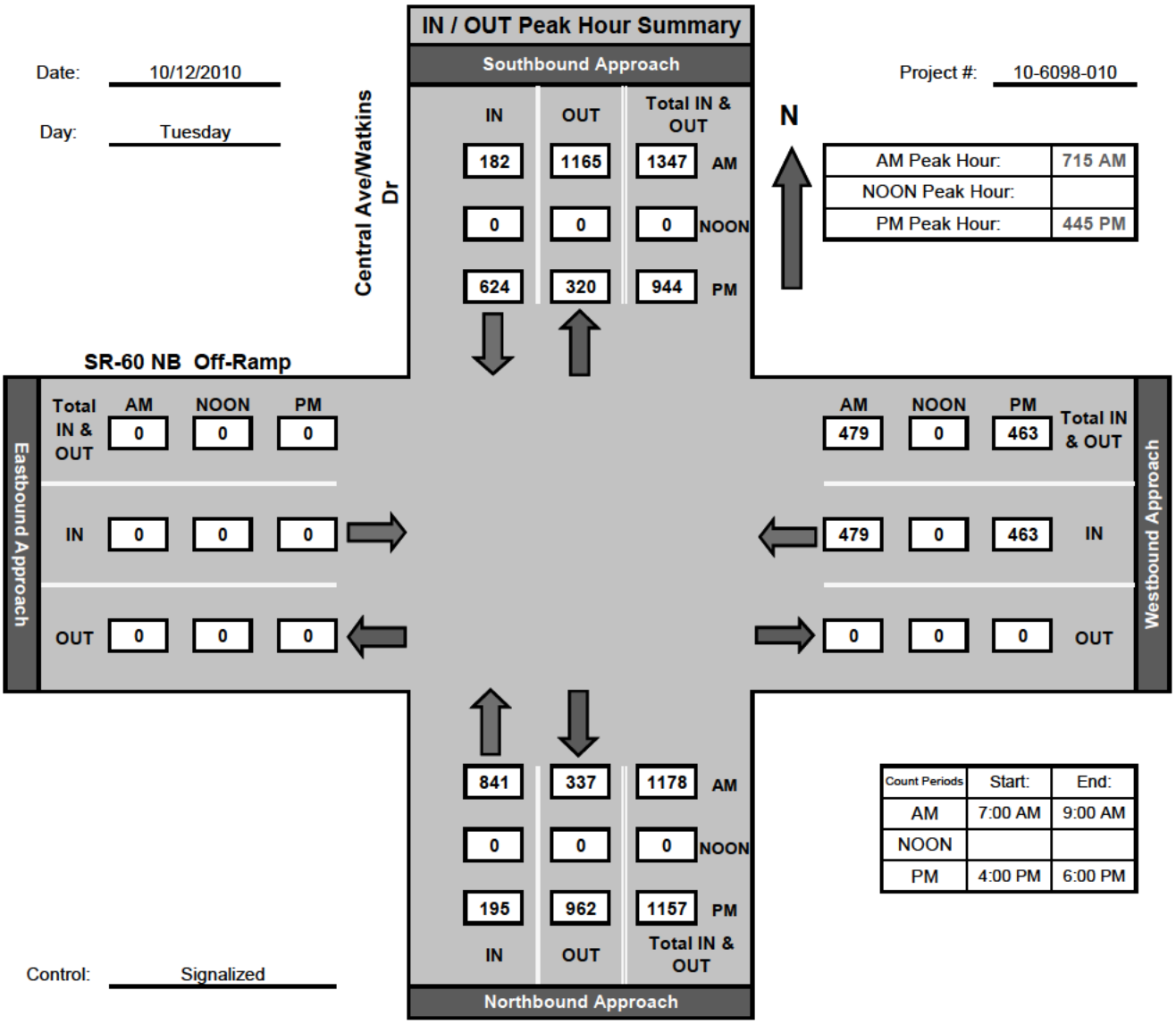
National Data & Surveying Services

Central Ave/Watkins Dr and SR-60 NB Off-Ramp , City of Riverside

Date: 10/12/2010

Day: Tuesday

Project #: 10-6098-010



AM Peak Hour:	715 AM
NOON Peak Hour:	
PM Peak Hour:	445 PM

Count Periods	Start:	End:
AM	7:00 AM	9:00 AM
NOON		
PM	4:00 PM	6:00 PM

Control: Signalized

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

N-S STREET: Chicago Ave DATE: 10/12/2010 LOCATION: City of Riverside

E-W STREET: Central Ave DAY: TUESDAY PROJECT# 10-6098-005

	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
LANES:	1	2	1	2	2	1	1	1	0	2	1	1	
7:00 AM	5	118	55	17	58	3	13	3	11	103	4	44	434
7:15 AM	3	197	63	10	66	0	1	1	1	136	2	78	558
7:30 AM	3	261	93	13	74	0	0	2	1	129	3	97	676
7:45 AM	6	293	93	13	60	0	0	1	0	127	4	96	693
8:00 AM	6	212	92	20	56	2	1	0	1	116	3	100	609
8:15 AM	2	186	95	25	50	0	2	4	2	88	2	56	512
8:30 AM	6	148	84	26	47	1	0	2	0	90	1	60	465
8:45 AM	6	145	77	25	35	0	2	3	5	143	2	59	502
TOTAL VOLUMES =	37	1560	652	149	446	6	19	16	21	932	21	590	4449

AM Peak Hr Begins at: 715 AM

PEAK VOLUMES =	18	963	341	56	256	2	2	4	3	508	12	371	2536
PEAK HR. FACTOR:		0.843			0.902			0.750			0.973		0.915

CONTROL: Signalized

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

N-S STREET: Chicago Ave DATE: 10/12/2010 LOCATION: City of Riverside

E-W STREET: Central Ave DAY: TUESDAY PROJECT# 10-6098-005

	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
LANES:	1	2	1	2	2	1	1	1	0	2	1	1	
4:00 PM	4	88	126	69	138	0	1	1	0	87	3	37	554
4:15 PM	12	67	114	63	159	0	1	0	1	97	11	28	553
4:30 PM	15	84	112	88	181	3	1	1	5	99	9	24	622
4:45 PM	17	84	148	99	178	0	3	4	1	90	11	26	661
5:00 PM	20	76	137	114	252	0	2	1	5	133	14	34	788
5:15 PM	18	89	182	103	300	1	3	1	4	130	5	27	863
5:30 PM	20	77	157	124	202	0	7	3	2	106	17	30	745
5:45 PM	17	96	156	130	250	2	3	4	3	89	16	27	793
TOTAL VOLUMES =	NL 123	NT 661	NR 1132	SL 790	ST 1660	SR 6	EL 21	ET 15	ER 21	WL 831	WT 86	WR 233	TOTAL 5579

PM Peak Hr Begins at: 500 PM

PEAK VOLUMES =	75	338	632	471	1004	3	15	9	14	458	52	118	3189
PEAK HR. FACTOR:		0.904			0.915			0.792			0.867		0.924

CONTROL: Signalized

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

N-S STREET: Chicago Ave DATE: 10/12/2010 LOCATION: City of Riverside

E-W STREET: Central Ave DAY: TUESDAY PROJECT# 10-6098-005

	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
LANES:	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
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TOTAL VOLUMES =	0	0	0	0	0	0	0	0	0	0	0	0	0

NOON Peak Hr Begins at: 0 AM

PEAK VOLUMES =	0	0	0	0	0	0	0	0	0	0	0	0	0
PEAK HR. FACTOR:		0.000			0.000			0.000			0.000		0.000

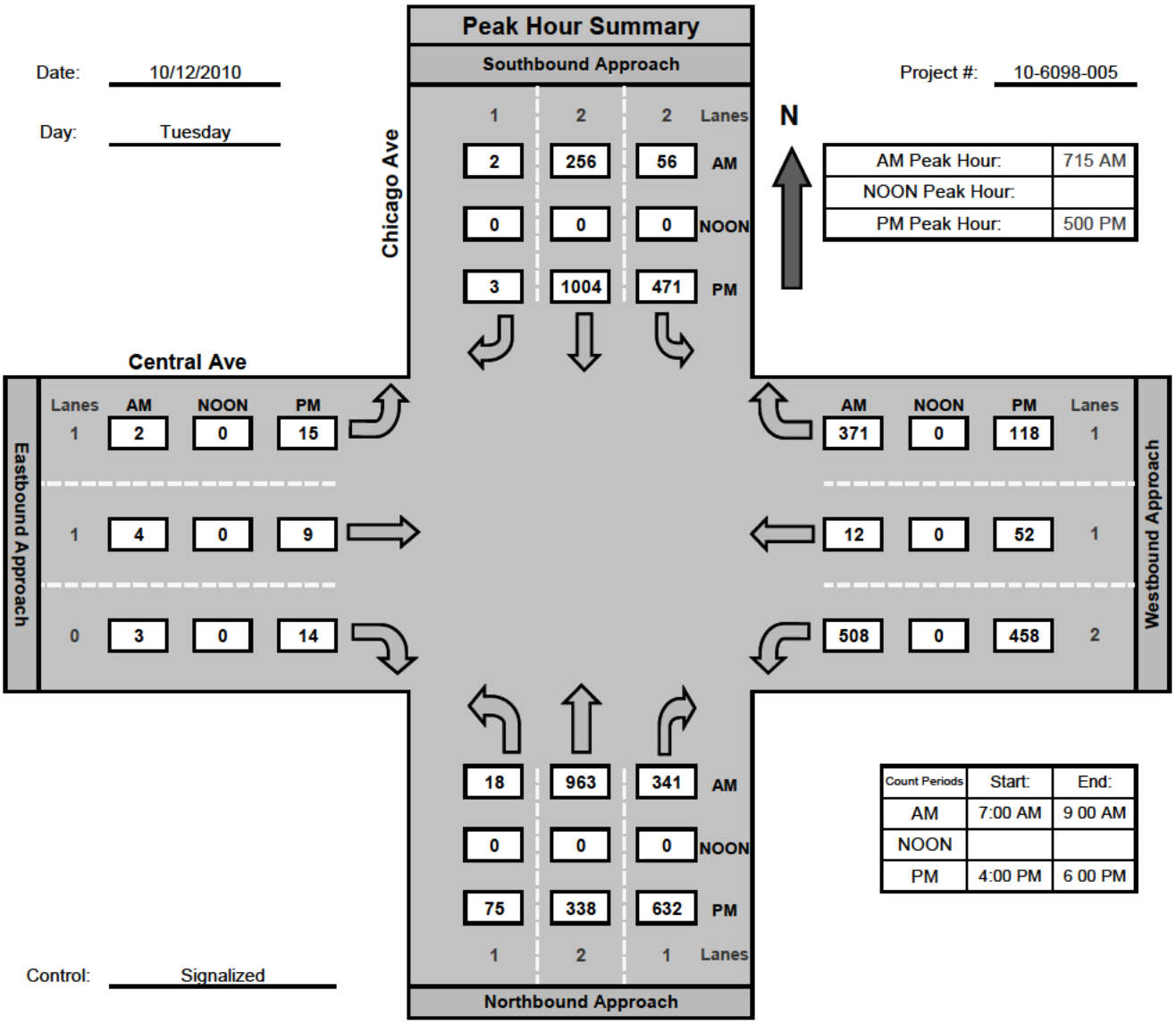
CONTROL:

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

Chicago Ave and Central Ave , City of Riverside

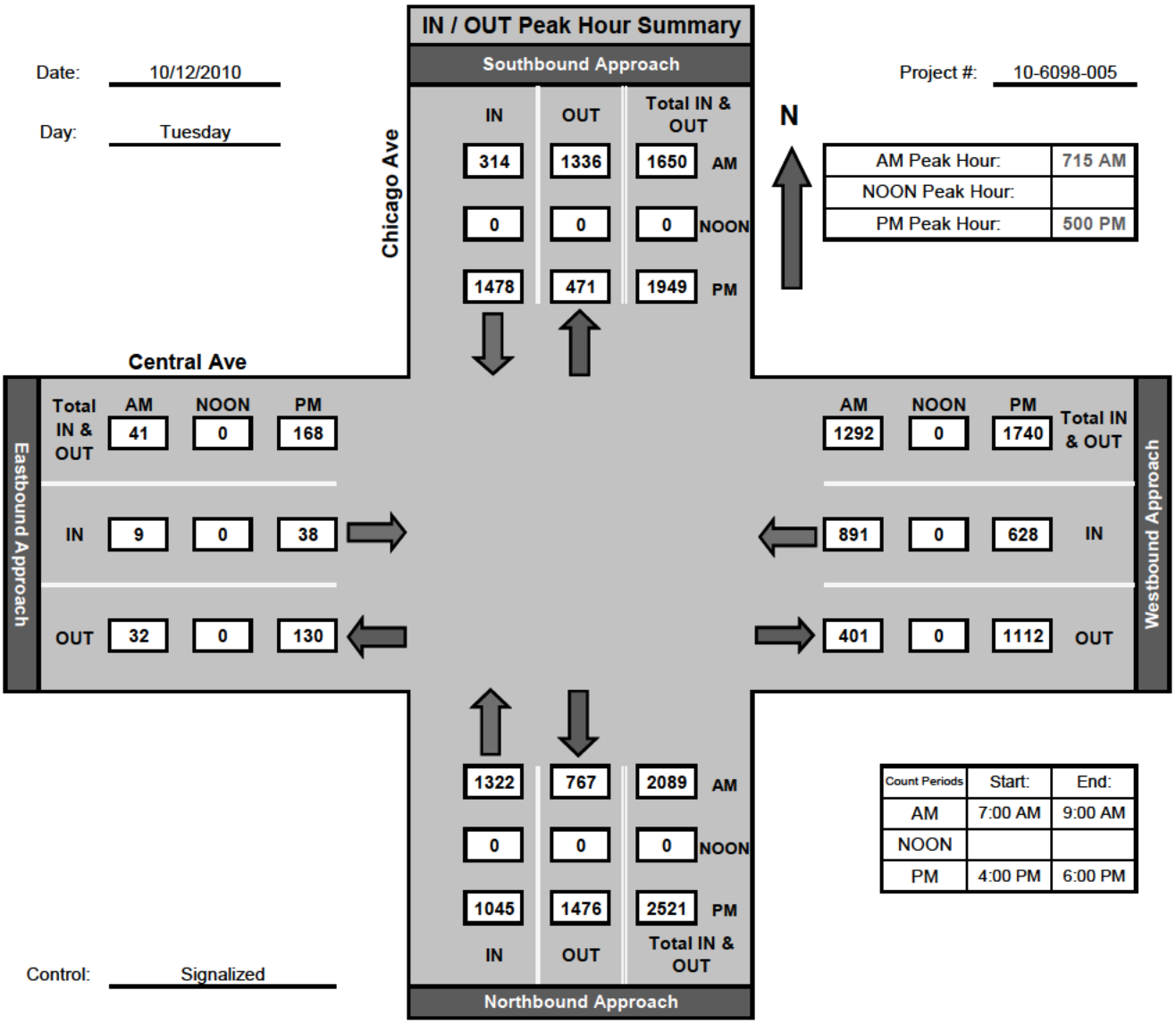


Intersection Turning Movement

Prepared by:

National Data & Surveying Services

Chicago Ave and Central Ave , City of Riverside



Date: 10/12/2010

Day: Tuesday

Project #: 10-6098-005

AM Peak Hour:	715 AM
NOON Peak Hour:	
PM Peak Hour:	500 PM

Count Periods	Start:	End:
AM	7:00 AM	9:00 AM
NOON		
PM	4:00 PM	6:00 PM

Control: Signalized

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

N-S STREET: I-215 SB Ramp DATE: 10/13/2010 LOCATION: City of Riverside

E-W STREET: University Ave DAY: WEDNESDAY PROJECT# 10-6098-022

	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
LANES:	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
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TOTAL VOLUMES =	0	0	0	0	0	0	0	0	0	0	0	0	0

AM Peak Hr Begins at: 0 AM

PEAK VOLUMES =	0	0	0	0	0	0	0	0	0	0	0	0	0
PEAK HR. FACTOR:		0.000			0.000			0.000			0.000		0.000

CONTROL:

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

N-S STREET: I-215 SB Ramp DATE: 10/13/2010 LOCATION: City of Riverside

E-W STREET: University Ave DAY: WEDNESDAY PROJECT# 10-6098-022

	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
LANES:	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
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TOTAL VOLUMES =	0	0	0	0	0	0	0	0	0	0	0	0	0

PM Peak Hr Begins at: 0 AM

PEAK VOLUMES =	0	0	0	0	0	0	0	0	0	0	0	0	0
PEAK HR. FACTOR:		0.000			0.000			0.000			0.000		0.000

CONTROL:

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

N-S STREET: I-215 SB Ramp DATE: 10/13/2010 LOCATION: City of Riverside

E-W STREET: University Ave DAY: WEDNESDAY PROJECT# 10-6098-022

	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
LANES:	0	0	0	1.5	0.5	1	0	2	1	1	2	0	
11:00 AM				29		30		70	63	13	113		318
11:15 AM				33		38		80	77	21	120		369
11:30 AM				28		53		80	84	16	91		352
11:45 AM				26		69		90	72	12	131		400
12:00 PM				35		59		105	89	10	141		439
12:15 PM				34		56		100	77	20	113		400
12:30 PM				46		56		120	77	18	116		433
12:45 PM				22		40		109	87	25	110		393
TOTAL VOLUMES =	NL 0	NT 0	NR 0	SL 253	ST 0	SR 401	EL 0	ET 754	ER 626	WL 135	WT 935	WR 0	TOTAL 3104

NOON Peak Hr Begins at: 1145 AM

PEAK VOLUMES =	0	0	0	141	0	240	0	415	315	60	501	0	1672
PEAK HR. FACTOR:		0.000			0.934			0.926			0.929		0.952

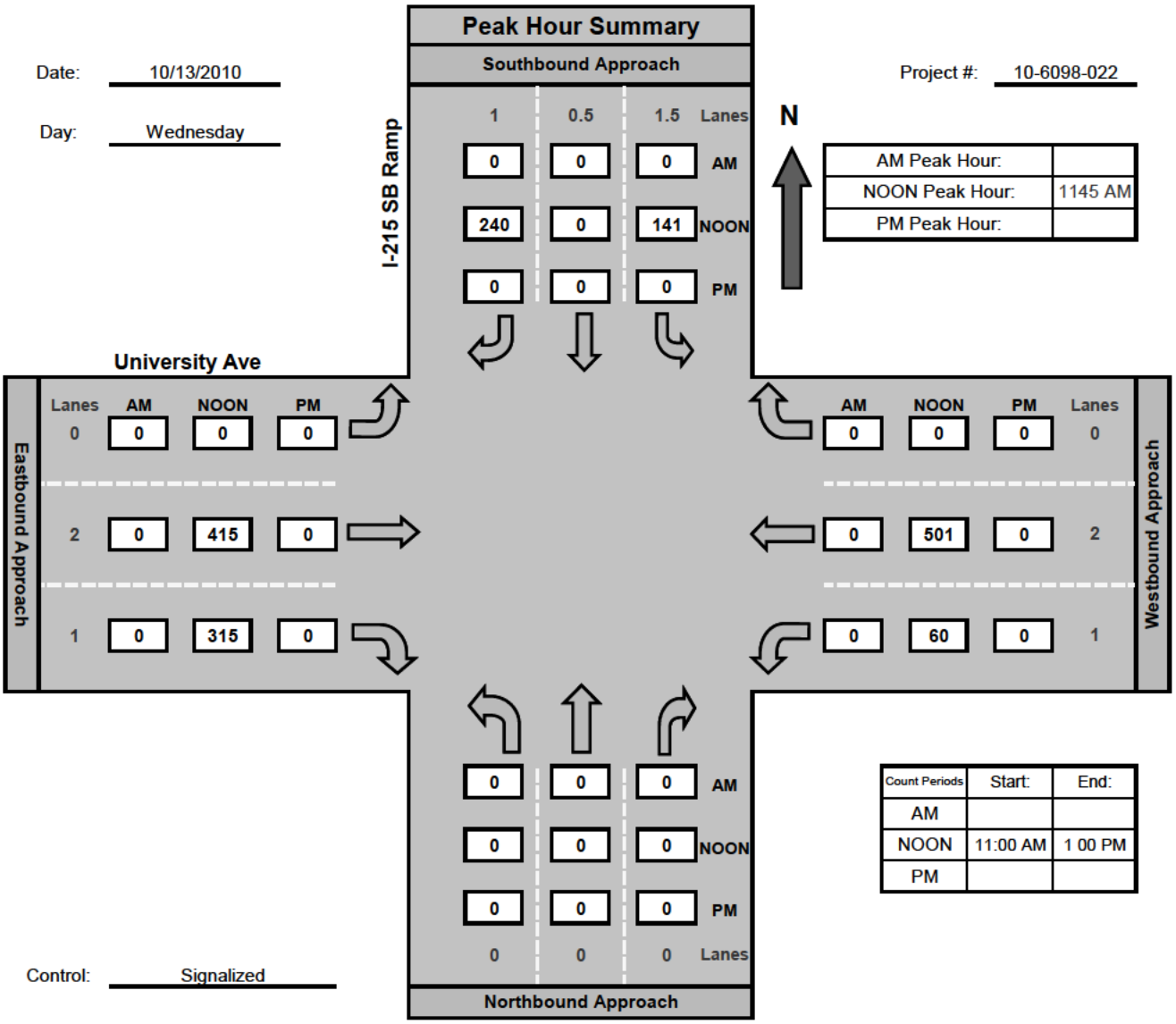
CONTROL: Signalized

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

I-215 SB Ramp and University Ave , City of Riverside

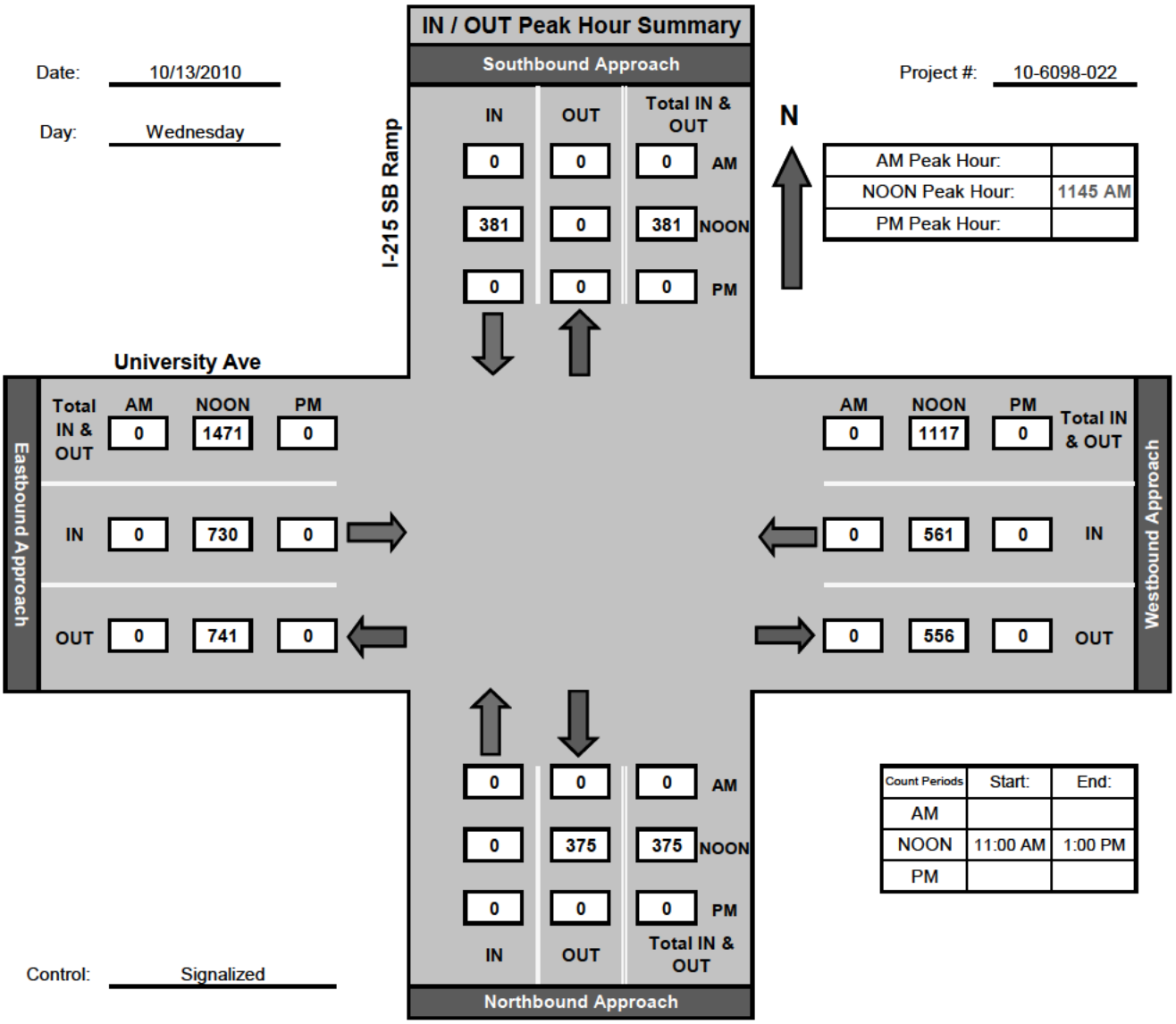


Intersection Turning Movement

Prepared by:

National Data & Surveying Services

I-215 SB Ramp and University Ave , City of Riverside



Date: 10/13/2010

Day: Wednesday

Project #: 10-6098-022

AM Peak Hour:	
NOON Peak Hour:	1145 AM
PM Peak Hour:	

Count Periods	Start:	End:
AM		
NOON	11:00 AM	1:00 PM
PM		

Control: Signalized

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

N-S STREET: I-215 NB Ramp DATE: 10/13/2010 LOCATION: City of Riverside

E-W STREET: University Ave DAY: WEDNESDAY PROJECT# 10-6098-023

	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
LANES:	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
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TOTAL VOLUMES =	0	0	0	0	0	0	0	0	0	0	0	0	0

AM Peak Hr Begins at: 0 AM

PEAK VOLUMES =	0	0	0	0	0	0	0	0	0	0	0	0	0
PEAK HR. FACTOR:		0.000			0.000			0.000			0.000		0.000

CONTROL:

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

N-S STREET: I-215 NB Ramp DATE: 10/13/2010 LOCATION: City of Riverside

E-W STREET: University Ave DAY: WEDNESDAY PROJECT# 10-6098-023

	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
LANES:	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
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TOTAL VOLUMES =	0	0	0	0	0	0	0	0	0	0	0	0	0

PM Peak Hr Begins at: 0 AM

PEAK VOLUMES =	0	0	0	0	0	0	0	0	0	0	0	0	0
PEAK HR. FACTOR:		0.000			0.000			0.000			0.000		0.000

CONTROL:

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

N-S STREET: I-215 NB Ramp DATE: 10/13/2010 LOCATION: City of Riverside

E-W STREET: University Ave DAY: WEDNESDAY PROJECT# 10-6098-023

	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
LANES:	0	0	0	2	0	1	1	2	0	0	2	0	
11:00 AM				12		52	24	75			77	24	264
11:15 AM				13		58	32	62			80	26	271
11:30 AM				13		49	37	65			53	12	229
11:45 AM				15		73	31	90			66	22	297
12:00 PM				17		58	39	112			90	25	341
12:15 PM				16		53	33	109			85	16	312
12:30 PM				15		47	31	107			72	30	302
12:45 PM				19		58	48	108			101	27	361
TOTAL VOLUMES =	NL 0	NT 0	NR 0	SL 120	ST 0	SR 448	EL 275	ET 728	ER 0	WL 0	WT 624	WR 182	TOTAL 2377

NOON Peak Hr Begins at: 1200 PM

PEAK VOLUMES =	0	0	0	67	0	216	151	436	0	0	348	98	1316
PEAK HR. FACTOR:		0.000			0.919			0.941			0.871		0.911

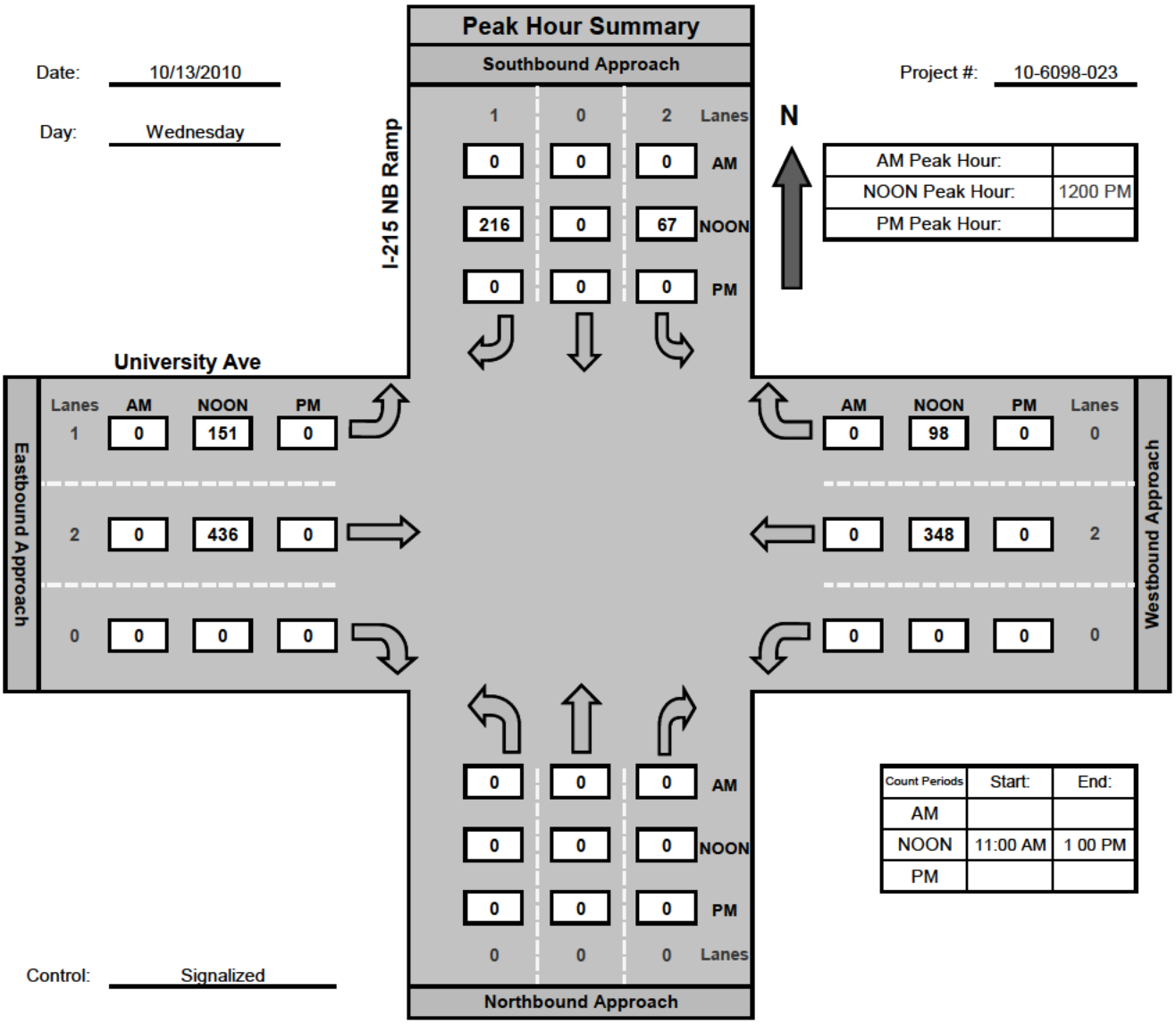
CONTROL: Signalized

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

I-215 NB Ramp and University Ave , City of Riverside

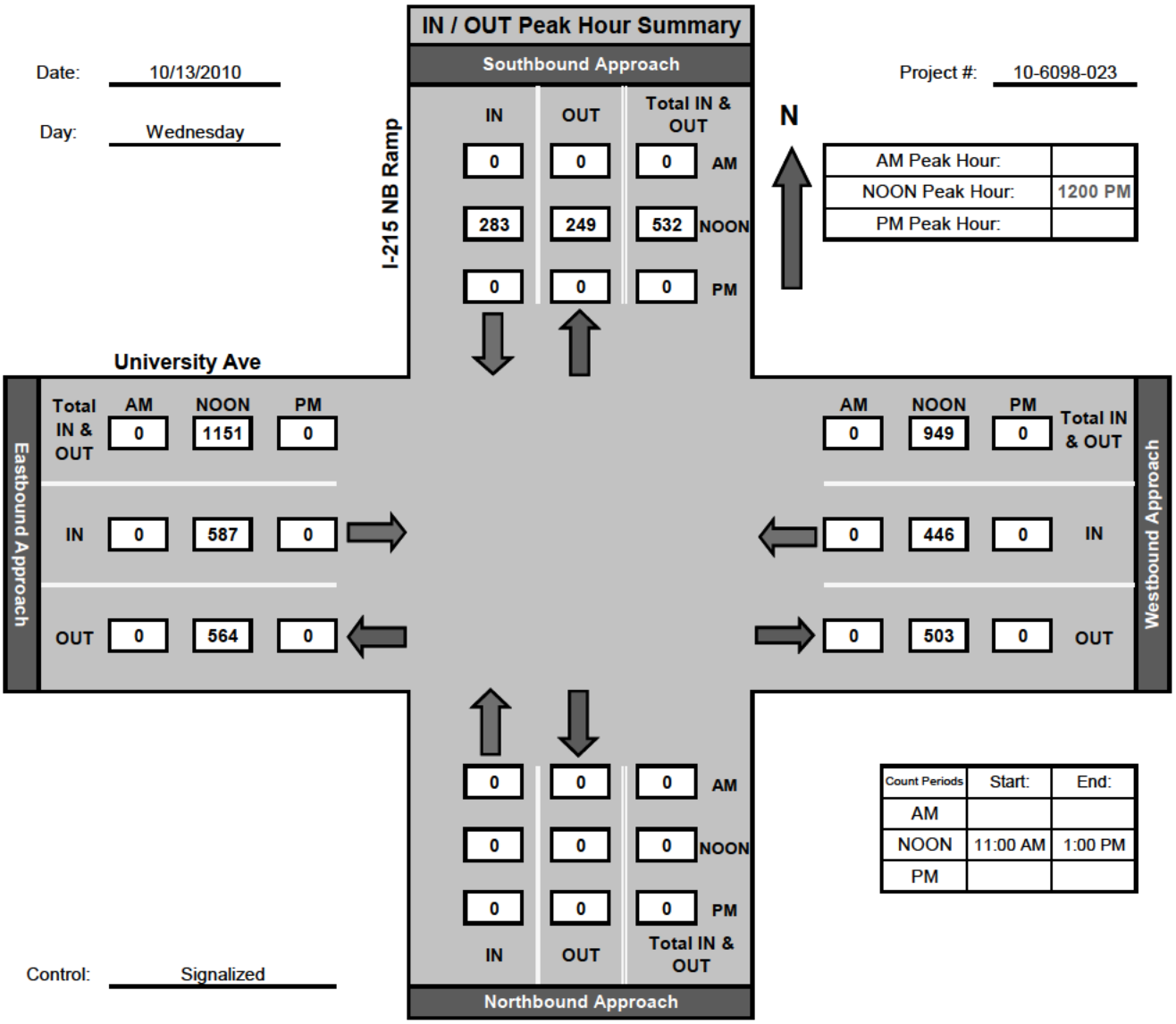


Intersection Turning Movement

Prepared by:

National Data & Surveying Services

I-215 NB Ramp and University Ave , City of Riverside



Date: 10/13/2010

Day: Wednesday

Project #: 10-6098-023

AM Peak Hour:	
NOON Peak Hour:	1200 PM
PM Peak Hour:	

Count Periods	Start:	End:
AM		
NOON	11:00 AM	1:00 PM
PM		

Control: Signalized

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

N-S STREET: Chicago Ave DATE: 10/13/2010 LOCATION: City of Riverside

E-W STREET: Third St DAY: WEDNESDAY PROJECT# 10-6098-020

	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
LANES:	1	2	0	1	2	0	1	2	0	1	2	0	
7:00 AM	18	69	30	34	30	5	6	52	6	24	82	47	403
7:15 AM	22	85	35	28	35	7	15	53	6	28	76	41	431
7:30 AM	26	131	52	46	42	7	19	88	5	27	72	54	569
7:45 AM	40	121	55	76	61	13	20	120	9	43	124	80	762
8:00 AM	32	149	34	29	35	12	20	56	20	26	104	54	571
8:15 AM	25	122	27	16	48	11	15	51	16	21	73	42	467
8:30 AM	18	99	20	24	43	7	20	55	15	19	64	39	423
8:45 AM	13	82	20	33	47	12	11	53	15	23	70	36	415
TOTAL VOLUMES =	NL 194	NT 858	NR 273	SL 286	ST 341	SR 74	EL 126	ET 528	ER 92	WL 211	WT 665	WR 393	TOTAL 4041

AM Peak Hr Begins at: 730 AM

PEAK VOLUMES =	123	523	168	167	186	43	74	315	50	117	373	230	2369
PEAK HR. FACTOR:		0.942			0.660			0.737			0.729		0.777

CONTROL: Signalized

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

N-S STREET: Chicago Ave DATE: 10/13/2010 LOCATION: City of Riverside

E-W STREET: Third St DAY: WEDNESDAY PROJECT# 10-6098-020

	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
LANES:	1	2	0	1	2	0	1	2	0	1	2	0	
4:00 PM	14	67	37	70	151	15	13	120	39	56	65	28	675
4:15 PM	17	57	33	64	153	12	22	122	37	54	73	24	668
4:30 PM	17	91	29	55	143	13	17	170	38	60	76	25	734
4:45 PM	15	84	33	54	144	13	27	146	46	63	73	21	719
5:00 PM	13	81	42	73	160	15	18	143	53	54	63	13	728
5:15 PM	17	91	41	62	170	18	11	115	45	75	63	16	724
5:30 PM	20	92	45	59	186	18	18	189	27	62	79	21	816
5:45 PM	13	66	29	50	143	16	27	111	39	60	78	23	655
TOTAL VOLUMES =	NL 126	NT 629	NR 289	SL 487	ST 1250	SR 120	EL 153	ET 1116	ER 324	WL 484	WT 570	WR 171	TOTAL 5719

PM Peak Hr Begins at: 445 PM

PEAK VOLUMES =	65	348	161	248	660	64	74	593	171	254	278	71	2987
PEAK HR. FACTOR:		0.914			0.924			0.895			0.931		0.915

CONTROL: Signalized

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

N-S STREET: Chicago Ave DATE: 10/13/2010 LOCATION: City of Riverside

E-W STREET: Third St DAY: WEDNESDAY PROJECT# 10-6098-020

	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
LANES:	1	2	0	1	2	0	1	2	0	1	2	0	
11:00 AM	18	66	24	21	69	14	13	60	21	23	54	18	401
11:15 AM	16	54	28	27	51	7	11	51	13	35	70	33	396
11:30 AM	18	75	28	29	82	13	11	60	28	34	62	32	472
11:45 AM	25	85	21	25	90	17	12	68	24	34	73	25	499
12:00 PM	15	61	27	32	80	8	12	84	29	39	72	27	486
12:15 PM	28	84	39	33	83	9	15	71	31	34	76	40	543
12:30 PM	20	82	36	32	70	17	24	66	26	61	85	23	542
12:45 PM	31	76	27	30	68	16	12	87	21	40	75	26	509
TOTAL VOLUMES =	NL 171	NT 583	NR 230	SL 229	ST 593	SR 101	EL 110	ET 547	ER 193	WL 300	WT 567	WR 224	TOTAL 3848

NOON Peak Hr Begins at: 1200 PM

PEAK VOLUMES =	94	303	129	127	301	50	63	308	107	174	308	116	2080
PEAK HR. FACTOR:		0.871			0.956			0.956			0.885		0.958

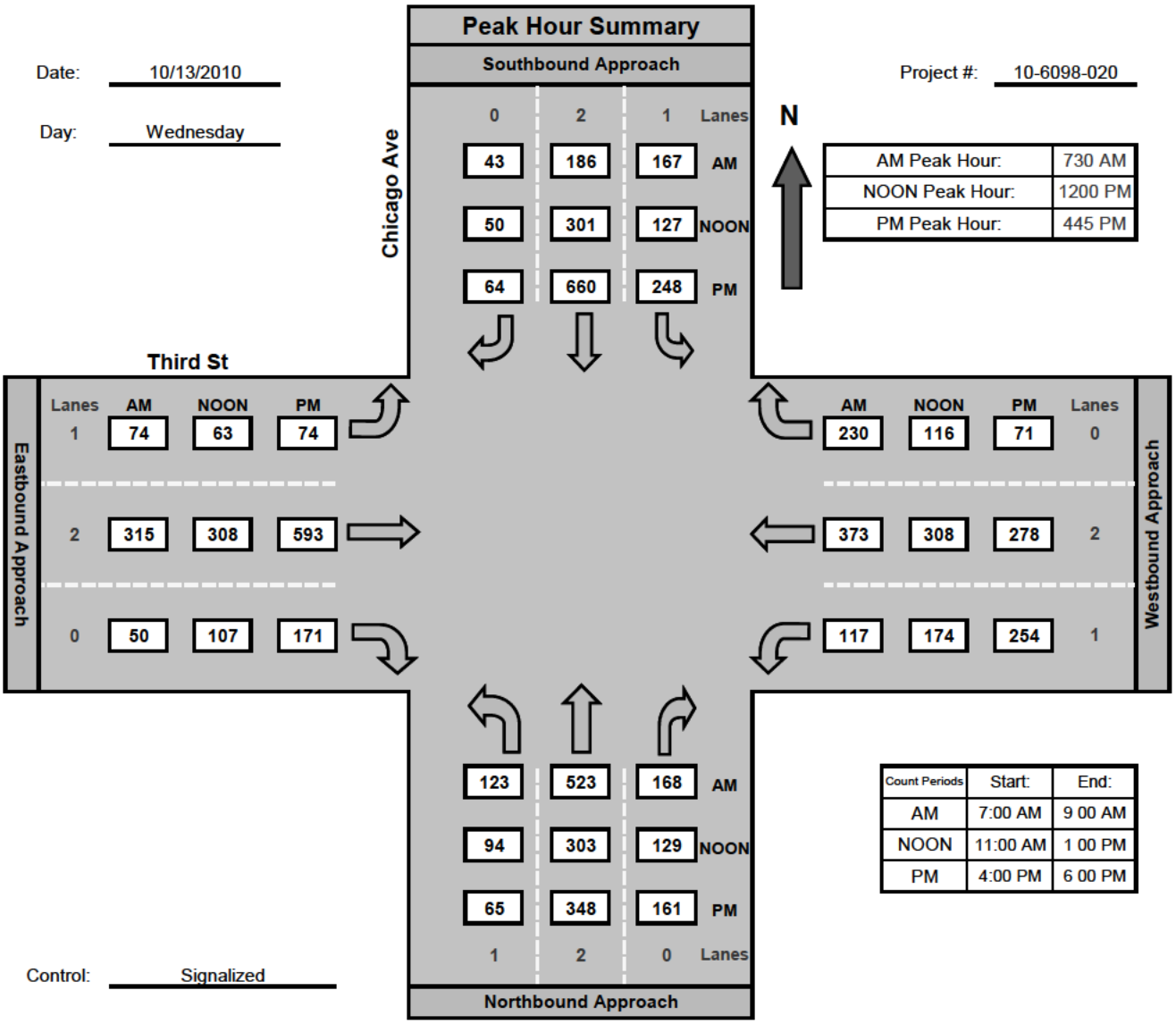
CONTROL: Signalized

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

Chicago Ave and Third St , City of Riverside

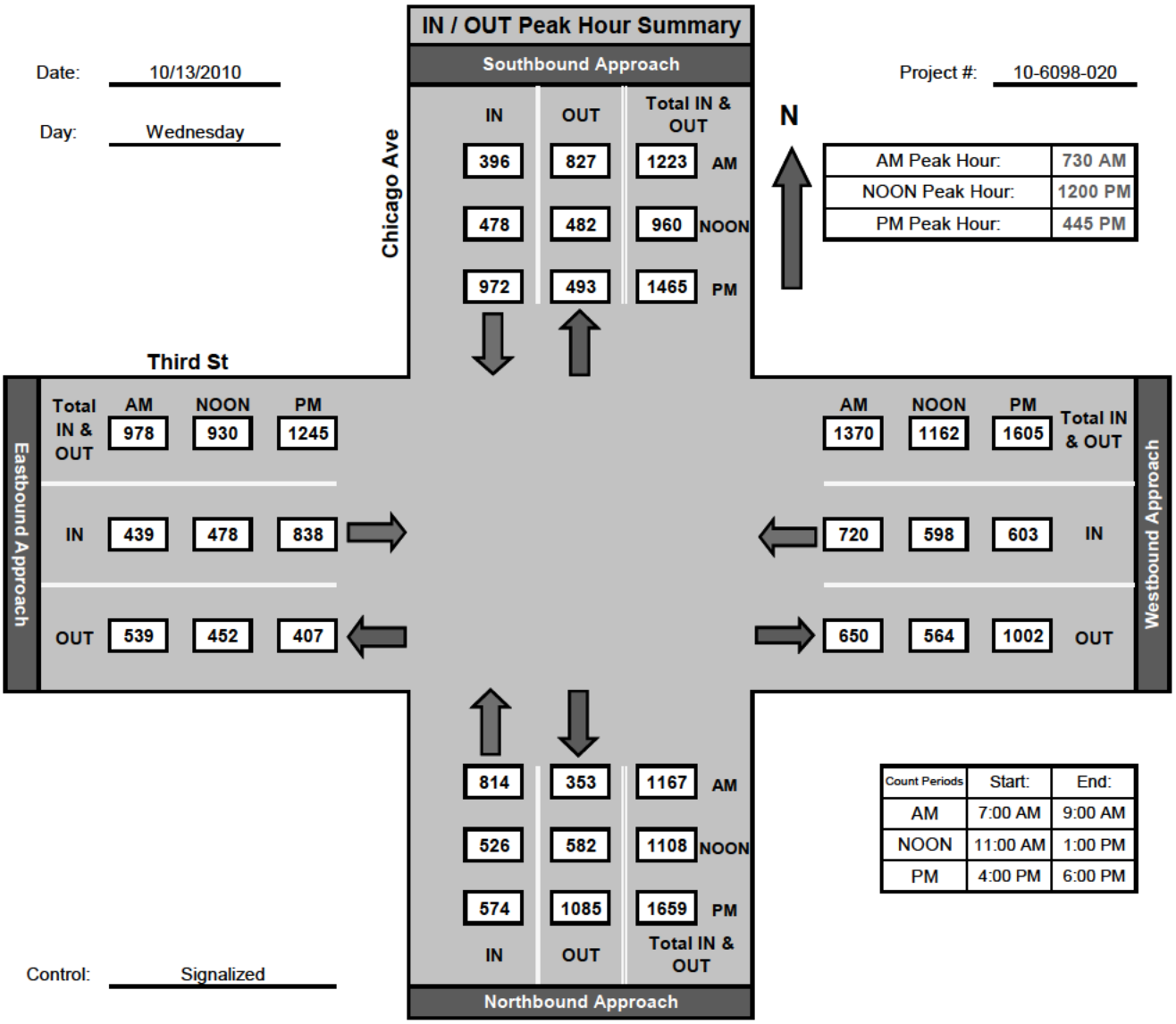


Intersection Turning Movement

Prepared by:

National Data & Surveying Services

Chicago Ave and Third St , City of Riverside



Date: 10/13/2010

Day: Wednesday

Project #: 10-6098-020

AM Peak Hour:	730 AM
NOON Peak Hour:	1200 PM
PM Peak Hour:	445 PM

Count Periods	Start:	End:
AM	7:00 AM	9:00 AM
NOON	11:00 AM	1:00 PM
PM	4:00 PM	6:00 PM

Control: Signalized

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

N-S STREET: Rustin Ave DATE: 10/13/2010 LOCATION: City of Riverside

E-W STREET: Blaine St DAY: WEDNESDAY PROJECT# 10-6098-018

	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
LANES:	1	1	0	0	1	0	1	2	0	1	2	0	
7:00 AM	1	4	3	2	3	4	3	56	5	4	82	4	171
7:15 AM	2	3	0	8	4	8	18	81	9	10	121	7	271
7:30 AM	5	12	4	7	9	25	45	94	10	20	130	14	375
7:45 AM	10	17	6	21	22	26	51	100	10	10	84	20	377
8:00 AM	7	18	13	41	12	32	47	109	16	12	115	30	452
8:15 AM	13	3	8	24	2	10	8	69	17	14	106	15	289
8:30 AM	9	2	8	5	5	11	7	79	11	10	116	18	281
8:45 AM	3	1	6	6	4	10	7	78	17	5	82	3	222
TOTAL VOLUMES =	50	60	48	114	61	126	186	666	95	85	836	111	2438

AM Peak Hr Begins at: 730 AM

PEAK VOLUMES =	35	50	31	93	45	93	151	372	53	56	435	79	1493
PEAK HR. FACTOR:		0.763			0.679			0.837			0.869		0.826

CONTROL: Signalized

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

N-S STREET: Rustin Ave DATE: 10/13/2010 LOCATION: City of Riverside

E-W STREET: Blaine St DAY: WEDNESDAY PROJECT# 10-6098-018

	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
LANES:	1	1	0	0	1	0	1	2	0	1	2	0	
4:00 PM	9	4	8	10	4	10	11	119	8	9	94	4	290
4:15 PM	15	3	8	6	4	21	11	109	8	6	102	4	297
4:30 PM	6	3	6	6	7	6	15	91	10	6	98	7	261
4:45 PM	6	6	14	13	3	9	15	133	13	9	104	5	330
5:00 PM	4	4	9	14	7	14	8	115	8	7	123	12	325
5:15 PM	24	5	7	20	8	16	13	146	15	9	139	17	419
5:30 PM	15	4	6	19	9	6	16	133	12	9	110	11	350
5:45 PM	9	3	11	14	3	8	8	124	12	13	104	14	323
TOTAL VOLUMES =	NL 88	NT 32	NR 69	SL 102	ST 45	SR 90	EL 97	ET 970	ER 86	WL 68	WT 874	WR 74	TOTAL 2595

PM Peak Hr Begins at: 445 PM

PEAK VOLUMES =	49	19	36	66	27	45	52	527	48	34	476	45	1424
PEAK HR. FACTOR:		0.722			0.784			0.901			0.841		0.850

CONTROL: Signalized

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

N-S STREET: Rustin Ave DATE: 10/13/2010 LOCATION: City of Riverside

E-W STREET: Blaine St DAY: WEDNESDAY PROJECT# 10-6098-018

	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
LANES:	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
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TOTAL VOLUMES =	0	0	0	0	0	0	0	0	0	0	0	0	0

NOON Peak Hr Begins at: 0 AM

PEAK VOLUMES =	0	0	0	0	0	0	0	0	0	0	0	0	0
PEAK HR. FACTOR:		0.000			0.000			0.000			0.000		0.000

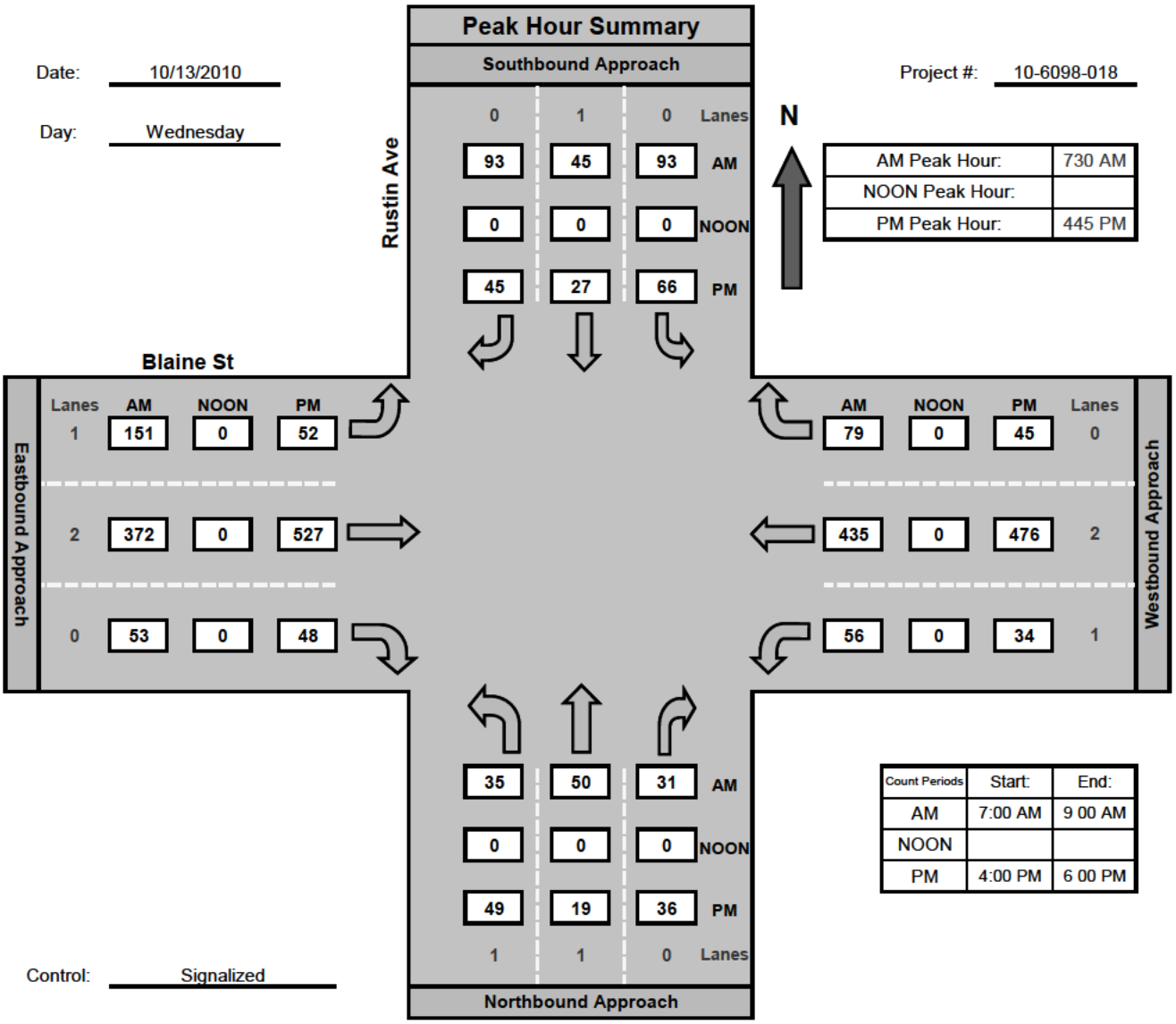
CONTROL:

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

Rustin Ave and Blaine St , City of Riverside

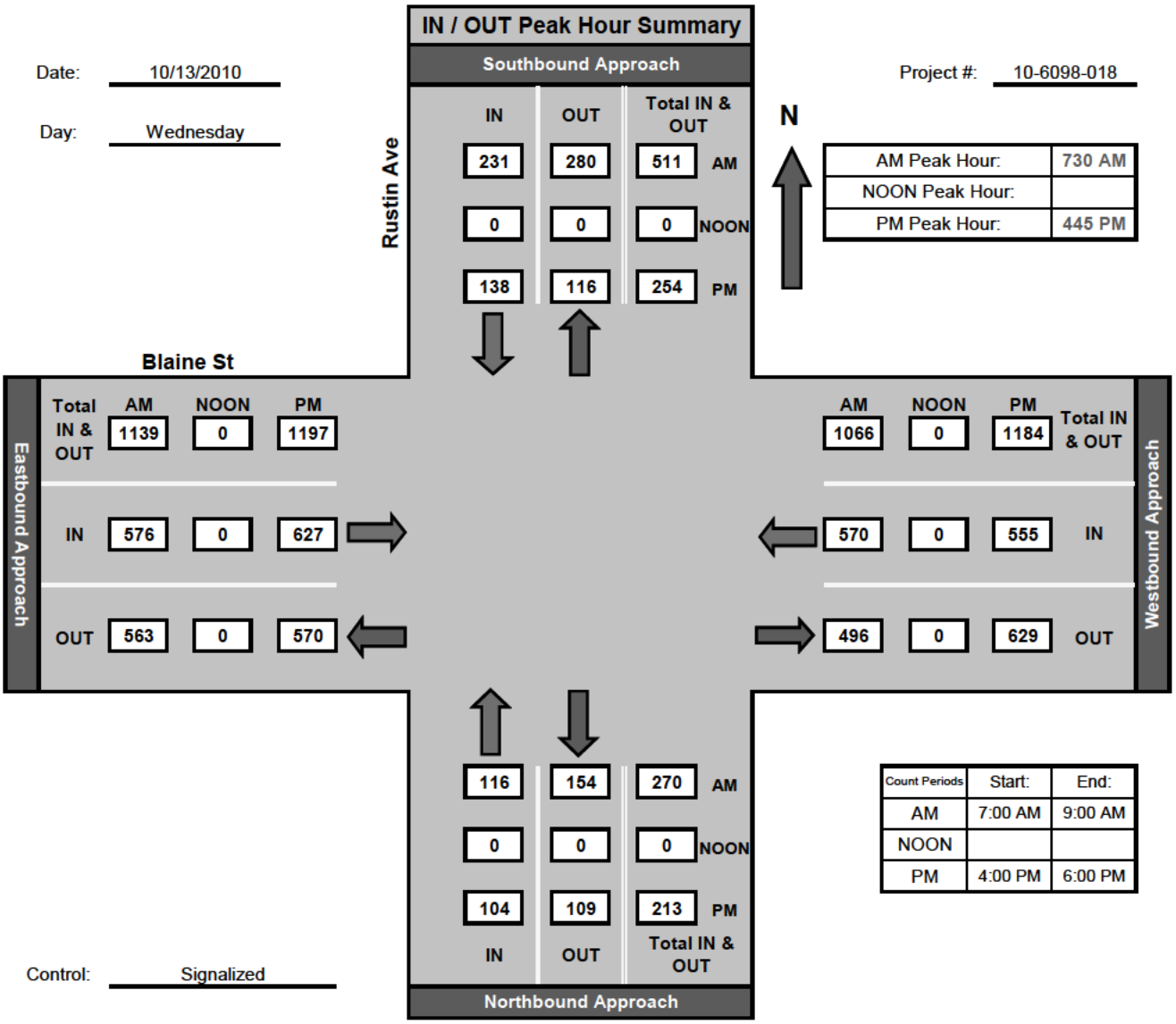


Intersection Turning Movement

Prepared by:

National Data & Surveying Services

Rustin Ave and Blaine St , City of Riverside



Date: 10/13/2010

Day: Wednesday

Project #: 10-6098-018

AM Peak Hour:	730 AM
NOON Peak Hour:	
PM Peak Hour:	445 PM

Count Periods	Start:	End:
AM	7:00 AM	9:00 AM
NOON		
PM	4:00 PM	6:00 PM

Control: Signalized

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

N-S STREET: Canyon Crest Dr DATE: 10/13/2010 LOCATION: City of Riverside

E-W STREET: Linden St DAY: WEDNESDAY PROJECT# 10-6098-003

	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
LANES:	1	1	1	1	1	1	1	2	0	1	1	0	
7:00 AM	2	25	17	11	22	3	2	7	7	9	8	11	124
7:15 AM	1	24	18	7	23	7	3	9	10	19	2	8	131
7:30 AM	17	38	17	19	32	9	5	14	7	13	5	2	178
7:45 AM	4	43	38	32	47	15	10	33	18	18	19	9	286
8:00 AM	25	59	25	17	46	10	10	12	18	23	16	16	277
8:15 AM	11	30	39	11	29	10	12	18	11	26	11	6	214
8:30 AM	5	26	37	11	34	4	4	28	15	27	7	6	204
8:45 AM	10	36	39	24	53	9	10	16	5	24	8	7	241
TOTAL VOLUMES =	NL 75	NT 281	NR 230	SL 132	ST 286	SR 67	EL 56	ET 137	ER 91	WL 159	WT 76	WR 65	TOTAL 1655

AM Peak Hr Begins at: 745 AM

PEAK VOLUMES =	45	158	139	71	156	39	36	91	62	94	53	37	981
PEAK HR. FACTOR:		0.784			0.707			0.775			0.836		0.858

CONTROL: Signalized

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

N-S STREET: Canyon Crest Dr DATE: 10/13/2010 LOCATION: City of Riverside

E-W STREET: Linden St DAY: WEDNESDAY PROJECT# 10-6098-003

	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
LANES:	1	1	1	1	1	1	1	2	0	1	1	0	
4:00 PM	22	48	42	9	51	6	11	17	29	44	37	15	331
4:15 PM	17	45	37	16	51	6	10	18	23	63	23	17	326
4:30 PM	10	48	32	15	61	8	6	25	21	48	24	19	317
4:45 PM	24	49	34	23	66	10	14	30	20	44	20	18	352
5:00 PM	33	78	39	16	76	13	12	19	29	49	33	29	426
5:15 PM	18	81	41	24	61	8	21	22	28	46	23	28	401
5:30 PM	27	42	27	17	73	10	11	18	16	43	27	30	341
5:45 PM	11	41	43	36	81	10	16	28	29	34	26	22	377
TOTAL VOLUMES =	NL 162	NT 432	NR 295	SL 156	ST 520	SR 71	EL 101	ET 177	ER 195	WL 371	WT 213	WR 178	TOTAL 2871

PM Peak Hr Begins at: 500 PM

PEAK VOLUMES =	89	242	150	93	291	41	60	87	102	172	109	109	1545
PEAK HR. FACTOR:		0.802			0.837			0.853			0.878		0.907

CONTROL: Signalized

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

N-S STREET: Canyon Crest Dr DATE: 10/13/2010 LOCATION: City of Riverside

E-W STREET: Linden St DAY: WEDNESDAY PROJECT# 10-6098-003

	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
LANES:	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
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TOTAL VOLUMES =	0	0	0	0	0	0	0	0	0	0	0	0	0

NOON Peak Hr Begins at: 0 AM

PEAK VOLUMES =	0	0	0	0	0	0	0	0	0	0	0	0	0
PEAK HR. FACTOR:		0.000			0.000			0.000			0.000		0.000

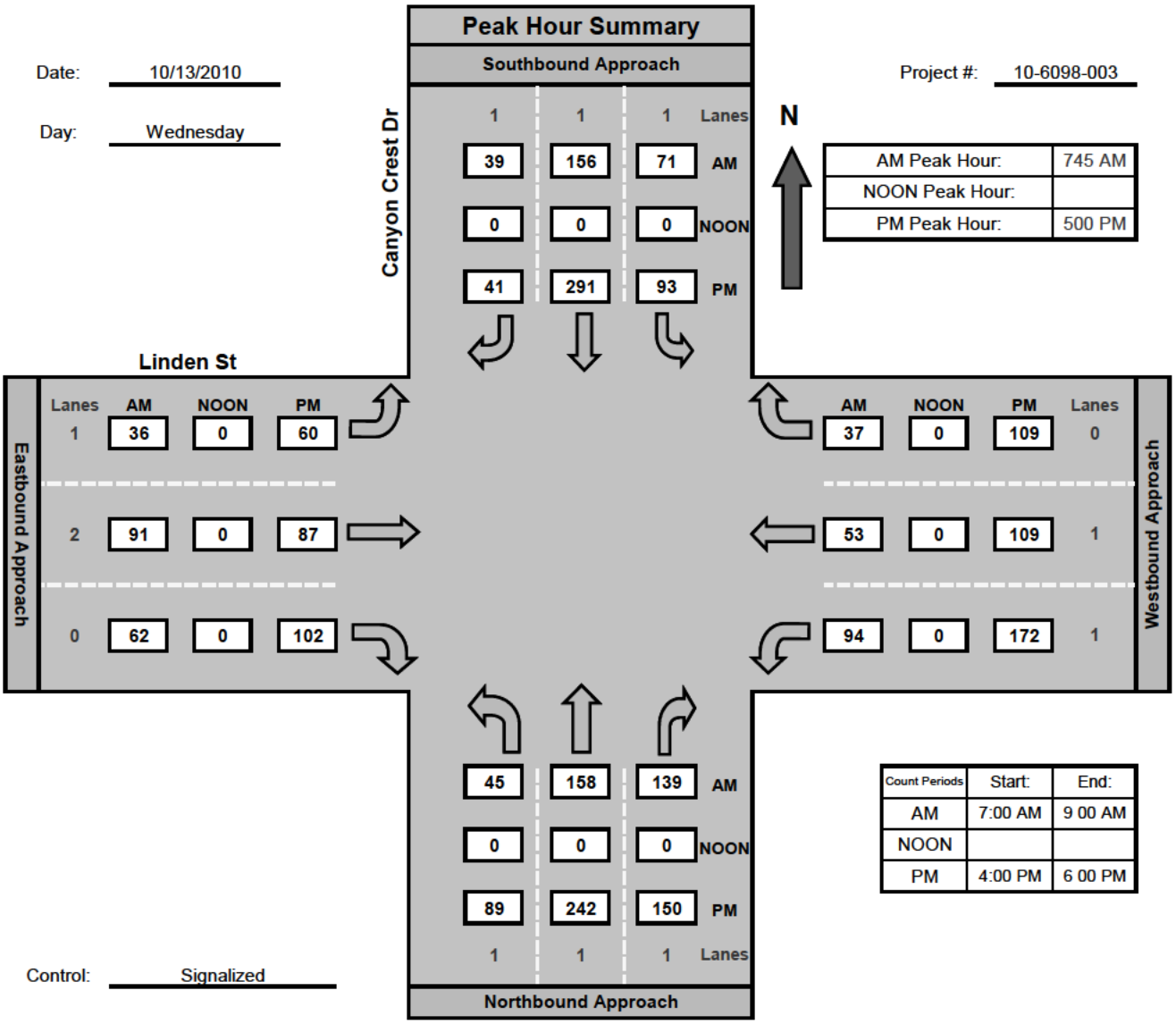
CONTROL:

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

Canyon Crest Dr and Linden St , City of Riverside

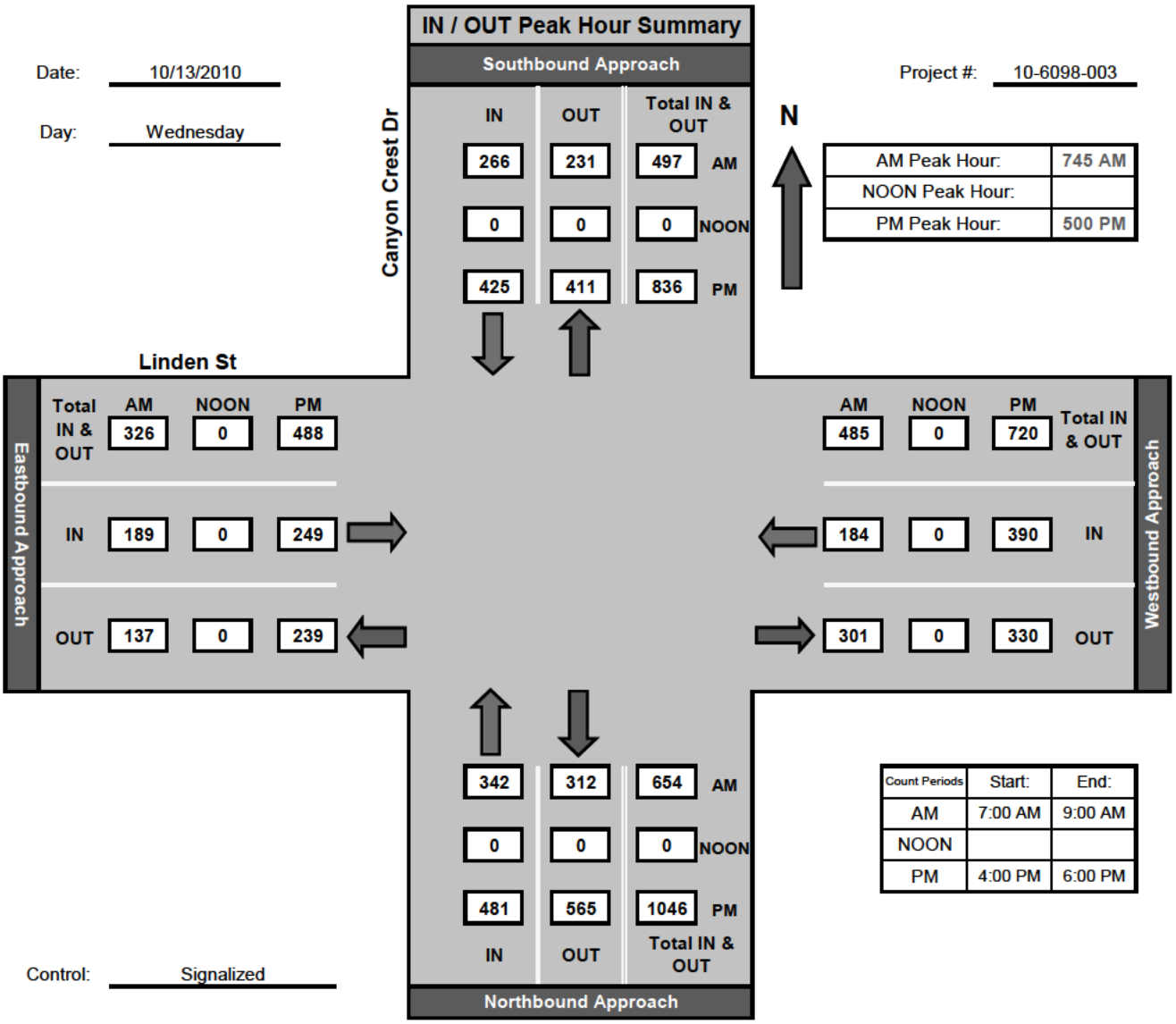


Intersection Turning Movement

Prepared by:

National Data & Surveying Services

Canyon Crest Dr and Linden St , City of Riverside



Date: 10/13/2010

Day: Wednesday

Project #: 10-6098-003

AM Peak Hour:	745 AM
NOON Peak Hour:	
PM Peak Hour:	500 PM

Count Periods	Start:	End:
AM	7:00 AM	9:00 AM
NOON		
PM	4:00 PM	6:00 PM

Control: Signalized

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

N-S STREET: Chicago Ave DATE: 10/12/2010 LOCATION: City of Riverside

E-W STREET: Le Conte Dr DAY: TUESDAY PROJECT# 10-6098-008

	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
LANES:	0	2	0	1	2	0	0	0	0	1	1	0	
7:00 AM		183	1	9	60					4		7	264
7:15 AM		282	2	5	77					1		13	380
7:30 AM		373	3	5	85					3		20	489
7:45 AM		389	5	14	67					1		28	504
8:00 AM		298	5	21	80					1		17	422
8:15 AM		246	4	16	81					1		27	375
8:30 AM		211	0	6	81					0		18	316
8:45 AM		209	3	9	68					1		19	309
TOTAL VOLUMES =	NL 0	NT 2191	NR 23	SL 85	ST 599	SR 0	EL 0	ET 0	ER 0	WL 12	WT 0	WR 149	TOTAL 3059

AM Peak Hr Begins at: 715 AM

PEAK VOLUMES =	0	1342	15	45	309	0	0	0	0	6	0	78	1795
PEAK HR. FACTOR:		0.861			0.876			0.000			0.724		0.890

CONTROL: 1-Way Stop WB

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

N-S STREET: Chicago Ave DATE: 10/12/2010 LOCATION: City of Riverside

E-W STREET: Le Conte Dr DAY: TUESDAY PROJECT# 10-6098-008

	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
LANES:	0	2	0	1	2	0	0	0	0	1	1	0	
4:00 PM		123	3	17	245					1		4	393
4:15 PM		94	4	22	227					1		17	365
4:30 PM		105	3	28	274					2		5	417
4:45 PM		115	4	20	327					0		13	479
5:00 PM		113	3	23	339					2		15	495
5:15 PM		132	2	28	398					2		12	574
5:30 PM		101	6	36	319					1		16	479
5:45 PM		124	3	30	367					1		14	539
TOTAL VOLUMES =	NL 0	NT 907	NR 28	SL 204	ST 2496	SR 0	EL 0	ET 0	ER 0	WL 10	WT 0	WR 96	TOTAL 3741

PM Peak Hr Begins at: 500 PM

PEAK VOLUMES =	0	470	14	117	1423	0	0	0	0	6	0	57	2087
PEAK HR. FACTOR:		0.903			0.904			0.000			0.926		0.909

CONTROL: 1-Way Stop WB

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

N-S STREET: Chicago Ave DATE: 10/12/2010 LOCATION: City of Riverside

E-W STREET: Le Conte Dr DAY: TUESDAY PROJECT# 10-6098-008

	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
LANES:	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
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TOTAL VOLUMES =	0	0	0	0	0	0	0	0	0	0	0	0	0

NOON Peak Hr Begins at: 0 AM

PEAK VOLUMES =	0	0	0	0	0	0	0	0	0	0	0	0	0
PEAK HR. FACTOR:		0.000			0.000			0.000			0.000		0.000

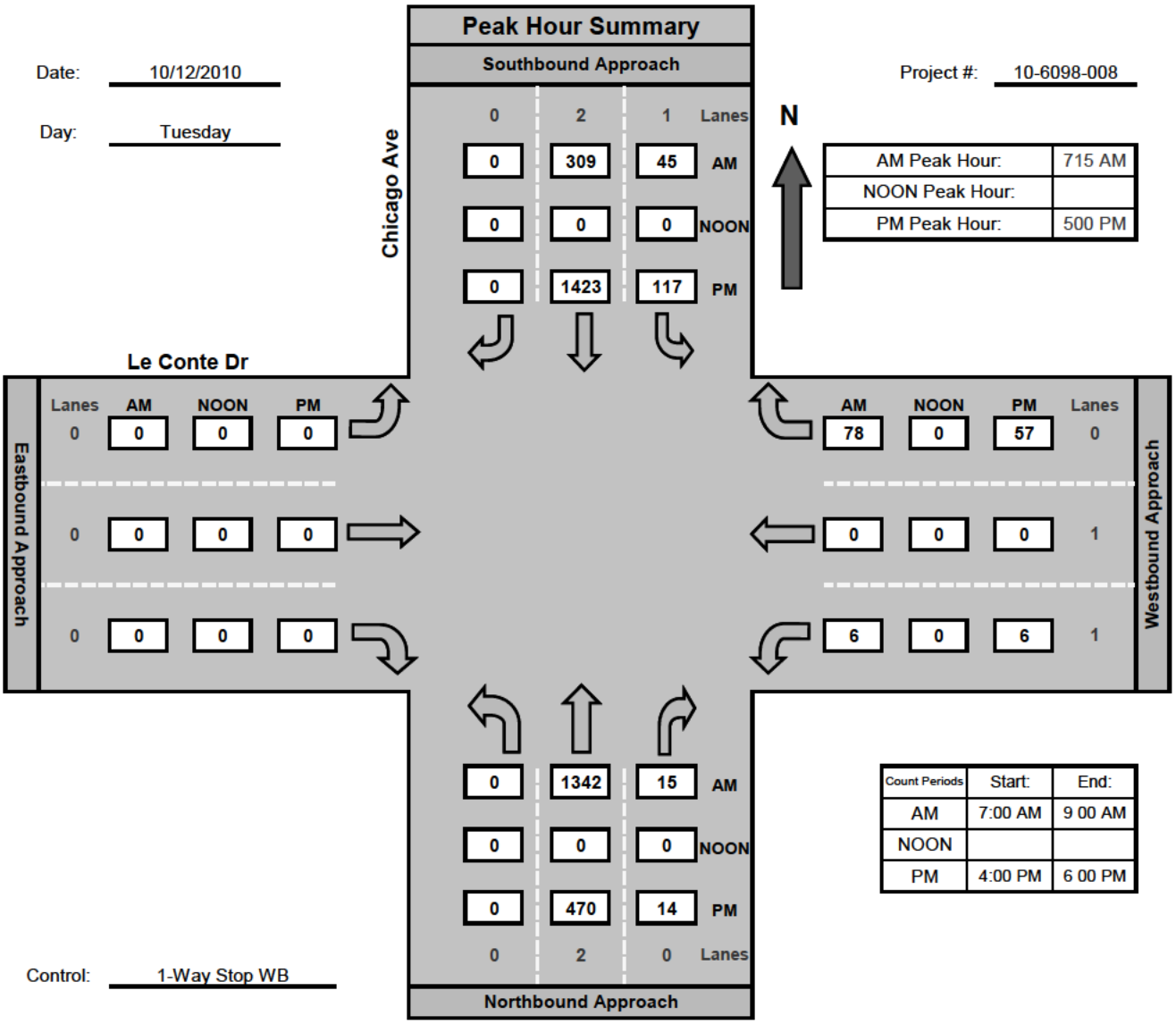
CONTROL:

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

Chicago Ave and Le Conte Dr , City of Riverside

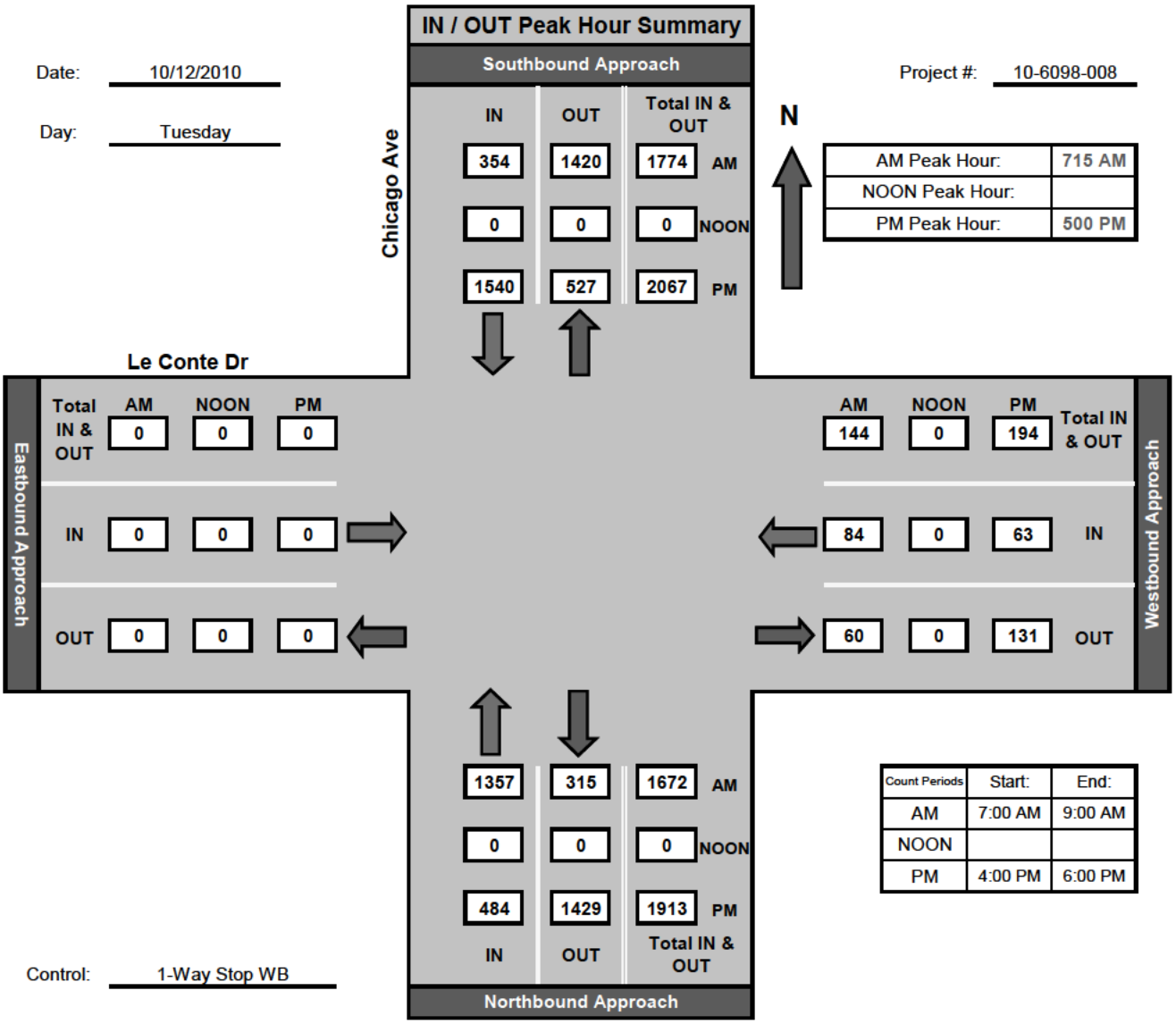


Intersection Turning Movement

Prepared by:

National Data & Surveying Services

Chicago Ave and Le Conte Dr , City of Riverside



Date: 10/12/2010

Day: Tuesday

Project #: 10-6098-008

AM Peak Hour:	715 AM
NOON Peak Hour:	
PM Peak Hour:	500 PM

Count Periods	Start:	End:
AM	7:00 AM	9:00 AM
NOON		
PM	4:00 PM	6:00 PM

Control: 1-Way Stop WB

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

N-S STREET: Watkins Dr DATE: 10/13/2010 LOCATION: City of Riverside

E-W STREET: Blaine St DAY: WEDNESDAY PROJECT# 10-6098-002

	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
LANES:	1	1	1	1	1	1	1	2	0	1	1	0	
7:00 AM	24	68	2	1	10	3	1	29	19	8	45	9	219
7:15 AM	42	69	7	4	14	2	5	26	28	4	76	6	283
7:30 AM	50	87	4	1	14	6	0	38	29	11	95	10	345
7:45 AM	47	92	5	4	22	5	2	54	53	11	93	12	400
8:00 AM	41	76	8	5	20	6	1	87	52	6	79	7	388
8:15 AM	37	64	10	9	11	10	2	93	33	10	90	11	380
8:30 AM	33	42	6	9	6	4	0	40	37	10	94	7	288
8:45 AM	26	41	5	2	20	5	2	37	41	9	67	5	260
TOTAL VOLUMES =	300	539	47	35	117	41	13	404	292	69	639	67	2563

AM Peak Hr Begins at: 730 AM

PEAK VOLUMES =	175	319	27	19	67	27	5	272	167	38	357	40	1513
PEAK HR. FACTOR:		0.905			0.911			0.793			0.938		0.946

CONTROL: Signalized

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

N-S STREET: Watkins Dr DATE: 10/13/2010 LOCATION: City of Riverside

E-W STREET: Blaine St DAY: WEDNESDAY PROJECT# 10-6098-002

	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
LANES:	1	1	1	1	1	1	1	2	0	1	1	0	
4:00 PM	26	24	15	7	57	7	4	56	45	16	45	3	305
4:15 PM	38	16	3	10	72	7	3	69	47	8	42	3	318
4:30 PM	30	19	6	9	92	4	1	45	35	4	44	2	291
4:45 PM	35	26	9	8	51	7	0	58	48	7	59	3	311
5:00 PM	48	32	12	11	97	5	4	64	51	14	54	10	402
5:15 PM	45	38	13	8	85	9	6	100	67	8	49	1	429
5:30 PM	50	11	11	12	87	9	4	76	76	8	69	5	418
5:45 PM	40	20	9	9	63	12	4	69	57	11	78	6	378
TOTAL VOLUMES =	NL 312	NT 186	NR 78	SL 74	ST 604	SR 60	EL 26	ET 537	ER 426	WL 76	WT 440	WR 33	TOTAL 2852

PM Peak Hr Begins at: 500 PM

PEAK VOLUMES =	183	101	45	40	332	35	18	309	251	41	250	22	1627
PEAK HR. FACTOR:		0.857			0.900			0.835			0.824		0.948

CONTROL: Signalized

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

N-S STREET: Watkins Dr DATE: 10/13/2010 LOCATION: City of Riverside

E-W STREET: Blaine St DAY: WEDNESDAY PROJECT# 10-6098-002

	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
LANES:	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
12:00 AM													
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TOTAL VOLUMES =	0	0	0	0	0	0	0	0	0	0	0	0	0

NOON Peak Hr Begins at: 0 AM

PEAK VOLUMES =	0	0	0	0	0	0	0	0	0	0	0	0	0
PEAK HR. FACTOR:		0.000			0.000			0.000			0.000		0.000

CONTROL:

Intersection Turning Movement

Prepared by:

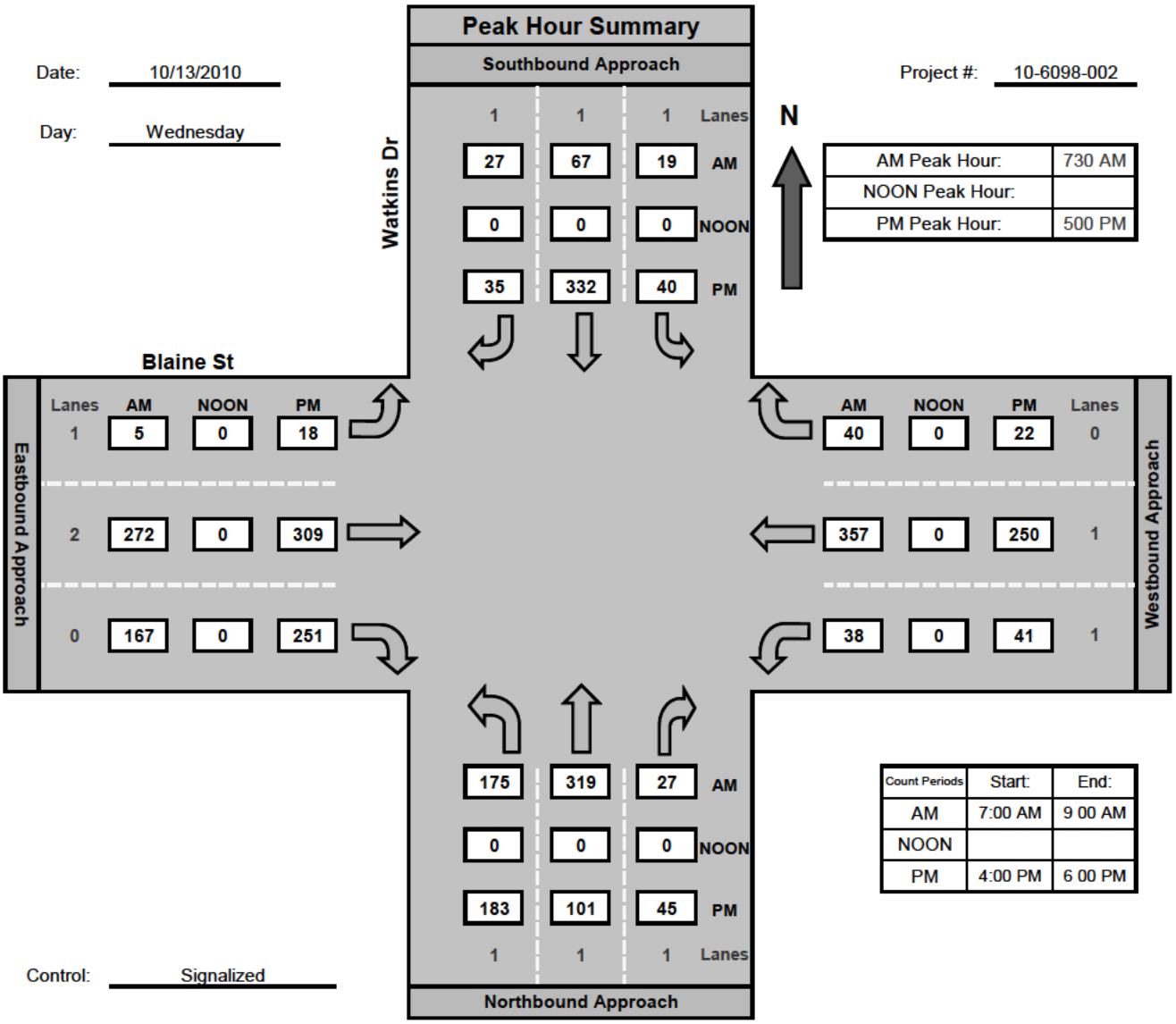
National Data & Surveying Services

Watkins Dr and Blaine St , City of Riverside

Date: 10/13/2010

Day: Wednesday

Project #: 10-6098-002



AM Peak Hour:	730 AM
NOON Peak Hour:	
PM Peak Hour:	500 PM

Count Periods	Start:	End:
AM	7:00 AM	9 00 AM
NOON		
PM	4:00 PM	6 00 PM

Control: Signalized

Intersection Turning Movement

Prepared by:

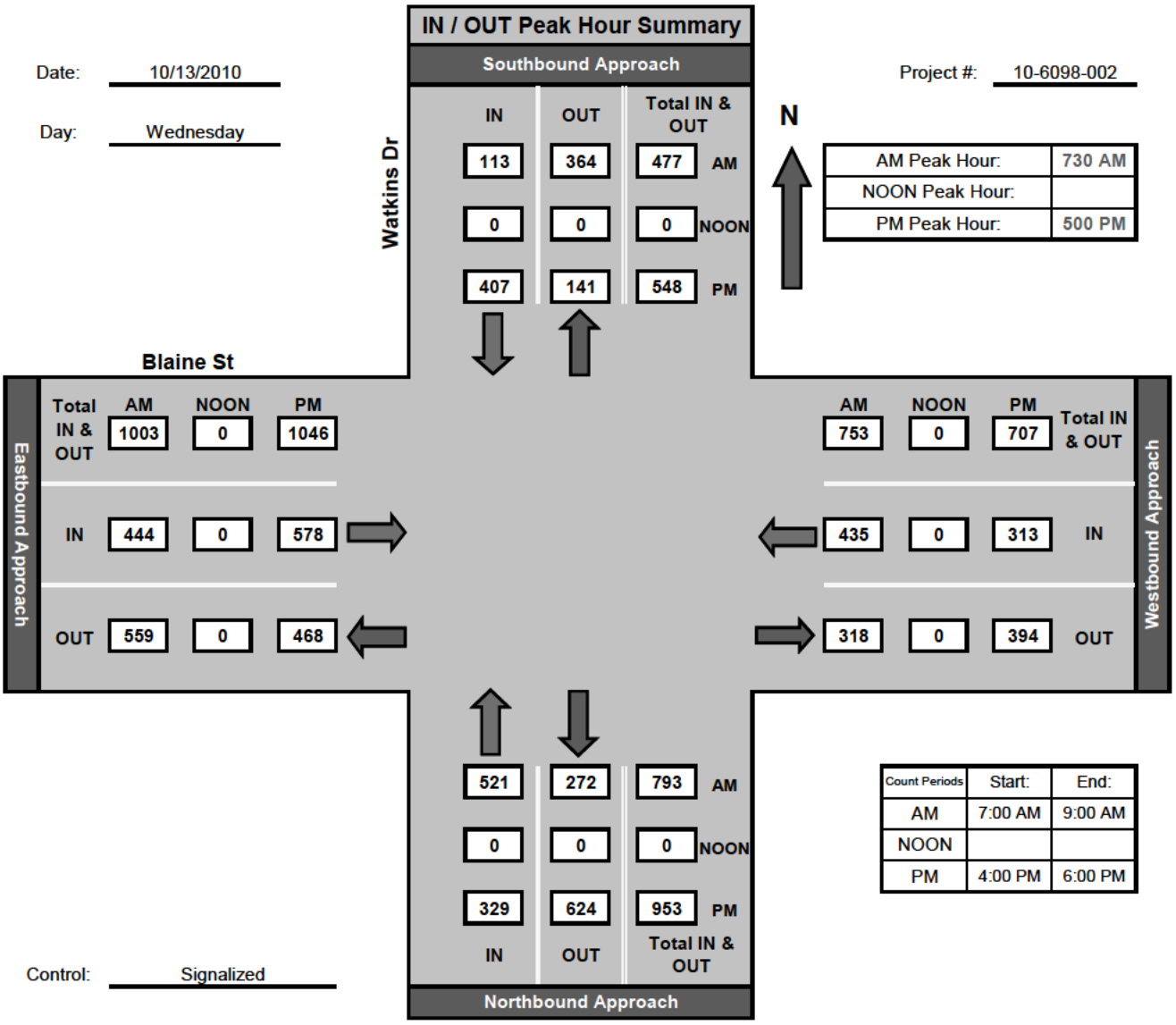
National Data & Surveying Services

Watkins Dr and Blaine St , City of Riverside

Date: 10/13/2010

Day: Wednesday

Project #: 10-6098-002



AM Peak Hour:	730 AM
NOON Peak Hour:	
PM Peak Hour:	500 PM

Count Periods	Start:	End:
AM	7:00 AM	9:00 AM
NOON		
PM	4:00 PM	6:00 PM

Control: Signalized

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

N-S STREET: Watkins Dr DATE: 10/13/2010 LOCATION: City of Riverside

E-W STREET: Big Springs Rd DAY: WEDNESDAY PROJECT# 10-6098-007

	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
LANES:	1	1	0	1	1	0	0	1	0	0	1	0	
7:00 AM	11	73	1	3	19	8	3	4	1	3	3	7	136
7:15 AM	16	99	5	4	21	6	3	0	3	2	1	6	166
7:30 AM	24	118	5	8	25	15	3	2	4	3	4	15	226
7:45 AM	37	128	9	7	34	17	6	3	3	6	5	16	271
8:00 AM	19	105	5	3	29	14	6	2	2	5	5	6	201
8:15 AM	21	108	4	3	22	12	2	3	2	1	8	4	190
8:30 AM	13	64	4	3	23	22	4	4	1	1	5	6	150
8:45 AM	35	56	8	8	21	27	8	5	7	1	5	2	183
TOTAL VOLUMES =	176	751	41	39	194	121	35	23	23	22	36	62	1523

AM Peak Hr Begins at: 730 AM

PEAK VOLUMES =	101	459	23	21	110	58	17	10	11	15	22	41	888
PEAK HR. FACTOR:		0.838			0.815			0.792			0.722		0.819

CONTROL: 4-Way Stop

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

N-S STREET: Watkins Dr DATE: 10/13/2010 LOCATION: City of Riverside

E-W STREET: Big Springs Rd DAY: WEDNESDAY PROJECT# 10-6098-007

	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
LANES:	1	1	0	1	1	0	0	1	0	0	1	0	
4:00 PM	9	45	2	4	83	21	22	5	16	4	6	6	223
4:15 PM	8	29	1	7	106	9	14	6	28	9	4	12	233
4:30 PM	10	33	5	6	105	5	17	4	38	7	2	2	234
4:45 PM	13	31	3	6	90	4	21	7	18	9	7	12	221
5:00 PM	8	42	5	12	80	10	37	7	36	14	4	15	270
5:15 PM	10	53	1	19	105	6	37	13	39	30	5	11	329
5:30 PM	15	34	3	16	116	4	19	6	29	10	4	9	265
5:45 PM	11	33	6	12	107	14	10	7	23	10	4	12	249
TOTAL VOLUMES =	84	300	26	82	792	73	177	55	227	93	36	79	2024

PM Peak Hr Begins at: 500 PM

PEAK VOLUMES =	44	162	15	59	408	34	103	33	127	64	17	47	1113
PEAK HR. FACTOR:		0.863			0.921			0.739			0.696		0.846

CONTROL: 4-Way Stop

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

N-S STREET: Watkins Dr DATE: 10/13/2010 LOCATION: City of Riverside

E-W STREET: Big Springs Rd DAY: WEDNESDAY PROJECT# 10-6098-007

	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
LANES:	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
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TOTAL VOLUMES =	0	0	0	0	0	0	0	0	0	0	0	0	0

NOON Peak Hr Begins at: 0 AM

PEAK VOLUMES =	0	0	0	0	0	0	0	0	0	0	0	0	0
PEAK HR. FACTOR:		0.000			0.000			0.000			0.000		0.000

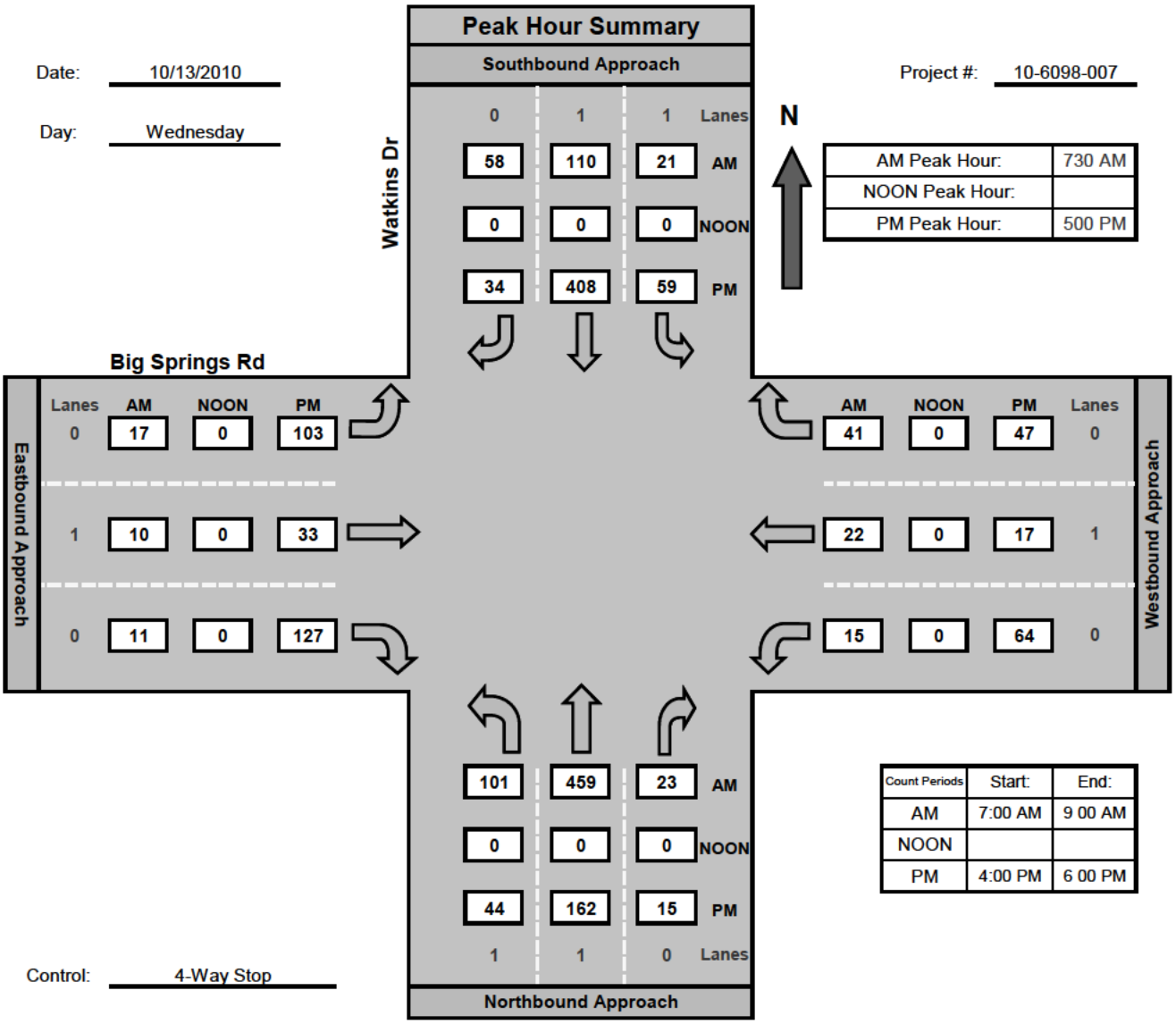
CONTROL:

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

Watkins Dr and Big Springs Rd , City of Riverside



Date: 10/13/2010

Day: Wednesday

Project #: 10-6098-007

AM Peak Hour:	730 AM
NOON Peak Hour:	
PM Peak Hour:	500 PM

Count Periods	Start:	End:
AM	7:00 AM	9 00 AM
NOON		
PM	4:00 PM	6 00 PM

Control: 4-Way Stop

Intersection Turning Movement

Prepared by:

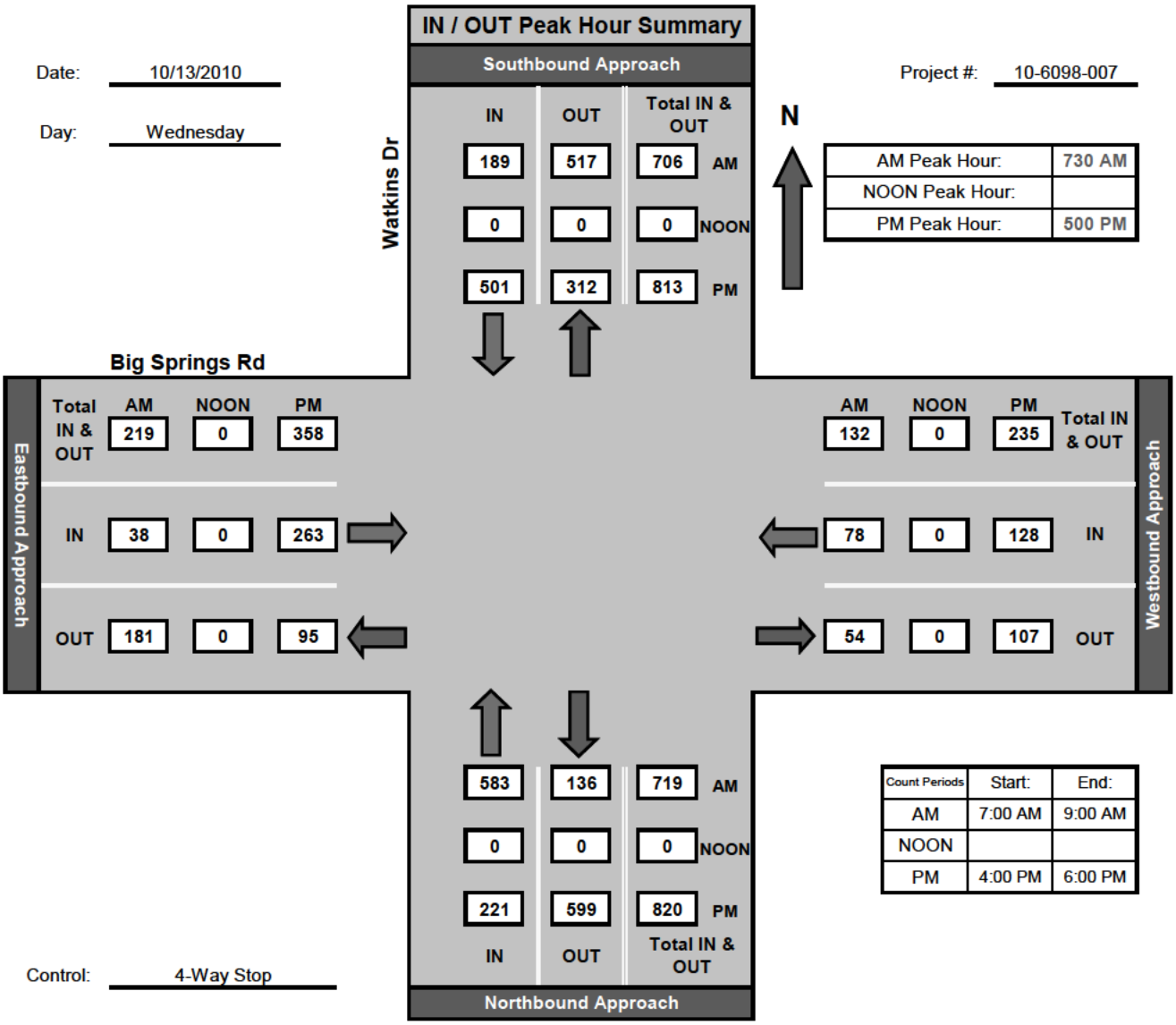
National Data & Surveying Services

Watkins Dr and Big Springs Rd , City of Riverside

Date: 10/13/2010

Day: Wednesday

Project #: 10-6098-007



AM Peak Hour:	730 AM
NOON Peak Hour:	
PM Peak Hour:	500 PM

Count Periods	Start:	End:
AM	7:00 AM	9:00 AM
NOON		
PM	4:00 PM	6:00 PM

Control: 4-Way Stop

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

N-S STREET: University Village DATE: 10/13/2010 LOCATION: City of Riverside

E-W STREET: University Ave DAY: WEDNESDAY PROJECT# 10-6098-019

	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
LANES:	0.5	0.5	1	1	0.5	0.5	1	2	0	1	2	0	
7:00 AM	1		0	6	0	0	3	53	1	9	53	12	138
7:15 AM	0		2	5	0	0	2	75	3	11	66	39	203
7:30 AM	3		1	6	0	6	5	70	5	17	85	61	259
7:45 AM	3		5	7	0	1	4	105	11	11	113	26	286
8:00 AM	1		1	5	0	1	9	78	6	20	93	22	236
8:15 AM	1		2	5	0	2	12	80	4	24	74	54	258
8:30 AM	3		7	16	1	6	7	99	7	23	73	64	306
8:45 AM	7		6	5	0	5	13	102	15	30	74	26	283
TOTAL VOLUMES =	NL 19	NT 0	NR 24	SL 55	ST 1	SR 21	EL 55	ET 662	ER 52	WL 145	WT 631	WR 304	TOTAL 1969

AM Peak Hr Begins at: 745 AM

PEAK VOLUMES =	8	0	15	33	1	10	32	362	28	78	353	166	1086
PEAK HR. FACTOR:		0.575			0.478			0.879			0.933		0.887

CONTROL: Signalized

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

N-S STREET: University Village DATE: 10/13/2010 LOCATION: City of Riverside

E-W STREET: University Ave DAY: WEDNESDAY PROJECT# 10-6098-019

	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
LANES:	0.5	0.5	1	1	0.5	0.5	1	2	0	1	2	0	
4:00 PM	6	2	1	28	0	9	11	227	5	12	108	23	432
4:15 PM	5	2	2	27	2	12	11	210	8	9	115	30	433
4:30 PM	1	1	4	27	2	6	5	232	5	8	78	27	396
4:45 PM	4	1	2	28	1	3	9	271	7	21	82	26	455
5:00 PM	13	0	6	36	0	4	8	251	8	9	117	33	485
5:15 PM	2	4	3	24	1	14	13	269	9	22	140	27	528
5:30 PM	0	3	1	28	1	7	14	237	18	21	127	31	488
5:45 PM	6	0	3	29	2	5	15	239	14	14	95	18	440
TOTAL VOLUMES =	37	13	22	227	9	60	86	1936	74	116	862	215	3657

PM Peak Hr Begins at: 445 PM

PEAK VOLUMES =	19	8	12	116	3	28	44	1028	42	73	466	117	1956
PEAK HR. FACTOR:		0.513			0.919			0.957			0.868		0.926

CONTROL: Signalized

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

N-S STREET: University Village DATE: 10/13/2010 LOCATION: City of Riverside

E-W STREET: University Ave DAY: WEDNESDAY PROJECT# 10-6098-019

	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
LANES:	0.5	0.5	1	1	0.5	0.5	1	2	0	1	2	0	
11:00 AM	4	0	3	8	0	7	18	138	8	9	116	30	341
11:15 AM	2	0	2	9	0	10	10	142	6	9	108	32	330
11:30 AM	3	1	2	32	1	10	16	126	6	10	113	38	358
11:45 AM	4	1	2	18	2	10	19	142	9	5	96	45	353
12:00 PM	10	4	4	20	2	8	20	153	5	12	144	42	424
12:15 PM	9	1	4	8	2	13	23	174	12	11	134	56	447
12:30 PM	4	4	3	20	1	16	22	175	13	12	117	32	419
12:45 PM	3	1	2	23	2	4	17	198	12	10	112	18	402
TOTAL VOLUMES =	NL 39	NT 12	NR 22	SL 138	ST 10	SR 78	EL 145	ET 1248	ER 71	WL 78	WT 940	WR 293	TOTAL 3074

NOON Peak Hr Begins at: 1200 PM

PEAK VOLUMES =	26	10	13	71	7	41	82	700	42	45	507	148	1692
PEAK HR. FACTOR:		0.681			0.804			0.907			0.871		0.946

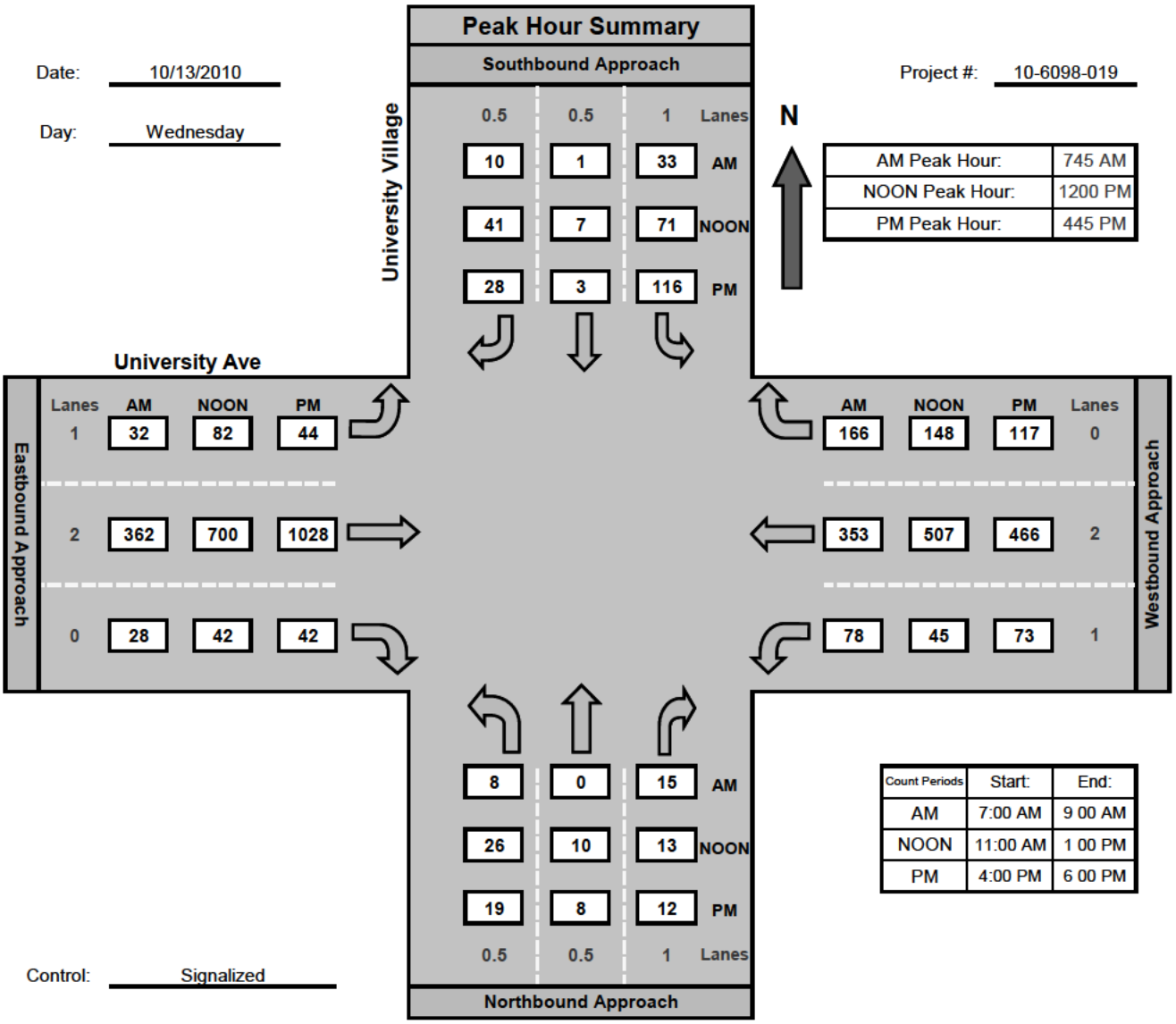
CONTROL: Signalized

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

University Village and University Ave , City of Riverside

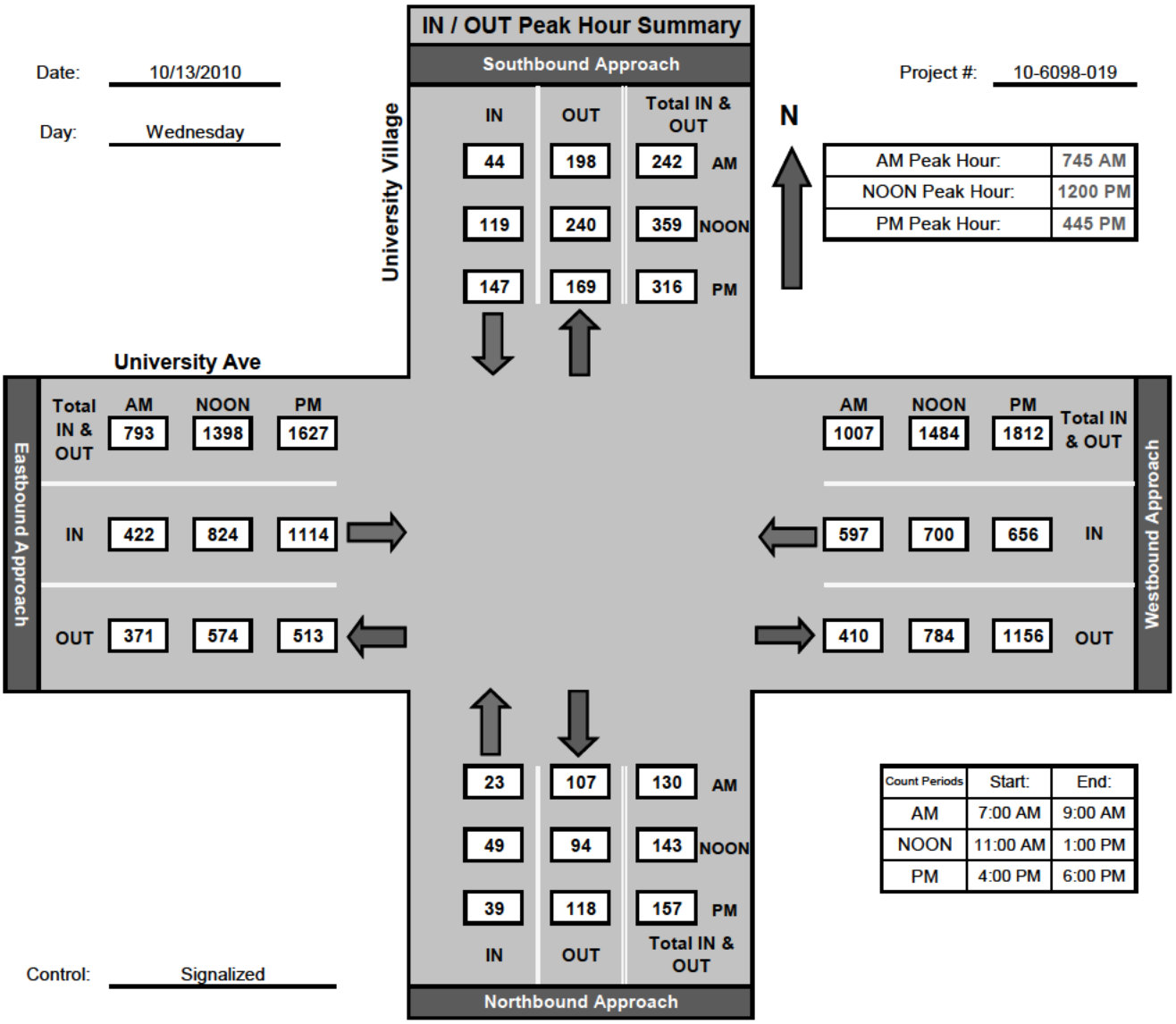


Intersection Turning Movement

Prepared by:

National Data & Surveying Services

University Village and University Ave , City of Riverside



Date: 10/13/2010

Day: Wednesday

Project #: 10-6098-019

AM Peak Hour:	745 AM
NOON Peak Hour:	1200 PM
PM Peak Hour:	445 PM

Count Periods	Start:	End:
AM	7:00 AM	9:00 AM
NOON	11:00 AM	1:00 PM
PM	4:00 PM	6:00 PM

Control: Signalized

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

N-S STREET: Kansas Dr DATE: 10/13/2010 LOCATION: City of Riverside

E-W STREET: University Ave DAY: WEDNESDAY PROJECT# 10-6098-004

	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
LANES:	1	1	0	1	1	0	1	2	0	1	2	1	
7:00 AM	5	7	1	5	6	14	8	68	1	4	84	1	204
7:15 AM	6	11	4	4	4	16	20	84	1	2	80	3	235
7:30 AM	11	19	6	2	13	28	19	79	8	5	112	2	304
7:45 AM	5	15	4	6	10	22	13	103	5	2	127	5	317
8:00 AM	9	12	1	10	8	21	10	122	8	1	130	9	341
8:15 AM	11	18	3	7	12	13	18	86	9	5	102	5	289
8:30 AM	8	8	3	9	13	13	20	118	4	0	110	10	316
8:45 AM	6	8	11	5	5	19	16	115	5	2	96	6	294
TOTAL VOLUMES =	NL 61	NT 98	NR 33	SL 48	ST 71	SR 146	EL 124	ET 775	ER 41	WL 21	WT 841	WR 41	TOTAL 2300

AM Peak Hr Begins at: 745 AM

PEAK VOLUMES =	33	53	11	32	43	69	61	429	26	8	469	29	1263
PEAK HR. FACTOR:		0.758			0.923			0.908			0.904		0.926

CONTROL: Signalized

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

N-S STREET: Kansas Dr DATE: 10/13/2010 LOCATION: City of Riverside

E-W STREET: University Ave DAY: WEDNESDAY PROJECT# 10-6098-004

	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
LANES:	1	1	0	1	1	0	1	2	0	1	2	1	
4:00 PM	5	7	9	12	31	22	19	247	12	8	132	4	508
4:15 PM	12	8	5	19	26	17	20	260	15	4	133	5	524
4:30 PM	11	12	11	21	29	15	14	288	11	11	140	6	569
4:45 PM	12	17	11	18	27	25	23	253	19	5	142	5	557
5:00 PM	10	19	10	14	36	16	19	271	21	8	146	9	579
5:15 PM	8	15	16	20	37	26	19	312	17	9	165	9	653
5:30 PM	11	11	6	22	24	27	20	278	20	12	163	11	605
5:45 PM	7	20	11	12	15	22	27	245	22	7	115	6	509
TOTAL VOLUMES =	NL 76	NT 109	NR 79	SL 138	ST 225	SR 170	EL 161	ET 2154	ER 137	WL 64	WT 1136	WR 55	TOTAL 4504

PM Peak Hr Begins at: 445 PM

PEAK VOLUMES =	41	62	43	74	124	94	81	1114	77	34	616	34	2394
PEAK HR. FACTOR:		0.913			0.880			0.914			0.919		0.917

CONTROL: Signalized

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

N-S STREET: Kansas Dr DATE: 10/13/2010 LOCATION: City of Riverside

E-W STREET: University Ave DAY: WEDNESDAY PROJECT# 10-6098-004

	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
LANES:	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
12:00 AM													
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11:45 PM													
TOTAL VOLUMES =	0	0	0	0	0	0	0	0	0	0	0	0	0

NOON Peak Hr Begins at: 0 AM

PEAK VOLUMES =	0	0	0	0	0	0	0	0	0	0	0	0	0
PEAK HR. FACTOR:		0.000			0.000			0.000			0.000		0.000

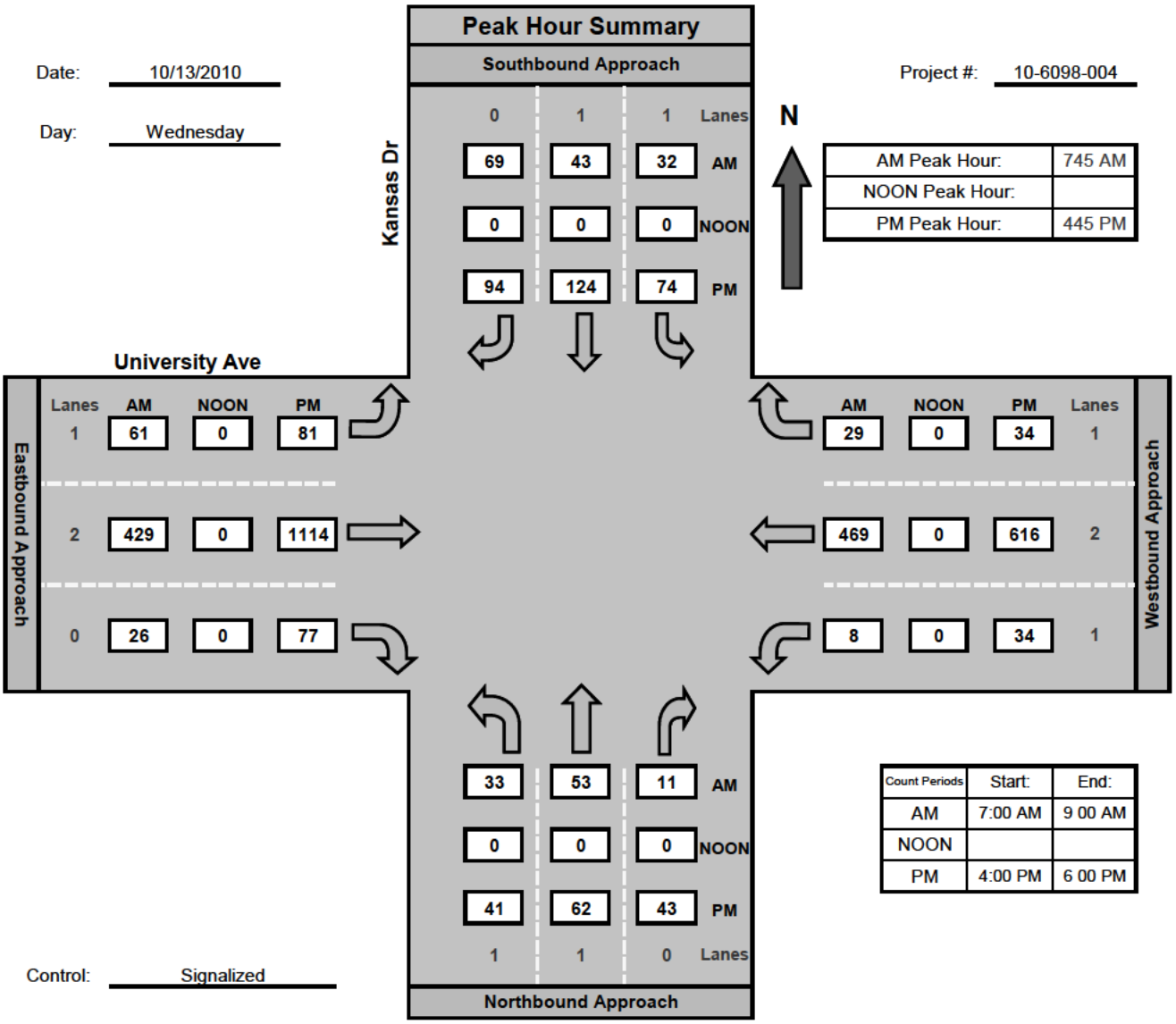
CONTROL:

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

Kansas Dr and University Ave , City of Riverside



Intersection Turning Movement

Prepared by:

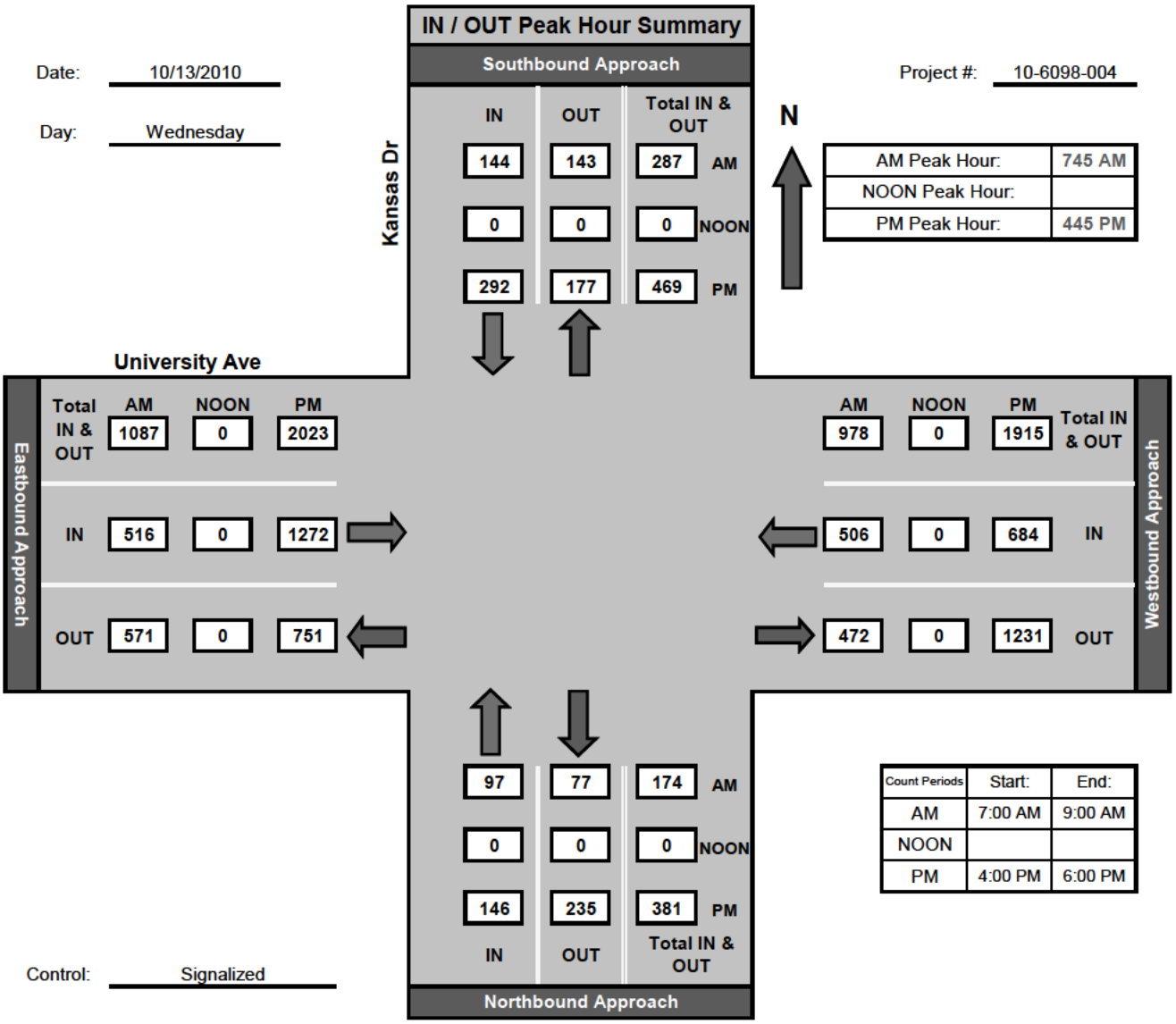
National Data & Surveying Services

Kansas Dr and University Ave , City of Riverside

Date: 10/13/2010

Day: Wednesday

Project #: 10-6098-004



AM Peak Hour:	745 AM
NOON Peak Hour:	
PM Peak Hour:	445 PM

Count Periods	Start:	End:
AM	7:00 AM	9:00 AM
NOON		
PM	4:00 PM	6:00 PM

Control: Signalized

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

N-S STREET: Iowa Ave DATE: 10/13/2010 LOCATION: City of Riverside

E-W STREET: University Ave DAY: WEDNESDAY PROJECT# 10-6098-021

	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
LANES:	1	2	1	1	2	0	1	2	1	1	2	1	
7:00 AM	5	57	7	18	23	5	5	35	3	7	25	22	212
7:15 AM	11	82	10	18	24	14	18	61	5	6	42	21	312
7:30 AM	13	137	16	19	32	13	25	53	9	9	52	32	410
7:45 AM	13	128	19	39	65	20	36	69	6	6	63	50	514
8:00 AM	14	103	9	29	70	23	40	62	11	8	55	34	458
8:15 AM	8	100	12	22	44	16	35	68	9	10	60	14	398
8:30 AM	14	98	25	31	69	24	29	62	6	11	53	15	437
8:45 AM	17	52	17	32	54	21	25	85	14	13	62	9	401
TOTAL VOLUMES =	NL 95	NT 757	NR 115	SL 208	ST 381	SR 136	EL 213	ET 495	ER 63	WL 70	WT 412	WR 197	TOTAL 3142

AM Peak Hr Begins at: 745 AM

PEAK VOLUMES =	49	429	65	121	248	83	140	261	32	35	231	113	1807
PEAK HR. FACTOR:		0.848			0.911			0.958			0.796		0.879

CONTROL: Signalized

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

N-S STREET: Iowa Ave DATE: 10/13/2010 LOCATION: City of Riverside

E-W STREET: University Ave DAY: WEDNESDAY PROJECT# 10-6098-021

	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
LANES:	1	2	1	1	2	0	1	2	1	1	2	1	
4:00 PM	15	55	18	47	117	30	50	170	28	15	82	34	661
4:15 PM	21	71	23	62	121	54	53	149	25	15	91	34	719
4:30 PM	20	44	13	65	114	55	43	157	27	25	63	19	645
4:45 PM	13	65	28	70	138	39	42	206	23	13	63	25	725
5:00 PM	29	83	20	66	128	41	62	195	11	17	77	39	768
5:15 PM	22	80	21	59	151	43	58	212	18	20	101	32	817
5:30 PM	17	50	22	58	130	49	59	188	32	15	88	32	740
5:45 PM	16	64	15	45	142	44	51	213	28	19	85	19	741
TOTAL VOLUMES =	153	512	160	472	1041	355	418	1490	192	139	650	234	5816

PM Peak Hr Begins at: 500 PM

PEAK VOLUMES =	84	277	78	228	551	177	230	808	89	71	351	122	3066
PEAK HR. FACTOR:		0.831			0.945			0.965			0.889		0.938

CONTROL: Signalized

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

N-S STREET: Iowa Ave DATE: 10/13/2010 LOCATION: City of Riverside

E-W STREET: University Ave DAY: WEDNESDAY PROJECT# 10-6098-021

	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
LANES:	1	2	1	1	2	0	1	2	1	1	2	1	
11:00 AM	19	38	19	47	35	32	31	89	17	16	86	24	453
11:15 AM	21	52	18	42	40	42	40	95	15	13	79	15	472
11:30 AM	18	52	14	53	66	60	47	102	18	10	81	29	550
11:45 AM	15	51	13	57	41	53	52	107	21	11	68	28	517
12:00 PM	19	51	16	46	54	49	53	143	18	12	95	40	596
12:15 PM	27	68	24	59	73	49	78	138	13	13	119	41	702
12:30 PM	25	56	22	61	67	53	49	113	26	19	101	32	624
12:45 PM	25	55	26	67	48	43	67	147	23	9	74	38	622
TOTAL VOLUMES =	NL 169	NT 423	NR 152	SL 432	ST 424	SR 381	EL 417	ET 934	ER 151	WL 103	WT 703	WR 247	TOTAL 4536

NOON Peak Hr Begins at: 1200 PM

PEAK VOLUMES =	96	230	88	233	242	194	247	541	80	53	389	151	2544
PEAK HR. FACTOR:		0.870			0.924			0.916			0.857		0.906

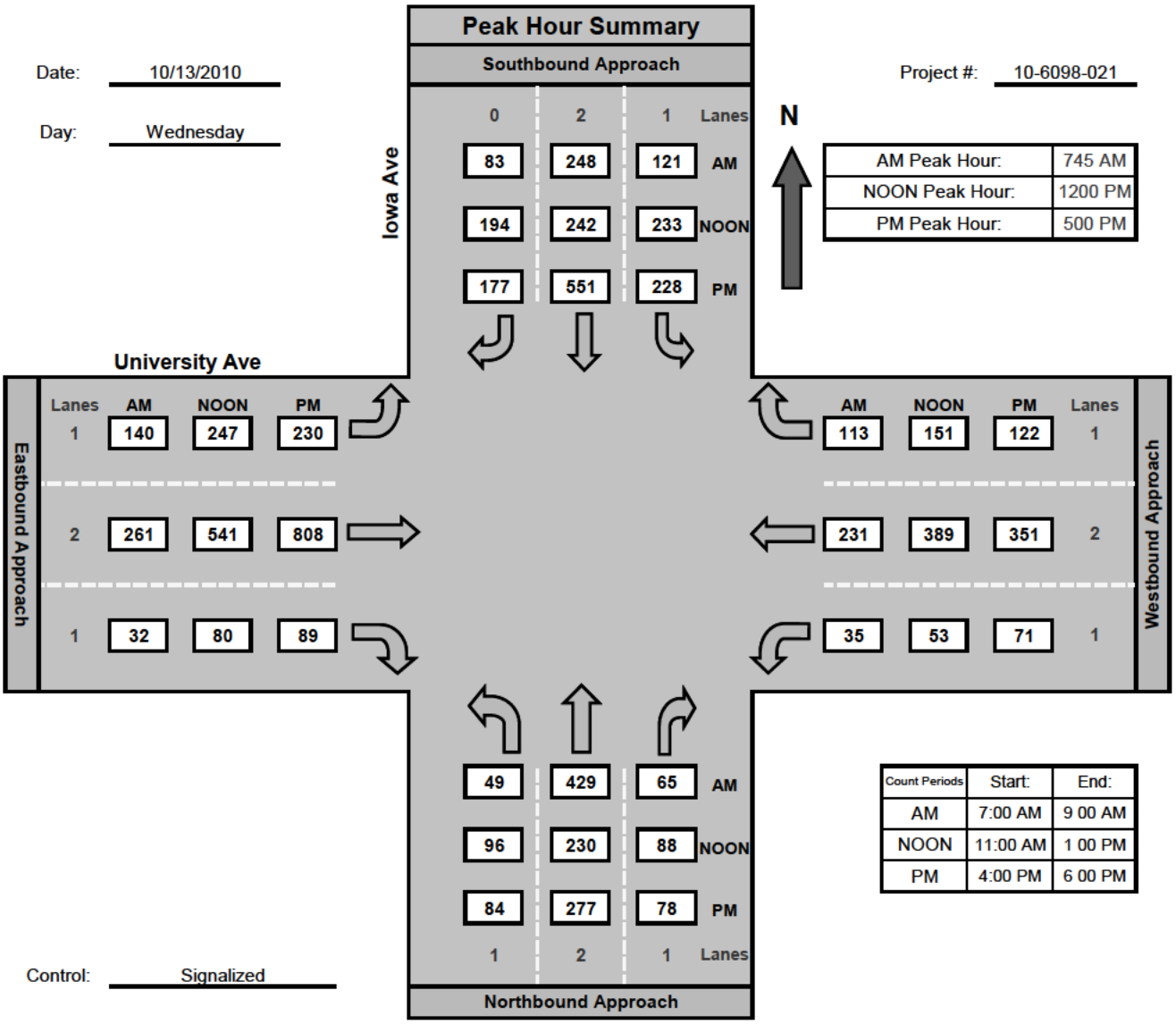
CONTROL: Signalized

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

Iowa Ave and University Ave , City of Riverside

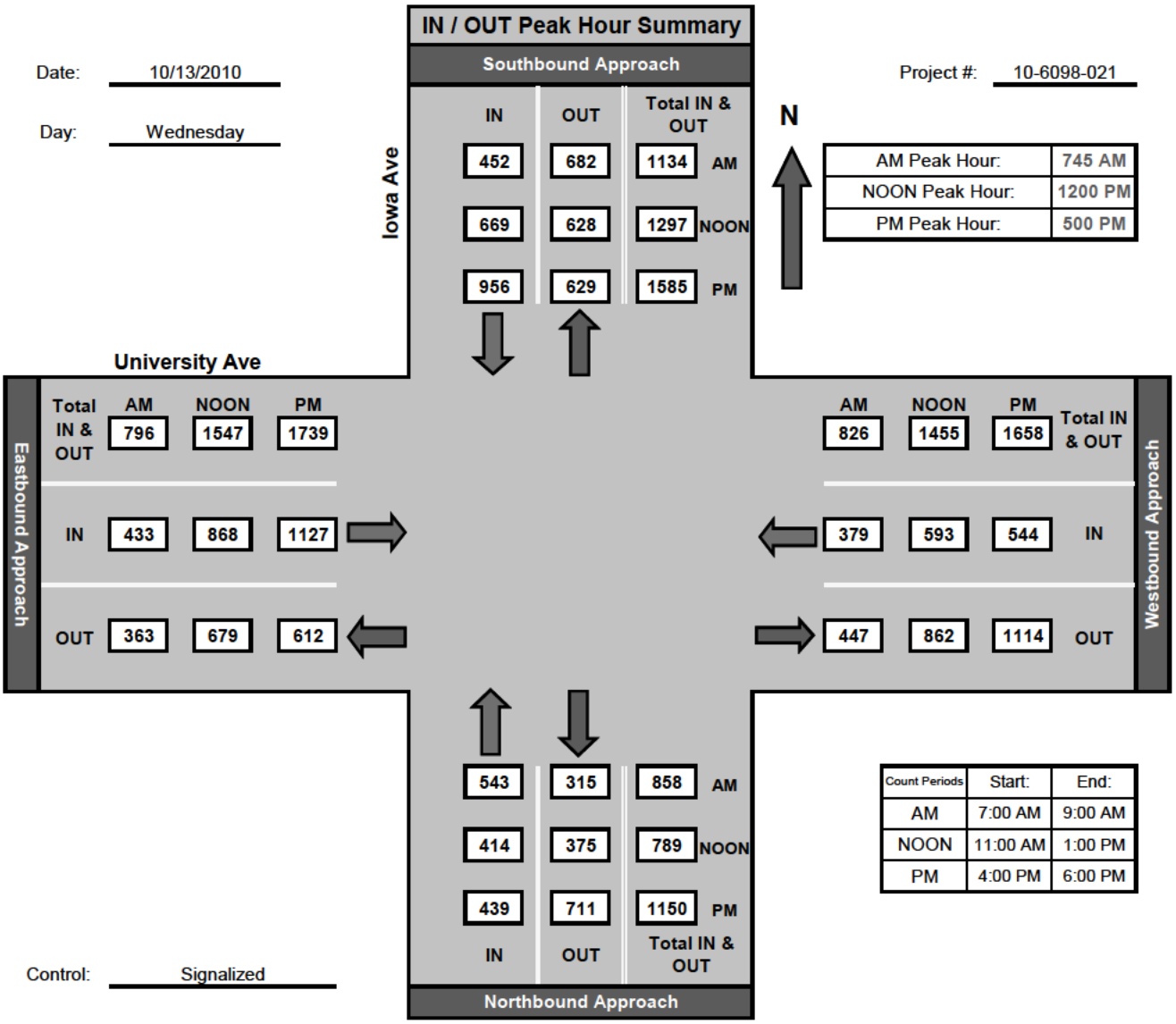


Intersection Turning Movement

Prepared by:

National Data & Surveying Services

Iowa Ave and University Ave , City of Riverside



Date: 10/13/2010

Day: Wednesday

Project #: 10-6098-021

AM Peak Hour:	745 AM
NOON Peak Hour:	1200 PM
PM Peak Hour:	500 PM

Count Periods	Start:	End:
AM	7:00 AM	9:00 AM
NOON	11:00 AM	1:00 PM
PM	4:00 PM	6:00 PM

Control: Signalized

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

N-S STREET: Chicago Ave DATE: 10/13/2010 LOCATION: City of Riverside

E-W STREET: University Ave DAY: WEDNESDAY PROJECT# 10-6098-024

	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
LANES:	2	2	1	2	2	0	2	2	1	2	2	1	
7:00 AM	24	109	11	10	39	14	20	21	14	4	33	10	309
7:15 AM	20	121	20	10	46	10	28	41	14	12	47	8	377
7:30 AM	39	197	26	10	49	16	25	43	14	17	48	6	490
7:45 AM	51	150	27	24	71	27	29	64	24	20	63	13	563
8:00 AM	41	149	36	8	75	19	24	68	20	20	65	10	535
8:15 AM	30	160	29	7	52	18	32	53	14	9	41	6	451
8:30 AM	29	122	35	16	38	8	15	64	27	19	54	11	438
8:45 AM	42	87	27	14	44	7	22	75	20	30	49	9	426
TOTAL VOLUMES =	NL 276	NT 1095	NR 211	SL 99	ST 414	SR 119	EL 195	ET 429	ER 147	WL 131	WT 400	WR 73	TOTAL 3589

AM Peak Hr Begins at: 730 AM

PEAK VOLUMES =	161	656	118	49	247	80	110	228	72	66	217	35	2039
PEAK HR. FACTOR:		0.892			0.770			0.876			0.828		0.905

CONTROL: Signalized

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

N-S STREET: Chicago Ave DATE: 10/13/2010 LOCATION: City of Riverside

E-W STREET: University Ave DAY: WEDNESDAY PROJECT# 10-6098-024

	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
LANES:	2	2	1	2	2	0	2	2	1	2	2	1	
4:00 PM	37	88	34	34	184	16	21	169	55	44	84	9	775
4:15 PM	23	73	28	38	204	19	28	171	73	38	82	19	796
4:30 PM	34	84	35	27	189	17	31	189	74	48	69	11	808
4:45 PM	43	89	44	31	204	16	41	171	74	39	65	15	832
5:00 PM	44	90	49	35	211	20	29	176	86	45	73	11	869
5:15 PM	50	93	42	47	228	20	33	208	83	74	108	15	1001
5:30 PM	47	99	53	31	224	29	37	188	75	50	85	15	933
5:45 PM	40	79	45	40	205	19	32	157	59	34	60	8	778
TOTAL VOLUMES =	NL 318	NT 695	NR 330	SL 283	ST 1649	SR 156	EL 252	ET 1429	ER 579	WL 372	WT 626	WR 103	TOTAL 6792

PM Peak Hr Begins at: 445 PM

PEAK VOLUMES =	184	371	188	144	867	85	140	743	318	208	331	56	3635
PEAK HR. FACTOR:		0.933			0.929			0.927			0.755		0.908

CONTROL: Signalized

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

N-S STREET: Chicago Ave DATE: 10/13/2010 LOCATION: City of Riverside

E-W STREET: University Ave DAY: WEDNESDAY PROJECT# 10-6098-024

	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
LANES:	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
12:00 AM													
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TOTAL VOLUMES =	0	0	0	0	0	0	0	0	0	0	0	0	0

NOON Peak Hr Begins at: 0 AM

PEAK VOLUMES =	0	0	0	0	0	0	0	0	0	0	0	0	0
PEAK HR. FACTOR:		0.000			0.000			0.000			0.000		0.000

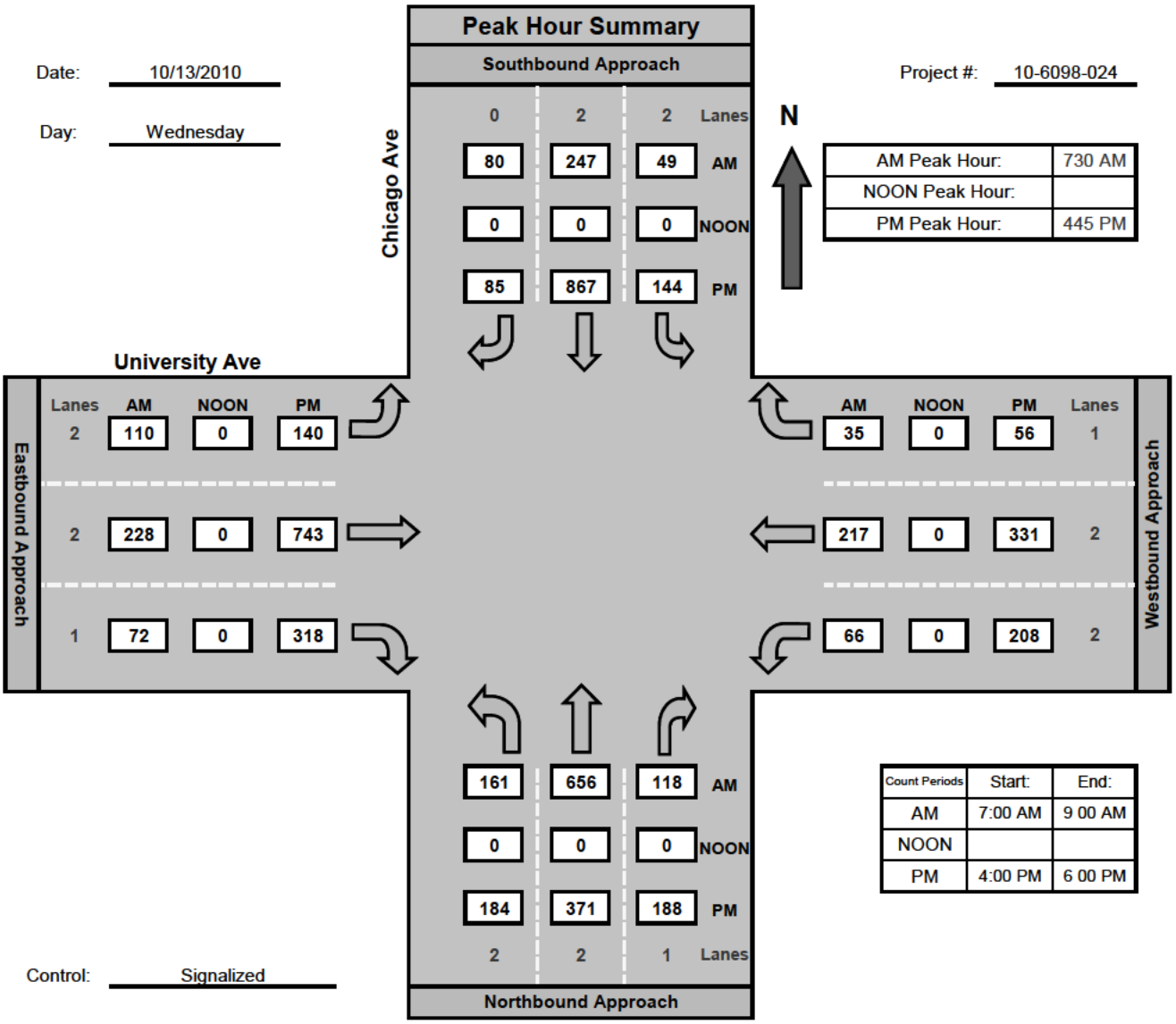
CONTROL:

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

Chicago Ave and University Ave , City of Riverside

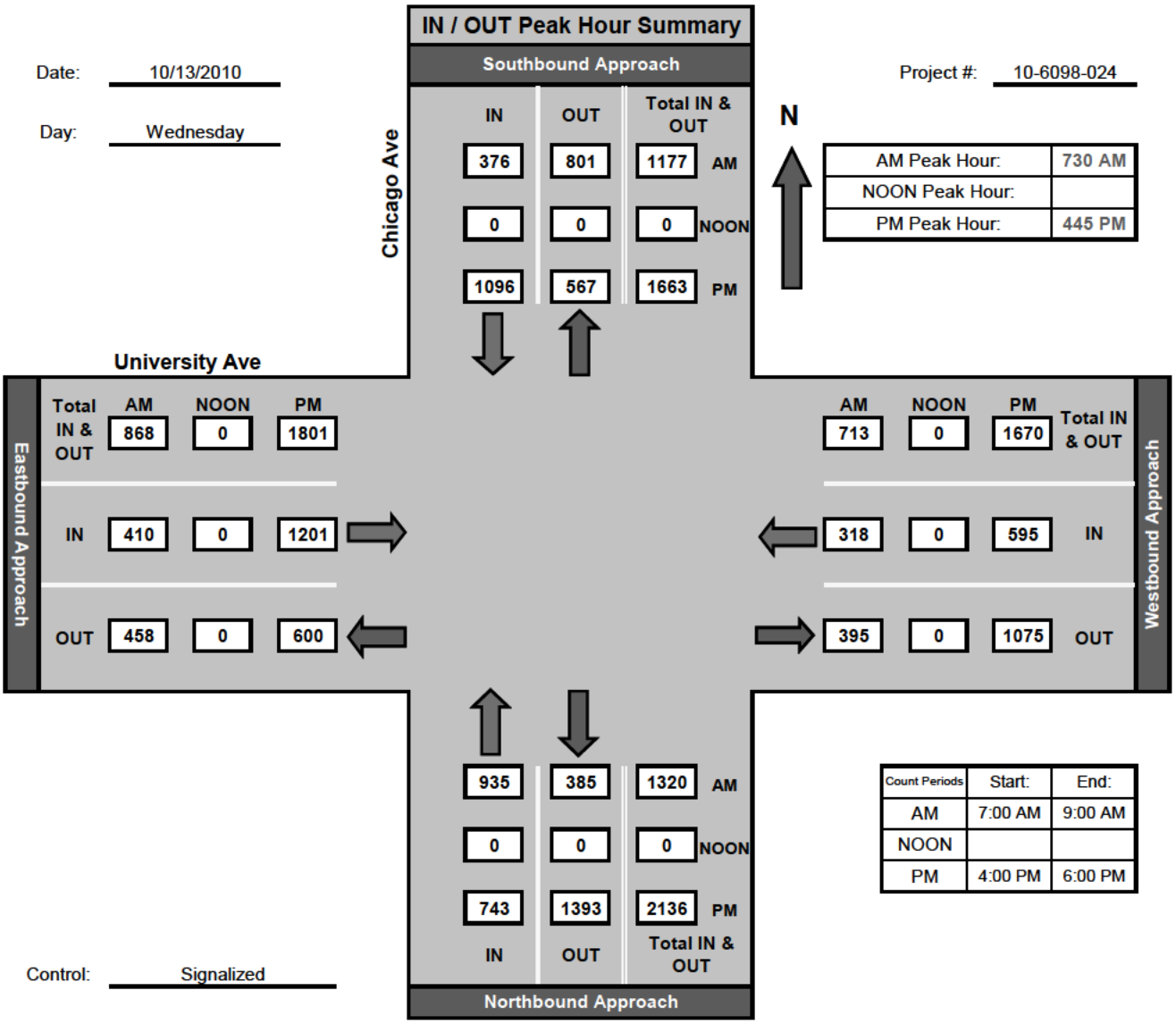


Intersection Turning Movement

Prepared by:

National Data & Surveying Services

Chicago Ave and University Ave , City of Riverside



Date: 10/13/2010

Day: Wednesday

Project #: 10-6098-024

AM Peak Hour:	730 AM
NOON Peak Hour:	
PM Peak Hour:	445 PM

Count Periods	Start:	End:
AM	7:00 AM	9:00 AM
NOON		
PM	4:00 PM	6:00 PM

Control: Signalized

TURNING MOVEMENT COUNT

PROJECT NAME: UCR Riverside West Campus Study
PROJECT NO: 27089
DATE: Thursday January 10, 2008

TIME	N-S STREET: Chicago Avenue							E-W STREET: University Avenue										
	NORTH BOUND			SOUTH BOUND			N-S	EAST BOUND			WEST BOUND			E-W	PED COUNT			
	LEFT	THRU	RIGHT	LEFT	THRU	RIGHT	TOTAL	LEFT	THRU	RIGHT	LEFT	THRU	RIGHT	TOTAL	NL	SL	EL	WL
07:00-07:15	31	141	13	18	47	12	262	29	60	16	16	59	6	186	3	0	0	8
07:15-07:30	47	165	19	21	50	18	320	42	53	22	15	72	20	224	3	6	2	10
07:30-07:45	59	198	21	24	75	34	411	49	99	14	17	91	7	277	9	2	4	13
07:45-08:00	72	236	32	20	90	28	478	47	77	21	25	113	15	298	7	3	1	15
08:00-08:15	37	160	36	15	84	35	367	46	83	15	23	105	10	282	2	3	1	7
08:15-08:30	40	153	21	15	71	29	329	31	67	38	20	77	23	256	5	4	1	7
08:30-08:45	44	105	23	21	49	20	262	36	92	24	20	78	15	265	4	10	3	14
08:45-09:00	38	120	18	27	66	18	287	43	89	35	22	67	13	269	3	5	5	8
14:00-14:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
14:15-14:30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
14:30-14:45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
14:45-15:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
15:00-15:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
15:15-15:30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
15:30-15:45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
15:45-16:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
16:00-16:15	53	116	38	44	243	29	523	46	172	87	54	89	16	464	7	16	7	10
16:15-16:30	46	110	32	48	248	31	515	47	197	103	56	99	18	520	11	9	4	20
16:30-16:45	53	90	43	32	268	28	514	56	206	111	73	105	12	563	6	15	5	31
16:45-17:00	69	90	27	43	220	23	472	52	222	115	58	90	18	555	3	11	4	22
17:00-17:15	49	84	25	34	229	15	436	42	165	104	89	85	20	505	10	19	5	6
17:15-17:30	66	99	31	46	239	20	501	32	203	133	89	105	22	584	7	8	6	17
17:30-17:45	53	87	32	42	261	16	491	32	196	117	91	104	19	559	6	9	4	21
17:45-18:00	58	81	38	47	254	14	492	59	215	112	80	77	19	562	9	22	9	20

PEAK-HOUR VOLUME ANALYSIS

CALCULATED PEAK HOUR VOLUMES-AM

		SR	ST	SL		
		126	320	74		
173	EL				WR	55
326	ET		07:30-08:30		WT	386
88	ER				WL	85
		NL	NT	NR		
		208	747	110		

ADJUSTED PEAK HOUR VOLUMES-AM

		SR	ST	SL		
		____	____	____		
____	EL				WR	____
____	ET		____		WT	____
____	ER				WL	____
		NL	NT	NR		
		____	____	____		

CALCULATED PEAK HOUR VOLUMES-NOON

		SR	ST	SL		
		0	0	0		
0	EL				WR	0
0	ET		14:00-15:00		WT	0
0	ER				WL	0
		NL	NT	NR		
		0	0	0		

ADJUSTED PEAK HOUR VOLUMES-NOON

		SR	ST	SL		
		____	____	____		
____	EL				WR	____
____	ET		____		WT	____
____	ER				WL	____
		NL	NT	NR		
		____	____	____		

CALCULATED PEAK HOUR VOLUMES-PM

		SR	ST	SL		
		86	956	155		
182	EL				WR	72
796	ET		16:30-17:30		WT	385
463	ER				WL	309
		NL	NT	NR		
		237	363	126		

ADJUSTED PEAK HOUR VOLUMES-PM

		SR	ST	SL		
		____	____	____		
____	EL				WR	____
____	ET		____		WT	____
____	ER				WL	____
		NL	NT	NR		
		____	____	____		

TURNING MOVEMENT COUNT

PROJECT NAME: UCR Riverside West Campus Study
PROJECT NO: 27089
DATE: Wednesday January 9, 2008

TIME	N-S STREET: Iowa Avenue							E-W STREET: University Avenue								PED COUNT			
	NORTH BOUND			SOUTH BOUND			N-S	EAST BOUND			WEST BOUND			E-W					
	LEFT	THRU	RIGHT	LEFT	THRU	RIGHT	TOTAL	LEFT	THRU	RIGHT	LEFT	THRU	RIGHT	TOTAL	NL	SL	EL	WL
07:00-07:15	17	108	11	24	37	14	211	21	41	7	7	69	23	168	1	4	2	1
07:15-07:30	12	120	16	28	44	16	236	28	79	14	19	60	25	225	4	4	1	0
07:30-07:45	14	135	28	27	53	25	282	29	85	14	22	82	42	274	2	22	0	0
07:45-08:00	15	163	32	39	73	28	350	38	81	14	27	88	58	306	4	37	4	4
08:00-08:15	21	141	18	36	71	23	310	35	94	18	17	89	44	297	2	13	2	2
08:15-08:30	13	105	14	34	48	23	237	37	85	10	14	83	23	252	4	9	4	2
08:30-08:45	17	89	22	24	68	24	244	23	82	15	21	91	27	259	9	32	1	1
08:45-09:00	19	81	23	35	78	21	257	22	97	18	20	69	33	259	7	46	3	3
14:00-14:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
14:15-14:30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
14:30-14:45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
14:45-15:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
15:00-15:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
15:15-15:30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
15:30-15:45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
15:45-16:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
16:00-16:15	25	86	24	57	158	54	404	56	180	35	44	89	35	439	3	44	3	8
16:15-16:30	19	106	30	48	172	49	424	54	171	27	26	90	39	407	7	25	3	1
16:30-16:45	28	76	31	47	125	46	353	56	188	31	47	93	19	434	13	30	11	7
16:45-17:00	25	91	29	69	191	48	453	56	185	57	37	82	33	450	11	41	14	13
17:00-17:15	27	89	43	67	174	48	448	66	194	45	37	102	33	477	18	26	5	10
17:15-17:30	39	93	29	53	190	52	456	39	232	33	46	108	36	494	3	32	6	3
17:30-17:45	13	96	29	69	219	45	471	54	219	39	39	83	16	450	10	25	6	5
17:45-18:00	14	92	28	71	217	42	464	58	229	35	34	81	18	455	12	33	4	5

PEAK-HOUR VOLUME ANALYSIS

CALCULATED PEAK HOUR VOLUMES-AM

		99	245	136		
		SR	ST	SL		
139	EL				WR	167
345	ET		07:30-08:30		WT	342
56	ER				WL	80
		NL	NT	NR		
		63	544	92		

ADJUSTED PEAK HOUR VOLUMES-AM

		____	____	____		
		SR	ST	SL		
____	EL				WR	____
____	ET		____		WT	____
____	ER				WL	____
		NL	NT	NR		
		____	____	____		

CALCULATED PEAK HOUR VOLUMES-NOON

		0	0	0		
		SR	ST	SL		
0	EL				WR	0
0	ET		14:00-15:00		WT	0
0	ER				WL	0
		NL	NT	NR		
		0	0	0		

ADJUSTED PEAK HOUR VOLUMES-NOON

		____	____	____		
		SR	ST	SL		
____	EL				WR	____
____	ET		____		WT	____
____	ER				WL	____
		NL	NT	NR		
		____	____	____		

CALCULATED PEAK HOUR VOLUMES-PM

		187	800	260		
		SR	ST	SL		
217	EL				WR	103
874	ET		17:00-18:00		WT	374
152	ER				WL	156
		NL	NT	NR		
		93	370	129		

ADJUSTED PEAK HOUR VOLUMES-PM

		____	____	____		
		SR	ST	SL		
____	EL				WR	____
____	ET		____		WT	____
____	ER				WL	____
		NL	NT	NR		
		____	____	____		

TURNING MOVEMENT COUNT

PROJECT NAME: UCR Riverside West Campus Study
PROJECT NO: 27089
DATE: Thursday January 17, 2008

TIME	N-S STREET: 215 SB Ramp							E-W STREET: University Avenue							PED COUNT			
	NORTH BOUND			SOUTH BOUND			N-S	EAST BOUND			WEST BOUND			E-W				
	LEFT	THRU	RIGHT	LEFT	THRU	RIGHT	TOTAL	LEFT	THRU	RIGHT	LEFT	THRU	RIGHT	TOTAL	NL	SL	EL	WL
07:00-07:15	0	0	0	20	0	32	52	0	60	73	11	115	0	259	0	10	0	0
07:15-07:30	0	0	0	42	2	45	89	0	51	62	3	162	0	278	0	5	0	0
07:30-07:45	0	0	0	83	13	40	136	0	74	56	12	130	0	272	0	29	0	0
07:45-08:00	0	0	0	122	11	53	186	0	87	50	11	136	0	284	0	119	0	0
08:00-08:15	0	0	0	83	1	51	135	0	78	60	7	143	0	288	1	65	0	0
08:15-08:30	0	0	0	63	1	42	106	0	66	63	13	124	0	266	0	31	0	0
08:30-08:45	0	0	0	52	0	50	102	0	72	75	7	113	0	267	0	43	0	1
08:45-09:00	0	0	0	66	2	84	152	0	81	63	18	129	0	291	1	67	0	1
14:00-14:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
14:15-14:30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
14:30-14:45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
14:45-15:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
15:00-15:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
15:15-15:30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
15:30-15:45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
15:45-16:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
16:00-16:15	0	0	0	18	81	17	116	0	135	159	31	136	0	461	0	71	0	0
16:15-16:30	0	0	0	19	58	16	93	0	98	155	26	132	0	411	1	70	0	0
16:30-16:45	0	0	0	9	50	25	84	0	107	171	42	130	0	450	0	59	0	0
16:45-17:00	0	0	0	9	62	28	99	0	137	158	35	162	0	492	0	125	0	0
17:00-17:15	0	0	0	12	46	23	81	0	147	197	49	187	0	580	2	168	0	0
17:15-17:30	0	0	0	11	30	18	59	0	125	195	65	181	0	566	0	94	0	0
17:30-17:45	0	0	0	10	45	24	79	0	112	174	42	134	0	462	1	74	0	0
17:45-18:00	0	0	0	13	52	20	85	0	106	171	55	133	0	465	0	75	0	0

PEAK-HOUR VOLUME ANALYSIS

CALCULATED PEAK HOUR VOLUMES-AM

186 SR, 26 ST, 351 SL
0 EL, 305 ET, 229 ER
07:30-08:30
WR 0, WT 533, WL 43
NL 0, NT 0, NR 0

ADJUSTED PEAK HOUR VOLUMES-AM

SR, ST, SL
EL, ET, ER
WR, WT, WL
NL, NT, NR

CALCULATED PEAK HOUR VOLUMES-NOON

0 SR, 0 ST, 0 SL
0 EL, 0 ET, 0 ER
14:00-15:00
WR 0, WT 0, WL 0
NL 0, NT 0, NR 0

ADJUSTED PEAK HOUR VOLUMES-NOON

SR, ST, SL
EL, ET, ER
WR, WT, WL
NL, NT, NR

CALCULATED PEAK HOUR VOLUMES-PM

93 SR, 183 ST, 42 SL
0 EL, 521 ET, 724 ER
16:45-17:45
WR 0, WT 664, WL 191
NL 0, NT 0, NR 0

ADJUSTED PEAK HOUR VOLUMES-PM

SR, ST, SL
EL, ET, ER
WR, WT, WL
NL, NT, NR

TURNING MOVEMENT COUNT

PROJECT NAME: UCR Riverside West Campus Study
PROJECT NO: 27089
DATE: Thursday January 17, 2008

TIME	N-S STREET: 215 N/B Ramps							E-W STREET: University Avenue										
	NORTH BOUND			SOUTH BOUND			N-S	EAST BOUND			WEST BOUND			E-W	PED COUNT			
	LEFT	THRU	RIGHT	LEFT	THRU	RIGHT	TOTAL	LEFT	THRU	RIGHT	LEFT	THRU	RIGHT	TOTAL	NL	SL	EL	WL
07:00-07:15	0	0	0	12	0	93	105	26	52	1	2	38	28	147	0	0	0	0
07:15-07:30	1	0	1	22	0	141	165	16	70	0	0	25	12	123	0	0	0	0
07:30-07:45	0	0	0	24	0	105	129	28	134	1	0	40	18	221	0	0	0	0
07:45-08:00	0	0	0	11	0	95	106	13	202	0	0	55	14	284	0	0	0	0
08:00-08:15	0	0	1	14	0	93	108	19	141	0	0	56	21	237	0	0	0	0
08:15-08:30	0	0	0	25	0	89	114	20	118	0	0	47	20	205	0	0	0	0
08:30-08:45	0	0	2	21	0	83	106	18	109	1	0	37	19	184	0	0	0	0
08:45-09:00	0	0	1	15	0	90	106	24	120	0	0	66	17	227	0	0	0	0
14:00-14:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
14:15-14:30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
14:30-14:45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
14:45-15:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
15:00-15:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
15:15-15:30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
15:30-15:45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
15:45-16:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
16:00-16:15	0	0	0	18	0	85	103	40	111	0	0	102	31	284	0	0	0	0
16:15-16:30	0	0	0	17	0	57	74	22	94	2	0	101	33	252	0	0	0	0
16:30-16:45	0	0	0	16	0	67	83	24	94	0	0	111	31	260	0	0	0	0
16:45-17:00	0	0	0	22	0	87	109	24	118	0	0	108	30	280	0	0	0	0
17:00-17:15	0	0	1	16	0	62	79	57	109	0	0	182	56	404	0	0	0	0
17:15-17:30	0	0	0	15	0	76	91	46	91	0	0	166	49	352	0	0	0	0
17:30-17:45	0	0	0	17	0	48	65	32	90	0	0	126	47	295	0	0	0	0
17:45-18:00	0	0	0	13	0	63	76	31	85	0	0	133	32	281	0	0	0	0

PEAK-HOUR VOLUME ANALYSIS

CALCULATED PEAK HOUR VOLUMES-AM

		SR	ST	SL		
		382	0	74		
80	EL				WR	73
595	ET		07:30-08:30		WT	198
1	ER				WL	0
		NL	NT	NR		
		0	0	1		

ADJUSTED PEAK HOUR VOLUMES-AM

		SR	ST	SL		
		____	____	____		
____	EL				WR	____
____	ET		____		WT	____
____	ER				WL	____
		NL	NT	NR		
		____	____	____		

CALCULATED PEAK HOUR VOLUMES-NOON

		SR	ST	SL		
		0	0	0		
0	EL				WR	0
0	ET		14:00-15:00		WT	0
0	ER				WL	0
		NL	NT	NR		
		0	0	0		

ADJUSTED PEAK HOUR VOLUMES-NOON

		SR	ST	SL		
		____	____	____		
____	EL				WR	____
____	ET		____		WT	____
____	ER				WL	____
		NL	NT	NR		
		____	____	____		

CALCULATED PEAK HOUR VOLUMES-PM

		SR	ST	SL		
		273	0	70		
159	EL				WR	182
408	ET		16:45-17:45		WT	582
0	ER				WL	0
		NL	NT	NR		
		0	0	1		

ADJUSTED PEAK HOUR VOLUMES-PM

		SR	ST	SL		
		____	____	____		
____	EL				WR	____
____	ET		____		WT	____
____	ER				WL	____
		NL	NT	NR		
		____	____	____		

Turning Movement Count Analysis

TURNING MOVEMENT COUNT

Prepared by: G.E. Traffic Surveys

PROJECT NAME: UCR Riverside West Campus Study
PROJECT NO: 27089
DATE: Tuesday January 8, 2008

TIME	N-S STREET: Chicago Avenue							E-W STREET: Martin Luther King Boulevard								PED COUNT			
	NORTH BOUND			SOUTH BOUND			N-S	EAST BOUND			WEST BOUND			E-W				
	LEFT	THRU	RIGHT	LEFT	THRU	RIGHT	TOTAL	LEFT	THRU	RIGHT	LEFT	THRU	RIGHT	TOTAL	NL	SL	EL	WL
07:00-07:15	119	163	23	9	37	23	374	18	75	16	11	164	35	319	0	0	0	1
07:15-07:30	168	176	45	7	38	27	461	28	101	28	6	172	38	373	0	1	0	0
07:30-07:45	172	245	61	15	62	22	577	28	107	27	8	163	44	377	1	0	0	0
07:45-08:00	172	244	77	20	53	30	596	39	184	37	8	148	30	446	1	1	0	0
08:00-08:15	204	218	51	15	44	35	567	27	143	33	10	157	28	398	0	2	0	1
08:15-08:30	159	191	39	10	50	26	475	39	109	34	14	170	36	402	0	0	0	1
08:30-08:45	102	141	29	16	44	20	352	34	112	36	9	115	35	341	0	2	0	2
08:45-09:00	98	175	35	12	54	34	408	37	103	24	14	127	33	338	1	2	2	0
14:00-14:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
14:15-14:30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
14:30-14:45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
14:45-15:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
15:00-15:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
15:15-15:30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
15:30-15:45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
15:45-16:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
16:00-16:15	41	71	28	86	236	54	516	46	266	115	36	106	31	600	0	0	0	0
16:15-16:30	29	91	25	106	264	41	556	38	288	165	33	96	31	651	3	2	0	0
16:30-16:45	29	96	29	80	233	43	510	41	298	157	49	101	25	671	2	0	0	0
16:45-17:00	33	85	23	99	290	51	581	33	319	201	54	103	32	742	1	1	0	0
17:00-17:15	34	65	11	95	254	57	516	46	334	215	45	144	24	808	2	0	0	0
17:15-17:30	37	75	16	97	261	53	539	45	304	201	88	150	27	815	2	0	4	3
17:30-17:45	36	62	11	75	252	40	476	46	326	175	62	117	22	748	3	2	0	2
17:45-18:00	31	59	14	83	248	36	471	41	339	186	57	91	20	734	0	0	0	0

PEAK-HOUR VOLUME ANALYSIS

CALCULATED PEAK HOUR VOLUMES-AM

		SR	ST	SL		
		113	209	60		
133	EL				WR	138
543	ET		07:30-08:30		WT	638
131	ER				WL	40
		NL	NT	NR		
		707	898	228		

ADJUSTED PEAK HOUR VOLUMES-AM

		SR	ST	SL		
____	EL				WR	____
____	ET		____		WT	____
____	ER				WL	____
		NL	NT	NR		
		____	____	____		

CALCULATED PEAK HOUR VOLUMES-NOON

		SR	ST	SL		
		0	0	0		
0	EL				WR	0
0	ET		14:00-15:00		WT	0
0	ER				WL	0
		NL	NT	NR		
		0	0	0		

ADJUSTED PEAK HOUR VOLUMES-NOON

		SR	ST	SL		
____	EL				WR	____
____	ET		____		WT	____
____	ER				WL	____
		NL	NT	NR		
		____	____	____		

CALCULATED PEAK HOUR VOLUMES-PM

		SR	ST	SL		
		201	1057	366		
170	EL				WR	105
1283	ET		16:45-17:45		WT	514
792	ER				WL	249
		NL	NT	NR		
		140	287	61		

ADJUSTED PEAK HOUR VOLUMES-PM

		SR	ST	SL		
____	EL				WR	____
____	ET		____		WT	____
____	ER				WL	____
		NL	NT	NR		
		____	____	____		

TURNING MOVEMENT COUNT

PROJECT NAME: UCR Riverside West Campus Study
PROJECT NO: 27089
DATE: Tuesday January 8, 2008

TIME	N-S STREET: Iowa Avenue							E-W STREET: Martin Luther King Boulevard										
	NORTH BOUND			SOUTH BOUND			N-S	EAST BOUND			WEST BOUND			E-W	PED COUNT			
	LEFT	THRU	RIGHT	LEFT	THRU	RIGHT	TOTAL	LEFT	THRU	RIGHT	LEFT	THRU	RIGHT	TOTAL	NL	SL	EL	WL
07:00-07:15	0	0	0	43	0	34	77	35	75	0	0	183	114	407	0	0	0	0
07:15-07:30	0	0	0	46	0	16	62	61	83	0	0	206	118	468	0	0	0	0
07:30-07:45	0	0	0	81	0	31	112	68	101	0	0	198	121	488	0	0	0	0
07:45-08:00	0	0	0	88	0	23	111	74	143	0	0	179	114	510	0	0	0	0
08:00-08:15	0	0	0	48	0	31	79	64	113	0	0	202	131	510	0	0	0	0
08:15-08:30	0	0	0	39	0	37	76	53	118	0	0	128	112	411	0	0	1	0
08:30-08:45	0	0	0	43	0	24	67	56	94	0	0	162	110	422	0	0	0	0
08:45-09:00	0	0	0	38	0	26	64	67	104	0	0	171	133	475	0	0	0	0
14:00-14:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
14:15-14:30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
14:30-14:45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
14:45-15:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
15:00-15:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
15:15-15:30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
15:30-15:45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
15:45-16:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
16:00-16:15	0	0	0	169	0	62	231	45	329	0	0	124	84	582	1	0	1	0
16:15-16:30	0	0	0	207	0	48	255	50	379	0	0	118	73	620	1	0	0	0
16:30-16:45	0	0	0	187	0	71	258	49	380	0	0	138	84	651	1	0	0	0
16:45-17:00	0	0	0	192	0	54	246	48	396	0	0	136	92	672	0	0	0	0
17:00-17:15	0	0	0	181	0	72	253	33	394	0	0	211	96	734	2	0	0	0
17:15-17:30	0	0	0	167	0	76	243	40	394	0	0	182	81	697	0	0	0	0
17:30-17:45	0	0	0	187	0	68	255	45	362	0	0	122	50	579	2	0	0	0
17:45-18:00	0	0	0	199	0	55	254	38	397	0	0	134	52	621	0	0	0	0

PEAK-HOUR VOLUME ANALYSIS

CALCULATED PEAK HOUR VOLUMES-AM

		SR	ST	SL		
		101	0	263		
267	EL				WR	484
440	ET		07:15-08:15		WT	785
0	ER				WL	0
		NL	NT	NR		
		0	0	0		

ADJUSTED PEAK HOUR VOLUMES-AM

		SR	ST	SL		
		____	____	____		
____	EL				WR	____
____	ET		____		WT	____
____	ER				WL	____
		NL	NT	NR		
		____	____	____		

CALCULATED PEAK HOUR VOLUMES-NOON

		SR	ST	SL		
		0	0	0		
0	EL				WR	0
0	ET		14:00-15:00		WT	0
0	ER				WL	0
		NL	NT	NR		
		0	0	0		

ADJUSTED PEAK HOUR VOLUMES-NOON

		SR	ST	SL		
		____	____	____		
____	EL				WR	____
____	ET		____		WT	____
____	ER				WL	____
		NL	NT	NR		
		____	____	____		

CALCULATED PEAK HOUR VOLUMES-PM

		SR	ST	SL		
		273	0	727		
170	EL				WR	353
1564	ET		16:30-17:30		WT	667
0	ER				WL	0
		NL	NT	NR		
		0	0	0		

ADJUSTED PEAK HOUR VOLUMES-PM

		SR	ST	SL		
		____	____	____		
____	EL				WR	____
____	ET		____		WT	____
____	ER				WL	____
		NL	NT	NR		
		____	____	____		

TURNING MOVEMENT COUNT

PROJECT NAME: UCR Riverside West Campus Study
PROJECT NO: 27089
DATE: Thursday January 17, 2008

TIME	N-S STREET: LOT 30							E-W STREET: Martin Luther King Blvd							PED COUNT			
	NORTH BOUND			SOUTH BOUND			N-S	EAST BOUND			WEST BOUND			E-W				
	LEFT	THRU	RIGHT	LEFT	THRU	RIGHT	TOTAL	LEFT	THRU	RIGHT	LEFT	THRU	RIGHT	TOTAL	NL	SL	EL	WL
07:00-07:15	1	1	0	1	0	1	4	9	96	1	3	293	2	404	0	2	1	0
07:15-07:30	2	0	0	3	0	1	6	19	107	0	3	354	10	493	0	0	2	0
07:30-07:45	0	0	0	3	0	3	6	88	132	0	5	340	15	580	0	0	0	0
07:45-08:00	2	0	0	3	0	0	5	134	201	0	1	301	24	661	1	5	0	1
08:00-08:15	0	0	0	3	0	0	3	80	160	0	1	281	28	550	0	0	0	0
08:15-08:30	0	0	0	1	0	4	5	28	130	0	1	232	28	419	0	0	0	0
08:30-08:45	1	1	0	2	0	2	6	36	153	0	5	208	13	415	0	0	0	0
08:45-09:00	0	0	1	3	0	4	8	49	118	0	3	261	12	443	0	0	0	0
14:00-14:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
14:15-14:30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
14:30-14:45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
14:45-15:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
15:00-15:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
15:15-15:30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
15:30-15:45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
15:45-16:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
16:00-16:15	0	0	0	34	0	33	67	7	456	1	1	162	2	629	0	2	0	0
16:15-16:30	1	0	1	28	0	23	53	5	486	0	0	166	2	659	0	0	0	0
16:30-16:45	0	0	3	20	0	17	40	8	480	0	2	158	1	649	0	0	0	1
16:45-17:00	1	0	0	25	0	42	68	18	508	0	0	221	1	748	0	1	0	0
17:00-17:15	3	0	0	53	0	94	150	6	522	0	2	272	0	802	0	0	0	0
17:15-17:30	2	0	0	71	0	109	182	2	455	0	4	217	0	678	0	1	0	1
17:30-17:45	0	0	1	13	0	26	40	5	504	0	4	216	0	729	0	0	0	0
17:45-18:00	0	0	0	19	0	19	38	13	501	0	0	199	2	715	0	0	0	0

PEAK-HOUR VOLUME ANALYSIS

CALCULATED PEAK HOUR VOLUMES-AM

		SR	ST	SL		
		4	0	12		
321	EL				WR	77
600	ET		07:15-08:15		WT	1276
0	ER				WL	10
		NL	NT	NR		
		4	0	0		

ADJUSTED PEAK HOUR VOLUMES-AM

		SR	ST	SL		
		____	____	____		
____	EL				WR	____
____	ET		____		WT	____
____	ER				WL	____
		NL	NT	NR		
		____	____	____		

CALCULATED PEAK HOUR VOLUMES-NOON

		SR	ST	SL		
		0	0	0		
0	EL				WR	0
0	ET		14:00-15:00		WT	0
0	ER				WL	0
		NL	NT	NR		
		0	0	0		

ADJUSTED PEAK HOUR VOLUMES-NOON

		SR	ST	SL		
		____	____	____		
____	EL				WR	____
____	ET		____		WT	____
____	ER				WL	____
		NL	NT	NR		
		____	____	____		

CALCULATED PEAK HOUR VOLUMES-PM

		SR	ST	SL		
		271	0	162		
31	EL				WR	1
1989	ET		16:45-17:45		WT	926
0	ER				WL	10
		NL	NT	NR		
		6	0	1		

ADJUSTED PEAK HOUR VOLUMES-PM

		SR	ST	SL		
		____	____	____		
____	EL				WR	____
____	ET		____		WT	____
____	ER				WL	____
		NL	NT	NR		
		____	____	____		

TURNING MOVEMENT COUNT

PROJECT NAME: UCR Riverside West Campus Study
PROJECT NO: 27089
DATE: Tuesday January 15, 2008

TIME	N-S STREET: Canyon Crest Drive							E-W STREET: Martin Luther King Boulevard							PED COUNT			
	NORTH BOUND			SOUTH BOUND			N-S	EAST BOUND			WEST BOUND			E-W				
	LEFT	THRU	RIGHT	LEFT	THRU	RIGHT	TOTAL	LEFT	THRU	RIGHT	LEFT	THRU	RIGHT	TOTAL	NL	SL	EL	WL
07:00-07:15	251	40	121	12	9	7	440	14	26	65	18	39	1	163	0	0	3	0
07:15-07:30	226	64	129	10	13	2	444	21	30	80	25	69	8	233	0	0	0	0
07:30-07:45	301	103	140	11	20	5	580	30	41	86	28	59	2	246	0	0	10	1
07:45-08:00	305	152	126	11	24	22	640	34	64	81	27	91	8	305	0	0	9	8
08:00-08:15	313	108	102	4	22	17	566	39	44	83	29	94	10	299	0	0	7	2
08:15-08:30	234	89	77	15	18	8	441	27	36	73	24	91	16	267	1	0	3	1
08:30-08:45	189	87	78	2	16	6	378	21	35	50	24	64	3	197	0	1	7	5
08:45-09:00	227	84	69	3	9	8	400	29	39	53	28	57	3	209	0	1	12	6
14:00-14:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
14:15-14:30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
14:30-14:45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
14:45-15:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
15:00-15:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
15:15-15:30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
15:30-15:45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
15:45-16:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
16:00-16:15	95	52	19	15	75	24	280	44	196	262	24	47	5	578	0	0	4	5
16:15-16:30	78	45	28	20	76	17	264	33	256	291	36	61	3	680	0	0	3	0
16:30-16:45	60	41	22	21	88	24	256	27	245	277	28	54	11	642	0	0	2	4
16:45-17:00	91	55	34	21	85	28	314	25	227	252	27	76	11	618	1	0	5	7
17:00-17:15	51	51	33	36	120	53	344	64	312	238	39	67	8	728	0	0	1	5
17:15-17:30	96	32	40	39	189	66	462	42	249	237	38	73	3	642	0	0	4	4
17:30-17:45	71	56	27	31	137	31	353	21	236	275	47	57	7	643	0	0	7	21
17:45-18:00	77	47	29	19	106	39	317	36	246	308	38	57	7	692	0	0	5	2

PEAK-HOUR VOLUME ANALYSIS

CALCULATED PEAK HOUR VOLUMES-AM

		52	84	41		
		SR	ST	SL		
130	EL				WR	36
185	ET		07:30-08:30		WT	335
323	ER				WL	108
		NL	NT	NR		
		1153	452	445		

ADJUSTED PEAK HOUR VOLUMES-AM

		____	____	____		
		SR	ST	SL		
____	EL				WR	____
____	ET		____		WT	____
____	ER				WL	____
		NL	NT	NR		
		____	____	____		

CALCULATED PEAK HOUR VOLUMES-NOON

		0	0	0		
		SR	ST	SL		
0	EL				WR	0
0	ET		14:00-15:00		WT	0
0	ER				WL	0
		NL	NT	NR		
		0	0	0		

ADJUSTED PEAK HOUR VOLUMES-NOON

		____	____	____		
		SR	ST	SL		
____	EL				WR	____
____	ET		____		WT	____
____	ER				WL	____
		NL	NT	NR		
		____	____	____		

CALCULATED PEAK HOUR VOLUMES-PM

		189	552	125		
		SR	ST	SL		
163	EL				WR	25
1043	ET		17:00-18:00		WT	254
1058	ER				WL	162
		NL	NT	NR		
		295	186	129		

ADJUSTED PEAK HOUR VOLUMES-PM

		____	____	____		
		SR	ST	SL		
____	EL				WR	____
____	ET		____		WT	____
____	ER				WL	____
		NL	NT	NR		
		____	____	____		

TURNING MOVEMENT COUNT

PROJECT NAME: UCR Riverside West Campus Study
PROJECT NO: 27089
DATE: Tuesday January 15, 2008

TIME	N-S STREET: SB I-215 Ramps							E-W STREET: Martin Luther King Boulevard							PED COUNT			
	NORTH BOUND			SOUTH BOUND			N-S	EAST BOUND			WEST BOUND			E-W				
	LEFT	THRU	RIGHT	LEFT	THRU	RIGHT	TOTAL	LEFT	THRU	RIGHT	LEFT	THRU	RIGHT	TOTAL	NL	SL	EL	WL
07:00-07:15	0	0	0	6	5	25	36	0	139	30	2	35	0	206	0	0	0	0
07:15-07:30	0	0	0	10	18	42	70	0	134	48	3	67	0	252	0	0	0	0
07:30-07:45	0	0	0	3	21	43	67	0	156	38	6	61	0	261	0	0	0	0
07:45-08:00	0	0	0	1	16	50	67	0	131	74	5	84	0	294	0	0	0	0
08:00-08:15	0	0	0	3	5	62	70	0	116	37	7	79	0	239	0	0	0	0
08:15-08:30	0	0	0	1	1	58	60	0	86	44	3	75	0	208	0	0	0	0
08:30-08:45	0	0	0	1	3	33	37	0	92	27	2	61	0	182	0	0	0	0
08:45-09:00	0	0	0	3	0	36	39	0	69	44	3	50	0	166	0	0	0	0
14:00-14:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
14:15-14:30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
14:30-14:45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
14:45-15:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
15:00-15:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
15:15-15:30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
15:30-15:45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
15:45-16:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
16:00-16:15	0	0	0	2	60	17	79	0	25	198	1	55	0	279	0	0	0	0
16:15-16:30	0	0	0	1	40	19	60	0	35	249	1	66	0	351	0	0	0	0
16:30-16:45	0	0	0	0	45	21	66	0	29	232	4	67	0	332	0	0	0	0
16:45-17:00	0	0	0	1	36	19	56	0	34	222	1	94	0	351	0	0	0	0
17:00-17:15	0	0	0	0	21	33	54	0	53	276	2	69	0	400	0	0	0	0
17:15-17:30	0	0	0	1	31	31	63	0	63	225	0	83	0	371	0	0	0	0
17:30-17:45	0	0	0	1	13	23	37	0	36	248	2	82	0	368	0	0	0	0
17:45-18:00	0	0	0	2	7	30	39	0	29	223	1	66	0	319	0	0	0	0

PEAK-HOUR VOLUME ANALYSIS

CALCULATED PEAK HOUR VOLUMES-AM

		SR	ST	SL		
		197	60	17		
0	EL				WR	0
537	ET		07:15-08:15		WT	291
197	ER				WL	21
		NL	NT	NR		
		0	0	0		

ADJUSTED PEAK HOUR VOLUMES-AM

		SR	ST	SL		
		____	____	____		
____	EL				WR	____
____	ET		____		WT	____
____	ER				WL	____
		NL	NT	NR		
		____	____	____		

CALCULATED PEAK HOUR VOLUMES-NOON

		SR	ST	SL		
		0	0	0		
0	EL				WR	0
0	ET		14:00-15:00		WT	0
0	ER				WL	0
		NL	NT	NR		
		0	0	0		

ADJUSTED PEAK HOUR VOLUMES-NOON

		SR	ST	SL		
		____	____	____		
____	EL				WR	____
____	ET		____		WT	____
____	ER				WL	____
		NL	NT	NR		
		____	____	____		

CALCULATED PEAK HOUR VOLUMES-PM

		SR	ST	SL		
		106	101	3		
0	EL				WR	0
186	ET		16:45-17:45		WT	328
971	ER				WL	5
		NL	NT	NR		
		0	0	0		

ADJUSTED PEAK HOUR VOLUMES-PM

		SR	ST	SL		
		____	____	____		
____	EL				WR	____
____	ET		____		WT	____
____	ER				WL	____
		NL	NT	NR		
		____	____	____		

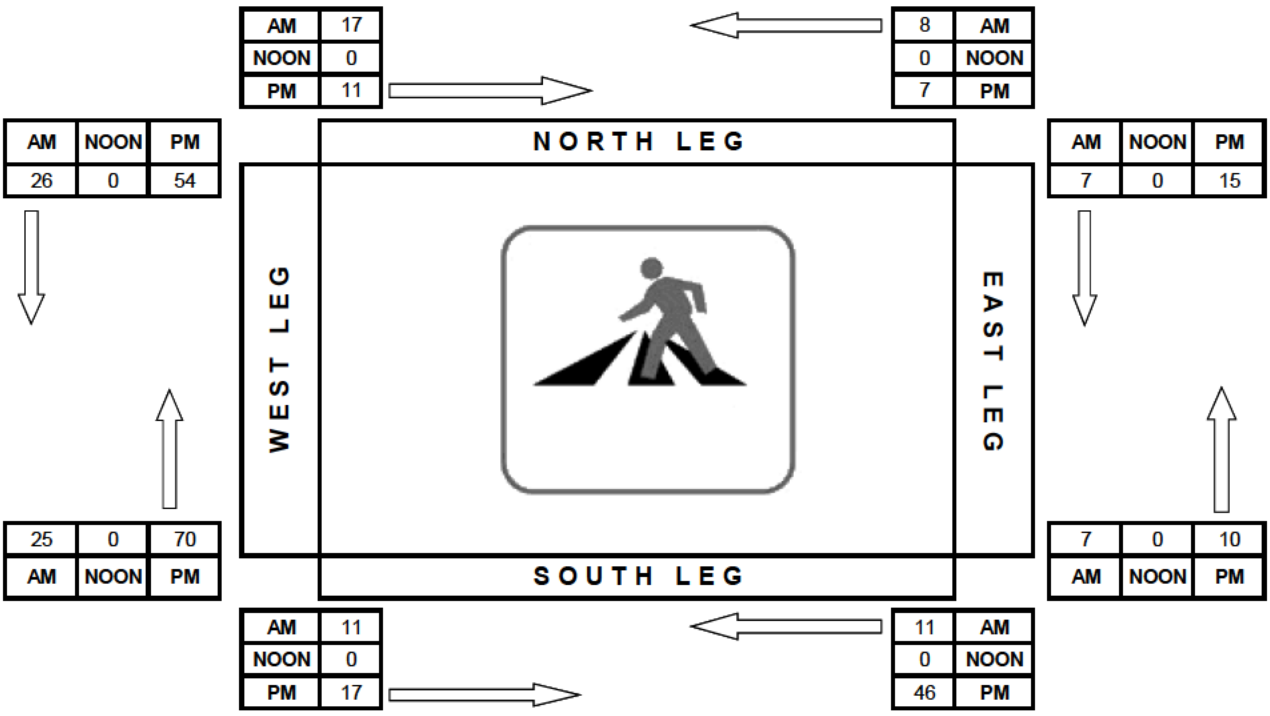
PREPARED BY NATIONAL DATA & SURVEYING SERVICES

Pedestrian Count

PROJECT#: 10-6098-024
N/S Street: Chicago Ave
DATE: 10/13/2010
CITY: Riverside

E/W Street: University Ave
DAY: Wednesday

	Start:	End:
AM	7:00	9:00
NOON		
PM	16:00	18:00



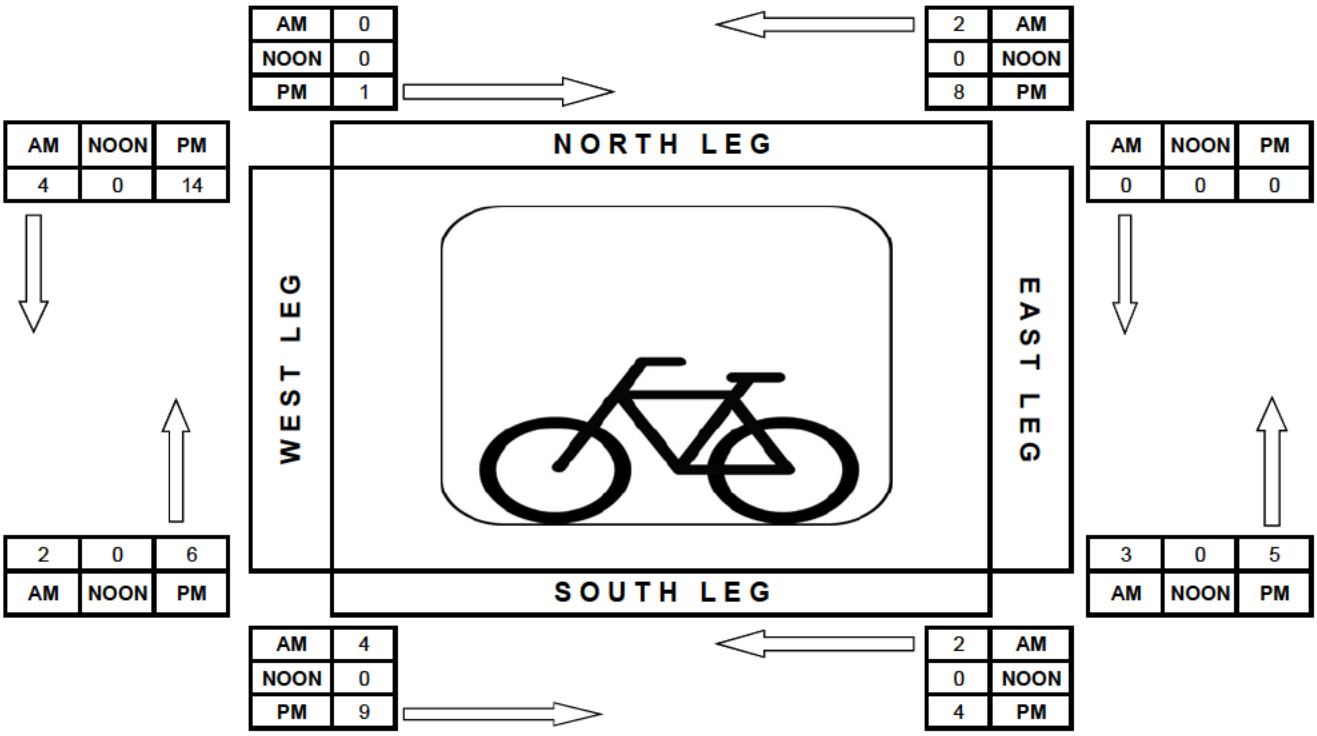
PREPARED BY NATIONAL DATA & SURVEYING SERVICES

Bicycle Count

PROJECT#: 10-6098-024
N/S Street: Chicago Ave
DATE: 10/13/2010
CITY: Riverside

E/W Street: University Ave
DAY: Wednesday

	Start:	End:
AM	7:00	9:00
NOON		
PM	16:00	18:00



PREPARED BY NATIONAL DATA & SURVEYING SERVICES

PROJECT#: 10-6098-024
N/S Street: Chicago Ave
E/W Street: University Ave
DATE: 10/13/2010
DAY: Wednesday
CITY: Riverside

A M

PEDESTRIANS

TIME	NORTH LEG		SOUTH LEG		EAST LEG		WEST LEG	
	EB	WB	EB	WB	NB	SB	NB	SB
7:00 AM	1	0	2	1	1	0	1	0
7:15 AM	2	1	0	0	1	2	4	6
7:30 AM	3	3	1	1	3	2	9	2
7:45 AM	2	1	5	2	2	0	3	2
8:00 AM	1	0	0	0	0	0	2	1
8:15 AM	2	1	0	2	0	0	3	5
8:30 AM	4	2	3	4	0	3	1	7
8:45 AM	2	0	0	1	0	0	2	3
TOTALS	**17**	**8**	**11**	**11**	**7**	**7**	**25**	**26**

BIKES

TIME	NORTH LEG		SOUTH LEG		EAST LEG		WEST LEG	
	EB	WB	EB	WB	NB	SB	NB	SB
7:00 AM	0	0	0	0	1	0	0	0
7:15 AM	0	0	0	0	2	0	1	1
7:30 AM	0	1	1	0	0	0	0	0
7:45 AM	0	1	0	0	0	0	0	0
8:00 AM	0	0	0	0	0	0	1	0
8:15 AM	0	0	0	2	0	0	0	1
8:30 AM	0	0	1	0	0	0	0	0
8:45 AM	0	0	2	0	0	0	0	2
TOTALS	**0**	**2**	**4**	**2**	**3**	**0**	**2**	**4**

P M

PEDESTRIANS

TIME	NORTH LEG		SOUTH LEG		EAST LEG		WEST LEG	
	EB	WB	EB	WB	NB	SB	NB	SB
4:00 PM	0	1	1	5	2	0	5	13
4:15 PM	2	1	2	6	1	2	12	7
4:30 PM	2	1	4	8	2	4	11	4
4:45 PM	1	0	0	9	0	0	11	8
5:00 PM	2	2	5	1	1	0	9	9
5:15 PM	1	0	1	6	0	5	10	0
5:30 PM	3	0	4	5	0	2	4	12
5:45 PM	0	2	0	6	4	2	8	1
TOTALS	**11**	**7**	**17**	**46**	**10**	**15**	**70**	**54**

BIKES

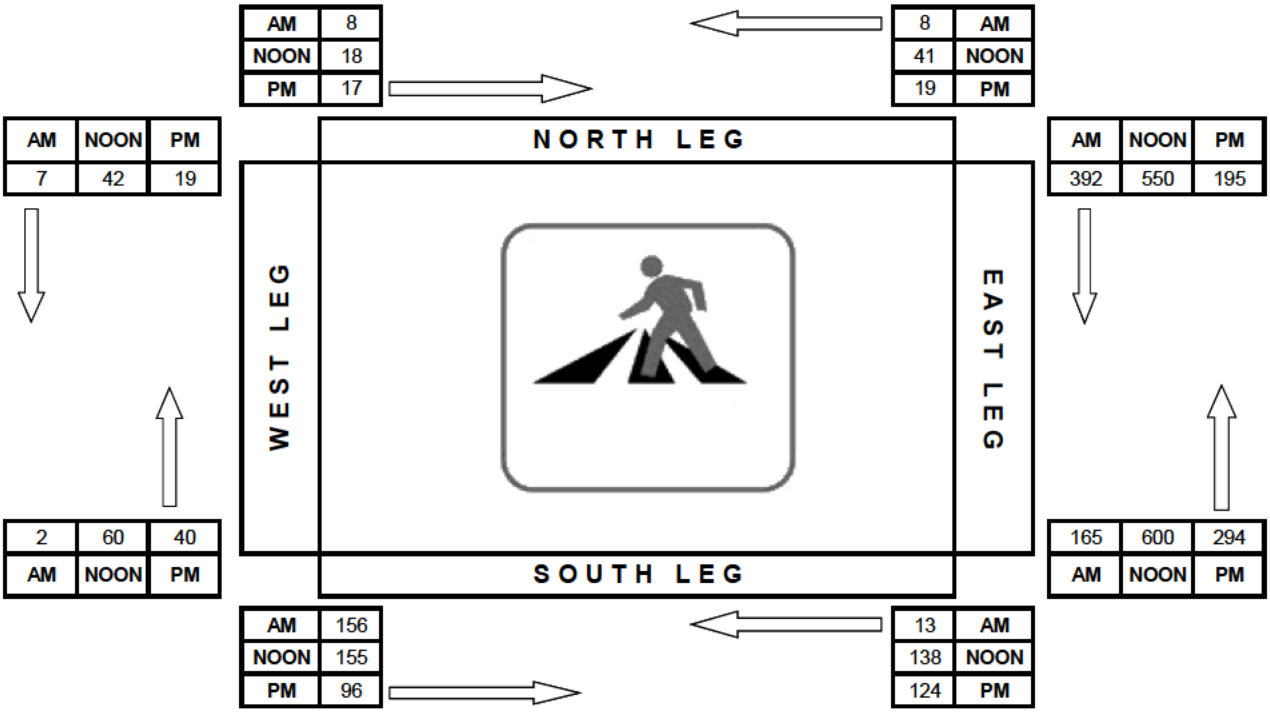
TIME	NORTH LEG		SOUTH LEG		EAST LEG		WEST LEG	
	EB	WB	EB	WB	NB	SB	NB	SB
4:00 PM	0	1	1	0	0	0	0	2
4:15 PM	0	1	1	1	2	0	2	3
4:30 PM	0	0	0	2	1	0	3	2
4:45 PM	0	0	2	0	0	0	0	2
5:00 PM	0	0	0	0	0	0	0	1
5:15 PM	0	2	4	0	0	0	0	2
5:30 PM	0	2	0	1	0	0	1	1
5:45 PM	1	2	1	0	2	0	0	1
TOTALS	**1**	**8**	**9**	**4**	**5**	**0**	**6**	**14**

PREPARED BY NATIONAL DATA & SURVEYING SERVICES

Pedestrian Count

PROJECT#: 10-6098-019
N/S Street: University Village
E/W Street: University Ave
DATE: 10/13/2010
DAY: Wednesday
CITY: Riverside

	Start:	End:
AM	7:00	9:00
NOON	11:00	13:00
PM	16:00	18:00

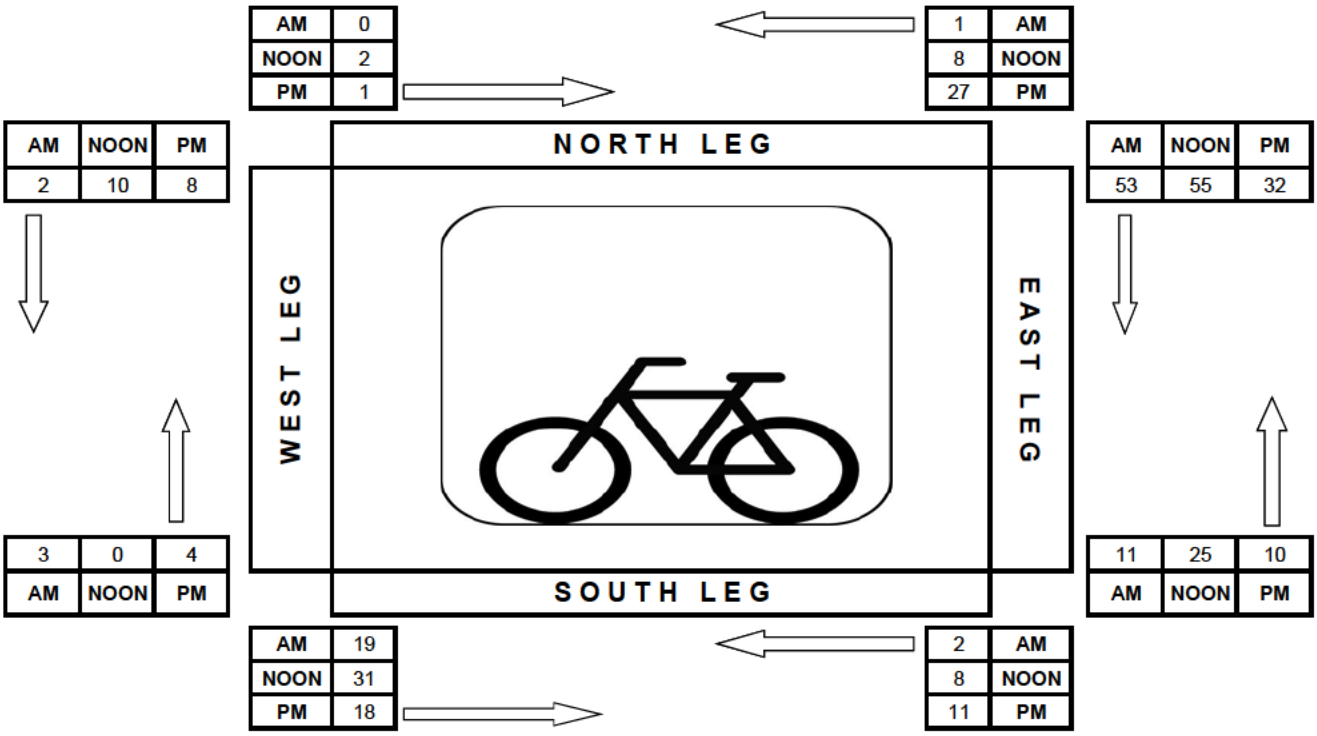


PREPARED BY NATIONAL DATA & SURVEYING SERVICES

Bicycle Count

PROJECT#: 10-6098-019
N/S Street: University Village
E/W Street: University Ave
DATE: 10/13/2010
DAY: Wednesday
CITY: Riverside

	Start:	End:
AM	7:00	9:00
NOON	11:00	13:00
PM	16:00	18:00



PREPARED BY NATIONAL DATA & SURVEYING SERVICES

PROJECT#: 10-6098-019
N/S Street: University Village
E/W Street: University Ave
DATE: 10/13/2010
DAY: Wednesday
CITY: Riverside

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PEDESTRIANS

TIME	NORTH LEG		SOUTH LEG		EAST LEG		WEST LEG	
	EB	WB	EB	WB	NB	SB	NB	SB
7:00 AM	0	0	2	0	1	4	0	0
7:15 AM	1	0	3	1	13	14	0	3
7:30 AM	0	1	18	3	21	42	0	2
7:45 AM	2	2	34	3	5	62	1	0
8:00 AM	0	2	10	1	13	29	0	0
8:15 AM	4	1	12	1	39	30	1	1
8:30 AM	1	2	27	4	49	85	0	1
8:45 AM	0	0	50	0	24	126	0	0
TOTALS	**8**	**8**	**156**	**13**	**165**	**392**	**2**	**7**

BIKES

TIME	NORTH LEG		SOUTH LEG		EAST LEG		WEST LEG	
	EB	WB	EB	WB	NB	SB	NB	SB
7:00 AM	0	0	0	0	0	0	0	0
7:15 AM	0	0	0	0	0	2	1	0
7:30 AM	0	0	2	0	2	3	0	0
7:45 AM	0	0	3	0	0	15	0	0
8:00 AM	0	1	3	1	2	12	0	1
8:15 AM	0	0	2	0	0	0	0	0
8:30 AM	0	0	3	1	7	7	0	1
8:45 AM	0	0	6	0	0	14	2	0
TOTALS	**0**	**1**	**19**	**2**	**11**	**53**	**3**	**2**

N O O N

PEDESTRIANS

TIME	NORTH LEG		SOUTH LEG		EAST LEG		WEST LEG	
	EB	WB	EB	WB	NB	SB	NB	SB
11:00 AM	1	1	12	21	53	31	2	0
11:15 AM	1	1	9	13	88	18	6	1
11:30 AM	2	6	19	4	51	123	6	13
11:45 AM	1	2	16	12	32	64	4	0
12:00 PM	2	21	17	30	133	24	17	2
12:15 PM	4	5	20	38	151	91	16	8
12:30 PM	1	3	29	7	72	123	6	14
12:45 PM	6	2	33	13	20	76	3	4
TOTALS	**18**	**41**	**155**	**138**	**600**	**550**	**60**	**42**

BIKES

TIME	NORTH LEG		SOUTH LEG		EAST LEG		WEST LEG	
	EB	WB	EB	WB	NB	SB	NB	SB
11:00 AM	1	3	3	2	2	5	0	1
11:15 AM	0	0	1	1	5	2	0	0
11:30 AM	1	0	4	0	1	8	0	4
11:45 AM	0	1	12	0	3	9	0	0
12:00 PM	0	3	0	3	6	6	0	1
12:15 PM	0	0	2	1	4	9	0	1
12:30 PM	0	1	5	0	4	11	0	3
12:45 PM	0	0	4	1	0	5	0	0
TOTALS	**2**	**8**	**31**	**8**	**25**	**55**	**0**	**10**

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PEDESTRIANS

TIME	NORTH LEG		SOUTH LEG		EAST LEG		WEST LEG	
	EB	WB	EB	WB	NB	SB	NB	SB
4:00 PM	2	1	7	25	49	19	4	1
4:15 PM	2	4	7	11	53	9	3	0
4:30 PM	0	1	21	10	23	20	2	4
4:45 PM	5	4	18	9	30	35	6	1
5:00 PM	2	2	9	21	41	23	9	4
5:15 PM	1	4	4	22	53	16	6	1
5:30 PM	2	2	15	10	21	30	5	3
5:45 PM	3	1	15	16	24	43	5	5
TOTALS	**17**	**19**	**96**	**124**	**294**	**195**	**40**	**19**

BIKES

TIME	NORTH LEG		SOUTH LEG		EAST LEG		WEST LEG	
	EB	WB	EB	WB	NB	SB	NB	SB
4:00 PM	0	2	2	1	0	3	0	0
4:15 PM	0	1	4	2	1	1	0	1
4:30 PM	0	2	3	3	2	3	1	0
4:45 PM	0	5	1	2	1	9	2	4
5:00 PM	0	5	3	2	4	5	0	0
5:15 PM	0	5	1	0	2	5	0	2
5:30 PM	1	4		0	0	4	1	1
5:45 PM	0	3	4	1	0	2	0	0
TOTALS	**1**	**27**	**18**	**11**	**10**	**32**	**4**	**8**

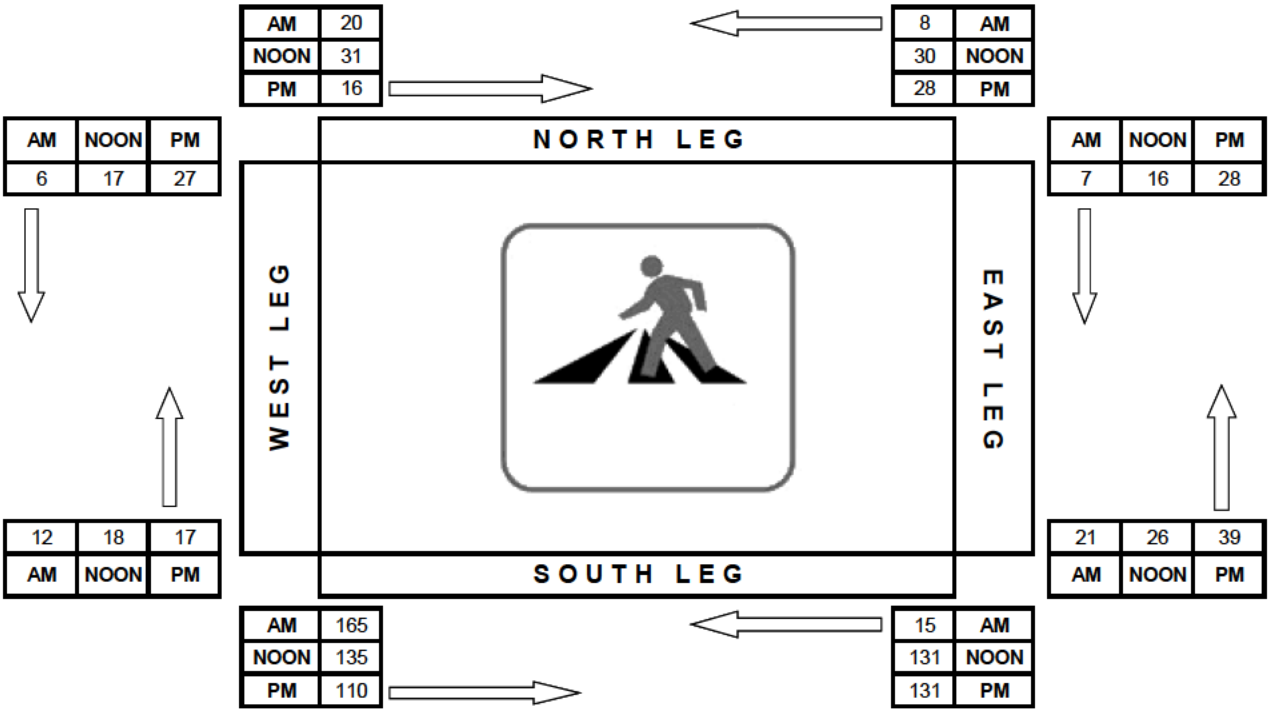
PREPARED BY NATIONAL DATA & SURVEYING SERVICES

Pedestrian Count

PROJECT#: 10-6098-021
N/S Street: Iowa Ave
DATE: 10/13/2010
CITY: Riverside

E/W Street: University Ave
DAY: Wednesday

	Start:	End:
AM	7:00	9:00
NOON	11:00	13:00
PM	16:00	18:00

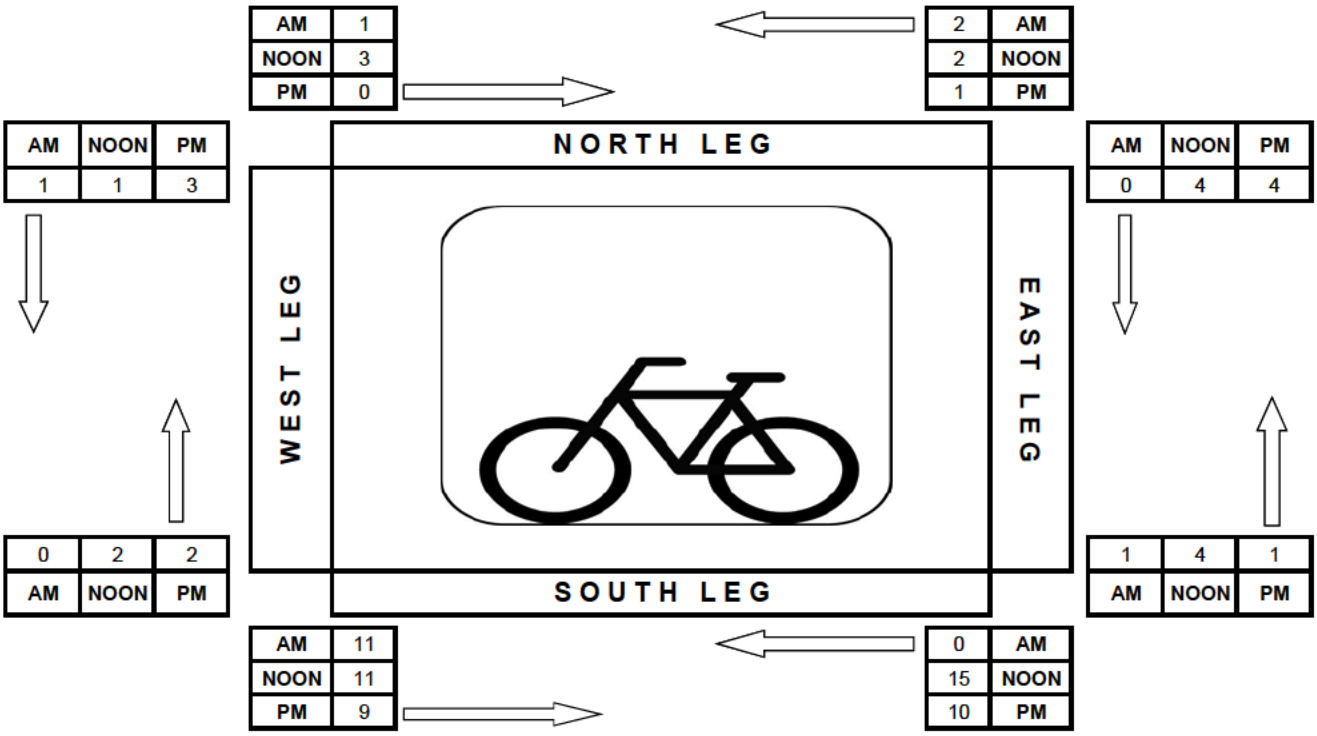


PREPARED BY NATIONAL DATA & SURVEYING SERVICES

Bicycle Count

PROJECT#: 10-6098-021
N/S Street: Iowa Ave
E/W Street: University Ave
DATE: 10/13/2010
DAY: Wednesday
CITY: Riverside

	Start:	End:
AM	7:00	9:00
NOON	11:00	13:00
PM	16:00	18:00



PREPARED BY NATIONAL DATA & SURVEYING SERVICES

PROJECT#: 10-6098-021
N/S Street: Iowa Ave
DATE: 10/13/2010
CITY: Riverside

E/W Street: University Ave
DAY: Wednesday

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PEDESTRIANS

TIME	NORTH LEG		SOUTH LEG		EAST LEG		WEST LEG	
	EB	WB	EB	WB	NB	SB	NB	SB
7:00 AM	1	0	2	1	0	0	4	0
7:15 AM	4	1	4	2	0	1	2	1
7:30 AM	4	2	39	1	8	0	1	1
7:45 AM	0	2	20	1	2	0	1	0
8:00 AM	1	1	8	0	0	0	0	0
8:15 AM	5	0	12	1	6	4	0	1
8:30 AM	5	2	43	6	1	2	4	2
8:45 AM	0	0	37	3	4	0	0	1
TOTALS	**20**	**8**	**165**	**15**	**21**	**7**	**12**	**6**

BIKES

TIME	NORTH LEG		SOUTH LEG		EAST LEG		WEST LEG	
	EB	WB	EB	WB	NB	SB	NB	SB
7:00 AM	0	0	0	0	0	0	0	0
7:15 AM	0	0	1	0	0	0	0	0
7:30 AM	0	0	1	0	0	0	0	1
7:45 AM	0	1	2	0	0	0	0	0
8:00 AM	0	0	0	0	1	0	0	0
8:15 AM	1	1	2	0	0	0	0	0
8:30 AM	0	0	1	0	0	0	0	0
8:45 AM	0	0	4	0	0	0	0	0
TOTALS	**1**	**2**	**11**	**0**	**1**	**0**	**0**	**1**

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PEDESTRIANS

TIME	NORTH LEG		SOUTH LEG		EAST LEG		WEST LEG	
	EB	WB	EB	WB	NB	SB	NB	SB
11:00 AM	3	0	8	2	1	0	2	0
11:15 AM	3	0	10	17	5	0	0	3
11:30 AM	3	5	17	8	0	3	4	3
11:45 AM	9	5	17	6	1	3	5	5
12:00 PM	5	5	15	31	4	0	0	0
12:15 PM	1	7	14	31	6	2	3	1
12:30 PM	6	4	27	17	3	5	2	2
12:45 PM	1	4	27	19	6	3	2	3
TOTALS	**31**	**30**	**135**	**131**	**26**	**16**	**18**	**17**

BIKES

TIME	NORTH LEG		SOUTH LEG		EAST LEG		WEST LEG	
	EB	WB	EB	WB	NB	SB	NB	SB
11:00 AM	1	1	0	6	0	1	0	0
11:15 AM	0	0	0	1	0	0	0	0
11:30 AM	1	0	1	2	0	0	0	0
11:45 AM	1	1	6	1	1	1	0	1
12:00 PM	0	0	0	3	2	1	0	0
12:15 PM	0	0	0	1	1	1	0	0
12:30 PM	0	0	4	1	0	0	1	0
12:45 PM	0	0	0	0	0	0	1	0
TOTALS	**3**	**2**	**11**	**15**	**4**	**4**	**2**	**1**

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PEDESTRIANS

TIME	NORTH LEG		SOUTH LEG		EAST LEG		WEST LEG	
	EB	WB	EB	WB	NB	SB	NB	SB
4:00 PM	2	2	9	17	2	3	5	0
4:15 PM	2	4	9	27	5	3	1	5
4:30 PM	4	2	31	16	6	5	2	3
4:45 PM	0	2	14	4	6	6	1	4
5:00 PM	1	2	10	18	10	4	1	2
5:15 PM	1	3	7	22	2	0	1	3
5:30 PM	3	6	12	13	1	3	3	8
5:45 PM	3	7	18	14	7	4	3	2
TOTALS	**16**	**28**	**110**	**131**	**39**	**28**	**17**	**27**

BIKES

TIME	NORTH LEG		SOUTH LEG		EAST LEG		WEST LEG	
	EB	WB	EB	WB	NB	SB	NB	SB
4:00 PM	0	0	1	2	0	0	0	0
4:15 PM	0	0	2	1	0	0	1	0
4:30 PM	0	0	1	1	0	0	0	0
4:45 PM	0	1	1	0	0	0	1	1
5:00 PM	0	0	1	2	0	0	0	1
5:15 PM	0	0	1	3	1	2	0	1
5:30 PM	0	0	0	0	0	1	0	0
5:45 PM	0	0	2	1	0	1	0	0
TOTALS	**0**	**1**	**9**	**10**	**1**	**4**	**2**	**3**

Prepared by NDS/ATD

Volumes for: Tuesday, October 12, 2010		City:	Riverside	Daily Totals NB	SB	EB	WB	Total
Location:	Chicago Ave from Martin Luther King Jr.Blvd to University Ave	Project:	10-6099-003	8,342	9,457	0	0	17,799

AM Period	NB		SB		EB	WB		PM Period	NB		SB		EB	WB	
00:00	18		17					12:00	138		134				
00:15	12		23					12:15	126		152				
00:30	12		15					12:30	152		151				
00:45	10	52	8	63			115	12:45	145	561	124	561			1122
01:00	8		11					13:00	112		125				
01:15	15		8					13:15	134		119				
01:30	8		6					13:30	127		121				
01:45	8	39	12	37			76	13:45	108	481	135	500			981
02:00	7		11					14:00	120		145				
02:15	2		7					14:15	114		135				
02:30	6		4					14:30	114		163				
02:45	2	17	4	26			43	14:45	153	501	180	623			1124
03:00	5		4					15:00	163		222				
03:15	3		0					15:15	135		222				
03:30	5		4					15:30	133		230				
03:45	10	23	3	11			34	15:45	149	580	250	924			1504
04:00	3		1					16:00	169		282				
04:15	13		4					16:15	126		286				
04:30	11		2					16:30	147		270				
04:45	8	35	7	14			49	16:45	133	575	298	1136			1711
05:00	14		10					17:00	131		318				
05:15	26		13					17:15	152		356				
05:30	35		11					17:30	137		356				
05:45	50	125	16	50			175	17:45	137	557	366	1396			1953
06:00	48		13					18:00	113		272				
06:15	71		27					18:15	90		251				
06:30	103		38					18:30	111		189				
06:45	153	375	55	133			508	18:45	112	426	182	894			1320
07:00	162		45					19:00	80		152				
07:15	206		71					19:15	73		112				
07:30	221		81					19:30	63		88				
07:45	250	839	120	317			1156	19:45	57	273	68	420			693
08:00	207		102					20:00	83		85				
08:15	200		96					20:15	59		69				
08:30	167		80					20:30	69		79				
08:45	176	750	81	359			1109	20:45	75	286	62	295			581
09:00	153		75					21:00	39		64				
09:15	138		78					21:15	42		51				
09:30	133		88					21:30	49		50				
09:45	126	550	98	339			889	21:45	28	158	43	208			366
10:00	130		102					22:00	29		43				
10:15	86		105					22:15	41		31				
10:30	108		137					22:30	25		33				
10:45	111	435	119	463			898	22:45	18	113	19	126			239
11:00	126		129					23:00	19		17				
11:15	119		126					23:15	18		28				
11:30	145		113					23:30	13		17				
11:45	140	530	122	490			1020	23:45	11	61	10	72			133
Total Vol.		3770		2302			6072			4572		7155			11727

	NB	SB	EB	WB	Total
Daily Totals :	8,342	9,457	0	0	17,799

	AM			PM		
Split %	62.1%	37.9%	34.1%	39.0%	61.0%	65.9%
AM				PM		
Peak Hr.	07:15	11:45	07:30	15:45	17:00	17:00
Volume	884	559	1277	591	1396	1953
P.H.F.	0.884	0.919	0.863	0.874	0.954	0.961
7 - 9 Vol.	1589	676	2265	4 - 6 Vol.	1132	2532	3664
Peak Hr.	07:15	07:30	07:30	Peak Hr.	16:00	17:00	17:00
Volume	884	399	1277	Volume	575	1396	1953
P.H.F.	0.884	0.831	0.863	P.H.F.	0.851	0.954	0.961

Prepared by NDS/ATD

Volumes for: Wednesday, October 13, 2010		City:	Riverside	Daily Totals NB	SB	EB	WB	Total
Location:	Chicago Ave from Martin Luther King Jr.Blvd to University Ave	Project:	10-6099-003	8,224	9,313	0	0	17,537

AM Period	NB		SB		EB	WB		PM Period	NB		SB		EB	WB	
00:00	7		15					12:00	146		131				
00:15	15		15					12:15	134		137				
00:30	4		6					12:30	132		105				
00:45	6	32	10	46			78	12:45	126	538	132	505			1043
01:00	7		8					13:00	116		115				
01:15	3		6					13:15	117		131				
01:30	3		7					13:30	110		159				
01:45	3	16	3	24			40	13:45	117	460	133	538			998
02:00	7		3					14:00	119		145				
02:15	8		9					14:15	126		125				
02:30	6		7					14:30	137		157				
02:45	5	26	4	23			49	14:45	151	533	169	596			1129
03:00	7		7					15:00	165		230				
03:15	4		6					15:15	159		255				
03:30	7		4					15:30	127		235				
03:45	9	27	3	20			47	15:45	131	582	232	952			1534
04:00	5		4					16:00	132		265				
04:15	12		6					16:15	160		294				
04:30	14		5					16:30	173		280				
04:45	12	43	6	21			64	16:45	190	655	298	1137			1792
05:00	18		10					17:00	141		341				
05:15	25		12					17:15	190		366				
05:30	34		17					17:30	146		354				
05:45	46	123	10	49			172	17:45	145	622	302	1363			1985
06:00	45		20					18:00	100		249				
06:15	66		21					18:15	120		227				
06:30	93		38					18:30	125		179				
06:45	152	356	48	127			483	18:45	98	443	170	825			1268
07:00	148		54					19:00	104		131				
07:15	220		71					19:15	85		109				
07:30	226		84					19:30	71		91				
07:45	255	849	126	335			1184	19:45	51	311	86	417			728
08:00	207		99					20:00	62		83				
08:15	168		81					20:15	63		79				
08:30	163		65					20:30	52		66				
08:45	168	706	99	344			1050	20:45	47	224	53	281			505
09:00	118		83					21:00	57		67				
09:15	128		92					21:15	59		68				
09:30	104		117					21:30	28		41				
09:45	105	455	101	393			848	21:45	29	173	39	215			388
10:00	113		99					22:00	30		41				
10:15	111		103					22:15	27		42				
10:30	114		116					22:30	25		31				
10:45	110	448	114	432			880	22:45	23	105	19	133			238
11:00	109		113					23:00	13		18				
11:15	129		108					23:15	15		23				
11:30	97		127					23:30	11		21				
11:45	112	447	108	456			903	23:45	11	50	19	81			131
Total Vol.		3528		2270			5798			4696		7043			11739

	NB	SB	EB	WB	Total
Daily Totals :	8,224	9,313	0	0	17,537

	AM			PM		
Split %	60.8%	39.2%	33.1%	40.0%	60.0%	66.9%
AM				PM		
Peak Hr.	07:15	11:30	07:15	Peak Hr.	16:30	17:00	16:45
Volume	908	503	1288	Volume	694	1363	2026
P.H.F.	0.890	0.918	0.845	P.H.F.	0.913	0.931	0.911
7 - 9 Vol.	1555	679	2234	4 - 6 Vol.	1277	2500	3777
Peak Hr.	07:15	07:30	07:15	Peak Hr.	16:30	17:00	16:45
Volume	908	390	1288	Volume	694	1363	2026
P.H.F.	0.890	0.774	0.845	P.H.F.	0.913	0.931	0.911

Prepared by NDS/ATD

Volumes for: Thursday, October 14, 2010		City:	Riverside	Daily Totals NB	SB	EB	WB	Total
Location:	Chicago Ave from Martin Luther King Jr.Blvd to University Ave	Project:	10-6099-003	8,366	9,278	0	0	17,644

AM Period	NB		SB		EB	WB		PM Period	NB		SB		EB	WB	
00:00	12		16					12:00	115		123				
00:15	10		6					12:15	123		112				
00:30	15		9					12:30	130		101				
00:45	11	48	7	38			86	12:45	154	522	116	452			974
01:00	6		5					13:00	131		149				
01:15	2		9					13:15	120		130				
01:30	2		4					13:30	115		140				
01:45	7	17	5	23			40	13:45	112	478	127	546			1024
02:00	1		10					14:00	151		152				
02:15	6		10					14:15	142		182				
02:30	1		4					14:30	102		167				
02:45	4	12	2	26			38	14:45	124	519	182	683			1202
03:00	2		4					15:00	140		209				
03:15	3		1					15:15	132		226				
03:30	4		1					15:30	172		222				
03:45	7	16	7	13			29	15:45	149	593	267	924			1517
04:00	5		0					16:00	132		281				
04:15	12		7					16:15	131		260				
04:30	15		10					16:30	129		276				
04:45	15	47	3	20			67	16:45	156	548	294	1111			1659
05:00	20		11					17:00	141		340				
05:15	27		7					17:15	164		350				
05:30	34		14					17:30	164		328				
05:45	41	122	11	43			165	17:45	139	608	320	1338			1946
06:00	47		22					18:00	133		257				
06:15	70		22					18:15	113		231				
06:30	86		38					18:30	110		192				
06:45	164	367	42	124			491	18:45	112	468	182	862			1330
07:00	149		46					19:00	95		185				
07:15	198		68					19:15	100		115				
07:30	271		82					19:30	71		91				
07:45	256	874	130	326			1200	19:45	62	328	83	474			802
08:00	220		92					20:00	69		89				
08:15	208		73					20:15	73		54				
08:30	184		73					20:30	56		62				
08:45	156	768	73	311			1079	20:45	57	255	77	282			537
09:00	123		82					21:00	60		52				
09:15	128		88					21:15	41		77				
09:30	99		103					21:30	38		62				
09:45	98	448	95	368			816	21:45	34	173	49	240			413
10:00	100		87					22:00	27		49				
10:15	119		77					22:15	32		46				
10:30	103		103					22:30	42		28				
10:45	107	429	107	374			803	22:45	31	132	42	165			297
11:00	123		101					23:00	17		31				
11:15	115		107					23:15	14		27				
11:30	158		111					23:30	17		14				
11:45	134	530	119	438			968	23:45	16	64	25	97			161
Total Vol.		3678		2104			5782			4688		7174			11862

	NB	SB	EB	WB	Total
Daily Totals :	8,366	9,278	0	0	17,644

	AM			PM		
Split %	63.6%	36.4%	32.8%	39.5%	60.5%	67.2%
AM				PM		
Peak Hr.	07:30	11:30	07:30	Peak Hr.	16:45	17:00	17:00
Volume	955	465	1332	Volume	625	1338	1946
P.H.F.	0.881	0.945	0.863	P.H.F.	0.953	0.956	0.946
7 - 9 Vol.	1642	637	2279	4 - 6 Vol.	1156	2449	3605
Peak Hr.	07:30	07:30	07:30	Peak Hr.	16:45	17:00	17:00
Volume	955	377	1332	Volume	625	1338	1946
P.H.F.	0.881	0.725	0.863	P.H.F.	0.953	0.956	0.946

Prepared by NDS/ATD

Volumes for: Tuesday, October 12, 2010				City:	Riverside	Daily Totals				
						NB	SB	EB	WB	Total
Location:	University Ave	from	Iowa Ave to Chicago Ave	Project:	10-6099-006	0	0	11,772	8,593	20,365

AM Period	NB	SB	EB		WB			PM Period	NB	SB	EB		WB		
00:00			69		44			12:00			197		180		
00:15			53		47			12:15			202		143		
00:30			43		49			12:30			213		163		
00:45			42	207	24	164	371	12:45			218	830	188	674	1504
01:00			23		31			13:00			197		186		
01:15			42		19			13:15			206		158		
01:30			40		20			13:30			229		171		
01:45			35	140	27	97	237	13:45			158	790	162	677	1467
02:00			46		22			14:00			151		150		
02:15			33		17			14:15			187		146		
02:30			28		15			14:30			156		124		
02:45			23	130	12	66	196	14:45			192	686	146	566	1252
03:00			16		7			15:00			190		170		
03:15			19		14			15:15			215		142		
03:30			20		13			15:30			225		147		
03:45			16	71	9	43	114	15:45			221	851	161	620	1471
04:00			20		8			16:00			265		152		
04:15			14		18			16:15			255		151		
04:30			17		14			16:30			229		143		
04:45			32	83	27	67	150	16:45			248	997	121	567	1564
05:00			20		22			17:00			274		146		
05:15			19		23			17:15			279		162		
05:30			32		27			17:30			270		144		
05:45			33	104	27	99	203	17:45			279	1102	130	582	1684
06:00			36		58			18:00			295		136		
06:15			37		44			18:15			245		132		
06:30			49		37			18:30			232		137		
06:45			61	183	62	201	384	18:45			205	977	123	528	1505
07:00			67		56			19:00			161		91		
07:15			66		83			19:15			130		106		
07:30			91		89			19:30			118		85		
07:45			125	349	100	328	677	19:45			135	544	78	360	904
08:00			146		89			20:00			112		93		
08:15			107		83			20:15			123		114		
08:30			104		75			20:30			106		102		
08:45			107	464	99	346	810	20:45			110	451	77	386	837
09:00			128		109			21:00			114		93		
09:15			117		115			21:15			114		107		
09:30			130		98			21:30			106		91		
09:45			137	512	100	422	934	21:45			113	447	84	375	822
10:00			119		120			22:00			106		67		
10:15			131		113			22:15			81		54		
10:30			187		142			22:30			89		56		
10:45			170	607	139	514	1121	22:45			80	356	43	220	576
11:00			160		140			23:00			60		41		
11:15			162		141			23:15			68		41		
11:30			181		134			23:30			55		25		
11:45			175	678	138	553	1231	23:45			30	213	31	138	351
Total Vol.			3528		2900		6428				8244		5693		13937

	NB	SB	EB	WB	Total
Daily Totals :	0	0	11,772	8,593	20,365

	AM			PM		
Split %	54.9%	45.1%	**31.6%**	59.2%	40.8%	**68.4%**
AM				**PM**		
Peak Hr.	11:45	11:45	**11:45**	Peak Hr.	17:15	12:45	**17:15**
Volume	787	624	**1411**	Volume	1123	703	**1695**
P.H.F.	0.924	0.867	**0.936**	P.H.F.	0.952	0.935	**0.961**
7 - 9 Vol.	813	674	**1487**	4 - 6 Vol.	2099	1149	**3248**
Peak Hr.	07:45	07:15	**07:30**	Peak Hr.	17:00	17:00	**17:00**
Volume	482	361	**830**	Volume	1102	582	**1684**
P.H.F.	0.825	0.903	**0.883**	P.H.F.	0.987	0.898	**0.955**

Prepared by NDS/ATD

Volumes for: Wednesday, October 13, 2010				City:	Riverside	Daily Totals				
						NB	SB	EB	WB	Total
Location:	University Ave	from	Iowa Ave to Chicago Ave	Project:	10-6099-006	0	0	11,252	8,299	19,551

AM Period	NB	SB	EB		WB			PM Period	NB	SB	EB		WB		
00:00			70		37			12:00			189		151		
00:15			31		26			12:15			215		198		
00:30			28		20			12:30			185		172		
00:45			15	144	18	101	245	12:45			225	814	160	681	1495
01:00			22		14			13:00			218		150		
01:15			22		16			13:15			201		160		
01:30			22		12			13:30			142		157		
01:45			17	83	12	54	137	13:45			163	724	158	625	1349
02:00			14		14			14:00			181		138		
02:15			17		12			14:15			150		155		
02:30			18		6			14:30			177		144		
02:45			11	60	5	37	97	14:45			196	704	149	586	1290
03:00			8		7			15:00			202		150		
03:15			14		12			15:15			194		175		
03:30			12		4			15:30			204		140		
03:45			13	47	9	32	79	15:45			191	791	138	603	1394
04:00			8		10			16:00			234		124		
04:15			8		7			16:15			231		155		
04:30			15		15			16:30			225		137		
04:45			16	47	18	50	97	16:45			300	990	131	547	1537
05:00			9		24			17:00			263		143		
05:15			17		29			17:15			296		165		
05:30			39		19			17:30			265		147		
05:45			28	93	51	123	216	17:45			276	1100	146	601	1701
06:00			36		29			18:00			246		137		
06:15			46		43			18:15			219		115		
06:30			51		39			18:30			178		141		
06:45			73	206	53	164	370	18:45			192	835	116	509	1344
07:00			48		34			19:00			192		119		
07:15			79		75			19:15			160		94		
07:30			85		74			19:30			149		115		
07:45			115	327	109	292	619	19:45			143	644	87	415	1059
08:00			106		92			20:00			129		107		
08:15			113		75			20:15			110		95		
08:30			111		80			20:30			134		87		
08:45			108	438	95	342	780	20:45			127	500	92	381	881
09:00			128		115			21:00			112		104		
09:15			116		90			21:15			133		83		
09:30			127		102			21:30			94		77		
09:45			122	493	136	443	936	21:45			106	445	76	340	785
10:00			134		111			22:00			96		56		
10:15			136		119			22:15			94		63		
10:30			136		121			22:30			85		45		
10:45			165	571	104	455	1026	22:45			89	364	51	215	579
11:00			151		133			23:00			44		39		
11:15			135		137			23:15			36		42		
11:30			174		153			23:30			43		39		
11:45			215	675	128	551	1226	23:45			34	157	32	152	309
Total Vol.			3184		2644		5828				8068		5655		13723

	NB	SB	EB	WB	Total
Daily Totals :	0	0	11,252	8,299	19,551

	AM			PM		
Split %	54.6%	45.4%	**29.8%**	58.8%	41.2%	**70.2%**
AM				**PM**		
Peak Hr.	11:45	11:45	**11:45**	Peak Hr.	16:45	12:00	**16:45**
Volume	804	649	**1453**	Volume	1124	681	**1710**
P.H.F.	0.935	0.819	**0.880**	P.H.F.	0.937	0.860	**0.927**
7 - 9 Vol.	765	634	**1399**	4 - 6 Vol.	2090	1148	**3238**
Peak Hr.	07:45	07:45	**07:45**	Peak Hr.	16:45	17:00	**16:45**
Volume	445	356	**801**	Volume	1124	601	**1710**
P.H.F.	0.967	0.817	**0.894**	P.H.F.	0.937	0.911	**0.927**

Prepared by NDS/ATD

Volumes for: Thursday, October 14, 2010			City:	Riverside	Daily Totals NB	SB	EB	WB	Total
Location:	University Ave Chicago Ave	from Iowa Ave to	Project:	10-6099-006	0	0	11,917	8,612	20,529

AM Period	NB	SB	EB		WB			PM Period	NB	SB	EB		WB		
00:00			42		26			12:00			201		182		
00:15			43		28			12:15			199		189		
00:30			28		23			12:30			257		199		
00:45			28	141	15	92	233	12:45			219	876	174	744	1620
01:00			38		20			13:00			206		169		
01:15			24		13			13:15			182		187		
01:30			17		13			13:30			209		181		
01:45			21	100	12	58	158	13:45			192	789	150	687	1476
02:00			25		10			14:00			208		137		
02:15			20		16			14:15			200		144		
02:30			18		11			14:30			195		147		
02:45			16	79	5	42	121	14:45			187	790	136	564	1354
03:00			9		12			15:00			183		151		
03:15			12		9			15:15			214		126		
03:30			10		8			15:30			222		145		
03:45			14	45	11	40	85	15:45			212	831	161	583	1414
04:00			8		7			16:00			257		134		
04:15			12		16			16:15			248		140		
04:30			22		23			16:30			239		132		
04:45			14	56	24	70	126	16:45			263	1007	113	519	1526
05:00			21		16			17:00			264		133		
05:15			22		27			17:15			273		189		
05:30			38		24			17:30			280		168		
05:45			28	109	33	100	209	17:45			282	1099	114	604	1703
06:00			38		42			18:00			258		127		
06:15			39		42			18:15			199		121		
06:30			43		42			18:30			216		146		
06:45			61	181	53	179	360	18:45			178	851	115	509	1360
07:00			55		53			19:00			193		123		
07:15			65		74			19:15			169		142		
07:30			92		76			19:30			182		114		
07:45			116	328	101	304	632	19:45			129	673	118	497	1170
08:00			122		92			20:00			140		82		
08:15			112		75			20:15			140		98		
08:30			105		76			20:30			138		94		
08:45			129	468	109	352	820	20:45			133	551	130	404	955
09:00			125		101			21:00			139		95		
09:15			122		96			21:15			130		81		
09:30			123		111			21:30			124		72		
09:45			134	504	88	396	900	21:45			89	482	60	308	790
10:00			102		101			22:00			99		79		
10:15			134		125			22:15			96		106		
10:30			144		131			22:30			111		59		
10:45			166	546	124	481	1027	22:45			93	399	62	306	705
11:00			141		136			23:00			73		63		
11:15			171		147			23:15			78		60		
11:30			183		120			23:30			77		51		
11:45			222	717	148	551	1268	23:45			67	295	48	222	517
Total Vol.			3274		2665		5939				8643		5947		14590

	NB	SB	EB	WB	Total
Daily Totals :	0	0	11,917	8,612	20,529

	AM			PM		
Split %	55.1%	44.9%	**28.9%**	59.2%	40.8%	**71.1%**
AM				**PM**		
Peak Hr.	11:45	11:45	**11:45**	Peak Hr.	17:00	12:00	**17:00**
Volume	879	718	**1597**	Volume	1099	744	**1703**
P.H.F.	0.855	0.902	**0.876**	P.H.F.	0.974	0.935	**0.922**
7 - 9 Vol.	796	656	**1452**	4 - 6 Vol.	2106	1123	**3229**
Peak Hr.	08:00	08:00	**08:00**	Peak Hr.	17:00	17:00	**17:00**
Volume	468	352	**820**	Volume	1099	604	**1703**
P.H.F.	0.907	0.807	**0.861**	P.H.F.	0.974	0.799	**0.922**

Prepared by NDS/ATD

Volumes for: Tuesday, October 12, 2010				City:	Riverside	Daily Totals NB	SB	EB	WB	Total
Location: University Ave	from I-215 to Iowa Ave			Project:	10-6099-005	0	0	12,134	8,619	20,753

AM Period	NB	SB	EB		WB			PM Period	NB	SB	EB		WB		
00:00			73		53			12:00			223		186		
00:15			41		54			12:15			231		142		
00:30			52		55			12:30			208		154		
00:45			30	196	34	196	392	12:45			226	888	151	633	1521
01:00			31		32			13:00			196		155		
01:15			27		28			13:15			219		126		
01:30			36		29			13:30			191		138		
01:45			41	135	39	128	263	13:45			181	787	151	570	1357
02:00			36		20			14:00			151		149		
02:15			35		18			14:15			176		132		
02:30			24		21			14:30			195		108		
02:45			18	113	14	73	186	14:45			184	706	112	501	1207
03:00			13		11			15:00			228		136		
03:15			7		10			15:15			241		126		
03:30			12		14			15:30			245		142		
03:45			8	40	8	43	83	15:45			241	955	130	534	1489
04:00			8		10			16:00			271		160		
04:15			14		21			16:15			254		133		
04:30			19		13			16:30			261		121		
04:45			21	62	25	69	131	16:45			275	1061	139	553	1614
05:00			14		22			17:00			294		124		
05:15			24		24			17:15			322		182		
05:30			36		31			17:30			248		155		
05:45			35	109	43	120	229	17:45			297	1161	112	573	1734
06:00			29		57			18:00			264		118		
06:15			52		40			18:15			258		120		
06:30			53		42			18:30			260		125		
06:45			68	202	61	200	402	18:45			219	1001	131	494	1495
07:00			63		71			19:00			151		109		
07:15			67		84			19:15			126		95		
07:30			109		94			19:30			123		92		
07:45			144	383	118	367	750	19:45			133	533	118	414	947
08:00			154		86			20:00			137		109		
08:15			89		88			20:15			105		139		
08:30			96		75			20:30			121		103		
08:45			131	470	96	345	815	20:45			125	488	107	458	946
09:00			134		105			21:00			113		100		
09:15			116		119			21:15			105		133		
09:30			143		99			21:30			119		101		
09:45			113	506	100	423	929	21:45			106	443	102	436	879
10:00			124		117			22:00			96		72		
10:15			155		114			22:15			80		61		
10:30			190		127			22:30			63		81		
10:45			157	626	129	487	1113	22:45			63	302	72	286	588
11:00			173		123			23:00			76		50		
11:15			176		144			23:15			54		52		
11:30			167		110			23:30			49		40		
11:45			216	732	149	526	1258	23:45			56	235	48	190	425
Total Vol.			3574		2977		6551				8560		5642		14202

	NB	SB	EB	WB	Total
Daily Totals :	0	0	12,134	8,619	20,753

	AM			PM		
Split %	54.6%	45.4%	**31.6%**	60.3%	39.7%	**68.4%**
AM				**PM**		
Peak Hr.	11:45	11:45	**11:45**	Peak Hr.	17:00	12:00	**16:45**
Volume	878	631	**1509**	Volume	1161	633	**1739**
P.H.F.	0.950	0.848	**0.922**	P.H.F.	0.901	0.851	**0.863**
7 - 9 Vol.	853	712	**1565**	4 - 6 Vol.	2222	1126	**3348**
Peak Hr.	07:30	07:30	**07:30**	Peak Hr.	17:00	16:45	**16:45**
Volume	496	386	**882**	Volume	1161	600	**1739**
P.H.F.	0.805	0.818	**0.842**	P.H.F.	0.901	0.824	**0.863**

Prepared by NDS/ATD

Volumes for: Wednesday, October 13, 2010			City:	Riverside	Daily Totals NB	SB	EB	WB	Total
Location: University Ave	from I-215 to Iowa Ave		Project:	10-6099-005	0	0	11,564	8,236	19,800

AM Period	NB	SB	EB		WB			PM Period	NB	SB	EB		WB		
00:00			58		56			12:00			194		155		
00:15			34		33			12:15			215		160		
00:30			28		35			12:30			202		142		
00:45			15	135	20	144	279	12:45			241	852	125	582	1434
01:00			21		14			13:00			212		156		
01:15			27		22			13:15			181		164		
01:30			23		10			13:30			176		131		
01:45			12	83	23	69	152	13:45			195	764	126	577	1341
02:00			22		13			14:00			163		166		
02:15			9		20			14:15			164		129		
02:30			21		10			14:30			194		147		
02:45			10	62	14	57	119	14:45			190	711	144	586	1297
03:00			13		8			15:00			225		147		
03:15			12		10			15:15			213		157		
03:30			14		8			15:30			199		118		
03:45			10	49	11	37	86	15:45			229	866	126	548	1414
04:00			12		10			16:00			222		133		
04:15			12		8			16:15			232		135		
04:30			18		13			16:30			232		101		
04:45			21	63	20	51	114	16:45			290	976	96	465	1441
05:00			10		23			17:00			296		127		
05:15			30		32			17:15			297		158		
05:30			40		21			17:30			268		120		
05:45			35	115	58	134	249	17:45			281	1142	126	531	1673
06:00			35		34			18:00			240		146		
06:15			46		42			18:15			214		130		
06:30			71		42			18:30			182		143		
06:45			64	216	75	193	409	18:45			199	835	112	531	1366
07:00			59		51			19:00			174		131		
07:15			88		71			19:15			165		97		
07:30			84		96			19:30			151		111		
07:45			126	357	118	336	693	19:45			150	640	92	431	1071
08:00			92		95			20:00			127		131		
08:15			97		74			20:15			142		117		
08:30			113		82			20:30			139		80		
08:45			139	441	89	340	781	20:45			130	538	108	436	974
09:00			102		108			21:00			157		106		
09:15			136		101			21:15			131		98		
09:30			133		97			21:30			106		88		
09:45			139	510	93	399	909	21:45			76	470	97	389	859
10:00			118		109			22:00			107		87		
10:15			129		126			22:15			89		88		
10:30			169		104			22:30			85		65		
10:45			164	580	89	428	1008	22:45			64	345	58	298	643
11:00			156		123			23:00			45		49		
11:15			151		109			23:15			39		51		
11:30			157		120			23:30			50		53		
11:45			177	641	119	471	1112	23:45			39	173	50	203	376
Total Vol.			3252		2659		5911				8312		5577		13889

	NB	SB	EB	WB	Total
Daily Totals :	0	0	11,564	8,236	19,800

	AM			PM		
Split %	55.0%	45.0%	**29.9%**	59.8%	40.2%	**70.1%**
AM				**PM**		
Peak Hr.	11:45	11:45	**11:45**	Peak Hr.	16:45	14:30	**17:00**
Volume	788	576	**1364**	Volume	1151	595	**1673**
P.H.F.	0.916	0.900	**0.909**	P.H.F.	0.969	0.947	**0.919**
7 - 9 Vol.	798	676	**1474**	4 - 6 Vol.	2118	996	**3114**
Peak Hr.	08:00	07:30	**07:45**	Peak Hr.	16:45	17:00	**17:00**
Volume	441	383	**797**	Volume	1151	531	**1673**
P.H.F.	0.793	0.811	**0.817**	P.H.F.	0.969	0.840	**0.919**

Prepared by NDS/ATD

Volumes for: Thursday, October 14, 2010				City:	Riverside	Daily Totals NB	SB	EB	WB	Total
Location: University Ave	from I-215 to Iowa Ave			Project:	10-6099-005	0	0	12,156	8,790	20,946

AM Period	NB	SB	EB		WB			PM Period	NB	SB	EB		WB		
00:00			52		43			12:00			210		174		
00:15			32		42			12:15			192		151		
00:30			34		29			12:30			225		168		
00:45			21	139	22	136	275	12:45			192	819	153	646	1465
01:00			26		36			13:00			231		160		
01:15			22		20			13:15			216		117		
01:30			17		22			13:30			210		186		
01:45			24	89	21	99	188	13:45			230	887	137	600	1487
02:00			22		16			14:00			225		146		
02:15			24		19			14:15			209		127		
02:30			12		8			14:30			190		119		
02:45			11	69	7	50	119	14:45			177	801	122	514	1315
03:00			12		19			15:00			246		139		
03:15			12		16			15:15			221		141		
03:30			14		8			15:30			229		142		
03:45			11	49	15	58	107	15:45			257	953	131	553	1506
04:00			7		6			16:00			270		125		
04:15			10		15			16:15			253		106		
04:30			16		19			16:30			280		129		
04:45			18	51	23	63	114	16:45			267	1070	103	463	1533
05:00			21		22			17:00			294		150		
05:15			24		30			17:15			295		184		
05:30			43		28			17:30			273		152		
05:45			43	131	48	128	259	17:45			262	1124	105	591	1715
06:00			40		42			18:00			241		127		
06:15			45		63			18:15			245		152		
06:30			47		57			18:30			213		156		
06:45			61	193	54	216	409	18:45			208	907	125	560	1467
07:00			58		66			19:00			178		152		
07:15			74		74			19:15			143		125		
07:30			97		87			19:30			173		133		
07:45			133	362	122	349	711	19:45			145	639	123	533	1172
08:00			128		98			20:00			165		126		
08:15			85		89			20:15			140		110		
08:30			101		82			20:30			124		94		
08:45			126	440	108	377	817	20:45			136	565	133	463	1028
09:00			119		102			21:00			104		106		
09:15			125		94			21:15			134		96		
09:30			127		104			21:30			97		98		
09:45			111	482	104	404	886	21:45			121	456	80	380	836
10:00			121		96			22:00			116		104		
10:15			131		116			22:15			100		94		
10:30			168		121			22:30			101		74		
10:45			155	575	111	444	1019	22:45			83	400	77	349	749
11:00			150		122			23:00			64		67		
11:15			157		133			23:15			66		81		
11:30			181		112			23:30			66		81		
11:45			201	689	155	522	1211	23:45			70	266	63	292	558
Total Vol.			3269		2846		6115				8887		5944		14831

	NB	SB	EB	WB	Total
Daily Totals :	0	0	12,156	8,790	20,946

	AM			PM		
Split %	53.5%	46.5%	**29.2%**	59.9%	40.1%	**70.8%**
AM				**PM**		
Peak Hr.	11:45	11:45	**11:45**	Peak Hr.	16:30	12:00	**16:45**
Volume	828	648	**1476**	Volume	1136	646	**1718**
P.H.F.	0.920	0.931	**0.939**	P.H.F.	0.963	0.928	**0.897**
7 - 9 Vol.	802	726	**1528**	4 - 6 Vol.	2194	1054	**3248**
Peak Hr.	07:45	07:30	**07:30**	Peak Hr.	16:30	17:00	**16:45**
Volume	447	396	**839**	Volume	1136	591	**1718**
P.H.F.	0.840	0.811	**0.823**	P.H.F.	0.963	0.803	**0.897**

Prepared by NDS/ATD

Volumes for: Tuesday, October 12, 2010				City:	Riverside	Daily Totals NB	SB	EB	WB	Total
Location:	Martin Luther King Jr. Dr/14th St from Iowa Ave to Chicago Ave			Project:	10-6099-002	0	0	10,830	9,069	19,899

AM Period	NB	SB	EB		WB			PM Period	NB	SB	EB		WB		
00:00			20		29			12:00			118		109		
00:15			23		19			12:15			150		115		
00:30			20		26			12:30			136		144		
00:45			13	76	14	88	164	12:45			139	543	131	499	1042
01:00			10		14			13:00			138		119		
01:15			11		13			13:15			152		113		
01:30			15		13			13:30			126		103		
01:45			13	49	12	52	101	13:45			133	549	131	466	1015
02:00			10		8			14:00			110		121		
02:15			14		4			14:15			160		156		
02:30			9		7			14:30			149		158		
02:45			4	37	8	27	64	14:45			207	626	154	589	1215
03:00			5		7			15:00			216		144		
03:15			5		5			15:15			248		135		
03:30			7		4			15:30			249		164		
03:45			9	26	8	24	50	15:45			298	1011	166	609	1620
04:00			7		17			16:00			288		160		
04:15			7		25			16:15			297		125		
04:30			17		23			16:30			333		171		
04:45			15	46	35	100	146	16:45			352	1270	171	627	1897
05:00			11		23			17:00			305		223		
05:15			23		62			17:15			344		232		
05:30			31		43			17:30			330		228		
05:45			32	97	73	201	298	17:45			367	1346	151	834	2180
06:00			32		84			18:00			308		164		
06:15			42		76			18:15			282		125		
06:30			60		128			18:30			212		149		
06:45			68	202	173	461	663	18:45			179	981	117	555	1536
07:00			85		164			19:00			152		119		
07:15			97		192			19:15			109		90		
07:30			165		232			19:30			120		87		
07:45			225	572	211	799	1371	19:45			96	477	108	404	881
08:00			180		183			20:00			110		67		
08:15			157		134			20:15			83		87		
08:30			142		147			20:30			78		82		
08:45			129	608	154	618	1226	20:45			75	346	64	300	646
09:00			116		133			21:00			72		64		
09:15			136		127			21:15			71		71		
09:30			97		115			21:30			53		72		
09:45			106	455	105	480	935	21:45			58	254	44	251	505
10:00			103		85			22:00			60		51		
10:15			106		84			22:15			33		44		
10:30			142		104			22:30			41		39		
10:45			132	483	85	358	841	22:45			31	165	34	168	333
11:00			117		95			23:00			38		38		
11:15			128		107			23:15			26		35		
11:30			119		111			23:30			28		30		
11:45			135	499	118	431	930	23:45			20	112	25	128	240
Total Vol.				3150		3639	6789					7680		5430	13110

	NB	SB	EB	WB	Total
Daily Totals :	0	0	10,830	9,069	19,899

	AM				PM			
Split %	46.4%	53.6%	34.1%		58.6%	41.4%	65.9%	
AM				PM				
Peak Hr.	07:30	07:15	07:30	Peak Hr.	17:15	16:45	16:45	
Volume	727	818	1487	Volume	1349	854	2185	
P.H.F.	0.808	0.881	0.853	P.H.F.	0.919	0.920	0.948	
7 - 9 Vol.	1180	1417	2597	4 - 6 Vol.	2616	1461	4077	
Peak Hr.	07:30	07:15	07:30	Peak Hr.	17:00	16:45	16:45	
Volume	727	818	1487	Volume	1346	854	2185	
P.H.F.	0.808	0.881	0.853	P.H.F.	0.917	0.920	0.948	

Prepared by NDS/ATD

Volumes for: Wednesday, October 13, 2010			City:	Riverside	Daily Totals NB	SB	EB	WB	Total
Location:	Martin Luther King Jr. Dr/14th St from Iowa Ave to Chicago Ave		Project:	10-6099-002	0	0	10,947	9,182	20,129

AM Period	NB	SB	EB		WB			PM Period	NB	SB	EB		WB		
00:00			23		20			12:00			104		132		
00:15			13		29			12:15			150		124		
00:30			13		15			12:30			138		117		
00:45			12	61	11	75	136	12:45			146	538	106	479	1017
01:00			18		16			13:00			127		112		
01:15			9		6			13:15			128		147		
01:30			7		15			13:30			125		109		
01:45			8	42	10	47	89	13:45			140	520	106	474	994
02:00			17		8			14:00			131		126		
02:15			9		11			14:15			148		168		
02:30			7		9			14:30			179		157		
02:45			8	41	7	35	76	14:45			240	698	143	594	1292
03:00			5		10			15:00			215		165		
03:15			3		5			15:15			263		182		
03:30			7		9			15:30			279		146		
03:45			7	22	13	37	59	15:45			303	1060	162	655	1715
04:00			5		16			16:00			286		160		
04:15			21		32			16:15			288		186		
04:30			21		22			16:30			317		156		
04:45			14	61	36	106	167	16:45			339	1230	158	660	1890
05:00			15		30			17:00			313		203		
05:15			20		57			17:15			370		219		
05:30			38		49			17:30			343		202		
05:45			33	106	64	200	306	17:45			312	1338	179	803	2141
06:00			31		79			18:00			291		143		
06:15			48		84			18:15			232		139		
06:30			56		124			18:30			163		128		
06:45			71	206	168	455	661	18:45			172	858	114	524	1382
07:00			76		160			19:00			137		110		
07:15			85		206			19:15			129		116		
07:30			172		210			19:30			118		91		
07:45			222	555	224	800	1355	19:45			85	469	68	385	854
08:00			173		217			20:00			114		68		
08:15			178		175			20:15			130		64		
08:30			180		153			20:30			94		66		
08:45			187	718	154	699	1417	20:45			74	412	74	272	684
09:00			107		144			21:00			74		96		
09:15			123		132			21:15			91		79		
09:30			140		99			21:30			56		54		
09:45			116	486	89	464	950	21:45			57	278	46	275	553
10:00			112		108			22:00			55		46		
10:15			98		102			22:15			26		39		
10:30			122		130			22:30			43		31		
10:45			121	453	101	441	894	22:45			25	149	47	163	312
11:00			135		120			23:00			32		33		
11:15			131		111			23:15			27		32		
11:30			118		91			23:30			30		30		
11:45			151	535	99	421	956	23:45			22	111	23	118	229
Total Vol.			3286		3780		7066				7661		5402		13063

	NB	SB	EB	WB	Total
Daily Totals :	0	0	10,947	9,182	20,129

	AM			PM		
Split %	46.5%	53.5%	**35.1%**		58.6%	41.4%	**64.9%**
AM				**PM**			
Peak Hr.	07:45	07:15	**07:30**	Peak Hr.	16:45	17:00	**16:45**
Volume	753	857	**1571**	Volume	1365	803	**2147**
P.H.F.	0.848	0.956	**0.881**	P.H.F.	0.922	0.917	**0.911**
7 - 9 Vol.	1273	1499	**2772**	4 - 6 Vol.	2568	1463	**4031**
Peak Hr.	07:45	07:15	**07:30**	Peak Hr.	16:45	17:00	**16:45**
Volume	753	857	**1571**	Volume	1365	803	**2147**
P.H.F.	0.848	0.956	**0.881**	P.H.F.	0.922	0.917	**0.911**

Prepared by NDS/ATD

Volumes for: Thursday, October 14, 2010					City:	Riverside	Daily Totals				
							NB	SB	EB	WB	Total
Location:	Martin Luther King Jr. Dr/14th St from Iowa Ave to Chicago Ave				Project:	10-6099-002	0	0	10,904	9,284	20,188

AM Period	NB	SB	EB		WB			PM Period	NB	SB	EB		WB		
00:00			21		28			12:00			117		125		
00:15			13		22			12:15			146		121		
00:30			18		17			12:30			137		122		
00:45			14	66	14	81	147	12:45			160	560	128	496	1056
01:00			10		15			13:00			110		90		
01:15			8		10			13:15			136		107		
01:30			11		9			13:30			141		124		
01:45			2	31	11	45	76	13:45			134	521	125	446	967
02:00			11		11			14:00			131		162		
02:15			7		7			14:15			183		155		
02:30			5		9			14:30			140		165		
02:45			4	27	11	38	65	14:45			247	701	123	605	1306
03:00			3		6			15:00			249		140		
03:15			4		4			15:15			237		147		
03:30			9		4			15:30			248		160		
03:45			1	17	12	26	43	15:45			278	1012	178	625	1637
04:00			6		12			16:00			303		162		
04:15			14		37			16:15			307		164		
04:30			19		23			16:30			330		174		
04:45			12	51	39	111	162	16:45			312	1252	179	679	1931
05:00			16		28			17:00			308		236		
05:15			18		46			17:15			333		231		
05:30			35		46			17:30			344		229		
05:45			33	102	77	197	299	17:45			334	1319	175	871	2190
06:00			37		83			18:00			260		165		
06:15			53		75			18:15			232		131		
06:30			57		139			18:30			197		164		
06:45			57	204	162	459	663	18:45			178	867	126	586	1453
07:00			89		179			19:00			167		110		
07:15			106		201			19:15			119		95		
07:30			147		230			19:30			113		77		
07:45			216	558	216	826	1384	19:45			110	509	95	377	886
08:00			214		220			20:00			84		97		
08:15			147		179			20:15			108		77		
08:30			163		134			20:30			101		56		
08:45			159	683	122	655	1338	20:45			80	373	68	298	671
09:00			145		144			21:00			83		67		
09:15			128		110			21:15			82		54		
09:30			117		117			21:30			62		52		
09:45			104	494	114	485	979	21:45			61	288	50	223	511
10:00			108		88			22:00			65		51		
10:15			105		78			22:15			48		52		
10:30			119		99			22:30			57		39		
10:45			127	459	106	371	830	22:45			61	231	51	193	424
11:00			107		98			23:00			39		42		
11:15			118		135			23:15			30		52		
11:30			93		105			23:30			29		28		
11:45			135	453	99	437	890	23:45			28	126	32	154	280
Total Vol.			3145		3731		6876				7759		5553		13312

	NB	SB	EB	WB	Total
Daily Totals :	0	0	10,904	9,284	20,188

	AM			PM		
Split %	45.7%	54.3%	**34.1%**	58.3%	41.7%	**65.9%**
AM				**PM**		
Peak Hr.	07:45	07:15	**07:30**	Peak Hr.	17:00	16:45	**17:00**
Volume	740	867	**1569**	Volume	1319	875	**2190**
P.H.F.	0.856	0.942	**0.904**	P.H.F.	0.959	0.927	**0.955**
7 - 9 Vol.	1241	1481	**2722**	4 - 6 Vol.	2571	1550	**4121**
Peak Hr.	07:45	07:15	**07:30**	Peak Hr.	17:00	16:45	**17:00**
Volume	740	867	**1569**	Volume	1319	875	**2190**
P.H.F.	0.856	0.942	**0.904**	P.H.F.	0.959	0.927	**0.955**

Prepared by NDS/ATD

Volumes for: Tuesday, October 12, 2010			City:	Riverside	Daily Totals NB	SB	EB	WB	Total
Location:	Martin Luther King Jr. Dr/14th St from Canyon Crest Dr to Iowa Ave		Project:	10-6099-001	0	0	11,622	10,603	22,225

AM Period	NB	SB	EB		WB			PM Period	NB	SB	EB		WB		
00:00			36		28			12:00			142		135		
00:15			20		31			12:15			151		153		
00:30			21		18			12:30			162		175		
00:45			10	87	22	99	186	12:45			143	598	161	624	1222
01:00			11		10			13:00			153		145		
01:15			10		11			13:15			138		141		
01:30			17		17			13:30			160		130		
01:45			11	49	11	49	98	13:45			149	600	136	552	1152
02:00			13		5			14:00			118		171		
02:15			16		9			14:15			172		161		
02:30			11		18			14:30			177		161		
02:45			5	45	8	40	85	14:45			204	671	138	631	1302
03:00			10		11			15:00			269		159		
03:15			5		6			15:15			294		141		
03:30			13		6			15:30			264		202		
03:45			9	37	13	36	73	15:45			329	1156	203	705	1861
04:00			7		18			16:00			314		182		
04:15			5		31			16:15			320		149		
04:30			17		26			16:30			366		170		
04:45			13	42	39	114	156	16:45			378	1378	184	685	2063
05:00			10		30			17:00			332		254		
05:15			20		60			17:15			399		235		
05:30			24		61			17:30			391		179		
05:45			23	77	95	246	323	17:45			427	1549	175	843	2392
06:00			25		94			18:00			361		169		
06:15			37		88			18:15			303		156		
06:30			49		151			18:30			255		183		
06:45			67	178	227	560	738	18:45			227	1146	143	651	1797
07:00			80		210			19:00			173		117		
07:15			85		254			19:15			137		95		
07:30			127		285			19:30			128		80		
07:45			191	483	299	1048	1531	19:45			100	538	112	404	942
08:00			159		238			20:00			114		89		
08:15			142		180			20:15			104		94		
08:30			132		230			20:30			81		80		
08:45			110	543	198	846	1389	20:45			83	382	65	328	710
09:00			108		176			21:00			95		65		
09:15			146		150			21:15			88		52		
09:30			104		170			21:30			59		64		
09:45			98	456	118	614	1070	21:45			69	311	43	224	535
10:00			104		124			22:00			62		57		
10:15			128		125			22:15			44		51		
10:30			138		105			22:30			46		41		
10:45			121	491	122	476	967	22:45			29	181	33	182	363
11:00			124		146			23:00			37		29		
11:15			131		119			23:15			37		24		
11:30			112		123			23:30			32		26		
11:45			127	494	151	539	1033	23:45			24	130	28	107	237
Total Vol.			2982		4667		7649				8640		5936		14576

	NB	SB	EB	WB	Total
Daily Totals :	0	0	11,622	10,603	22,225

	AM			PM		
Split %	39.0%	61.0%	**34.4%**	59.3%	40.7%	**65.6%**
AM				**PM**		
Peak Hr.	07:45	07:15	**07:15**	Peak Hr.	17:15	16:45	**17:00**
Volume	624	1076	**1638**	Volume	1578	852	**2392**
P.H.F.	0.817	0.900	**0.836**	P.H.F.	0.924	0.839	**0.943**
7 - 9 Vol.	1026	1894	**2920**	4 - 6 Vol.	2927	1528	**4455**
Peak Hr.	07:45	07:15	**07:15**	Peak Hr.	17:00	16:45	**17:00**
Volume	624	1076	**1638**	Volume	1549	852	**2392**
P.H.F.	0.817	0.900	**0.836**	P.H.F.	0.907	0.839	**0.943**

Prepared by NDS/ATD

Volumes for: Wednesday, October 13, 2010				City:	Riverside	Daily Totals NB	SB	EB	WB	Total
Location:	Martin Luther King Jr. Dr/14th St from Canyon Crest Dr to Iowa Ave			Project:	10-6099-001	0	0	11,665	10,649	22,314

AM Period	NB	SB	EB		WB			PM Period	NB	SB	EB		WB		
00:00			34		20			12:00			123		170		
00:15			23		37			12:15			153		160		
00:30			24		12			12:30			158		136		
00:45			17	98	12	81	179	12:45			138	572	151	617	1189
01:00			21		18			13:00			134		144		
01:15			14		10			13:15			132		162		
01:30			11		10			13:30			153		130		
01:45			10	56	10	48	104	13:45			155	574	118	554	1128
02:00			16		7			14:00			125		166		
02:15			7		6			14:15			155		183		
02:30			10		10			14:30			197		174		
02:45			6	39	9	32	71	14:45			211	688	144	667	1355
03:00			7		14			15:00			253		200		
03:15			4		9			15:15			295		222		
03:30			7		8			15:30			289		180		
03:45			6	24	15	46	70	15:45			318	1155	182	784	1939
04:00			6		13			16:00			313		173		
04:15			14		30			16:15			333		198		
04:30			18		27			16:30			345		161		
04:45			11	49	35	105	154	16:45			392	1383	160	692	2075
05:00			12		32			17:00			321		224		
05:15			17		57			17:15			400		248		
05:30			31		46			17:30			416		196		
05:45			24	84	81	216	300	17:45			357	1494	156	824	2318
06:00			24		86			18:00			331		172		
06:15			35		97			18:15			271		144		
06:30			52		158			18:30			200		151		
06:45			64	175	219	560	735	18:45			185	987	137	604	1591
07:00			76		182			19:00			160		136		
07:15			70		255			19:15			136		144		
07:30			134		301			19:30			134		101		
07:45			183	463	277	1015	1478	19:45			89	519	78	459	978
08:00			155		247			20:00			115		88		
08:15			143		230			20:15			137		69		
08:30			166		217			20:30			103		80		
08:45			184	648	175	869	1517	20:45			111	466	82	319	785
09:00			113		168			21:00			94		90		
09:15			117		159			21:15			90		79		
09:30			157		105			21:30			78		48		
09:45			128	515	105	537	1052	21:45			70	332	51	268	600
10:00			100		137			22:00			70		42		
10:15			104		126			22:15			54		54		
10:30			118		169			22:30			53		32		
10:45			133	455	145	577	1032	22:45			34	211	49	177	388
11:00			135		142			23:00			35		33		
11:15			121		132			23:15			31		29		
11:30			138		106			23:30			38		19		
11:45			152	546	110	490	1036	23:45			28	132	27	108	240
Total Vol.			3152		4576		7728				8513		6073		14586

	NB	SB	EB	WB	Total
Daily Totals :	0	0	11,665	10,649	22,314

	AM			PM		
Split %	40.8%	59.2%	**34.6%**	58.4%	41.6%	**65.4%**
AM				**PM**		
Peak Hr.	08:00	07:15	**07:30**	Peak Hr.	16:45	16:45	**16:45**
Volume	648	1080	**1670**	Volume	1529	828	**2357**
P.H.F.	0.880	0.897	**0.908**	P.H.F.	0.919	0.835	**0.909**
7 - 9 Vol.	1111	1884	**2995**	4 - 6 Vol.	2877	1516	**4393**
Peak Hr.	08:00	07:15	**07:30**	Peak Hr.	16:45	16:45	**16:45**
Volume	648	1080	**1670**	Volume	1529	828	**2357**
P.H.F.	0.880	0.897	**0.908**	P.H.F.	0.919	0.835	**0.909**

Prepared by NDS/ATD

Volumes for: Thursday, October 14, 2010					City:	Riverside	Daily Totals NB	SB	EB	WB	Total
Location: Martin Luther King Jr. Dr/14th St from Canyon Crest Dr to Iowa Ave					Project:	10-6099-001	0	0	11,747	10,645	22,392

AM Period	NB	SB	EB		WB			PM Period	NB	SB	EB		WB		
00:00			34		19			12:00			151		169		
00:15			29		30			12:15			149		136		
00:30			21		20			12:30			145		175		
00:45			17	101	15	84	185	12:45			166	611	159	639	1250
01:00			15		15			13:00			137		103		
01:15			17		15			13:15			151		134		
01:30			16		9			13:30			162		144		
01:45			10	58	8	47	105	13:45			153	603	131	512	1115
02:00			13		14			14:00			159		193		
02:15			12		7			14:15			204		188		
02:30			10		9			14:30			167		158		
02:45			6	41	13	43	84	14:45			249	779	142	681	1460
03:00			3		10			15:00			293		159		
03:15			6		6			15:15			275		159		
03:30			9		6			15:30			289		212		
03:45			1	19	12	34	53	15:45			304	1161	187	717	1878
04:00			5		12			16:00			324		172		
04:15			12		34			16:15			329		165		
04:30			16		29			16:30			351		179		
04:45			10	43	41	116	159	16:45			365	1369	176	692	2061
05:00			13		27			17:00			348		273		
05:15			21		50			17:15			384		231		
05:30			30		57			17:30			369		201		
05:45			24	88	93	227	315	17:45			388	1489	164	869	2358
06:00			33		99			18:00			308		166		
06:15			48		100			18:15			263		152		
06:30			51		154			18:30			229		190		
06:45			49	181	224	577	758	18:45			211	1011	144	652	1663
07:00			72		206			19:00			185		115		
07:15			90		257			19:15			151		119		
07:30			107		291			19:30			124		118		
07:45			184	453	272	1026	1479	19:45			117	577	98	450	1027
08:00			182		271			20:00			95		95		
08:15			135		228			20:15			130		99		
08:30			157		177			20:30			98		58		
08:45			121	595	189	865	1460	20:45			97	420	77	329	749
09:00			119		157			21:00			96		64		
09:15			129		132			21:15			88		51		
09:30			111		128			21:30			82		56		
09:45			110	469	119	536	1005	21:45			66	332	53	224	556
10:00			107		115			22:00			74		52		
10:15			102		96			22:15			57		60		
10:30			127		107			22:30			60		54		
10:45			131	467	118	436	903	22:45			60	251	49	215	466
11:00			97		139			23:00			39		47		
11:15			134		157			23:15			45		45		
11:30			103		119			23:30			39		38		
11:45			139	473	109	524	997	23:45			33	156	20	150	306
Total Vol.			2988		4515		**7503**				8759		6130		**14889**

	NB	SB	EB	WB	Total
Daily Totals :	0	0	11,747	10,645	22,392

	AM			PM		
Split %	39.8%	60.2%	**33.5%**	58.8%	41.2%	**66.5%**
AM				**PM**		
Peak Hr.	07:45	07:15	**07:30**	17:00	16:45	**17:00**
Volume	658	1091	**1670**	1489	881	**2358**
P.H.F.	0.894	0.937	**0.916**	0.959	0.807	**0.949**
7 - 9 Vol.	1048	1891	**2939**	**4 - 6 Vol.** 2858	1561	**4419**
Peak Hr.	07:45	07:15	**07:30**	**Peak Hr.** 17:00	16:45	**17:00**
Volume	658	1091	**1670**	**Volume** 1489	881	**2358**
P.H.F.	0.894	0.937	**0.916**	**P.H.F.** 0.959	0.807	**0.949**

Prepared by NDS/ATD

Volumes for: Tuesday, October 12, 2010						City:	Riverside					Daily Totals				
												NB	SB	EB	WB	Total
Location:	Iowa Ave Blaine Ave		from University Ave to			Project:	10-6099-008					8,943	9,960	0	0	18,903

AM Period	NB		SB		EB	WB		PM Period	NB		SB		EB	WB	
00:00	38		45					12:00	153		175				
00:15	30		35					12:15	176		182				
00:30	46		25					12:30	142		171				
00:45	38	152	33	138			290	12:45	176	647	167	695			1342
01:00	38		28					13:00	160		154				
01:15	22		24					13:15	155		140				
01:30	37		26					13:30	169		143				
01:45	31	128	31	109			237	13:45	129	613	135	572			1185
02:00	35		27					14:00	121		135				
02:15	21		24					14:15	166		136				
02:30	14		26					14:30	148		158				
02:45	20	90	18	95			185	14:45	123	558	212	641			1199
03:00	20		17					15:00	161		236				
03:15	17		16					15:15	172		195				
03:30	18		15					15:30	167		212				
03:45	14	69	6	54			123	15:45	149	649	205	848			1497
04:00	16		9					16:00	148		203				
04:15	14		8					16:15	157		186				
04:30	15		3					16:30	130		218				
04:45	8	53	12	32			85	16:45	151	586	227	834			1420
05:00	12		9					17:00	166		243				
05:15	17		12					17:15	165		241				
05:30	31		19					17:30	185		222				
05:45	27	87	32	72			159	17:45	137	653	266	972			1625
06:00	37		24					18:00	140		204				
06:15	39		37					18:15	125		179				
06:30	35		40					18:30	125		184				
06:45	80	191	66	167			358	18:45	137	527	155	722			1249
07:00	77		43					19:00	127		127				
07:15	108		70					19:15	100		130				
07:30	136		130					19:30	113		104				
07:45	170	491	202	445			936	19:45	100	440	95	456			896
08:00	209		141					20:00	92		99				
08:15	105		90					20:15	115		88				
08:30	118		98					20:30	89		85				
08:45	109	541	122	451			992	20:45	87	383	94	366			749
09:00	81		102					21:00	101		82				
09:15	105		99					21:15	81		90				
09:30	93		100					21:30	93		88				
09:45	115	394	106	407			801	21:45	75	350	62	322			672
10:00	98		112					22:00	72		99				
10:15	113		115					22:15	64		63				
10:30	120		151					22:30	63		51				
10:45	126	457	127	505			962	22:45	64	263	57	270			533
11:00	109		133					23:00	50		47				
11:15	131		152					23:15	46		50				
11:30	99		156					23:30	38		37				
11:45	121	460	178	619			1079	23:45	27	161	34	168			329
Total Vol.		3113		3094			6207			5830		6866			12696

					NB	SB	EB	WB	Total
				Daily Totals :	8,943	9,960	0	0	18,903
	AM				PM				
Split %	50.2%	49.8%	32.8%		45.9%	54.1%			67.2%
AM				PM					
Peak Hr.	07:15	11:45	11:45	Peak Hr.	16:45	17:00			17:00
Volume	623	706	1298	Volume	667	972			1625
P.H.F.	0.745	0.970	0.906	P.H.F.	0.901	0.914			0.993
7 - 9 Vol.	1032	896	1928	4 - 6 Vol.	1239	1806			3045
Peak Hr.	07:15	07:30	07:30	Peak Hr.	16:45	17:00			17:00
Volume	623	563	1183	Volume	667	972			1625
P.H.F.	0.745	0.697	0.795	P.H.F.	0.901	0.914			0.993

Prepared by NDS/ATD

Volumes for: Wednesday, October 13, 2010		City:	Riverside	Daily Totals NB	SB	EB	WB	Total
Location:	Iowa Ave Blaine Ave from University Ave to	Project:	10-6099-008	8,853	9,556	0	0	18,409

AM Period	NB		SB		EB	WB		PM Period	NB		SB		EB	WB	
00:00	55		41					12:00	122		183				
00:15	39		28					12:15	177		173				
00:30	31		20					12:30	151		165				
00:45	21	146	17	106			252	12:45	156	606	148	669			1275
01:00	20		15					13:00	176		146				
01:15	13		17					13:15	153		131				
01:30	12		16					13:30	189		146				
01:45	14	59	11	59			118	13:45	119	637	116	539			1176
02:00	9		7					14:00	129		148				
02:15	16		15					14:15	168		156				
02:30	16		8					14:30	161		177				
02:45	12	53	6	36			89	14:45	148	606	203	684			1290
03:00	9		13					15:00	148		213				
03:15	6		2					15:15	167		175				
03:30	7		5					15:30	149		192				
03:45	7	29	6	26			55	15:45	143	607	192	772			1379
04:00	3		4					16:00	133		202				
04:15	7		6					16:15	152		220				
04:30	16		7					16:30	124		226				
04:45	14	40	11	28			68	16:45	135	544	216	864			1408
05:00	12		8					17:00	154		235				
05:15	11		8					17:15	193		244				
05:30	26		19					17:30	163		244				
05:45	34	83	19	54			137	17:45	117	627	227	950			1577
06:00	28		24					18:00	120		204				
06:15	33		32					18:15	143		200				
06:30	49		42					18:30	140		176				
06:45	83	193	59	157			350	18:45	140	543	132	712			1255
07:00	87		44					19:00	127		109				
07:15	104		81					19:15	121		117				
07:30	149		116					19:30	119		97				
07:45	180	520	171	412			932	19:45	108	475	102	425			900
08:00	187		108					20:00	112		84				
08:15	141		100					20:15	101		105				
08:30	115		89					20:30	106		97				
08:45	119	562	104	401			963	20:45	101	420	98	384			804
09:00	70		109					21:00	111		89				
09:15	114		134					21:15	98		86				
09:30	107		132					21:30	77		76				
09:45	102	393	111	486			879	21:45	97	383	95	346			729
10:00	94		86					22:00	78		72				
10:15	107		121					22:15	68		72				
10:30	99		131					22:30	64		72				
10:45	113	413	116	454			867	22:45	55	265	53	269			534
11:00	98		132					23:00	35		46				
11:15	113		135					23:15	44		38				
11:30	122		151					23:30	43		44				
11:45	140	473	141	559			1032	23:45	54	176	36	164			340
Total Vol.		2964		2778			5742			5889		6778			12667

	NB	SB	EB	WB	Total
Daily Totals :	8,853	9,556	0	0	18,409

	AM			PM		
Split %	51.6%	48.4%	31.2%	46.5%	53.5%	68.8%
AM				**PM**		
Peak Hr.	07:30	11:45	11:45	Peak Hr.	12:45	17:00	16:45
Volume	657	662	1252	Volume	674	950	1584
P.H.F.	0.878	0.904	0.894	P.H.F.	0.892	0.973	0.906
7 - 9 Vol.	1082	813	1895	4 - 6 Vol.	1171	1814	2985
Peak Hr.	07:30	07:30	07:30	Peak Hr.	16:45	17:00	16:45
Volume	657	495	1152	Volume	645	950	1584
P.H.F.	0.878	0.724	0.821	P.H.F.	0.835	0.973	0.906

Prepared by NDS/ATD

Volumes for: Thursday, October 14, 2010			City:	Riverside	Daily Totals				
					NB	SB	EB	WB	Total
Location:	Iowa Ave & Blaine Ave	from University Ave to	Project:	10-6099-008	9,003	9,968	0	0	18,971

AM Period	NB		SB		EB	WB		PM Period	NB		SB		EB	WB	
00:00	33		24					12:00	168		194				
00:15	30		28					12:15	153		161				
00:30	39		27					12:30	165		166				
00:45	26	128	15	94			222	12:45	200	686	151	672			1358
01:00	21		17					13:00	157		221				
01:15	23		27					13:15	144		205				
01:30	11		13					13:30	159		148				
01:45	19	74	10	67			141	13:45	135	595	177	751			1346
02:00	12		6					14:00	143		166				
02:15	11		15					14:15	158		162				
02:30	7		8					14:30	135		149				
02:45	7	37	10	39			76	14:45	120	556	177	654			1210
03:00	10		12					15:00	153		167				
03:15	12		11					15:15	144		170				
03:30	7		4					15:30	158		180				
03:45	17	46	13	40			86	15:45	155	610	200	717			1327
04:00	9		6					16:00	142		203				
04:15	5		6					16:15	175		219				
04:30	21		8					16:30	151		214				
04:45	19	54	9	29			83	16:45	152	620	215	851			1471
05:00	11		12					17:00	137		237				
05:15	15		11					17:15	187		236				
05:30	28		21					17:30	185		244				
05:45	34	88	36	80			168	17:45	142	651	241	958			1609
06:00	32		23					18:00	135		215				
06:15	38		39					18:15	143		210				
06:30	53		30					18:30	137		170				
06:45	86	209	57	149			358	18:45	161	576	161	756			1332
07:00	70		55					19:00	151		155				
07:15	106		72					19:15	122		119				
07:30	144		136					19:30	118		103				
07:45	184	504	181	444			948	19:45	97	488	108	485			973
08:00	175		148					20:00	111		94				
08:15	147		106					20:15	143		97				
08:30	105		116					20:30	104		88				
08:45	108	535	118	488			1023	20:45	94	452	90	369			821
09:00	118		117					21:00	81		78				
09:15	96		100					21:15	88		85				
09:30	98		104					21:30	93		89				
09:45	95	407	75	396			803	21:45	98	360	79	331			691
10:00	103		125					22:00	84		84				
10:15	99		132					22:15	64		84				
10:30	88		128					22:30	68		62				
10:45	109	399	105	490			889	22:45	59	275	69	299			574
11:00	93		127					23:00	52		70				
11:15	110		112					23:15	56		65				
11:30	113		160					23:30	50		65				
11:45	133	449	163	562			1011	23:45	46	204	47	247			451
Total Vol.		2930		2878			5808			6073		7090			13163

				NB	SB	EB	WB	Total
			Daily Totals :	9,003	9,968	0	0	18,971
	AM			PM				
Split %	50.4%	49.6%	30.6%	46.1%	53.9%			69.4%
AM				PM				
Peak Hr.	07:30	11:45	11:45	Peak Hr.	12:00	17:00		17:00
Volume	650	684	1303	Volume	686	958		1609
P.H.F.	0.883	0.881	0.900	P.H.F.	0.858	0.982		0.938
7 - 9 Vol.	1039	932	1971	4 - 6 Vol.	1271	1809		3080
Peak Hr.	07:30	07:30	07:30	Peak Hr.	16:45	17:00		17:00
Volume	650	571	1221	Volume	661	958		1609
P.H.F.	0.883	0.789	0.836	P.H.F.	0.884	0.982		0.938

Prepared by NDS/ATD

Volumes for: Tuesday, October 12, 2010		City:	Riverside	Daily Totals NB	SB	EB	WB	Total
Location:	Iowa Ave from Martin Luther King Jr.Blvd to University Ave	Project:	10-6099-007	5,710	6,479	0	0	12,189

AM Period	NB		SB		EB	WB		PM Period	NB		SB		EB	WB	
00:00	17		39					12:00	78		87				
00:15	15		31					12:15	97		88				
00:30	16		24					12:30	92		97				
00:45	11	59	28	122			181	12:45	93	360	86	358			718
01:00	14		19					13:00	97		95				
01:15	12		29					13:15	97		79				
01:30	15		14					13:30	77		103				
01:45	12	53	19	81			134	13:45	64	335	89	366			701
02:00	8		12					14:00	84		64				
02:15	9		11					14:15	68		104				
02:30	13		19					14:30	79		113				
02:45	7	37	18	60			97	14:45	96	327	152	433			760
03:00	9		10					15:00	98		154				
03:15	10		10					15:15	77		160				
03:30	9		5					15:30	102		126				
03:45	8	36	3	28			64	15:45	134	411	166	606			1017
04:00	3		3					16:00	96		153				
04:15	4		2					16:15	97		150				
04:30	5		1					16:30	84		174				
04:45	8	20	4	10			30	16:45	101	378	162	639			1017
05:00	6		2					17:00	122		170				
05:15	6		2					17:15	115		231				
05:30	24		9					17:30	84		206				
05:45	32	68	9	22			90	17:45	94	415	181	788			1203
06:00	27		10					18:00	110		185				
06:15	26		13					18:15	101		132				
06:30	39		17					18:30	84		133				
06:45	76	168	27	67			235	18:45	68	363	110	560			923
07:00	71		37					19:00	62		97				
07:15	89		38					19:15	57		90				
07:30	159		58					19:30	44		76				
07:45	176	495	71	204			699	19:45	47	210	48	311			521
08:00	143		87					20:00	53		49				
08:15	103		58					20:15	54		79				
08:30	125		61					20:30	48		59				
08:45	118	489	53	259			748	20:45	40	195	46	233			428
09:00	82		58					21:00	33		70				
09:15	80		75					21:15	37		74				
09:30	70		48					21:30	28		52				
09:45	70	302	49	230			532	21:45	30	128	49	245			373
10:00	83		58					22:00	42		51				
10:15	91		90					22:15	29		28				
10:30	77		88					22:30	25		36				
10:45	86	337	67	303			640	22:45	27	123	30	145			268
11:00	88		56					23:00	26		33				
11:15	71		87					23:15	14		38				
11:30	69		56					23:30	19		35				
11:45	97	325	83	282			607	23:45	17	76	21	127			203
Total Vol.		2389		1668			4057			3321		4811			8132

	NB	SB	EB	WB	Total
Daily Totals :	5,710	6,479	0	0	12,189

	AM			PM		
Split %	58.9%	41.1%	33.3%	40.8%	59.2%	66.7%
AM				**PM**		
Peak Hr.	07:30	11:45	07:30	Peak Hr.	15:30	17:15	17:15
Volume	581	355	855	Volume	429	803	1206
P.H.F.	0.825	0.915	0.865	P.H.F.	0.800	0.869	0.871
7 - 9 Vol.	984	463	1447	4 - 6 Vol.	793	1427	2220
Peak Hr.	07:30	07:45	07:30	Peak Hr.	16:30	17:00	17:00
Volume	581	277	855	Volume	422	788	1203
P.H.F.	0.825	0.796	0.865	P.H.F.	0.865	0.853	0.869

Prepared by NDS/ATD

Volumes for: Wednesday, October 13, 2010		City:	Riverside	Daily Totals NB	SB	EB	WB	Total
Location:	Iowa Ave from Martin Luther King Jr.Blvd to University Ave	Project:	10-6099-007	5,689	6,198	0	0	11,887

AM Period	NB		SB		EB	WB		PM Period	NB		SB		EB	WB	
00:00	20		29					12:00	97		90				
00:15	20		26					12:15	98		85				
00:30	7		21					12:30	102		106				
00:45	5	52	15	91			143	12:45	108	405	75	356			761
01:00	16		16					13:00	86		83				
01:15	7		13					13:15	63		80				
01:30	8		13					13:30	59		93				
01:45	6	37	10	52			89	13:45	63	271	77	333			604
02:00	6		9					14:00	91		71				
02:15	4		6					14:15	82		89				
02:30	3		6					14:30	90		112				
02:45	6	19	1	22			41	14:45	88	351	89	361			712
03:00	8		6					15:00	104		151				
03:15	3		2					15:15	125		143				
03:30	1		3					15:30	92		104				
03:45	4	16	4	15			31	15:45	91	412	133	531			943
04:00	5		4					16:00	85		157				
04:15	6		2					16:15	109		161				
04:30	7		0					16:30	80		167				
04:45	6	24	4	10			34	16:45	100	374	183	668			1042
05:00	9		3					17:00	112		163				
05:15	8		5					17:15	129		200				
05:30	14		9					17:30	87		184				
05:45	35	66	8	25			91	17:45	89	417	184	731			1148
06:00	19		9					18:00	99		133				
06:15	33		8					18:15	81		145				
06:30	47		15					18:30	75		114				
06:45	79	178	28	60			238	18:45	73	328	86	478			806
07:00	64		34					19:00	60		80				
07:15	101		31					19:15	68		59				
07:30	167		52					19:30	65		71				
07:45	154	486	74	191			677	19:45	47	240	61	271			511
08:00	120		83					20:00	68		61				
08:15	144		64					20:15	55		78				
08:30	144		90					20:30	57		65				
08:45	103	511	88	325			836	20:45	42	222	75	279			501
09:00	79		54					21:00	39		81				
09:15	96		74					21:15	41		50				
09:30	72		101					21:30	32		61				
09:45	54	301	68	297			598	21:45	35	147	54	246			393
10:00	88		52					22:00	29		54				
10:15	72		58					22:15	35		51				
10:30	91		77					22:30	23		38				
10:45	93	344	62	249			593	22:45	26	113	36	179			292
11:00	83		66					23:00	18		29				
11:15	83		63					23:15	20		28				
11:30	73		92					23:30	13		36				
11:45	65	304	83	304			608	23:45	20	71	31	124			195
Total Vol.		2338		1641			3979			3351		4557			7908

	NB	SB	EB	WB	Total
Daily Totals :	5,689	6,198	0	0	11,887

	AM			PM		
Split %	58.8%	41.2%	33.5%	42.4%	57.6%	66.5%
AM				**PM**		
Peak Hr.	07:30	11:45	07:45	Peak Hr.	16:45	17:00	16:45
Volume	585	364	873	Volume	428	731	1158
P.H.F.	0.876	0.858	0.933	P.H.F.	0.829	0.914	0.880
7 - 9 Vol.	997	516	1513	4 - 6 Vol.	791	1399	2190
Peak Hr.	07:30	08:00	07:45	Peak Hr.	16:45	17:00	16:45
Volume	585	325	873	Volume	428	731	1158
P.H.F.	0.876	0.903	0.933	P.H.F.	0.829	0.914	0.880

Prepared by NDS/ATD

Volumes for: Thursday, October 14, 2010				City:	Riverside	Daily Totals NB	SB	EB	WB	Total
Location:	Iowa Ave from Martin Luther King Jr.Blvd to University Ave			Project:	10-6099-007	5,651	6,356	0	0	12,007

AM Period	NB		SB		EB	WB		PM Period	NB		SB		EB	WB	
00:00	8		29					12:00	97		104				
00:15	19		30					12:15	80		79				
00:30	13		16					12:30	109		92				
00:45	11	51	13	88			139	12:45	89	375	85	360			735
01:00	7		10					13:00	78		105				
01:15	9		14					13:15	91		97				
01:30	5		12					13:30	99		109				
01:45	4	25	14	50			75	13:45	71	339	101	412			751
02:00	2		5					14:00	78		100				
02:15	2		8					14:15	84		98				
02:30	6		9					14:30	68		108				
02:45	4	14	6	28			42	14:45	79	309	120	426			735
03:00	7		3					15:00	95		150				
03:15	4		3					15:15	82		138				
03:30	1		1					15:30	117		155				
03:45	2	14	2	9			23	15:45	88	382	130	573			955
04:00	4		2					16:00	90		161				
04:15	5		4					16:15	98		149				
04:30	12		4					16:30	72		152				
04:45	8	29	2	12			41	16:45	81	341	177	639			980
05:00	7		5					17:00	136		196				
05:15	9		8					17:15	118		198				
05:30	19		9					17:30	97		194				
05:45	33	68	6	28			96	17:45	73	424	184	772			1196
06:00	28		11					18:00	97		152				
06:15	38		12					18:15	81		124				
06:30	46		23					18:30	88		116				
06:45	91	203	23	69			272	18:45	77	343	112	504			847
07:00	75		38					19:00	72		102				
07:15	107		27					19:15	69		84				
07:30	150		50					19:30	71		62				
07:45	145	477	70	185			662	19:45	54	266	70	318			584
08:00	146		78					20:00	57		75				
08:15	122		74					20:15	50		65				
08:30	120		64					20:30	48		56				
08:45	125	513	57	273			786	20:45	40	195	60	256			451
09:00	106		58					21:00	39		58				
09:15	65		52					21:15	34		51				
09:30	57		67					21:30	31		60				
09:45	75	303	70	247			550	21:45	43	147	50	219			366
10:00	70		54					22:00	41		59				
10:15	65		66					22:15	40		44				
10:30	73		83					22:30	40		34				
10:45	60	268	61	264			532	22:45	33	154	36	173			327
11:00	88		46					23:00	43		44				
11:15	70		78					23:15	20		48				
11:30	67		72					23:30	28		32				
11:45	76	301	92	288			589	23:45	19	110	39	163			273
Total Vol.		2266		1541			3807			3385		4815			8200

	NB	SB	EB	WB	Total
Daily Totals :	5,651	6,356	0	0	12,007

	AM			PM		
Split %	59.5%	40.5%	31.7%	41.3%	58.7%	68.3%
AM				**PM**		
Peak Hr.	07:30	11:45	07:30	Peak Hr.	16:45	17:00	16:45
Volume	563	367	835	Volume	432	772	1197
P.H.F.	0.938	0.882	0.932	P.H.F.	0.794	0.975	0.901
7 - 9 Vol.	990	458	1448	4 - 6 Vol.	765	1411	2176
Peak Hr.	07:30	07:45	07:30	Peak Hr.	16:45	17:00	16:45
Volume	563	286	835	Volume	432	772	1197
P.H.F.	0.938	0.917	0.932	P.H.F.	0.794	0.975	0.901

Prepared by NDS/ATD

Volumes for: Tuesday, October 12, 2010			City:	Riverside	Daily Totals				
					NB	SB	EB	WB	Total
Location:	Chicago Ave Blaine St	from University Ave to	Project:	10-6099-004	8,163	8,903	0	0	17,066

AM Period	NB		SB		EB	WB		PM Period	NB		SB		EB	WB	
00:00	20		14					12:00	140		169				
00:15	6		17					12:15	125		172				
00:30	6		8					12:30	166		131				
00:45	6	38	9	48			86	12:45	160	591	149	621			1212
01:00	8		13					13:00	149		140				
01:15	5		11					13:15	125		130				
01:30	6		12					13:30	140		118				
01:45	4	23	3	39			62	13:45	119	533	156	544			1077
02:00	10		10					14:00	115		143				
02:15	9		10					14:15	118		122				
02:30	6		6					14:30	108		168				
02:45	1	26	1	27			53	14:45	148	489	194	627			1116
03:00	4		4					15:00	190		201				
03:15	2		1					15:15	134		210				
03:30	8		3					15:30	146		226				
03:45	9	23	5	13			36	15:45	115	585	230	867			1452
04:00	2		7					16:00	136		219				
04:15	10		6					16:15	132		256				
04:30	28		10					16:30	131		265				
04:45	16	56	8	31			87	16:45	139	538	242	982			1520
05:00	21		15					17:00	134		287				
05:15	27		16					17:15	116		271				
05:30	36		15					17:30	133		274				
05:45	64	148	24	70			218	17:45	114	497	279	1111			1608
06:00	46		22					18:00	156		212				
06:15	61		56					18:15	133		229				
06:30	76		31					18:30	131		158				
06:45	141	324	73	182			506	18:45	116	536	164	763			1299
07:00	109		64					19:00	125		115				
07:15	158		75					19:15	110		75				
07:30	207		90					19:30	105		77				
07:45	248	722	123	352			1074	19:45	119	459	69	336			795
08:00	180		107					20:00	124		76				
08:15	164		79					20:15	108		40				
08:30	127		86					20:30	65		62				
08:45	132	603	106	378			981	20:45	78	375	55	233			608
09:00	123		91					21:00	51		48				
09:15	119		77					21:15	33		55				
09:30	105		91					21:30	42		50				
09:45	90	437	96	355			792	21:45	28	154	41	194			348
10:00	109		101					22:00	29		34				
10:15	81		117					22:15	35		25				
10:30	97		100					22:30	30		38				
10:45	98	385	93	411			796	22:45	18	112	25	122			234
11:00	86		137					23:00	16		19				
11:15	111		110					23:15	17		14				
11:30	128		129					23:30	23		19				
11:45	122	447	160	536			983	23:45	6	62	9	61			123
Total Vol.		3232		2442			5674			4931		6461			11392

	NB	SB	EB	WB	Total
Daily Totals :	8,163	8,903	0	0	17,066

	AM			PM		
Split %	57.0%	43.0%	33.2%	43.3%	56.7%	66.8%
AM				PM		
Peak Hr.	07:30	11:45	07:30	Peak Hr.	14:45	17:00	17:00
Volume	799	632	1198	Volume	618	1111	1608
P.H.F.	0.805	0.919	0.807	P.H.F.	0.813	0.968	0.955
7 - 9 Vol.	1325	730	2055	4 - 6 Vol.	1035	2093	3128
Peak Hr.	07:30	07:30	07:30	Peak Hr.	16:00	17:00	17:00
Volume	799	399	1198	Volume	538	1111	1608
P.H.F.	0.805	0.811	0.807	P.H.F.	0.968	0.968	0.955

Prepared by NDS/ATD

Volumes for: Wednesday, October 13, 2010			City:	Riverside	Daily Totals NB	SB	EB	WB	Total
Location:	Chicago Ave Blaine St	from University Ave to	Project:	10-6099-004	7,634	8,739	0	0	16,373

AM Period	NB		SB		EB	WB		PM Period	NB		SB		EB	WB	
00:00	7		10					12:00	136		171				
00:15	8		9					12:15	157		149				
00:30	5		13					12:30	146		121				
00:45	5	25	6	38			63	12:45	133	572	138	579			1151
01:00	0		8					13:00	122		130				
01:15	2		0					13:15	125		113				
01:30	5		9					13:30	125		149				
01:45	3	10	4	21			31	13:45	126	498	113	505			1003
02:00	6		9					14:00	137		149				
02:15	10		9					14:15	125		131				
02:30	1		4					14:30	103		158				
02:45	4	21	6	28			49	14:45	150	515	163	601			1116
03:00	3		2					15:00	174		221				
03:15	5		5					15:15	158		209				
03:30	9		0					15:30	143		227				
03:45	9	26	5	12			38	15:45	142	617	225	882			1499
04:00	10		5					16:00	121		250				
04:15	6		3					16:15	130		272				
04:30	17		3					16:30	129		249				
04:45	18	51	11	22			73	16:45	142	522	224	995			1517
05:00	20		12					17:00	141		288				
05:15	24		16					17:15	133		300				
05:30	39		17					17:30	134		272				
05:45	50	133	24	69			202	17:45	123	531	231	1091			1622
06:00	46		30					18:00	106		225				
06:15	55		40					18:15	102		179				
06:30	103		47					18:30	104		157				
06:45	124	328	72	189			517	18:45	108	420	99	660			1080
07:00	99		51					19:00	119		99				
07:15	167		66					19:15	66		77				
07:30	168		88					19:30	72		83				
07:45	278	712	140	345			1057	19:45	51	308	64	323			631
08:00	187		78					20:00	67		80				
08:15	171		79					20:15	52		64				
08:30	144		70					20:30	59		51				
08:45	114	616	73	300			916	20:45	40	218	95	290			508
09:00	101		100					21:00	51		72				
09:15	94		94					21:15	48		59				
09:30	80		108					21:30	29		43				
09:45	87	362	113	415			777	21:45	36	164	36	210			374
10:00	115		101					22:00	33		47				
10:15	96		107					22:15	16		34				
10:30	102		109					22:30	21		39				
10:45	103	416	112	429			845	22:45	32	102	18	138			240
11:00	105		119					23:00	10		17				
11:15	100		126					23:15	11		27				
11:30	98		140					23:30	10		16				
11:45	119	422	139	524			946	23:45	14	45	13	73			118
Total Vol.		3122		2392			5514			4512		6347			10859

					NB	SB	EB	WB	Total
				Daily Totals :	7,634	8,739	0	0	16,373
	AM				PM				
Split %	56.6%	43.4%	33.7%		41.6%	58.4%			66.3%
AM				PM					
Peak Hr.	07:30	11:30	07:30	Peak Hr.	14:45	17:00			16:45
Volume	804	599	1189	Volume	625	1091			1634
P.H.F.	0.723	0.876	0.711	P.H.F.	0.898	0.909			0.943
7 - 9 Vol.	1328	645	1973	4 - 6 Vol.	1053	2086			3139
Peak Hr.	07:30	07:30	07:30	Peak Hr.	16:45	17:00			16:45
Volume	804	385	1189	Volume	550	1091			1634
P.H.F.	0.723	0.688	0.711	P.H.F.	0.968	0.909			0.943

Prepared by NDS/ATD

Volumes for: Thursday, October 14, 2010			City:	Riverside	Daily Totals NB	SB	EB	WB	Total
Location:	Chicago Ave Blaine St	from University Ave to	Project:	10-6099-004	7,770	8,878	0	0	16,648

AM Period	NB		SB		EB	WB		PM Period	NB		SB		EB	WB	
00:00	7		16					12:00	108		148				
00:15	8		10					12:15	147		145				
00:30	8		6					12:30	139		140				
00:45	8	31	5	37			68	12:45	146	540	132	565			1105
01:00	4		8					13:00	163		139				
01:15	2		8					13:15	131		140				
01:30	2		7					13:30	154		143				
01:45	1	9	4	27			36	13:45	145	593	145	567			1160
02:00	2		7					14:00	190		172				
02:15	5		4					14:15	143		167				
02:30	4		5					14:30	133		167				
02:45	2	13	4	20			33	14:45	112	578	164	670			1248
03:00	3		3					15:00	127		207				
03:15	3		3					15:15	125		224				
03:30	8		4					15:30	124		213				
03:45	8	22	6	16			38	15:45	136	512	238	882			1394
04:00	12		1					16:00	120		242				
04:15	10		5					16:15	105		256				
04:30	22		10					16:30	135		250				
04:45	24	68	10	26			94	16:45	133	493	269	1017			1510
05:00	28		15					17:00	142		277				
05:15	30		14					17:15	144		299				
05:30	45		15					17:30	153		270				
05:45	42	145	23	67			212	17:45	118	557	263	1109			1666
06:00	47		34					18:00	110		193				
06:15	64		40					18:15	91		202				
06:30	72		39					18:30	117		164				
06:45	142	325	48	161			486	18:45	106	424	129	688			1112
07:00	117		58					19:00	87		173				
07:15	140		75					19:15	98		80				
07:30	212		76					19:30	77		77				
07:45	231	700	129	338			1038	19:45	64	326	75	405			731
08:00	194		72					20:00	59		99				
08:15	179		84					20:15	70		55				
08:30	133		82					20:30	60		60				
08:45	121	627	87	325			952	20:45	46	235	64	278			513
09:00	98		76					21:00	59		49				
09:15	97		95					21:15	53		53				
09:30	88		103					21:30	42		47				
09:45	97	380	92	366			746	21:45	27	181	43	192			373
10:00	77		88					22:00	31		47				
10:15	89		81					22:15	27		36				
10:30	85		118					22:30	45		40				
10:45	98	349	115	402			751	22:45	24	127	40	163			290
11:00	105		110					23:00	19		19				
11:15	105		91					23:15	19		18				
11:30	117		139					23:30	19		16				
11:45	131	458	149	489			947	23:45	20	77	15	68			145
Total Vol.		3127		2274			5401			4643		6604			11247

					NB	SB	EB	WB	Total
				Daily Totals :	7,770	8,878	0	0	16,648
	AM				PM				
Split %	57.9%	42.1%	32.4%		41.3%	58.7%			67.6%
AM				PM					
Peak Hr.	07:30	11:45	07:30	Peak Hr.	13:30	16:45			16:45
Volume	816	582	1177	Volume	632	1115			1687
P.H.F.	0.883	0.977	0.817	P.H.F.	0.832	0.932			0.952
7 - 9 Vol.	1327	663	1990	4 - 6 Vol.	1050	2126			3176
Peak Hr.	07:30	07:45	07:30	Peak Hr.	16:45	16:45			16:45
Volume	816	367	1177	Volume	572	1115			1687
P.H.F.	0.883	0.711	0.817	P.H.F.	0.935	0.932			0.952

Turning Movement Count Analysis

TURNING MOVEMENT COUNT

Prepared by: G.E. Traffic Surveys

PROJECT NAME: UCR Riverside West Campus Study
PROJECT NO: 27089
DATE: Tuesday January 15, 2008

TIME	N-S STREET: 215 N/B Ramps							E-W STREET: Martin Luther King Boulevard								PED COUNT			
	NORTH BOUND			SOUTH BOUND			N-S	EAST BOUND			WEST BOUND			E-W					
	LEFT	THRU	RIGHT	LEFT	THRU	RIGHT	TOTAL	LEFT	THRU	RIGHT	LEFT	THRU	RIGHT	TOTAL	NL	SL	EL	WL
07:00-07:15	39	2	0	0	0	0	41	142	0	0	0	0	0	142	0	0	0	0
07:15-07:30	68	0	0	0	0	0	68	146	0	0	0	0	0	146	0	0	0	0
07:30-07:45	67	3	0	0	0	0	70	155	0	0	0	0	0	155	0	0	0	0
07:45-08:00	93	4	0	0	0	0	97	135	0	0	0	0	0	135	0	0	0	0
08:00-08:15	83	5	0	0	0	0	88	118	0	0	0	0	0	118	0	0	0	0
08:15-08:30	79	0	0	0	0	0	79	88	0	0	0	0	0	88	0	0	0	0
08:30-08:45	61	2	0	0	0	0	63	95	0	0	0	0	0	95	0	0	0	0
08:45-09:00	56	1	0	0	0	0	57	70	0	0	0	0	0	70	0	0	0	0
14:00-14:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
14:15-14:30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
14:30-14:45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
14:45-15:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
15:00-15:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
15:15-15:30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
15:30-15:45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
15:45-16:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
16:00-16:15	54	0	0	0	0	0	54	29	0	0	0	0	0	29	0	0	0	0
16:15-16:30	69	0	0	0	0	0	69	36	0	0	0	0	0	36	0	0	0	0
16:30-16:45	70	0	0	0	0	0	70	28	0	0	0	0	0	28	0	0	0	0
16:45-17:00	96	1	0	0	0	0	97	34	0	0	0	0	0	34	0	0	0	0
17:00-17:15	73	0	0	0	0	0	73	54	0	0	0	0	0	54	0	0	0	0
17:15-17:30	80	0	0	0	0	0	80	64	0	0	0	0	0	64	0	0	0	0
17:30-17:45	84	0	0	0	0	0	84	36	0	0	0	0	0	36	0	0	0	0
17:45-18:00	69	0	0	0	0	0	69	30	0	0	0	0	0	30	0	0	0	0

PEAK-HOUR VOLUME ANALYSIS

CALCULATED PEAK HOUR VOLUMES-AM

0 0 0
SR ST SL

554 EL — WR 0
0 ET 07:15-08:15 WT 0
0 ER — WL 0

NL NT NR
311 12 0

ADJUSTED PEAK HOUR VOLUMES-AM

___ ___ ___
SR ST SL

___ EL — WR ___
___ ET ___ WT ___
___ ER — WL ___

NL NT NR
___ ___ ___

CALCULATED PEAK HOUR VOLUMES-NOON

0 0 0
SR ST SL

0 EL — WR 0
0 ET 14:00-15:00 WT 0
0 ER — WL 0

NL NT NR
0 0 0

ADJUSTED PEAK HOUR VOLUMES-NOON

___ ___ ___
SR ST SL

___ EL — WR ___
___ ET ___ WT ___
___ ER — WL ___

NL NT NR
___ ___ ___

CALCULATED PEAK HOUR VOLUMES-PM

0 0 0
SR ST SL

188 EL — WR 0
0 ET 16:45-17:45 WT 0
0 ER — WL 0

NL NT NR
333 1 0

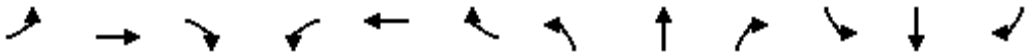
ADJUSTED PEAK HOUR VOLUMES-PM

___ ___ ___
SR ST SL

___ EL — WR ___
___ ET ___ WT ___
___ ER — WL ___

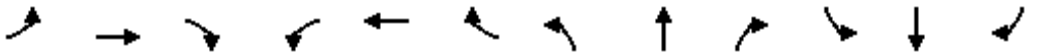
NL NT NR
___ ___ ___

APPENDIX B - EXISTING LOS RESULTS



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	0.95		1.00	0.95	
Frt	1.00	0.98		1.00	0.94		1.00	0.96		1.00	0.97	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1770	3467		1770	3337		1770	3410		1770	3440	
Flt Permitted	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (perm)	1770	3467		1770	3337		1770	3410		1770	3440	
Volume (vph)	74	315	50	117	373	230	123	523	168	167	186	43
Peak-hour factor, PHF	0.78	0.78	0.78	0.78	0.78	0.78	0.78	0.78	0.78	0.78	0.78	0.78
Adj. Flow (vph)	95	404	64	150	478	295	158	671	215	214	238	55
RTOR Reduction (vph)	0	13	0	0	85	0	0	30	0	0	19	0
Lane Group Flow (vph)	95	455	0	150	688	0	158	856	0	214	274	0
Turn Type	Prot			Prot			Prot			Prot		
Protected Phases	5	2		1	6		7	4		3	8	
Permitted Phases												
Actuated Green, G (s)	8.1	36.0		15.0	42.8		12.0	16.9		13.8	17.8	
Effective Green, g (s)	8.3	37.1		15.0	43.8		13.0	17.9		14.0	18.9	
Actuated g/C Ratio	0.08	0.37		0.15	0.44		0.13	0.18		0.14	0.19	
Clearance Time (s)	4.2	5.1		4.0	5.0		5.0	5.0		4.2	5.1	
Vehicle Extension (s)	1.5	2.0		1.5	2.0		1.5	2.0		1.5	2.0	
Lane Grp Cap (vph)	147	1286		266	1462		230	610		248	650	
v/s Ratio Prot	0.05	0.13		c0.08	c0.21		0.09	c0.25		c0.12	0.08	
v/s Ratio Perm												
v/c Ratio	0.65	0.35		0.56	0.47		0.69	1.40		0.86	0.42	
Uniform Delay, d1	44.4	22.8		39.5	19.9		41.6	41.0		42.1	35.7	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	7.1	0.8		1.6	1.1		6.6	191.0		24.5	0.2	
Delay (s)	51.5	23.5		41.1	21.0		48.2	232.0		66.5	35.9	
Level of Service	D	C		D	C		D	F		E	D	
Approach Delay (s)		28.3			24.3			204.2			48.8	
Approach LOS		C			C			F			D	

Intersection Summary			
HCM Average Control Delay	91.0	HCM Level of Service	F
HCM Volume to Capacity ratio	0.73		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	65.2%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			

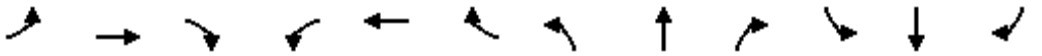


Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0		4.0	4.0	4.0	4.0	4.0	
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95		1.00	0.95	1.00	1.00	0.95	
Frt	1.00	1.00	0.85	1.00	0.97		1.00	1.00	0.85	1.00	0.95	
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1770	3539	1583	1770	3416		1770	3539	1583	1770	3352	
Flt Permitted	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00	0.37	1.00	
Satd. Flow (perm)	1770	3539	1583	1770	3416		1770	3539	1583	681	3352	
Volume (vph)	418	410	103	108	428	130	141	641	99	121	413	225
Peak-hour factor, PHF	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85
Adj. Flow (vph)	492	482	121	127	504	153	166	754	116	142	486	265
RTOR Reduction (vph)	0	0	76	0	29	0	0	0	71	0	74	0
Lane Group Flow (vph)	492	482	45	127	628	0	166	754	45	142	677	0
Turn Type	Prot		Perm	Prot			Prot		Perm	Perm		
Protected Phases	7	4		3	8		5	2			6	
Permitted Phases			4						2	6		
Actuated Green, G (s)	28.7	36.9	36.9	11.6	19.8		10.9	39.0	39.0	24.1	24.1	
Effective Green, g (s)	28.7	36.9	36.9	11.6	19.8		10.9	39.0	39.0	24.1	24.1	
Actuated g/C Ratio	0.29	0.37	0.37	0.12	0.20		0.11	0.39	0.39	0.24	0.24	
Clearance Time (s)	4.0	4.0	4.0	4.0	4.0		4.0	4.0	4.0	4.0	4.0	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	511	1312	587	206	680		194	1387	620	165	812	
v/s Ratio Prot	c0.28	0.14		0.07	c0.18		c0.09	0.21			0.20	
v/s Ratio Perm			0.03						0.03	c0.21		
v/c Ratio	0.96	0.37	0.08	0.62	0.92		0.86	0.54	0.07	0.86	0.83	
Uniform Delay, d1	34.9	22.8	20.3	41.8	39.1		43.5	23.4	18.9	36.1	35.8	
Progression Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	30.3	0.2	0.1	5.4	18.3		28.9	1.5	0.2	40.8	9.9	
Delay (s)	65.2	23.0	20.3	47.2	57.4		72.5	24.9	19.2	76.9	45.7	
Level of Service	E	C	C	D	E		E	C	B	E	D	
Approach Delay (s)		41.7			55.7			31.9			50.6	
Approach LOS		D			E			C			D	

Intersection Summary			
HCM Average Control Delay	44.0	HCM Level of Service	D
HCM Volume to Capacity ratio	0.91		
Actuated Cycle Length (s)	99.5	Sum of lost time (s)	16.0
Intersection Capacity Utilization	78.9%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			

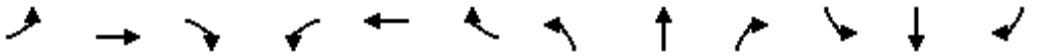
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0		4.0	4.0			4.0	
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	1.00			1.00	
Frt	1.00	0.98		1.00	0.98		1.00	0.94			0.95	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00			0.98	
Satd. Flow (prot)	1770	3473		1770	3458		1770	1756			1727	
Flt Permitted	0.95	1.00		0.95	1.00		0.59	1.00			0.85	
Satd. Flow (perm)	1770	3473		1770	3458		1101	1756			1496	
Volume (vph)	151	372	53	56	435	79	35	50	31	93	45	93
Peak-hour factor, PHF	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83
Adj. Flow (vph)	182	448	64	67	524	95	42	60	37	112	54	112
RTOR Reduction (vph)	0	16	0	0	21	0	0	15	0	0	16	0
Lane Group Flow (vph)	182	496	0	67	598	0	42	82	0	0	262	0
Turn Type	Prot			Prot			Perm			Perm		
Protected Phases	7	4		3	8			2			6	
Permitted Phases							2			6		
Actuated Green, G (s)	4.0	17.7		4.0	17.7		37.1	37.1			37.1	
Effective Green, g (s)	4.0	17.7		4.0	17.7		37.1	37.1			37.1	
Actuated g/C Ratio	0.06	0.25		0.06	0.25		0.52	0.52			0.52	
Clearance Time (s)	4.0	4.0		4.0	4.0		4.0	4.0			4.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0			3.0	
Lane Grp Cap (vph)	100	868		100	865		577	920			784	
v/s Ratio Prot	c0.10	0.14		0.04	c0.17			0.05				
v/s Ratio Perm							0.04				c0.18	
v/c Ratio	1.82	0.57		0.67	0.69		0.07	0.09			0.33	
Uniform Delay, d1	33.4	23.2		32.8	24.1		8.3	8.4			9.7	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00			1.00	
Incremental Delay, d2	405.4	0.9		16.2	2.4		0.2	0.2			1.1	
Delay (s)	438.8	24.1		49.0	26.5		8.6	8.6			10.9	
Level of Service	F	C		D	C		A	A			B	
Approach Delay (s)		132.9			28.7			8.6			10.9	
Approach LOS		F			C			A			B	

Intersection Summary			
HCM Average Control Delay	64.6	HCM Level of Service	E
HCM Volume to Capacity ratio	0.54		
Actuated Cycle Length (s)	70.8	Sum of lost time (s)	12.0
Intersection Capacity Utilization	52.8%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			



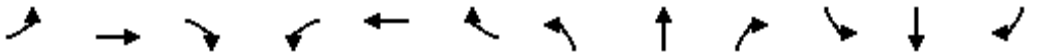
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0		4.0	4.0	4.0	4.0	4.0	
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	1.00	1.00	1.00	1.00	
Frt	1.00	0.96		1.00	0.99		1.00	1.00	0.85	1.00	0.92	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1770	3406		1770	3517		1770	1863	1583	1770	1720	
Flt Permitted	0.95	1.00		0.95	1.00		0.66	1.00	1.00	0.72	1.00	
Satd. Flow (perm)	1770	3406		1770	3517		1227	1863	1583	1349	1720	
Volume (vph)	42	347	116	95	459	20	59	46	86	17	70	73
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	46	377	126	103	499	22	64	50	93	18	76	79
RTOR Reduction (vph)	0	38	0	0	4	0	0	0	50	0	28	0
Lane Group Flow (vph)	46	465	0	103	517	0	64	50	43	18	127	0
Turn Type	Prot			Prot			Perm		Perm	Perm		
Protected Phases	7	4		3	8			2			6	
Permitted Phases							2		2	6		
Actuated Green, G (s)	4.5	14.6		7.5	17.6		29.8	29.8	29.8	29.8	29.8	
Effective Green, g (s)	4.5	14.6		7.5	17.6		29.8	29.8	29.8	29.8	29.8	
Actuated g/C Ratio	0.07	0.23		0.12	0.28		0.47	0.47	0.47	0.47	0.47	
Clearance Time (s)	4.0	4.0		4.0	4.0		4.0	4.0	4.0	4.0	4.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	125	778		208	969		572	869	738	629	802	
v/s Ratio Prot	0.03	0.14		c0.06	c0.15			0.03			c0.07	
v/s Ratio Perm							0.05		0.03	0.01		
v/c Ratio	0.37	0.60		0.50	0.53		0.11	0.06	0.06	0.03	0.16	
Uniform Delay, d1	28.3	22.0		26.4	19.7		9.6	9.3	9.4	9.2	9.8	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	1.8	1.2		1.9	0.6		0.4	0.1	0.2	0.1	0.4	
Delay (s)	30.2	23.3		28.3	20.2		10.0	9.5	9.5	9.3	10.2	
Level of Service	C	C		C	C		A	A	A	A	B	
Approach Delay (s)		23.8			21.6			9.7			10.1	
Approach LOS		C			C			A			B	

Intersection Summary			
HCM Average Control Delay	19.5	HCM Level of Service	B
HCM Volume to Capacity ratio	0.33		
Actuated Cycle Length (s)	63.9	Sum of lost time (s)	12.0
Intersection Capacity Utilization	43.4%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			



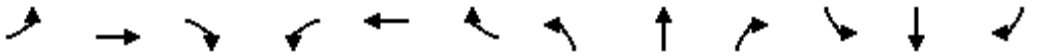
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	1.00	0.95		1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	0.94		1.00	0.98		1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1770	3337		1770	1835		1770	1863	1583	1770	1863	1583
Flt Permitted	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	1770	3337		1770	1835		1770	1863	1583	1770	1863	1583
Volume (vph)	5	272	167	38	357	40	175	319	27	19	67	27
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	5	286	176	40	376	42	184	336	28	20	71	28
RTOR Reduction (vph)	0	109	0	0	4	0	0	0	15	0	0	18
Lane Group Flow (vph)	5	353	0	40	414	0	184	336	13	20	71	10
Turn Type	Prot			Prot			Prot		Perm	Prot		Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases									2			6
Actuated Green, G (s)	0.9	18.5		2.7	20.3		10.5	34.5	34.5	2.4	26.4	26.4
Effective Green, g (s)	0.9	18.5		2.7	20.3		10.5	34.5	34.5	2.4	26.4	26.4
Actuated g/C Ratio	0.01	0.25		0.04	0.27		0.14	0.47	0.47	0.03	0.36	0.36
Clearance Time (s)	4.0	4.0		4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	21	833		64	503		251	867	737	57	664	564
v/s Ratio Prot	0.00	0.11		c0.02	c0.23		c0.10	c0.18		0.01	0.04	
v/s Ratio Perm									0.01			0.01
v/c Ratio	0.24	0.42		0.62	0.82		0.73	0.39	0.02	0.35	0.11	0.02
Uniform Delay, d1	36.3	23.3		35.2	25.2		30.5	12.9	10.7	35.1	16.0	15.5
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	5.8	0.3		17.5	10.4		10.5	1.3	0.0	3.7	0.3	0.1
Delay (s)	42.1	23.7		52.7	35.6		41.0	14.2	10.7	38.8	16.3	15.5
Level of Service	D	C		D	D		D	B	B	D	B	B
Approach Delay (s)		23.9			37.1			23.0			19.9	
Approach LOS		C			D			C			B	

Intersection Summary			
HCM Average Control Delay	27.1	HCM Level of Service	C
HCM Volume to Capacity ratio	0.56		
Actuated Cycle Length (s)	74.1	Sum of lost time (s)	8.0
Intersection Capacity Utilization	51.3%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0		4.0	4.0	4.0	4.0	4.0	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00		1.00	0.95	1.00	1.00	0.95	
Frt	1.00	1.00	0.85	1.00	0.95		1.00	1.00	0.85	1.00	0.95	
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1770	1863	1583	1770	1771		1770	3539	1583	1770	3359	
Flt Permitted	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00	0.95	1.00	
Satd. Flow (perm)	1770	1863	1583	1770	1771		1770	3539	1583	1770	3359	
Volume (vph)	113	107	47	70	137	67	118	579	92	45	403	207
Peak-hour factor, PHF	0.78	0.78	0.78	0.78	0.78	0.78	0.78	0.78	0.78	0.78	0.78	0.78
Adj. Flow (vph)	145	137	60	90	176	86	151	742	118	58	517	265
RTOR Reduction (vph)	0	0	45	0	15	0	0	0	73	0	51	0
Lane Group Flow (vph)	145	137	15	90	247	0	151	742	45	58	731	0
Turn Type	Prot		Perm	Prot			Prot		Perm	Prot		
Protected Phases	5	2		1	6		7	4		3	8	
Permitted Phases			2						4			
Actuated Green, G (s)	8.1	17.0	17.0	6.2	15.1		8.3	25.8	25.8	3.9	21.4	
Effective Green, g (s)	8.1	18.0	18.0	6.2	16.1		8.3	26.8	26.8	3.9	22.4	
Actuated g/C Ratio	0.11	0.25	0.25	0.09	0.23		0.12	0.38	0.38	0.06	0.32	
Clearance Time (s)	4.0	5.0	5.0	4.0	5.0		4.0	5.0	5.0	4.0	5.0	
Vehicle Extension (s)	1.5	2.0	2.0	1.5	2.0		1.5	2.0	2.0	1.5	2.0	
Lane Grp Cap (vph)	202	473	402	155	402		207	1338	598	97	1061	
v/s Ratio Prot	c0.08	0.07		0.05	c0.14		c0.09	0.21		0.03	c0.22	
v/s Ratio Perm			0.01						0.03			
v/c Ratio	0.72	0.29	0.04	0.58	0.61		0.73	0.55	0.07	0.60	0.69	
Uniform Delay, d1	30.3	21.3	19.9	31.1	24.6		30.2	17.4	14.1	32.7	21.2	
Progression Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	9.7	0.1	0.0	3.5	2.0		10.4	0.3	0.0	6.4	1.5	
Delay (s)	40.0	21.4	19.9	34.6	26.6		40.6	17.6	14.1	39.2	22.7	
Level of Service	D	C	B	C	C		D	B	B	D	C	
Approach Delay (s)		29.0			28.6			20.7			23.8	
Approach LOS		C			C			C			C	

Intersection Summary			
HCM Average Control Delay	23.9	HCM Level of Service	C
HCM Volume to Capacity ratio	0.67		
Actuated Cycle Length (s)	70.9	Sum of lost time (s)	16.0
Intersection Capacity Utilization	55.2%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			



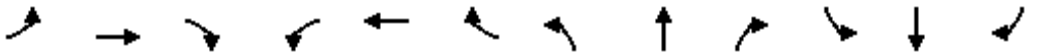
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	0.94		1.00	0.94		1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1770	1750		1770	1748		1770	1863	1583	1770	1863	1583
Flt Permitted	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	1770	1750		1770	1748		1770	1863	1583	1770	1863	1583
Volume (vph)	36	91	62	94	53	37	45	158	139	71	156	39
Peak-hour factor, PHF	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86
Adj. Flow (vph)	42	106	72	109	62	43	52	184	162	83	181	45
RTOR Reduction (vph)	0	27	0	0	29	0	0	0	88	0	0	23
Lane Group Flow (vph)	42	151	0	109	76	0	52	184	74	83	181	22
Turn Type	Prot			Prot			Prot		Perm	Prot		Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases									2			6
Actuated Green, G (s)	5.2	12.1		9.3	16.2		5.5	38.4	38.4	8.3	41.2	41.2
Effective Green, g (s)	5.2	12.1		9.3	16.2		5.5	38.4	38.4	8.3	41.2	41.2
Actuated g/C Ratio	0.06	0.14		0.11	0.19		0.07	0.46	0.46	0.10	0.49	0.49
Clearance Time (s)	4.0	4.0		4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	109	252		196	337		116	851	723	175	913	776
v/s Ratio Prot	0.02	c0.09		c0.06	0.04		0.03	c0.10		c0.05	c0.10	
v/s Ratio Perm									0.05			0.01
v/c Ratio	0.39	0.60		0.56	0.23		0.45	0.22	0.10	0.47	0.20	0.03
Uniform Delay, d1	37.9	33.7		35.4	28.7		37.8	13.8	13.0	35.8	12.1	11.1
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	2.3	3.8		3.4	0.3		2.7	0.6	0.3	2.0	0.5	0.1
Delay (s)	40.2	37.5		38.8	29.0		40.6	14.4	13.3	37.9	12.6	11.2
Level of Service	D	D		D	C		D	B	B	D	B	B
Approach Delay (s)		38.0			34.0			17.4			19.2	
Approach LOS		D			C			B			B	

Intersection Summary			
HCM Average Control Delay	25.0	HCM Level of Service	C
HCM Volume to Capacity ratio	0.38		
Actuated Cycle Length (s)	84.1	Sum of lost time (s)	20.0
Intersection Capacity Utilization	39.4%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Stop			Stop	
Volume (vph)	0	89	193	44	68	0	81	0	19	0	0	0
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	0	99	214	49	76	0	90	0	21	0	0	0

Direction, Lane #	EB 1	WB 1	NB 1
Volume Total (vph)	313	124	111
Volume Left (vph)	0	49	90
Volume Right (vph)	214	0	21
Hadj (s)	-0.38	0.11	0.08
Departure Headway (s)	4.0	4.6	4.9
Degree Utilization, x	0.34	0.16	0.15
Capacity (veh/h)	884	743	676
Control Delay (s)	9.0	8.5	8.8
Approach Delay (s)	9.0	8.5	8.8
Approach LOS	A	A	A

Intersection Summary				
Delay	8.9			
HCM Level of Service	A			
Intersection Capacity Utilization	38.2%	ICU Level of Service	A	
Analysis Period (min)	15			

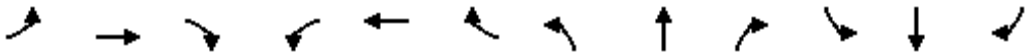


Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0		4.0	4.0	
Lane Util. Factor	1.00	0.95		1.00	0.95	1.00	1.00	1.00		1.00	1.00	
Frt	1.00	0.99		1.00	1.00	0.85	1.00	0.97		1.00	0.91	
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1770	3509		1770	3539	1583	1770	1814		1770	1690	
Flt Permitted	0.95	1.00		0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (perm)	1770	3509		1770	3539	1583	1770	1814		1770	1690	
Volume (vph)	61	429	26	8	469	29	33	53	11	32	43	69
Peak-hour factor, PHF	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Adj. Flow (vph)	66	461	28	9	504	31	35	57	12	34	46	74
RTOR Reduction (vph)	0	2	0	0	0	14	0	9	0	0	64	0
Lane Group Flow (vph)	66	487	0	9	504	17	35	60	0	34	56	0
Turn Type	Prot			Prot		Perm	Prot			Prot		
Protected Phases	5	2		1	6		7	4		3	8	
Permitted Phases						6						
Actuated Green, G (s)	11.2	64.7		1.1	54.6	54.6	4.2	12.0		4.2	12.0	
Effective Green, g (s)	11.2	65.7		1.1	55.6	55.6	4.2	13.0		4.2	13.0	
Actuated g/C Ratio	0.11	0.66		0.01	0.56	0.56	0.04	0.13		0.04	0.13	
Clearance Time (s)	4.0	5.0		4.0	5.0	5.0	4.0	5.0		4.0	5.0	
Vehicle Extension (s)	1.5	2.0		1.5	2.0	2.0	1.5	3.0		1.5	3.0	
Lane Grp Cap (vph)	198	2305		19	1968	880	74	236		74	220	
v/s Ratio Prot	c0.04	0.14		0.01	c0.14		c0.02	c0.03		0.02	0.03	
v/s Ratio Perm						0.01						
v/c Ratio	0.33	0.21		0.47	0.26	0.02	0.47	0.26		0.46	0.25	
Uniform Delay, d1	41.0	6.8		49.2	11.5	10.0	46.8	39.1		46.8	39.1	
Progression Factor	1.00	1.00		1.04	0.45	0.63	1.00	1.00		1.00	1.00	
Incremental Delay, d2	0.4	0.2		6.5	0.3	0.0	1.7	0.6		1.6	0.6	
Delay (s)	41.3	7.0		57.5	5.5	6.3	48.6	39.7		48.4	39.7	
Level of Service	D	A		E	A	A	D	D		D	D	
Approach Delay (s)		11.1			6.4			42.7			41.7	
Approach LOS		B			A			D			D	

Intersection Summary			
HCM Average Control Delay	15.1	HCM Level of Service	B
HCM Volume to Capacity ratio	0.28		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	16.0
Intersection Capacity Utilization	34.8%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	
Lane Util. Factor	0.97	0.95	1.00	0.97	0.95	1.00	0.97	0.95	1.00	0.97	0.95	
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.96	
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	3433	3539	1583	3433	3539	1583	3433	3539	1583	3433	3409	
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (perm)	3433	3539	1583	3433	3539	1583	3433	3539	1583	3433	3409	
Volume (vph)	110	228	72	66	217	35	161	656	118	49	247	80
Peak-hour factor, PHF	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Adj. Flow (vph)	121	251	79	73	238	38	177	721	130	54	271	88
RTOR Reduction (vph)	0	0	41	0	0	22	0	0	96	0	37	0
Lane Group Flow (vph)	121	251	38	73	238	16	177	721	34	54	322	0
Turn Type	Prot		Perm	Prot		Perm	Prot		Perm	Prot		
Protected Phases	5	2		1	6		7	4		3	8	
Permitted Phases			2			6			4			
Actuated Green, G (s)	9.9	46.9	46.9	5.3	42.3	42.3	8.9	25.1	25.1	4.7	20.9	
Effective Green, g (s)	9.9	47.9	47.9	5.3	43.3	43.3	8.9	26.1	26.1	4.7	21.9	
Actuated g/C Ratio	0.10	0.48	0.48	0.05	0.43	0.43	0.09	0.26	0.26	0.05	0.22	
Clearance Time (s)	4.0	5.0	5.0	4.0	5.0	5.0	4.0	5.0	5.0	4.0	5.0	
Vehicle Extension (s)	1.5	2.0	2.0	1.5	2.0	2.0	1.5	2.0	2.0	1.5	2.0	
Lane Grp Cap (vph)	340	1695	758	182	1532	685	306	924	413	161	747	
v/s Ratio Prot	c0.04	0.07		c0.02	c0.07		c0.05	c0.20		0.02	0.09	
v/s Ratio Perm			0.02			0.01			0.02			
v/c Ratio	0.36	0.15	0.05	0.40	0.16	0.02	0.58	0.78	0.08	0.34	0.43	
Uniform Delay, d1	42.1	14.6	13.9	45.8	17.2	16.2	43.7	34.3	27.9	46.1	33.7	
Progression Factor	0.93	0.79	1.04	0.97	1.81	3.62	1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	0.2	0.2	0.1	0.5	0.2	0.1	1.6	4.0	0.0	0.5	0.1	
Delay (s)	39.2	11.7	14.6	45.0	31.4	58.9	45.4	38.3	27.9	46.6	33.8	
Level of Service	D	B	B	D	C	E	D	D	C	D	C	
Approach Delay (s)		19.6			37.2			38.2			35.5	
Approach LOS		B			D			D			D	

Intersection Summary			
HCM Average Control Delay	33.8	HCM Level of Service	C
HCM Volume to Capacity ratio	0.40		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	44.4%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

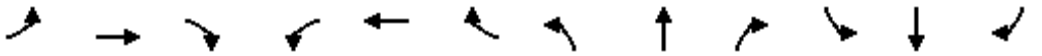


Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.96	
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1770	3539	1583	1770	3539	1583	1770	3539	1583	1770	3387	
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (perm)	1770	3539	1583	1770	3539	1583	1770	3539	1583	1770	3387	
Volume (vph)	139	345	56	80	342	167	63	544	92	136	245	99
Peak-hour factor, PHF	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88
Adj. Flow (vph)	158	392	64	91	389	190	72	618	105	155	278	112
RTOR Reduction (vph)	0	0	38	0	0	122	0	0	52	0	45	0
Lane Group Flow (vph)	158	392	26	91	389	68	72	618	53	155	345	0
Turn Type	Prot		Perm	Prot		Perm	Prot		Perm	Prot		
Protected Phases	5	2		1	6		7	4		3	8	
Permitted Phases			2			6			4			
Actuated Green, G (s)	13.0	40.4	40.4	7.5	34.9	34.9	7.0	22.4	22.4	11.4	26.8	
Effective Green, g (s)	13.0	41.4	41.4	7.5	35.9	35.9	7.0	23.7	23.7	11.4	28.1	
Actuated g/C Ratio	0.13	0.41	0.41	0.08	0.36	0.36	0.07	0.24	0.24	0.11	0.28	
Clearance Time (s)	4.0	5.0	5.0	4.0	5.0	5.0	4.0	5.3	5.3	4.0	5.3	
Vehicle Extension (s)	1.5	2.0	2.0	1.5	2.0	2.0	1.5	2.0	2.0	1.5	2.0	
Lane Grp Cap (vph)	230	1465	655	133	1271	568	124	839	375	202	952	
v/s Ratio Prot	c0.09	0.11		0.05	c0.11		0.04	c0.17		c0.09	0.10	
v/s Ratio Perm			0.02			0.04			0.03			
v/c Ratio	0.69	0.27	0.04	0.68	0.31	0.12	0.58	0.74	0.14	0.77	0.36	
Uniform Delay, d1	41.6	19.3	17.5	45.1	23.1	21.5	45.1	35.3	30.1	43.0	28.8	
Progression Factor	1.01	0.85	0.68	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	6.6	0.4	0.1	11.0	0.6	0.4	4.4	2.9	0.1	14.5	0.1	
Delay (s)	48.6	16.9	12.0	56.1	23.7	21.9	49.5	38.2	30.2	57.5	28.9	
Level of Service	D	B	B	E	C	C	D	D	C	E	C	
Approach Delay (s)		24.6			27.6			38.2			37.0	
Approach LOS		C			C			D			D	

Intersection Summary			
HCM Average Control Delay	32.0	HCM Level of Service	C
HCM Volume to Capacity ratio	0.55		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	16.0
Intersection Capacity Utilization	53.1%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

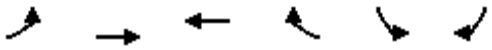
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0			4.0	4.0	4.0	4.0	
Lane Util. Factor	1.00	0.95		1.00	0.95			1.00	1.00	1.00	1.00	
Frt	1.00	0.99		1.00	0.95			1.00	0.85	1.00	0.86	
Flt Protected	0.95	1.00		0.95	1.00			0.95	1.00	0.95	1.00	
Satd. Flow (prot)	1770	3502		1770	3369			1770	1583	1770	1607	
Flt Permitted	0.95	1.00		0.95	1.00			0.75	1.00	0.75	1.00	
Satd. Flow (perm)	1770	3502		1770	3369			1397	1583	1400	1607	
Volume (vph)	32	362	28	78	353	166	8	0	15	33	1	10
Peak-hour factor, PHF	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89
Adj. Flow (vph)	36	407	31	88	397	187	9	0	17	37	1	11
RTOR Reduction (vph)	0	3	0	0	23	0	0	0	15	0	9	0
Lane Group Flow (vph)	36	435	0	88	561	0	0	9	2	37	3	0
Turn Type	Prot			Prot			Perm		Perm	Perm		
Protected Phases	5	2		1	6			4			8	
Permitted Phases							4		4	8		
Actuated Green, G (s)	4.3	73.3		8.2	77.2			15.5	15.5	15.5	15.5	
Effective Green, g (s)	4.3	74.3		8.2	78.2			15.5	15.5	15.5	15.5	
Actuated g/C Ratio	0.04	0.68		0.07	0.71			0.14	0.14	0.14	0.14	
Clearance Time (s)	4.0	5.0		4.0	5.0			4.0	4.0	4.0	4.0	
Vehicle Extension (s)	1.5	2.0		1.5	2.0			2.5	2.5	2.5	2.5	
Lane Grp Cap (vph)	69	2365		132	2395			197	223	197	226	
v/s Ratio Prot	0.02	0.12		c0.05	c0.17						0.00	
v/s Ratio Perm								0.01	0.00	c0.03		
v/c Ratio	0.52	0.18		0.67	0.23			0.05	0.01	0.19	0.01	
Uniform Delay, d1	51.8	6.6		49.6	5.5			40.9	40.7	41.7	40.7	
Progression Factor	1.00	1.00		1.00	1.00			1.00	1.00	1.00	1.00	
Incremental Delay, d2	3.3	0.2		9.4	0.2			0.1	0.0	0.3	0.0	
Delay (s)	55.1	6.8		59.0	5.7			40.9	40.7	42.0	40.7	
Level of Service	E	A		E	A			D	D	D	D	
Approach Delay (s)		10.5			12.7			40.8			41.7	
Approach LOS		B			B			D			D	

Intersection Summary			
HCM Average Control Delay	13.6	HCM Level of Service	B
HCM Volume to Capacity ratio	0.26		
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	36.9%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			



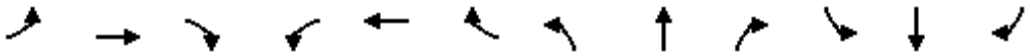
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0	4.0	4.0	4.0					4.0	4.0	4.0
Lane Util. Factor		0.91	0.91	1.00	0.95					0.95	0.95	1.00
Frt		0.98	0.85	1.00	1.00					1.00	1.00	0.85
Flt Protected		1.00	1.00	0.95	1.00					0.95	0.96	1.00
Satd. Flow (prot)		3338	1441	1770	3539					1681	1705	1583
Flt Permitted		1.00	1.00	0.95	1.00					0.95	0.96	1.00
Satd. Flow (perm)		3338	1441	1770	3539					1681	1705	1583
Volume (vph)	0	305	229	43	533	0	0	0	0	186	26	351
Peak-hour factor, PHF	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89
Adj. Flow (vph)	0	343	257	48	599	0	0	0	0	209	29	394
RTOR Reduction (vph)	0	10	174	0	0	0	0	0	0	0	0	102
Lane Group Flow (vph)	0	372	44	48	599	0	0	0	0	116	122	292
Turn Type			Perm	Prot						Perm		Perm
Protected Phases		4		3	8						6	
Permitted Phases			4							6		6
Actuated Green, G (s)		14.9	14.9	4.8	23.7					41.6	41.6	41.6
Effective Green, g (s)		14.9	14.9	4.8	23.7					41.6	41.6	41.6
Actuated g/C Ratio		0.20	0.20	0.07	0.32					0.57	0.57	0.57
Clearance Time (s)		4.0	4.0	4.0	4.0					4.0	4.0	4.0
Vehicle Extension (s)		3.0	3.0	3.0	3.0					3.0	3.0	3.0
Lane Grp Cap (vph)		679	293	116	1144					954	968	898
v/s Ratio Prot		0.11		0.03	c0.17							
v/s Ratio Perm			0.03							0.07	0.07	c0.18
v/c Ratio		0.55	0.15	0.41	0.52					0.12	0.13	0.33
Uniform Delay, d1		26.2	24.0	32.9	20.2					7.4	7.4	8.4
Progression Factor		1.00	1.00	1.00	1.00					1.00	1.00	1.00
Incremental Delay, d2		0.9	0.2	2.4	0.4					0.3	0.3	1.0
Delay (s)		27.1	24.2	35.3	20.6					7.6	7.7	9.4
Level of Service		C	C	D	C					A	A	A
Approach Delay (s)		26.1			21.7			0.0			8.7	
Approach LOS		C			C			A			A	

Intersection Summary			
HCM Average Control Delay	18.7	HCM Level of Service	B
HCM Volume to Capacity ratio	0.40		
Actuated Cycle Length (s)	73.3	Sum of lost time (s)	8.0
Intersection Capacity Utilization	39.3%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0		4.0	4.0
Lane Util. Factor	1.00	0.95	0.95		0.97	1.00
Frt	1.00	1.00	0.96		1.00	0.85
Flt Protected	0.95	1.00	1.00		0.95	1.00
Satd. Flow (prot)	1770	3539	3396		3433	1583
Flt Permitted	0.95	1.00	1.00		0.95	1.00
Satd. Flow (perm)	1770	3539	3396		3433	1583
Volume (vph)	80	595	198	73	70	273
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	89	661	220	81	78	303
RTOR Reduction (vph)	0	0	44	0	0	138
Lane Group Flow (vph)	89	661	257	0	78	165
Turn Type	Prot					Perm
Protected Phases	7	4	8		6	
Permitted Phases						6
Actuated Green, G (s)	7.4	22.6	11.2		36.4	36.4
Effective Green, g (s)	7.4	22.6	11.2		36.4	36.4
Actuated g/C Ratio	0.11	0.34	0.17		0.54	0.54
Clearance Time (s)	4.0	4.0	4.0		4.0	4.0
Vehicle Extension (s)	3.0	3.0	3.0		3.0	3.0
Lane Grp Cap (vph)	195	1194	568		1865	860
v/s Ratio Prot	0.05	c0.19	0.08		0.02	
v/s Ratio Perm						c0.10
v/c Ratio	0.46	0.55	0.45		0.04	0.19
Uniform Delay, d1	27.9	18.1	25.1		7.2	7.8
Progression Factor	1.00	1.00	1.00		1.00	1.00
Incremental Delay, d2	1.7	0.6	0.6		0.0	0.5
Delay (s)	29.6	18.6	25.7		7.2	8.3
Level of Service	C	B	C		A	A
Approach Delay (s)		19.9	25.7		8.1	
Approach LOS		B	C		A	

Intersection Summary			
HCM Average Control Delay	18.0	HCM Level of Service	B
HCM Volume to Capacity ratio	0.33		
Actuated Cycle Length (s)	67.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	31.4%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Stop			Stop	
Volume (vph)	13	0	3	0	0	0	71	231	0	0	283	30
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88
Hourly flow rate (vph)	15	0	3	0	0	0	81	262	0	0	322	34

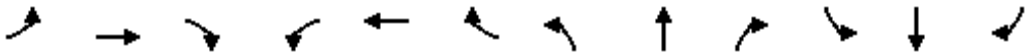
Direction, Lane #	EB 1	NB 1	SB 1	SB 2
Volume Total (vph)	18	343	0	356
Volume Left (vph)	15	81	0	0
Volume Right (vph)	3	0	0	34
Hadj (s)	0.08	0.08	0.00	-0.03
Departure Headway (s)	5.6	4.5	4.8	4.8
Degree Utilization, x	0.03	0.43	0.00	0.47
Capacity (veh/h)	566	783	756	746
Control Delay (s)	8.7	10.9	6.6	10.7
Approach Delay (s)	8.7	10.9	10.7	
Approach LOS	A	B	B	

Intersection Summary			
Delay	10.8		
HCM Level of Service	B		
Intersection Capacity Utilization	46.1%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Sign Control	Stop		Stop			Stop
Volume (vph)	67	60	72	26	53	97
Peak Hour Factor	0.78	0.78	0.78	0.78	0.78	0.78
Hourly flow rate (vph)	86	77	92	33	68	124

Direction, Lane #	WB 1	NB 1	SB 1
Volume Total (vph)	163	126	192
Volume Left (vph)	86	0	68
Volume Right (vph)	77	33	0
Hadj (s)	-0.14	-0.13	0.10
Departure Headway (s)	4.5	4.4	4.5
Degree Utilization, x	0.20	0.15	0.24
Capacity (veh/h)	747	779	756
Control Delay (s)	8.6	8.2	9.0
Approach Delay (s)	8.6	8.2	9.0
Approach LOS	A	A	A

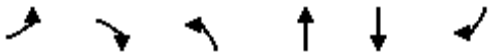
Intersection Summary			
Delay	8.7		
HCM Level of Service	A		
Intersection Capacity Utilization	28.8%	ICU Level of Service	A
Analysis Period (min)	15		



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0			4.0		4.0	4.0		4.0	4.0	
Lane Util. Factor		1.00			1.00		1.00	1.00		1.00	1.00	
Frt		0.96			0.93		1.00	0.99		1.00	0.95	
Flt Protected		0.98			0.99		0.95	1.00		0.95	1.00	
Satd. Flow (prot)		1752			1714		1770	1849		1770	1766	
Flt Permitted		0.90			0.96		0.63	1.00		0.25	1.00	
Satd. Flow (perm)		1605			1661		1172	1849		466	1766	
Volume (vph)	17	10	11	15	22	41	101	459	23	21	110	58
Peak-hour factor, PHF	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82
Adj. Flow (vph)	21	12	13	18	27	50	123	560	28	26	134	71
RTOR Reduction (vph)	0	8	0	0	30	0	0	5	0	0	43	0
Lane Group Flow (vph)	0	38	0	0	65	0	123	583	0	26	162	0
Turn Type	Perm			Perm			Perm			Perm		
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)		16.0			16.0		16.0	16.0		16.0	16.0	
Effective Green, g (s)		16.0			16.0		16.0	16.0		16.0	16.0	
Actuated g/C Ratio		0.40			0.40		0.40	0.40		0.40	0.40	
Clearance Time (s)		4.0			4.0		4.0	4.0		4.0	4.0	
Lane Grp Cap (vph)		642			664		469	740		186	706	
v/s Ratio Prot								c0.32			0.09	
v/s Ratio Perm		0.02			c0.04		0.10			0.06		
v/c Ratio		0.06			0.10		0.26	0.79		0.14	0.23	
Uniform Delay, d1		7.4			7.5		8.0	10.5		7.6	7.9	
Progression Factor		1.00			1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2		0.2			0.3		1.4	8.3		1.6	0.8	
Delay (s)		7.6			7.8		9.4	18.8		9.2	8.7	
Level of Service		A			A		A	B		A	A	
Approach Delay (s)		7.6			7.8			17.2			8.7	
Approach LOS		A			A			B			A	

Intersection Summary			
HCM Average Control Delay	14.2	HCM Level of Service	B
HCM Volume to Capacity ratio	0.44		
Actuated Cycle Length (s)	40.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	43.7%	ICU Level of Service	A
Analysis Period (min)	15		

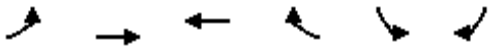
c Critical Lane Group



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	0.85	1.00	1.00	1.00	0.85
Flt Protected	0.95	1.00	0.95	1.00	1.00	1.00
Satd. Flow (prot)	1770	1583	1770	1863	1863	1583
Flt Permitted	0.95	1.00	0.70	1.00	1.00	1.00
Satd. Flow (perm)	1770	1583	1311	1863	1863	1583
Volume (vph)	282	324	47	34	69	220
Peak-hour factor, PHF	0.84	0.84	0.84	0.84	0.84	0.84
Adj. Flow (vph)	336	386	56	40	82	262
RTOR Reduction (vph)	0	232	0	0	0	157
Lane Group Flow (vph)	336	154	56	40	82	105
Turn Type		Perm	Perm			Perm
Protected Phases	4			2	6	
Permitted Phases		4	2			6
Actuated Green, G (s)	16.0	16.0	16.0	16.0	16.0	16.0
Effective Green, g (s)	16.0	16.0	16.0	16.0	16.0	16.0
Actuated g/C Ratio	0.40	0.40	0.40	0.40	0.40	0.40
Clearance Time (s)	4.0	4.0	4.0	4.0	4.0	4.0
Lane Grp Cap (vph)	708	633	524	745	745	633
v/s Ratio Prot	c0.19			0.02	0.04	
v/s Ratio Perm		0.10	0.04			c0.07
v/c Ratio	0.47	0.24	0.11	0.05	0.11	0.17
Uniform Delay, d1	8.9	8.0	7.5	7.4	7.5	7.7
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	2.3	0.9	0.4	0.1	0.3	0.6
Delay (s)	11.2	8.9	7.9	7.5	7.8	8.3
Level of Service	B	A	A	A	A	A
Approach Delay (s)	9.9			7.8	8.2	
Approach LOS	A			A	A	

Intersection Summary			
HCM Average Control Delay	9.2	HCM Level of Service	A
HCM Volume to Capacity ratio	0.32		
Actuated Cycle Length (s)	40.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	31.6%	ICU Level of Service	A
Analysis Period (min)	15		

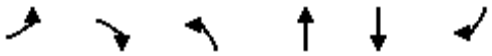
c Critical Lane Group



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Volume (veh/h)	46	203	68	2	6	22
Peak Hour Factor	0.78	0.78	0.78	0.78	0.78	0.78
Hourly flow rate (vph)	59	260	87	3	8	28
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type					None	
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	90				467	88
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	90				467	88
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	96				99	97
cM capacity (veh/h)	1506				533	970

Direction, Lane #	EB 1	WB 1	SB 1
Volume Total	319	90	36
Volume Left	59	0	8
Volume Right	0	3	28
cSH	1506	1700	825
Volume to Capacity	0.04	0.05	0.04
Queue Length 95th (ft)	3	0	3
Control Delay (s)	1.7	0.0	9.6
Lane LOS	A		A
Approach Delay (s)	1.7	0.0	9.6
Approach LOS			A

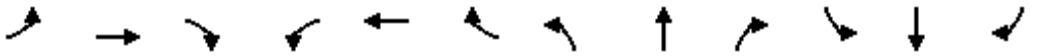
Intersection Summary			
Average Delay	2.0		
Intersection Capacity Utilization	29.9%	ICU Level of Service	A
Analysis Period (min)	15		



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Volume (veh/h)	15	6	10	148	92	21
Peak Hour Factor	0.74	0.74	0.74	0.74	0.74	0.74
Hourly flow rate (vph)	20	8	14	200	124	28
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None					
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	366	139	153			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	366	139	153			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	97	99	99			
cM capacity (veh/h)	628	910	1428			

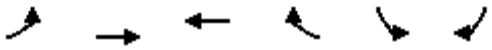
Direction, Lane #	EB 1	NB 1	SB 1
Volume Total	28	214	153
Volume Left	20	14	0
Volume Right	8	0	28
cSH	689	1428	1700
Volume to Capacity	0.04	0.01	0.09
Queue Length 95th (ft)	3	1	0
Control Delay (s)	10.4	0.6	0.0
Lane LOS	B	A	
Approach Delay (s)	10.4	0.6	0.0
Approach LOS	B		

Intersection Summary			
Average Delay	1.1		
Intersection Capacity Utilization	25.0%	ICU Level of Service	A
Analysis Period (min)	15		



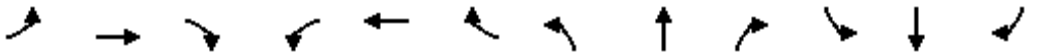
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	0.97	0.95	1.00	0.97	0.95	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1770	3539	1583	1770	3539	1583	3433	3539	1583	3433	3539	1583
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	1770	3539	1583	1770	3539	1583	3433	3539	1583	3433	3539	1583
Volume (vph)	133	543	131	40	638	138	707	898	228	60	209	113
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	145	590	142	43	693	150	768	976	248	65	227	123
RTOR Reduction (vph)	0	0	86	0	0	97	0	0	94	0	0	100
Lane Group Flow (vph)	145	590	56	43	693	53	768	976	154	65	227	23
Turn Type	Prot		Perm	Prot		Perm	Prot		Perm	Prot		Perm
Protected Phases	5	2		1	6		3	8		7	4	
Permitted Phases			2			6			8			4
Actuated Green, G (s)	11.3	49.2	49.2	6.3	44.4	44.4	32.3	36.9	36.9	17.8	22.6	22.6
Effective Green, g (s)	11.5	50.9	50.9	6.7	46.1	46.1	32.5	38.4	38.4	18.0	23.9	23.9
Actuated g/C Ratio	0.09	0.39	0.39	0.05	0.35	0.35	0.25	0.30	0.30	0.14	0.18	0.18
Clearance Time (s)	4.2	5.7	5.7	4.4	5.7	5.7	4.2	5.5	5.5	4.2	5.3	5.3
Vehicle Extension (s)	1.5	2.0	2.0	1.5	2.0	2.0	1.5	2.0	2.0	1.5	2.0	2.0
Lane Grp Cap (vph)	157	1386	620	91	1255	561	858	1045	468	475	651	291
v/s Ratio Prot	c0.08	0.17		0.02	c0.20		c0.22	c0.28		0.02	0.06	
v/s Ratio Perm			0.04			0.03			0.10			0.01
v/c Ratio	0.92	0.43	0.09	0.47	0.55	0.09	0.90	0.93	0.33	0.14	0.35	0.08
Uniform Delay, d1	58.8	28.9	24.9	59.9	33.7	28.0	47.1	44.6	35.8	49.2	46.3	43.9
Progression Factor	1.00	1.00	1.00	1.25	0.85	1.71	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	48.9	1.0	0.3	1.2	1.5	0.3	13.8	15.9	1.9	0.6	1.5	0.5
Delay (s)	107.8	29.8	25.2	75.9	30.2	48.2	60.9	60.4	37.6	49.8	47.7	44.4
Level of Service	F	C	C	E	C	D	E	E	D	D	D	D
Approach Delay (s)		42.0			35.4			57.8			47.1	
Approach LOS		D			D			E			D	

Intersection Summary			
HCM Average Control Delay	48.7	HCM Level of Service	D
HCM Volume to Capacity ratio	0.76		
Actuated Cycle Length (s)	130.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	66.5%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	1.00	0.95	0.95	1.00	0.97	0.91
Frt	1.00	1.00	1.00	0.85	1.00	0.85
Flt Protected	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (prot)	1770	3539	3539	1583	3433	1441
Flt Permitted	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (perm)	1770	3539	3539	1583	3433	1441
Volume (vph)	267	440	785	484	263	101
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	297	489	872	538	292	112
RTOR Reduction (vph)	0	0	0	217	0	78
Lane Group Flow (vph)	297	489	872	321	292	34
Turn Type	Prot			Perm		Perm
Protected Phases	5	2	6		4	
Permitted Phases				6		4
Actuated Green, G (s)	25.4	80.2	50.8	50.8	37.8	37.8
Effective Green, g (s)	25.4	82.2	52.8	52.8	39.8	39.8
Actuated g/C Ratio	0.20	0.63	0.41	0.41	0.31	0.31
Clearance Time (s)	4.0	6.0	6.0	6.0	6.0	6.0
Vehicle Extension (s)	1.5	2.0	2.0	2.0	2.0	2.0
Lane Grp Cap (vph)	346	2238	1437	643	1051	441
v/s Ratio Prot	c0.17	0.14	c0.25		c0.09	
v/s Ratio Perm				0.20		0.02
v/c Ratio	0.86	0.22	0.61	0.50	0.28	0.08
Uniform Delay, d1	50.6	10.2	30.4	28.8	34.2	32.1
Progression Factor	0.68	0.42	0.63	0.51	1.00	1.00
Incremental Delay, d2	16.9	0.2	1.2	1.8	0.7	0.3
Delay (s)	51.1	4.5	20.4	16.5	34.9	32.4
Level of Service	D	A	C	B	C	C
Approach Delay (s)		22.1	18.9		34.2	
Approach LOS		C	B		C	

Intersection Summary			
HCM Average Control Delay	22.3	HCM Level of Service	C
HCM Volume to Capacity ratio	0.55		
Actuated Cycle Length (s)	130.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	55.1%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			

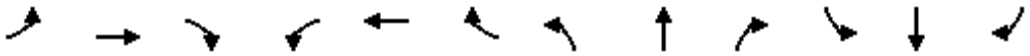


Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0	4.0		4.0			4.0	4.0
Lane Util. Factor	1.00	0.95		1.00	0.95	1.00		1.00			1.00	1.00
Frt	1.00	1.00		1.00	1.00	0.85		1.00			1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00	1.00		0.95			0.95	1.00
Satd. Flow (prot)	1770	3539		1770	3539	1583		1770			1770	1583
Flt Permitted	0.95	1.00		0.95	1.00	1.00		0.75			0.75	1.00
Satd. Flow (perm)	1770	3539		1770	3539	1583		1394			1405	1583
Volume (vph)	321	600	0	10	1276	77	4	0	0	12	0	4
Peak-hour factor, PHF	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86
Adj. Flow (vph)	373	698	0	12	1484	90	5	0	0	14	0	5
RTOR Reduction (vph)	0	0	0	0	0	24	0	0	0	0	0	2
Lane Group Flow (vph)	373	698	0	12	1484	66	0	5	0	0	14	3
Turn Type	Prot			Prot		Perm	Perm			Perm		custom
Protected Phases	5	2		1	6			8			4	
Permitted Phases						6	8			4		6
Actuated Green, G (s)	44.1	105.6		2.3	63.8	63.8		7.1			7.1	63.8
Effective Green, g (s)	44.1	107.6		2.3	65.8	65.8		8.1			8.1	65.8
Actuated g/C Ratio	0.34	0.83		0.02	0.51	0.51		0.06			0.06	0.51
Clearance Time (s)	4.0	6.0		4.0	6.0	6.0		5.0			5.0	6.0
Vehicle Extension (s)	1.5	2.0		1.5	2.0	2.0		4.0			4.0	2.0
Lane Grp Cap (vph)	600	2929		31	1791	801		87			88	801
v/s Ratio Prot	c0.21	0.20		0.01	c0.42							
v/s Ratio Perm						0.04		0.00			c0.01	0.00
v/c Ratio	0.62	0.24		0.39	0.83	0.08		0.06			0.16	0.00
Uniform Delay, d1	36.0	2.4		63.2	27.3	16.5		57.4			57.7	15.9
Progression Factor	1.20	0.53		1.32	1.12	1.29		1.00			1.00	1.00
Incremental Delay, d2	1.4	0.2		0.3	0.3	0.0		0.4			1.2	0.0
Delay (s)	44.7	1.5		83.5	30.9	21.3		57.7			58.9	15.9
Level of Service	D	A		F	C	C		E			E	B
Approach Delay (s)		16.5			30.7			57.7			47.6	
Approach LOS		B			C			E			D	

Intersection Summary			
HCM Average Control Delay	25.2	HCM Level of Service	C
HCM Volume to Capacity ratio	0.71		
Actuated Cycle Length (s)	130.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	67.2%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			

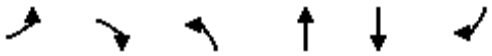
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	0.97	0.95	1.00	0.97	0.95	1.00	0.97	0.95	1.00	0.97	0.95	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	3433	3539	1583	3433	3539	1583	3433	3539	1583	3433	3539	1583
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	3433	3539	1583	3433	3539	1583	3433	3539	1583	3433	3539	1583
Volume (vph)	130	185	323	108	335	36	1153	452	445	41	84	52
Peak-hour factor, PHF	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88
Adj. Flow (vph)	148	210	367	123	381	41	1310	514	506	47	95	59
RTOR Reduction (vph)	0	0	235	0	0	29	0	0	358	0	0	39
Lane Group Flow (vph)	148	210	132	123	381	12	1310	514	148	47	95	20
Turn Type	Prot		Perm	Prot		Perm	Prot		Perm	Prot		Perm
Protected Phases	5	2		1	6		7	4		3	8	
Permitted Phases			2			6			4			8
Actuated Green, G (s)	16.0	44.6	44.6	8.4	37.0	37.0	16.0	36.0	36.0	20.0	41.0	41.0
Effective Green, g (s)	16.0	46.6	46.6	8.4	39.0	39.0	16.0	38.0	38.0	21.0	43.0	43.0
Actuated g/C Ratio	0.12	0.36	0.36	0.06	0.30	0.30	0.12	0.29	0.29	0.16	0.33	0.33
Clearance Time (s)	4.0	6.0	6.0	4.0	6.0	6.0	4.0	6.0	6.0	5.0	6.0	6.0
Vehicle Extension (s)	1.5	2.0	2.0	1.5	2.0	2.0	1.5	2.0	2.0	2.0	2.0	2.0
Lane Grp Cap (vph)	423	1269	567	222	1062	475	423	1034	463	555	1171	524
v/s Ratio Prot	c0.04	0.06		c0.04	c0.11		c0.38	c0.15		0.01	c0.03	
v/s Ratio Perm			0.08			0.01			0.09			0.01
v/c Ratio	0.35	0.17	0.23	0.55	0.36	0.03	3.10	0.50	0.32	0.08	0.08	0.04
Uniform Delay, d1	52.2	28.4	29.2	59.0	35.7	32.1	57.0	38.1	35.9	46.3	29.9	29.5
Progression Factor	0.78	0.69	1.66	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	0.2	0.3	0.9	1.7	0.9	0.1	949.9	1.7	1.8	0.0	0.1	0.1
Delay (s)	40.7	20.0	49.3	60.7	36.6	32.2	1006.9	39.8	37.7	46.4	30.0	29.6
Level of Service	D	B	D	E	D	C	F	D	D	D	C	C
Approach Delay (s)		39.1			41.7			583.1			33.7	
Approach LOS		D			D			F			C	

Intersection Summary			
HCM Average Control Delay	372.6	HCM Level of Service	F
HCM Volume to Capacity ratio	0.70		
Actuated Cycle Length (s)	130.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	62.5%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0	4.0	4.0	4.0						4.0	
Lane Util. Factor		0.95	1.00	1.00	0.95						0.95	
Frt		1.00	0.85	1.00	1.00						0.89	
Flt Protected		1.00	1.00	0.95	1.00						1.00	
Satd. Flow (prot)		3539	1583	1770	3539						3148	
Flt Permitted		1.00	1.00	0.27	1.00						1.00	
Satd. Flow (perm)		3539	1583	505	3539						3148	
Volume (vph)	0	537	197	21	291	0	0	0	0	17	60	197
Peak-hour factor, PHF	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Adj. Flow (vph)	0	590	216	23	320	0	0	0	0	19	66	216
RTOR Reduction (vph)	0	0	161	0	0	0	0	0	0	0	82	0
Lane Group Flow (vph)	0	590	55	23	320	0	0	0	0	0	219	0
Turn Type			Perm	Perm						Perm		
Protected Phases		4			8						6	
Permitted Phases			4	8						6		
Actuated Green, G (s)		17.0	17.0	17.0	17.0						41.2	
Effective Green, g (s)		17.0	17.0	17.0	17.0						41.2	
Actuated g/C Ratio		0.26	0.26	0.26	0.26						0.62	
Clearance Time (s)		4.0	4.0	4.0	4.0						4.0	
Vehicle Extension (s)		3.0	3.0	3.0	3.0						3.0	
Lane Grp Cap (vph)		909	407	130	909						1959	
v/s Ratio Prot		c0.17			0.09							
v/s Ratio Perm			0.04	0.05							0.07	
v/c Ratio		0.65	0.14	0.18	0.35						0.11	
Uniform Delay, d1		21.9	18.9	19.2	20.1						5.1	
Progression Factor		1.00	1.00	1.00	1.00						1.00	
Incremental Delay, d2		1.6	0.2	0.7	0.2						0.1	
Delay (s)		23.5	19.1	19.8	20.3						5.2	
Level of Service		C	B	B	C						A	
Approach Delay (s)		22.4			20.3			0.0			5.2	
Approach LOS		C			C			A			A	

Intersection Summary			
HCM Average Control Delay	18.3	HCM Level of Service	B
HCM Volume to Capacity ratio	0.27		
Actuated Cycle Length (s)	66.2	Sum of lost time (s)	8.0
Intersection Capacity Utilization	39.8%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Sign Control	Stop			Stop	Stop	
Volume (vph)	554	0	311	12	0	0
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Hourly flow rate (vph)	583	0	327	13	0	0

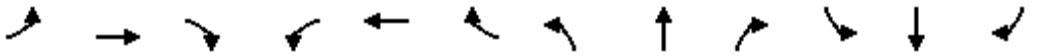
Direction, Lane #	EB 1	EB 2	NB 1	NB 2
Volume Total (vph)	292	292	218	122
Volume Left (vph)	292	292	218	109
Volume Right (vph)	0	0	0	0
Hadj (s)	0.53	0.53	0.53	0.48
Departure Headway (s)	6.1	6.1	6.6	6.6
Degree Utilization, x	0.49	0.49	0.40	0.22
Capacity (veh/h)	572	576	523	523
Control Delay (s)	13.7	13.7	12.8	10.2
Approach Delay (s)	13.7		11.9	
Approach LOS	B		B	

Intersection Summary			
Delay	13.0		
HCM Level of Service	B		
Intersection Capacity Utilization	61.5%	ICU Level of Service	B
Analysis Period (min)	15		

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Volume (veh/h)	6	78	1342	15	45	309
Peak Hour Factor	0.89	0.89	0.89	0.89	0.89	0.89
Hourly flow rate (vph)	7	88	1508	17	51	347
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None					
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	1791	762			1525	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1791	762			1525	
tC, single (s)	6.8	6.9			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	89	75			88	
cM capacity (veh/h)	64	347			433	

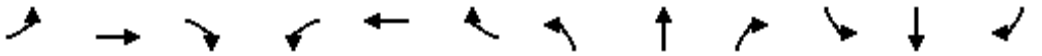
Direction, Lane #	WB 1	WB 2	NB 1	NB 2	SB 1	SB 2	SB 3
Volume Total	7	88	1005	519	51	174	174
Volume Left	7	0	0	0	51	0	0
Volume Right	0	88	0	17	0	0	0
cSH	64	347	1700	1700	433	1700	1700
Volume to Capacity	0.11	0.25	0.59	0.31	0.12	0.10	0.10
Queue Length 95th (ft)	8	25	0	0	10	0	0
Control Delay (s)	68.1	18.8	0.0	0.0	14.4	0.0	0.0
Lane LOS	F	C			B		
Approach Delay (s)	22.3		0.0		1.8		
Approach LOS	C						

Intersection Summary			
Average Delay	1.4		
Intersection Capacity Utilization	49.1%	ICU Level of Service	A
Analysis Period (min)	15		



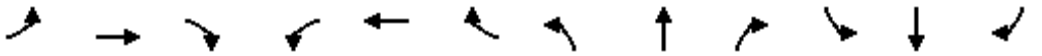
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	1.00	1.00		0.97	0.95	1.00	1.00	0.95	1.00	0.97	0.95	1.00
Frt	1.00	0.94		1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1770	1743		3433	3539	1583	1770	3539	1583	3433	3539	1583
Flt Permitted	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	1770	1743		3433	3539	1583	1770	3539	1583	3433	3539	1583
Volume (vph)	2	4	3	508	12	371	18	963	341	56	256	2
Peak-hour factor, PHF	0.92	0.92	0.92	0.25	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	2	4	3	2032	13	403	20	1047	371	61	278	2
RTOR Reduction (vph)	0	3	0	0	0	307	0	0	265	0	0	1
Lane Group Flow (vph)	2	4	0	2032	13	96	20	1047	106	61	278	1
Turn Type	Prot			Prot		Perm	Prot		Perm	Prot		Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases						8			2			6
Actuated Green, G (s)	0.9	2.0		19.4	21.5	21.5	30.7	26.3	26.3	30.7	26.3	26.3
Effective Green, g (s)	0.9	3.0		21.7	23.8	23.8	30.7	28.6	28.6	30.7	28.6	28.6
Actuated g/C Ratio	0.01	0.03		0.22	0.24	0.24	0.31	0.29	0.29	0.31	0.29	0.29
Clearance Time (s)	4.0	5.0		6.3	6.3	6.3	4.0	6.3	6.3	4.0	6.3	6.3
Vehicle Extension (s)	1.5	3.0		3.0	2.0	2.0	1.5	2.0	2.0	2.0	3.0	3.0
Lane Grp Cap (vph)	16	52		745	842	377	543	1012	453	1054	1012	453
v/s Ratio Prot	0.00	0.00		c0.59	0.00		0.01	c0.30		c0.02	0.08	
v/s Ratio Perm						c0.06			0.07			0.00
v/c Ratio	0.12	0.08		2.73	0.02	0.25	0.04	1.03	0.23	0.06	0.27	0.00
Uniform Delay, d1	49.2	47.2		39.1	29.1	30.9	24.3	35.7	27.3	24.4	27.7	25.5
Progression Factor	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	1.3	0.6		781.2	0.0	0.1	0.1	37.6	1.2	0.1	0.7	0.0
Delay (s)	50.4	47.8		820.3	29.1	31.0	24.4	73.3	28.5	24.6	28.3	25.5
Level of Service	D	D		F	C	C	C	E	C	C	C	C
Approach Delay (s)		48.4			686.2			61.1			27.6	
Approach LOS		D			F			E			C	

Intersection Summary			
HCM Average Control Delay	419.6	HCM Level of Service	F
HCM Volume to Capacity ratio	1.04		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	62.9%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	
Lane Util. Factor	1.00	0.95		1.00	0.95	1.00	1.00	0.95	1.00	0.97	0.95	
Frt	1.00	0.97		1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.99	
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1770	3446		1770	3539	1583	1770	3539	1583	3433	3488	
Flt Permitted	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (perm)	1770	3446		1770	3539	1583	1770	3539	1583	3433	3488	
Volume (vph)	21	310	66	83	618	241	162	1001	159	87	177	19
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	22	326	69	87	651	254	171	1054	167	92	186	20
RTOR Reduction (vph)	0	12	0	0	0	146	0	0	105	0	9	0
Lane Group Flow (vph)	22	383	0	87	651	108	171	1054	62	92	197	0
Turn Type	Prot			Prot		Perm	Prot		Perm	Prot		
Protected Phases	5	2		1	6		7	4		3	8	
Permitted Phases						6			4			
Actuated Green, G (s)	3.9	44.7		8.5	49.5	49.5	15.0	40.8	40.8	7.0	32.8	
Effective Green, g (s)	3.9	46.0		8.7	50.8	50.8	15.0	42.1	42.1	7.2	34.3	
Actuated g/C Ratio	0.03	0.38		0.07	0.42	0.42	0.12	0.35	0.35	0.06	0.29	
Clearance Time (s)	4.0	5.3		4.2	5.3	5.3	4.0	5.3	5.3	4.2	5.5	
Vehicle Extension (s)	1.5	2.0		1.5	2.0	2.0	1.5	2.0	2.0	1.5	2.0	
Lane Grp Cap (vph)	58	1321		128	1498	670	221	1242	555	206	997	
v/s Ratio Prot	0.01	0.11		c0.05	c0.18		c0.10	c0.30		0.03	0.06	
v/s Ratio Perm						0.07			0.04			
v/c Ratio	0.38	0.29		0.68	0.43	0.16	0.77	0.85	0.11	0.45	0.20	
Uniform Delay, d1	56.9	25.7		54.3	24.5	21.4	50.9	36.0	26.3	54.5	32.4	
Progression Factor	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	1.5	0.6		10.7	0.9	0.5	14.2	5.4	0.0	0.6	0.0	
Delay (s)	58.4	26.2		65.0	25.4	21.9	65.0	41.4	26.4	55.0	32.5	
Level of Service	E	C		E	C	C	E	D	C	E	C	
Approach Delay (s)		27.9			28.0			42.5			39.4	
Approach LOS		C			C			D			D	

Intersection Summary			
HCM Average Control Delay	35.6	HCM Level of Service	D
HCM Volume to Capacity ratio	0.62		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	64.8%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0	4.0	4.0	4.0					4.0	4.0	4.0
Lane Util. Factor		0.95	1.00	0.97	0.95					0.95	0.91	0.95
Frt		1.00	0.85	1.00	1.00					1.00	0.89	0.85
Flt Protected		1.00	1.00	0.95	1.00					0.95	0.99	1.00
Satd. Flow (prot)		3539	1583	3433	3539					1681	1491	1504
Flt Permitted		1.00	1.00	0.95	1.00					0.95	0.99	1.00
Satd. Flow (perm)		3539	1583	3433	3539					1681	1491	1504
Volume (vph)	0	815	266	91	247	0	0	0	0	25	1	41
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	0	906	296	101	274	0	0	0	0	28	1	46
RTOR Reduction (vph)	0	0	189	0	0	0	0	0	0	0	11	18
Lane Group Flow (vph)	0	906	107	101	274	0	0	0	0	23	12	11
Turn Type			Perm	Prot						Perm		Perm
Protected Phases		4		3	8						6	
Permitted Phases			4							6		6
Actuated Green, G (s)		24.2	24.2	5.9	34.1					25.0	25.0	25.0
Effective Green, g (s)		24.2	24.2	5.9	34.1					25.0	25.0	25.0
Actuated g/C Ratio		0.36	0.36	0.09	0.51					0.37	0.37	0.37
Clearance Time (s)		4.0	4.0	4.0	4.0					4.0	4.0	4.0
Vehicle Extension (s)		3.0	3.0	3.0	3.0					3.0	3.0	3.0
Lane Grp Cap (vph)		1276	571	302	1799					626	556	560
v/s Ratio Prot		c0.26		c0.03	0.08							
v/s Ratio Perm			0.07							c0.01	0.01	0.01
v/c Ratio		0.71	0.19	0.33	0.15					0.04	0.02	0.02
Uniform Delay, d1		18.4	14.7	28.8	8.8					13.4	13.3	13.3
Progression Factor		1.00	1.00	1.00	1.00					1.00	1.00	1.00
Incremental Delay, d2		1.9	0.2	0.7	0.0					0.1	0.1	0.1
Delay (s)		20.3	14.9	29.4	8.8					13.5	13.4	13.4
Level of Service		C	B	C	A					B	B	B
Approach Delay (s)		19.0			14.4			0.0			13.4	
Approach LOS		B			B			A			B	

Intersection Summary			
HCM Average Control Delay	17.7	HCM Level of Service	B
HCM Volume to Capacity ratio	0.36		
Actuated Cycle Length (s)	67.1	Sum of lost time (s)	12.0
Intersection Capacity Utilization	50.0%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

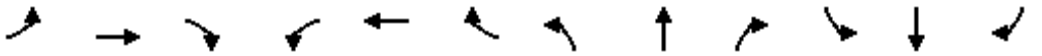
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0			4.0	4.0	4.0
Lane Util. Factor	0.95			0.95	0.97	1.00
Frt	1.00			1.00	1.00	0.85
Flt Protected	1.00			1.00	0.95	1.00
Satd. Flow (prot)	3539			3539	3433	1583
Flt Permitted	1.00			1.00	0.95	1.00
Satd. Flow (perm)	3539			3539	3433	1583
Volume (vph)	841	0	0	182	155	324
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	914	0	0	198	168	352
RTOR Reduction (vph)	0	0	0	0	0	41
Lane Group Flow (vph)	914	0	0	198	168	311
Turn Type						Perm
Protected Phases	4			8	2	
Permitted Phases						2
Actuated Green, G (s)	26.0			26.0	43.2	43.2
Effective Green, g (s)	26.0			26.0	43.2	43.2
Actuated g/C Ratio	0.34			0.34	0.56	0.56
Clearance Time (s)	4.0			4.0	4.0	4.0
Vehicle Extension (s)	3.0			3.0	3.0	3.0
Lane Grp Cap (vph)	1192			1192	1921	886
v/s Ratio Prot	c0.26			0.06	0.05	
v/s Ratio Perm						c0.20
v/c Ratio	0.77			0.17	0.09	0.35
Uniform Delay, d1	22.9			18.0	7.9	9.3
Progression Factor	1.00			1.00	1.00	1.00
Incremental Delay, d2	3.0			0.1	0.1	1.1
Delay (s)	25.9			18.1	8.0	10.4
Level of Service	C			B	A	B
Approach Delay (s)	25.9			18.1	9.6	
Approach LOS	C			B	A	

Intersection Summary			
HCM Average Control Delay	19.8	HCM Level of Service	B
HCM Volume to Capacity ratio	0.51		
Actuated Cycle Length (s)	77.2	Sum of lost time (s)	8.0
Intersection Capacity Utilization	50.0%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Volume (veh/h)	0	0	0	3	12	14	504	664	3	0	179	27
Peak Hour Factor	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85
Hourly flow rate (vph)	0	0	0	4	14	16	593	781	4	0	211	32
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	1826	2197	226	2179	2211	392	242			785		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	1826	2197	226	2179	2211	392	242			785		
tC, single (s)	7.5	6.5	6.9	7.5	6.5	6.9	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	100	100	100	79	41	97	55			100		
cM capacity (veh/h)	17	24	776	17	24	607	1321			830		

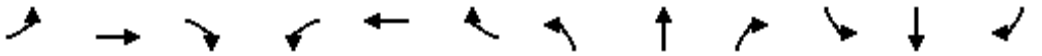
Direction, Lane #	WB 1	NB 1	NB 2	NB 3	SB 1	SB 2
Volume Total	34	593	521	264	0	242
Volume Left	4	593	0	0	0	0
Volume Right	16	0	0	4	0	32
cSH	41	1321	1700	1700	1700	1700
Volume to Capacity	0.83	0.45	0.31	0.16	0.00	0.14
Queue Length 95th (ft)	79	60	0	0	0	0
Control Delay (s)	237.8	9.9	0.0	0.0	0.0	0.0
Lane LOS	F	A				
Approach Delay (s)	237.8	4.3			0.0	
Approach LOS	F					

Intersection Summary				
Average Delay	8.5			
Intersection Capacity Utilization	52.3%	ICU Level of Service	A	
Analysis Period (min)	15			



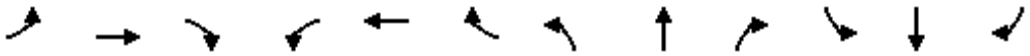
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	0.95		1.00	0.95	
Frt	1.00	0.96		1.00	0.96		1.00	0.96		1.00	0.98	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1770	3403		1770	3394		1770	3381		1770	3464	
Flt Permitted	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (perm)	1770	3403		1770	3394		1770	3381		1770	3464	
Volume (vph)	63	308	107	174	308	116	94	303	129	127	301	50
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	66	321	111	181	321	121	98	316	134	132	314	52
RTOR Reduction (vph)	0	35	0	0	35	0	0	44	0	0	12	0
Lane Group Flow (vph)	66	397	0	181	407	0	98	406	0	132	354	0
Turn Type	Prot			Prot			Prot			Prot		
Protected Phases	5	2		1	6		7	4		3	8	
Permitted Phases												
Actuated Green, G (s)	6.7	34.9		15.0	43.1		8.3	20.9		10.9	22.6	
Effective Green, g (s)	6.9	36.0		15.0	44.1		9.3	21.9		11.1	23.7	
Actuated g/C Ratio	0.07	0.36		0.15	0.44		0.09	0.22		0.11	0.24	
Clearance Time (s)	4.2	5.1		4.0	5.0		5.0	5.0		4.2	5.1	
Vehicle Extension (s)	1.5	2.0		1.5	2.0		1.5	2.0		1.5	2.0	
Lane Grp Cap (vph)	122	1225		266	1497		165	740		196	821	
v/s Ratio Prot	0.04	c0.12		c0.10	0.12		0.06	c0.12		c0.07	0.10	
v/s Ratio Perm												
v/c Ratio	0.54	0.32		0.68	0.27		0.59	0.55		0.67	0.43	
Uniform Delay, d1	45.0	23.2		40.2	17.8		43.5	34.7		42.7	32.4	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	2.6	0.7		5.6	0.4		3.8	2.9		7.0	1.6	
Delay (s)	47.6	23.9		45.8	18.2		47.3	37.6		49.7	34.1	
Level of Service	D	C		D	B		D	D		D	C	
Approach Delay (s)		27.0			26.2			39.3			38.2	
Approach LOS		C			C			D			D	

Intersection Summary			
HCM Average Control Delay	32.5	HCM Level of Service	C
HCM Volume to Capacity ratio	0.49		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	16.0
Intersection Capacity Utilization	57.0%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.93	
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1770	3539	1583	1770	3539	1583	1770	3539	1583	1770	3303	
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (perm)	1770	3539	1583	1770	3539	1583	1770	3539	1583	1770	3303	
Volume (vph)	247	541	80	53	389	151	96	230	88	233	242	194
Peak-hour factor, PHF	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Adj. Flow (vph)	271	595	88	58	427	166	105	253	97	256	266	213
RTOR Reduction (vph)	0	0	43	0	0	101	0	0	84	0	123	0
Lane Group Flow (vph)	271	595	45	58	427	65	105	253	13	256	356	0
Turn Type	Prot		Perm	Prot		Perm	Prot		Perm	Prot		
Protected Phases	5	2		1	6		7	4		3	8	
Permitted Phases			2			6			4			
Actuated Green, G (s)	21.9	62.6	62.6	7.0	47.7	47.7	10.9	15.2	15.2	20.9	25.2	
Effective Green, g (s)	21.9	63.6	63.6	7.0	48.7	48.7	10.9	16.5	16.5	20.9	26.5	
Actuated g/C Ratio	0.18	0.51	0.51	0.06	0.39	0.39	0.09	0.13	0.13	0.17	0.21	
Clearance Time (s)	4.0	5.0	5.0	4.0	5.0	5.0	4.0	5.3	5.3	4.0	5.3	
Vehicle Extension (s)	1.5	2.0	2.0	1.5	2.0	2.0	1.5	2.0	2.0	1.5	2.0	
Lane Grp Cap (vph)	313	1815	812	100	1390	622	156	471	211	298	706	
v/s Ratio Prot	c0.15	c0.17		0.03	0.12		0.06	0.07		c0.14	c0.11	
v/s Ratio Perm			0.03			0.04			0.01			
v/c Ratio	0.87	0.33	0.06	0.58	0.31	0.10	0.67	0.54	0.06	0.86	0.50	
Uniform Delay, d1	49.6	17.7	15.1	57.1	26.0	23.8	54.8	50.2	47.0	50.1	43.0	
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	20.7	0.5	0.1	5.0	0.6	0.3	8.7	0.6	0.0	20.3	0.2	
Delay (s)	70.3	18.2	15.3	62.1	26.6	24.2	63.5	50.8	47.0	70.5	43.2	
Level of Service	E	B	B	E	C	C	E	D	D	E	D	
Approach Delay (s)		32.7			29.1			52.9			52.7	
Approach LOS		C			C			D			D	

Intersection Summary			
HCM Average Control Delay	40.4	HCM Level of Service	D
HCM Volume to Capacity ratio	0.55		
Actuated Cycle Length (s)	124.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	57.0%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			

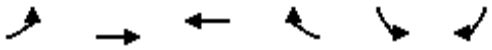


Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0			4.0	4.0	4.0	4.0	
Lane Util. Factor	1.00	0.95		1.00	0.95			1.00	1.00	1.00	1.00	
Frt	1.00	0.99		1.00	0.97			1.00	0.85	1.00	0.87	
Flt Protected	0.95	1.00		0.95	1.00			0.97	1.00	0.95	1.00	
Satd. Flow (prot)	1770	3509		1770	3419			1799	1583	1770	1622	
Flt Permitted	0.95	1.00		0.95	1.00			0.81	1.00	0.73	1.00	
Satd. Flow (perm)	1770	3509		1770	3419			1508	1583	1364	1622	
Volume (vph)	82	700	42	45	507	148	26	10	13	71	7	41
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	86	737	44	47	534	156	27	11	14	75	7	43
RTOR Reduction (vph)	0	2	0	0	13	0	0	0	12	0	37	0
Lane Group Flow (vph)	86	779	0	47	677	0	0	38	2	75	13	0
Turn Type	Prot			Prot			Perm		Perm	Perm		
Protected Phases	5	2		1	6			4			8	
Permitted Phases							4		4	8		
Actuated Green, G (s)	8.7	87.7		6.3	85.3			18.0	18.0	18.0	18.0	
Effective Green, g (s)	8.7	88.7		6.3	86.3			18.0	18.0	18.0	18.0	
Actuated g/C Ratio	0.07	0.71		0.05	0.69			0.14	0.14	0.14	0.14	
Clearance Time (s)	4.0	5.0		4.0	5.0			4.0	4.0	4.0	4.0	
Vehicle Extension (s)	1.5	1.5		1.5	2.0			2.5	2.5	2.5	2.5	
Lane Grp Cap (vph)	123	2490		89	2360			217	228	196	234	
v/s Ratio Prot	c0.05	c0.22		0.03	0.20						0.01	
v/s Ratio Perm								0.03	0.00	c0.05		
v/c Ratio	0.70	0.31		0.53	0.29			0.18	0.01	0.38	0.06	
Uniform Delay, d1	56.9	6.8		57.9	7.5			47.0	45.9	48.5	46.2	
Progression Factor	1.00	1.00		1.00	1.00			1.00	1.00	1.00	1.00	
Incremental Delay, d2	13.1	0.3		2.6	0.3			0.3	0.0	0.9	0.1	
Delay (s)	70.0	7.1		60.5	7.8			47.3	45.9	49.4	46.2	
Level of Service	E	A		E	A			D	D	D	D	
Approach Delay (s)		13.3			11.1			46.9			48.1	
Approach LOS		B			B			D			D	

Intersection Summary			
HCM Average Control Delay	15.8	HCM Level of Service	B
HCM Volume to Capacity ratio	0.34		
Actuated Cycle Length (s)	125.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	44.6%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

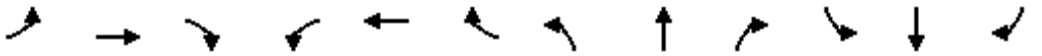
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0	4.0	4.0	4.0					4.0	4.0	4.0
Lane Util. Factor		0.91	0.91	1.00	0.95					0.95	0.95	1.00
Frt		0.98	0.85	1.00	1.00					1.00	1.00	0.85
Flt Protected		1.00	1.00	0.95	1.00					0.95	0.95	1.00
Satd. Flow (prot)		3332	1441	1770	3539					1681	1681	1583
Flt Permitted		1.00	1.00	0.95	1.00					0.95	0.95	1.00
Satd. Flow (perm)		3332	1441	1770	3539					1681	1681	1583
Volume (vph)	0	415	315	60	501	0	0	0	0	141	0	240
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	0	437	332	63	527	0	0	0	0	148	0	253
RTOR Reduction (vph)	0	11	211	0	0	0	0	0	0	0	0	128
Lane Group Flow (vph)	0	482	65	63	527	0	0	0	0	74	74	125
Turn Type			Perm	Prot						Perm		Perm
Protected Phases		4		3	8						6	
Permitted Phases			4							6		6
Actuated Green, G (s)		14.8	14.8	4.8	23.6					31.1	31.1	31.1
Effective Green, g (s)		14.8	14.8	4.8	23.6					31.1	31.1	31.1
Actuated g/C Ratio		0.24	0.24	0.08	0.38					0.50	0.50	0.50
Clearance Time (s)		4.0	4.0	4.0	4.0					4.0	4.0	4.0
Vehicle Extension (s)		3.0	3.0	3.0	3.0					3.0	3.0	3.0
Lane Grp Cap (vph)		787	340	136	1332					834	834	785
v/s Ratio Prot		c0.14		0.04	c0.15							
v/s Ratio Perm			0.05							0.04	0.04	c0.08
v/c Ratio		0.61	0.19	0.46	0.40					0.09	0.09	0.16
Uniform Delay, d1		21.4	19.2	27.7	14.3					8.3	8.3	8.6
Progression Factor		1.00	1.00	1.00	1.00					1.00	1.00	1.00
Incremental Delay, d2		1.4	0.3	2.5	0.2					0.2	0.2	0.4
Delay (s)		22.8	19.4	30.2	14.5					8.5	8.5	9.1
Level of Service		C	B	C	B					A	A	A
Approach Delay (s)		21.6			16.2			0.0			8.9	
Approach LOS		C			B			A			A	

Intersection Summary			
HCM Average Control Delay	16.9	HCM Level of Service	B
HCM Volume to Capacity ratio	0.33		
Actuated Cycle Length (s)	62.7	Sum of lost time (s)	12.0
Intersection Capacity Utilization	36.4%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			



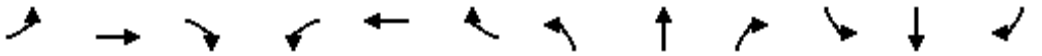
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0		4.0	4.0
Lane Util. Factor	1.00	0.95	0.95		0.97	1.00
Frt	1.00	1.00	0.97		1.00	0.85
Flt Protected	0.95	1.00	1.00		0.95	1.00
Satd. Flow (prot)	1770	3539	3422		3433	1583
Flt Permitted	0.95	1.00	1.00		0.95	1.00
Satd. Flow (perm)	1770	3539	3422		3433	1583
Volume (vph)	151	436	348	98	67	216
Peak-hour factor, PHF	0.91	0.91	0.91	0.91	0.91	0.91
Adj. Flow (vph)	166	479	382	108	74	237
RTOR Reduction (vph)	0	0	30	0	0	127
Lane Group Flow (vph)	166	479	460	0	74	110
Turn Type	Prot					Perm
Protected Phases	7	4	8		6	
Permitted Phases						6
Actuated Green, G (s)	9.6	27.7	14.1		31.1	31.1
Effective Green, g (s)	9.6	27.7	14.1		31.1	31.1
Actuated g/C Ratio	0.14	0.41	0.21		0.47	0.47
Clearance Time (s)	4.0	4.0	4.0		4.0	4.0
Vehicle Extension (s)	3.0	3.0	3.0		3.0	3.0
Lane Grp Cap (vph)	254	1468	722		1598	737
v/s Ratio Prot	c0.09	0.14	c0.13		0.02	
v/s Ratio Perm						c0.07
v/c Ratio	0.65	0.33	0.64		0.05	0.15
Uniform Delay, d1	27.0	13.2	24.0		9.7	10.3
Progression Factor	1.00	1.00	1.00		1.00	1.00
Incremental Delay, d2	5.9	0.1	1.9		0.1	0.4
Delay (s)	33.0	13.4	25.9		9.8	10.7
Level of Service	C	B	C		A	B
Approach Delay (s)		18.4	25.9		10.5	
Approach LOS		B	C		B	

Intersection Summary			
HCM Average Control Delay	19.2	HCM Level of Service	B
HCM Volume to Capacity ratio	0.36		
Actuated Cycle Length (s)	66.8	Sum of lost time (s)	12.0
Intersection Capacity Utilization	34.4%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			



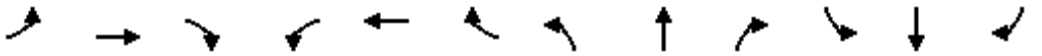
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	0.95		1.00	0.95	
Frt	1.00	0.97		1.00	0.97		1.00	0.95		1.00	0.99	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1770	3420		1770	3431		1770	3371		1770	3492	
Flt Permitted	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (perm)	1770	3420		1770	3431		1770	3371		1770	3492	
Volume (vph)	74	593	171	254	278	71	65	348	161	248	660	64
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	80	645	186	276	302	77	71	378	175	270	717	70
RTOR Reduction (vph)	0	27	0	0	20	0	0	53	0	0	7	0
Lane Group Flow (vph)	80	804	0	276	359	0	71	500	0	270	780	0
Turn Type	Prot			Prot			Prot			Prot		
Protected Phases	5	2		1	6		7	4		3	8	
Permitted Phases												
Actuated Green, G (s)	7.4	34.9		15.0	42.4		6.9	16.9		14.9	24.0	
Effective Green, g (s)	7.6	36.0		15.0	43.4		7.9	17.9		15.1	25.1	
Actuated g/C Ratio	0.08	0.36		0.15	0.43		0.08	0.18		0.15	0.25	
Clearance Time (s)	4.2	5.1		4.0	5.0		5.0	5.0		4.2	5.1	
Vehicle Extension (s)	1.5	2.0		1.5	2.0		1.5	2.0		1.5	2.0	
Lane Grp Cap (vph)	135	1231		266	1489		140	603		267	876	
v/s Ratio Prot	0.05	c0.24		c0.16	0.10		0.04	0.15		c0.15	c0.22	
v/s Ratio Perm												
v/c Ratio	0.59	0.65		1.04	0.24		0.51	0.83		1.01	0.89	
Uniform Delay, d1	44.7	26.8		42.5	17.9		44.2	39.6		42.5	36.1	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	4.6	2.7		65.3	0.4		1.1	12.4		58.0	13.2	
Delay (s)	49.3	29.5		107.8	18.3		45.2	52.0		100.4	49.3	
Level of Service	D	C		F	B		D	D		F	D	
Approach Delay (s)		31.2			56.0			51.2			62.4	
Approach LOS		C			E			D			E	

Intersection Summary			
HCM Average Control Delay	50.2	HCM Level of Service	D
HCM Volume to Capacity ratio	0.82		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	77.8%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			



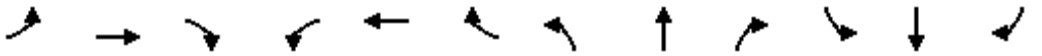
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0		4.0	4.0	4.0	4.0	4.0	
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95		1.00	0.95	1.00	1.00	0.95	
Frt	1.00	1.00	0.85	1.00	0.96		1.00	1.00	0.85	1.00	0.97	
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1770	3539	1583	1770	3387		1770	3539	1583	1770	3435	
Flt Permitted	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00	0.46	1.00	
Satd. Flow (perm)	1770	3539	1583	1770	3387		1770	3539	1583	851	3435	
Volume (vph)	302	438	268	149	271	109	198	510	145	193	768	187
Peak-hour factor, PHF	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Adj. Flow (vph)	311	452	276	154	279	112	204	526	149	199	792	193
RTOR Reduction (vph)	0	0	217	0	44	0	0	0	70	0	21	0
Lane Group Flow (vph)	311	452	59	154	347	0	204	526	79	199	964	0
Turn Type	Prot		Perm	Prot			Prot		Perm	Perm		
Protected Phases	7	4		3	8		5	2			6	
Permitted Phases			4						2	6		
Actuated Green, G (s)	19.5	20.7	20.7	12.9	14.1		13.4	51.2	51.2	33.8	33.8	
Effective Green, g (s)	19.5	20.7	20.7	12.9	14.1		13.4	51.2	51.2	33.8	33.8	
Actuated g/C Ratio	0.20	0.21	0.21	0.13	0.15		0.14	0.53	0.53	0.35	0.35	
Clearance Time (s)	4.0	4.0	4.0	4.0	4.0		4.0	4.0	4.0	4.0	4.0	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	357	757	339	236	493		245	1872	837	297	1199	
v/s Ratio Prot	c0.18	0.13		0.09	c0.10		c0.12	0.15			c0.28	
v/s Ratio Perm			0.04						0.05	0.23		
v/c Ratio	0.87	0.60	0.17	0.65	0.70		0.83	0.28	0.09	0.67	0.80	
Uniform Delay, d1	37.4	34.3	31.1	39.8	39.4		40.6	12.6	11.3	26.8	28.5	
Progression Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	20.1	1.3	0.2	6.3	4.5		20.8	0.4	0.2	11.4	5.8	
Delay (s)	57.5	35.6	31.3	46.2	43.9		61.5	13.0	11.5	38.2	34.3	
Level of Service	E	D	C	D	D		E	B	B	D	C	
Approach Delay (s)		41.0			44.6			24.0			34.9	
Approach LOS		D			D			C			C	

Intersection Summary			
HCM Average Control Delay	35.5	HCM Level of Service	D
HCM Volume to Capacity ratio	0.81		
Actuated Cycle Length (s)	96.8	Sum of lost time (s)	16.0
Intersection Capacity Utilization	79.2%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			



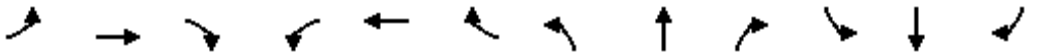
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0		4.0	4.0			4.0	
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	1.00			1.00	
Frt	1.00	0.99		1.00	0.99		1.00	0.90			0.96	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00			0.98	
Satd. Flow (prot)	1770	3495		1770	3493		1770	1679			1739	
Flt Permitted	0.95	1.00		0.95	1.00		0.68	1.00			0.86	
Satd. Flow (perm)	1770	3495		1770	3493		1266	1679			1523	
Volume (vph)	52	527	48	34	476	45	49	19	36	66	27	45
Peak-hour factor, PHF	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85
Adj. Flow (vph)	61	620	56	40	560	53	58	22	42	78	32	53
RTOR Reduction (vph)	0	8	0	0	8	0	0	22	0	0	13	0
Lane Group Flow (vph)	61	668	0	40	605	0	58	42	0	0	150	0
Turn Type	Prot			Prot			Perm			Perm		
Protected Phases	7	4		3	8			2			6	
Permitted Phases							2			6		
Actuated Green, G (s)	4.8	19.4		2.9	17.5		31.1	31.1			31.1	
Effective Green, g (s)	4.8	19.4		2.9	17.5		31.1	31.1			31.1	
Actuated g/C Ratio	0.07	0.30		0.04	0.27		0.48	0.48			0.48	
Clearance Time (s)	4.0	4.0		4.0	4.0		4.0	4.0			4.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0			3.0	
Lane Grp Cap (vph)	130	1037		78	935		602	798			724	
v/s Ratio Prot	c0.03	c0.19		0.02	0.17			0.02				
v/s Ratio Perm							0.05				c0.10	
v/c Ratio	0.47	0.64		0.51	0.65		0.10	0.05			0.21	
Uniform Delay, d1	29.1	20.0		30.6	21.2		9.4	9.2			10.0	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00			1.00	
Incremental Delay, d2	2.7	1.4		5.6	1.6		0.3	0.1			0.6	
Delay (s)	31.7	21.4		36.1	22.8		9.7	9.4			10.6	
Level of Service	C	C		D	C		A	A			B	
Approach Delay (s)		22.2			23.6			9.5			10.6	
Approach LOS		C			C			A			B	

Intersection Summary			
HCM Average Control Delay	20.7	HCM Level of Service	C
HCM Volume to Capacity ratio	0.37		
Actuated Cycle Length (s)	65.4	Sum of lost time (s)	8.0
Intersection Capacity Utilization	43.9%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			



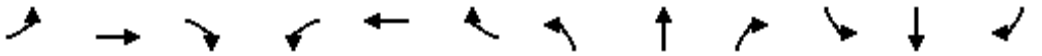
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0		4.0	4.0	4.0	4.0	4.0	
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	1.00	1.00	1.00	1.00	
Frt	1.00	0.96		1.00	0.99		1.00	1.00	0.85	1.00	0.95	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1770	3407		1770	3511		1770	1863	1583	1770	1772	
Flt Permitted	0.95	1.00		0.95	1.00		0.61	1.00	1.00	0.69	1.00	
Satd. Flow (perm)	1770	3407		1770	3511		1139	1863	1583	1291	1772	
Volume (vph)	59	421	140	131	332	18	145	91	164	14	126	61
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	64	458	152	142	361	20	158	99	178	15	137	66
RTOR Reduction (vph)	0	36	0	0	4	0	0	0	94	0	14	0
Lane Group Flow (vph)	64	574	0	142	377	0	158	99	84	15	189	0
Turn Type	Prot			Prot			Perm		Perm	Perm		
Protected Phases	7	4		3	8			2			6	
Permitted Phases							2		2	6		
Actuated Green, G (s)	5.2	18.4		9.4	22.6		35.2	35.2	35.2	35.2	35.2	
Effective Green, g (s)	5.2	18.4		9.4	22.6		35.2	35.2	35.2	35.2	35.2	
Actuated g/C Ratio	0.07	0.25		0.13	0.30		0.47	0.47	0.47	0.47	0.47	
Clearance Time (s)	4.0	4.0		4.0	4.0		4.0	4.0	4.0	4.0	4.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	123	836		222	1058		535	874	743	606	832	
v/s Ratio Prot	0.04	c0.17		c0.08	0.11			0.05			0.11	
v/s Ratio Perm							c0.14		0.05	0.01		
v/c Ratio	0.52	0.69		0.64	0.36		0.30	0.11	0.11	0.02	0.23	
Uniform Delay, d1	33.7	25.7		31.2	20.5		12.3	11.2	11.1	10.7	11.8	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	3.9	2.4		5.9	0.2		1.4	0.3	0.3	0.1	0.6	
Delay (s)	37.6	28.0		37.1	20.7		13.7	11.4	11.5	10.8	12.5	
Level of Service	D	C		D	C		B	B	B	B	B	
Approach Delay (s)		28.9			25.2			12.2			12.3	
Approach LOS		C			C			B			B	

Intersection Summary			
HCM Average Control Delay	22.0	HCM Level of Service	C
HCM Volume to Capacity ratio	0.46		
Actuated Cycle Length (s)	75.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	55.1%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			



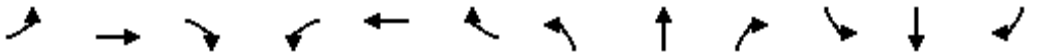
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	1.00	0.95		1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	0.93		1.00	0.99		1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1770	3301		1770	1840		1770	1863	1583	1770	1863	1583
Flt Permitted	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	1770	3301		1770	1840		1770	1863	1583	1770	1863	1583
Volume (vph)	18	309	251	41	250	22	183	101	45	40	332	35
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	19	325	264	43	263	23	193	106	47	42	349	37
RTOR Reduction (vph)	0	156	0	0	3	0	0	0	0	0	0	21
Lane Group Flow (vph)	19	433	0	43	283	0	193	106	47	42	349	16
Turn Type	Prot			Prot			Prot		Free	Prot		Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases									Free			6
Actuated Green, G (s)	2.0	17.4		3.7	19.1		13.8	47.1	87.9	3.7	37.0	37.0
Effective Green, g (s)	2.0	17.4		3.7	19.1		13.8	47.1	87.9	3.7	37.0	37.0
Actuated g/C Ratio	0.02	0.20		0.04	0.22		0.16	0.54	1.00	0.04	0.42	0.42
Clearance Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	4.0
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	3.0
Lane Grp Cap (vph)	40	653		75	400		278	998	1583	75	784	666
v/s Ratio Prot	0.01	0.13		c0.02	c0.15		c0.11	0.06		0.02	c0.19	
v/s Ratio Perm									c0.03			0.01
v/c Ratio	0.47	0.66		0.57	0.71		0.69	0.11	0.03	0.56	0.45	0.02
Uniform Delay, d1	42.4	32.5		41.3	31.8		35.1	10.0	0.0	41.3	18.1	14.9
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	8.6	2.5		10.2	5.6		7.3	0.2	0.0	9.2	1.8	0.1
Delay (s)	51.1	35.1		51.5	37.4		42.4	10.3	0.0	50.5	20.0	14.9
Level of Service	D	D		D	D		D	B	A	D	B	B
Approach Delay (s)		35.6			39.3			26.8			22.5	
Approach LOS		D			D			C			C	

Intersection Summary			
HCM Average Control Delay	31.2	HCM Level of Service	C
HCM Volume to Capacity ratio	0.55		
Actuated Cycle Length (s)	87.9	Sum of lost time (s)	12.0
Intersection Capacity Utilization	60.9%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			



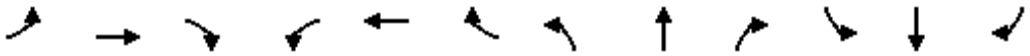
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0		4.0	4.0	4.0	4.0	4.0	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00		1.00	0.95	1.00	1.00	0.95	
Frt	1.00	1.00	0.85	1.00	0.98		1.00	1.00	0.85	1.00	0.99	
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1770	1863	1583	1770	1825		1770	3539	1583	1770	3493	
Flt Permitted	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00	0.95	1.00	
Satd. Flow (perm)	1770	1863	1583	1770	1825		1770	3539	1583	1770	3493	
Volume (vph)	126	155	123	109	110	17	46	571	140	58	1023	98
Peak-hour factor, PHF	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Adj. Flow (vph)	134	165	131	116	117	18	49	607	149	62	1088	104
RTOR Reduction (vph)	0	0	85	0	4	0	0	0	100	0	5	0
Lane Group Flow (vph)	134	165	46	116	131	0	49	607	49	62	1187	0
Turn Type	Prot		Perm	Prot			Prot		Perm	Prot		
Protected Phases	5	2		1	6		7	4		3	8	
Permitted Phases			2						4			
Actuated Green, G (s)	10.9	33.3	33.3	8.8	31.2		4.6	31.1	31.1	6.3	32.8	
Effective Green, g (s)	10.9	34.3	34.3	8.8	32.2		4.6	32.1	32.1	6.3	33.8	
Actuated g/C Ratio	0.11	0.35	0.35	0.09	0.33		0.05	0.33	0.33	0.06	0.35	
Clearance Time (s)	4.0	5.0	5.0	4.0	5.0		4.0	5.0	5.0	4.0	5.0	
Vehicle Extension (s)	1.5	2.0	2.0	1.5	2.0		1.5	2.0	2.0	1.5	2.0	
Lane Grp Cap (vph)	198	655	557	160	603		84	1165	521	114	1211	
v/s Ratio Prot	c0.08	c0.09		0.07	0.07		0.03	0.17		c0.04	c0.34	
v/s Ratio Perm			0.03						0.03			
v/c Ratio	0.68	0.25	0.08	0.72	0.22		0.58	0.52	0.09	0.54	0.98	
Uniform Delay, d1	41.6	22.5	21.1	43.2	23.6		45.5	26.5	22.6	44.2	31.5	
Progression Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	7.0	0.9	0.3	12.9	0.8		6.5	1.7	0.4	2.8	21.5	
Delay (s)	48.6	23.4	21.4	56.1	24.4		52.0	28.1	23.0	47.0	53.0	
Level of Service	D	C	C	E	C		D	C	C	D	D	
Approach Delay (s)		30.6			39.0			28.6			52.7	
Approach LOS		C			D			C			D	

Intersection Summary			
HCM Average Control Delay	40.9	HCM Level of Service	D
HCM Volume to Capacity ratio	0.58		
Actuated Cycle Length (s)	97.5	Sum of lost time (s)	8.0
Intersection Capacity Utilization	62.3%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	0.92		1.00	0.93		1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1770	1712		1770	1723		1770	1863	1583	1770	1863	1583
Flt Permitted	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	1770	1712		1770	1723		1770	1863	1583	1770	1863	1583
Volume (vph)	60	87	102	172	109	109	89	242	150	93	291	41
Peak-hour factor, PHF	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Adj. Flow (vph)	66	96	112	189	120	120	98	266	165	102	320	45
RTOR Reduction (vph)	0	44	0	0	39	0	0	0	98	0	0	27
Lane Group Flow (vph)	66	164	0	189	201	0	98	266	67	102	320	18
Turn Type	Prot			Prot			Prot		Perm	Prot		Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases									2			6
Actuated Green, G (s)	5.1	13.4		11.2	19.5		7.9	32.9	32.9	8.0	33.0	33.0
Effective Green, g (s)	5.1	13.4		11.2	19.5		7.9	32.9	32.9	8.0	33.0	33.0
Actuated g/C Ratio	0.06	0.16		0.14	0.24		0.10	0.40	0.40	0.10	0.40	0.40
Clearance Time (s)	4.0	4.0		4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	111	281		243	412		172	752	639	174	754	641
v/s Ratio Prot	0.04	c0.10		c0.11	0.12		0.06	0.14		c0.06	c0.17	
v/s Ratio Perm									0.04			0.01
v/c Ratio	0.59	0.58		0.78	0.49		0.57	0.35	0.10	0.59	0.42	0.03
Uniform Delay, d1	37.2	31.5		33.9	26.7		35.2	16.9	15.1	35.2	17.4	14.6
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	8.3	3.1		14.5	0.9		4.3	1.3	0.3	5.0	1.7	0.1
Delay (s)	45.5	34.5		48.4	27.6		39.5	18.2	15.5	40.1	19.2	14.7
Level of Service	D	C		D	C		D	B	B	D	B	B
Approach Delay (s)		37.2			36.8			21.3			23.3	
Approach LOS		D			D			C			C	

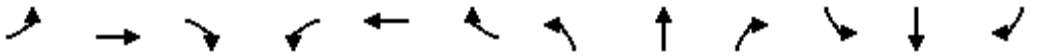
Intersection Summary			
HCM Average Control Delay	28.3	HCM Level of Service	C
HCM Volume to Capacity ratio	0.51		
Actuated Cycle Length (s)	81.5	Sum of lost time (s)	12.0
Intersection Capacity Utilization	53.9%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Stop			Stop	
Volume (vph)	0	77	222	31	101	0	238	0	16	0	0	0
Peak Hour Factor	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89
Hourly flow rate (vph)	0	87	249	35	113	0	267	0	18	0	0	0

Direction, Lane #	EB 1	WB 1	NB 1
Volume Total (vph)	336	148	285
Volume Left (vph)	0	35	267
Volume Right (vph)	249	0	18
Hadj (s)	-0.41	0.08	0.18
Departure Headway (s)	4.5	5.2	5.2
Degree Utilization, x	0.42	0.21	0.41
Capacity (veh/h)	756	643	639
Control Delay (s)	10.7	9.6	11.9
Approach Delay (s)	10.7	9.6	11.9
Approach LOS	B	A	B

Intersection Summary			
Delay	10.9		
HCM Level of Service	B		
Intersection Capacity Utilization	48.9%	ICU Level of Service	A
Analysis Period (min)	15		

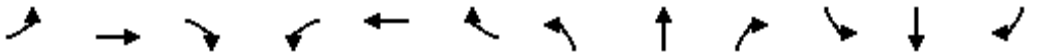


Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0		4.0	4.0	
Lane Util. Factor	1.00	0.95		1.00	0.95	1.00	1.00	1.00		1.00	1.00	
Frt	1.00	0.99		1.00	1.00	0.85	1.00	0.94		1.00	0.94	
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1770	3505		1770	3539	1583	1770	1748		1770	1742	
Flt Permitted	0.95	1.00		0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (perm)	1770	3505		1770	3539	1583	1770	1748		1770	1742	
Volume (vph)	81	1114	77	34	616	34	41	62	43	74	124	94
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	88	1211	84	37	670	37	45	67	47	80	135	102
RTOR Reduction (vph)	0	4	0	0	0	21	0	19	0	0	20	0
Lane Group Flow (vph)	88	1291	0	37	670	16	45	95	0	80	217	0
Turn Type	Prot			Prot		Perm	Prot			Prot		
Protected Phases	5	2		1	6		7	4		3	8	
Permitted Phases						6						
Actuated Green, G (s)	8.8	56.8		5.4	53.4	53.4	6.2	36.4		8.4	38.6	
Effective Green, g (s)	8.8	57.8		5.4	54.4	54.4	6.2	37.4		8.4	39.6	
Actuated g/C Ratio	0.07	0.46		0.04	0.44	0.44	0.05	0.30		0.07	0.32	
Clearance Time (s)	4.0	5.0		4.0	5.0	5.0	4.0	5.0		4.0	5.0	
Vehicle Extension (s)	1.5	2.0		1.5	2.0	2.0	1.5	3.0		1.5	3.0	
Lane Grp Cap (vph)	125	1621		76	1540	689	88	523		119	552	
v/s Ratio Prot	0.05	c0.37		0.02	c0.19		0.03	0.05		c0.05	c0.12	
v/s Ratio Perm						0.01						
v/c Ratio	0.70	0.80		0.49	0.44	0.02	0.51	0.18		0.67	0.39	
Uniform Delay, d1	56.8	28.6		58.4	24.6	20.1	57.9	32.5		57.0	33.3	
Progression Factor	1.00	1.00		1.32	1.68	2.76	1.00	1.00		1.00	1.00	
Incremental Delay, d2	13.7	4.2		1.7	0.9	0.1	2.1	0.8		11.1	2.1	
Delay (s)	70.5	32.8		78.7	42.1	55.7	60.0	33.2		68.1	35.4	
Level of Service	E	C		E	D	E	E	C		E	D	
Approach Delay (s)		35.2			44.6			40.8			43.7	
Approach LOS		D			D			D			D	

Intersection Summary			
HCM Average Control Delay	39.2	HCM Level of Service	D
HCM Volume to Capacity ratio	0.60		
Actuated Cycle Length (s)	125.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	65.5%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	
Lane Util. Factor	0.97	0.95	1.00	0.97	0.95	1.00	0.97	0.95	1.00	0.97	0.95	
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.99	
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	3433	3539	1583	3433	3539	1583	3433	3539	1583	3433	3492	
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (perm)	3433	3539	1583	3433	3539	1583	3433	3539	1583	3433	3492	
Volume (vph)	140	743	318	208	331	56	184	371	188	144	867	85
Peak-hour factor, PHF	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Adj. Flow (vph)	154	816	349	229	364	62	202	408	207	158	953	93
RTOR Reduction (vph)	0	0	212	0	0	36	0	0	145	0	6	0
Lane Group Flow (vph)	154	816	137	229	364	26	202	408	62	158	1040	0
Turn Type	Prot		Perm	Prot		Perm	Prot		Perm	Prot		
Protected Phases	5	2		1	6		7	4		3	8	
Permitted Phases			2			6			4			
Actuated Green, G (s)	8.9	48.1	48.1	13.0	52.2	52.2	10.9	36.4	36.4	9.5	35.0	
Effective Green, g (s)	8.9	49.1	49.1	13.0	53.2	53.2	10.9	37.4	37.4	9.5	36.0	
Actuated g/C Ratio	0.07	0.39	0.39	0.10	0.43	0.43	0.09	0.30	0.30	0.08	0.29	
Clearance Time (s)	4.0	5.0	5.0	4.0	5.0	5.0	4.0	5.0	5.0	4.0	5.0	
Vehicle Extension (s)	1.5	2.0	2.0	1.5	2.0	2.0	1.5	2.0	2.0	1.5	2.0	
Lane Grp Cap (vph)	244	1390	622	357	1506	674	299	1059	474	261	1006	
v/s Ratio Prot	0.04	c0.23		c0.07	0.10		c0.06	0.12		0.05	c0.30	
v/s Ratio Perm			0.09			0.02			0.04			
v/c Ratio	0.63	0.59	0.22	0.64	0.24	0.04	0.68	0.39	0.13	0.61	1.03	
Uniform Delay, d1	56.5	29.9	25.2	53.8	23.0	21.0	55.3	34.7	31.9	55.9	44.5	
Progression Factor	0.80	0.61	1.79	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	2.6	1.2	0.6	2.9	0.4	0.1	4.7	0.1	0.0	2.7	37.5	
Delay (s)	47.9	19.4	45.6	56.7	23.4	21.1	60.0	34.8	32.0	58.6	82.0	
Level of Service	D	B	D	E	C	C	E	C	C	E	F	
Approach Delay (s)		29.7			34.8			40.3			79.0	
Approach LOS		C			C			D			E	

Intersection Summary			
HCM Average Control Delay	47.5	HCM Level of Service	D
HCM Volume to Capacity ratio	0.75		
Actuated Cycle Length (s)	125.0	Sum of lost time (s)	16.0
Intersection Capacity Utilization	71.7%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.96	
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1770	3539	1583	1770	3539	1583	1770	3539	1583	1770	3410	
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (perm)	1770	3539	1583	1770	3539	1583	1770	3539	1583	1770	3410	
Volume (vph)	230	808	89	71	351	122	84	277	78	228	551	177
Peak-hour factor, PHF	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Adj. Flow (vph)	235	824	91	72	358	124	86	283	80	233	562	181
RTOR Reduction (vph)	0	0	48	0	0	77	0	0	65	0	24	0
Lane Group Flow (vph)	235	824	43	72	358	47	86	283	15	233	719	0
Turn Type	Prot		Perm	Prot		Perm	Prot		Perm	Prot		
Protected Phases	5	2		1	6		7	4		3	8	
Permitted Phases			2			6			4			
Actuated Green, G (s)	19.5	57.5	57.5	7.9	45.9	45.9	8.6	21.2	21.2	19.1	31.7	
Effective Green, g (s)	19.5	58.5	58.5	7.9	46.9	46.9	8.6	22.5	22.5	19.1	33.0	
Actuated g/C Ratio	0.16	0.47	0.47	0.06	0.38	0.38	0.07	0.18	0.18	0.15	0.27	
Clearance Time (s)	4.0	5.0	5.0	4.0	5.0	5.0	4.0	5.3	5.3	4.0	5.3	
Vehicle Extension (s)	1.5	2.0	2.0	1.5	2.0	2.0	1.5	2.0	2.0	1.5	2.0	
Lane Grp Cap (vph)	278	1670	747	113	1339	599	123	642	287	273	908	
v/s Ratio Prot	c0.13	c0.23		0.04	0.10		0.05	0.08		c0.13	c0.21	
v/s Ratio Perm			0.03			0.03			0.01			
v/c Ratio	0.85	0.49	0.06	0.64	0.27	0.08	0.70	0.44	0.05	0.85	0.79	
Uniform Delay, d1	50.8	22.5	17.8	56.7	26.7	24.7	56.4	45.2	41.9	51.1	42.3	
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	19.6	1.0	0.1	8.4	0.5	0.3	13.1	0.2	0.0	21.2	4.5	
Delay (s)	70.4	23.6	17.9	65.0	27.2	25.0	69.5	45.3	42.0	72.3	46.8	
Level of Service	E	C	B	E	C	C	E	D	D	E	D	
Approach Delay (s)		32.7			31.6			49.4			52.9	
Approach LOS		C			C			D			D	

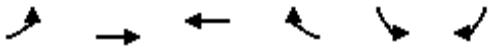
Intersection Summary			
HCM Average Control Delay	41.2	HCM Level of Service	D
HCM Volume to Capacity ratio	0.66		
Actuated Cycle Length (s)	124.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	65.1%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0			4.0	4.0	4.0	4.0	
Lane Util. Factor	1.00	0.95		1.00	0.95			1.00	1.00	1.00	1.00	
Frt	1.00	0.99		1.00	0.97			1.00	0.85	1.00	0.86	
Flt Protected	0.95	1.00		0.95	1.00			0.97	1.00	0.95	1.00	
Satd. Flow (prot)	1770	3518		1770	3433			1801	1583	1770	1609	
Flt Permitted	0.95	1.00		0.95	1.00			0.85	1.00	0.74	1.00	
Satd. Flow (perm)	1770	3518		1770	3433			1575	1583	1375	1609	
Volume (vph)	44	1028	42	73	466	117	19	8	12	116	3	28
Peak-hour factor, PHF	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Adj. Flow (vph)	47	1105	45	78	501	126	20	9	13	125	3	30
RTOR Reduction (vph)	0	1	0	0	11	0	0	0	11	0	25	0
Lane Group Flow (vph)	47	1149	0	78	616	0	0	29	2	125	8	0
Turn Type	Prot			Prot			Perm		Perm	Perm		
Protected Phases	5	2		1	6			4			8	
Permitted Phases							4		4	8		
Actuated Green, G (s)	6.3	82.5		8.2	84.4			21.3	21.3	21.3	21.3	
Effective Green, g (s)	6.3	83.5		8.2	85.4			21.3	21.3	21.3	21.3	
Actuated g/C Ratio	0.05	0.67		0.07	0.68			0.17	0.17	0.17	0.17	
Clearance Time (s)	4.0	5.0		4.0	5.0			4.0	4.0	4.0	4.0	
Vehicle Extension (s)	1.5	1.5		1.5	2.0			2.5	2.5	2.5	2.5	
Lane Grp Cap (vph)	89	2350		116	2345			268	270	234	274	
v/s Ratio Prot	0.03	c0.33		c0.04	0.18						0.01	
v/s Ratio Perm								0.02	0.00	c0.09		
v/c Ratio	0.53	0.49		0.67	0.26			0.11	0.01	0.53	0.03	
Uniform Delay, d1	57.9	10.2		57.1	7.6			43.8	43.1	47.3	43.2	
Progression Factor	1.00	1.00		1.00	1.00			1.00	1.00	1.00	1.00	
Incremental Delay, d2	2.6	0.7		11.4	0.3			0.1	0.0	1.8	0.0	
Delay (s)	60.5	11.0		68.5	7.9			44.0	43.1	49.1	43.3	
Level of Service	E	B		E	A			D	D	D	D	
Approach Delay (s)		12.9			14.6			43.7			47.9	
Approach LOS		B			B			D			D	

Intersection Summary			
HCM Average Control Delay	16.7	HCM Level of Service	B
HCM Volume to Capacity ratio	0.51		
Actuated Cycle Length (s)	125.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	56.9%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0	4.0	4.0	4.0					4.0	4.0	4.0
Lane Util. Factor		0.91	0.91	1.00	0.95					0.95	0.95	1.00
Frt		0.94	0.85	1.00	1.00					1.00	1.00	0.85
Flt Protected		1.00	1.00	0.95	1.00					0.95	1.00	1.00
Satd. Flow (prot)		3191	1441	1770	3539					1681	1770	1583
Flt Permitted		1.00	1.00	0.95	1.00					0.95	1.00	1.00
Satd. Flow (perm)		3191	1441	1770	3539					1681	1770	1583
Volume (vph)	0	521	724	191	664	0	0	0	0	42	183	93
Peak-hour factor, PHF	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Adj. Flow (vph)	0	573	796	210	730	0	0	0	0	46	201	102
RTOR Reduction (vph)	0	125	135	0	0	0	0	0	0	0	0	75
Lane Group Flow (vph)	0	816	293	210	730	0	0	0	0	46	201	27
Turn Type			Perm	Prot						Perm		Perm
Protected Phases		4		3	8						6	
Permitted Phases			4							6		6
Actuated Green, G (s)		24.8	24.8	12.6	41.4					17.6	17.6	17.6
Effective Green, g (s)		24.8	24.8	12.6	41.4					17.6	17.6	17.6
Actuated g/C Ratio		0.37	0.37	0.19	0.62					0.26	0.26	0.26
Clearance Time (s)		4.0	4.0	4.0	4.0					4.0	4.0	4.0
Vehicle Extension (s)		3.0	3.0	3.0	3.0					3.0	3.0	3.0
Lane Grp Cap (vph)		1181	533	333	2187					442	465	416
v/s Ratio Prot		c0.26		c0.12	0.21						c0.11	
v/s Ratio Perm			0.20							0.03		0.02
v/c Ratio		0.69	0.55	0.63	0.33					0.10	0.43	0.06
Uniform Delay, d1		17.9	16.7	25.1	6.2					18.7	20.5	18.5
Progression Factor		1.00	1.00	1.00	1.00					1.00	1.00	1.00
Incremental Delay, d2		1.8	1.2	3.9	0.1					0.5	2.9	0.3
Delay (s)		19.6	17.8	28.9	6.3					19.2	23.5	18.8
Level of Service		B	B	C	A					B	C	B
Approach Delay (s)		19.1			11.3			0.0			21.5	
Approach LOS		B			B			A			C	

Intersection Summary			
HCM Average Control Delay	16.7	HCM Level of Service	B
HCM Volume to Capacity ratio	0.59		
Actuated Cycle Length (s)	67.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	42.5%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0		4.0	4.0
Lane Util. Factor	1.00	0.95	0.95		0.97	1.00
Frt	1.00	1.00	0.96		1.00	0.85
Flt Protected	0.95	1.00	1.00		0.95	1.00
Satd. Flow (prot)	1770	3539	3413		3433	1583
Flt Permitted	0.95	1.00	1.00		0.95	1.00
Satd. Flow (perm)	1770	3539	3413		3433	1583
Volume (vph)	159	408	582	182	70	273
Peak-hour factor, PHF	0.87	0.87	0.87	0.87	0.87	0.87
Adj. Flow (vph)	183	469	669	209	80	314
RTOR Reduction (vph)	0	0	33	0	0	204
Lane Group Flow (vph)	183	469	845	0	80	110
Turn Type	Prot					Perm
Protected Phases	7	4	8		6	
Permitted Phases						6
Actuated Green, G (s)	13.0	41.6	24.6		26.7	26.7
Effective Green, g (s)	13.0	41.6	24.6		26.7	26.7
Actuated g/C Ratio	0.17	0.55	0.32		0.35	0.35
Clearance Time (s)	4.0	4.0	4.0		4.0	4.0
Vehicle Extension (s)	3.0	3.0	3.0		3.0	3.0
Lane Grp Cap (vph)	302	1930	1100		1201	554
v/s Ratio Prot	c0.10	0.13	c0.25		0.02	
v/s Ratio Perm						c0.07
v/c Ratio	0.61	0.24	0.77		0.07	0.20
Uniform Delay, d1	29.3	9.1	23.3		16.5	17.3
Progression Factor	1.00	1.00	1.00		1.00	1.00
Incremental Delay, d2	3.4	0.1	3.3		0.1	0.8
Delay (s)	32.7	9.2	26.6		16.6	18.1
Level of Service	C	A	C		B	B
Approach Delay (s)		15.8	26.6		17.8	
Approach LOS		B	C		B	

Intersection Summary			
HCM Average Control Delay	21.1	HCM Level of Service	C
HCM Volume to Capacity ratio	0.50		
Actuated Cycle Length (s)	76.3	Sum of lost time (s)	12.0
Intersection Capacity Utilization	45.5%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Volume (veh/h)	89	0	59	0	0	0	64	285	0	0	273	49
Peak Hour Factor	0.78	0.78	0.78	0.78	0.78	0.78	0.78	0.78	0.78	0.78	0.78	0.78
Hourly flow rate (vph)	114	0	76	0	0	0	82	365	0	0	350	63
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (ft)								954			667	
pX, platoon unblocked												
vC, conflicting volume	911	911	381	955	942	365	413			365		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	911	911	381	955	942	365	413			365		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	53	100	89	100	100	100	93			100		
cM capacity (veh/h)	241	255	666	199	244	680	1146			1193		

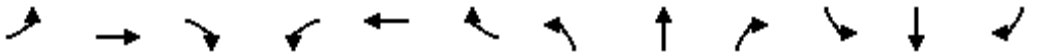
Direction, Lane #	EB 1	NB 1	SB 1	SB 2
Volume Total	190	447	0	413
Volume Left	114	82	0	0
Volume Right	76	0	0	63
cSH	323	1146	1700	1700
Volume to Capacity	0.59	0.07	0.00	0.24
Queue Length 95th (ft)	88	6	0	0
Control Delay (s)	30.8	2.2	0.0	0.0
Lane LOS	D	A		
Approach Delay (s)	30.8	2.2	0.0	
Approach LOS	D			

Intersection Summary			
Average Delay	6.5		
Intersection Capacity Utilization	54.4%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Sign Control	Stop		Stop			Stop
Volume (vph)	101	114	51	68	114	114
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	110	124	55	74	124	124

Direction, Lane #	WB 1	NB 1	SB 1
Volume Total (vph)	234	129	248
Volume Left (vph)	110	0	124
Volume Right (vph)	124	74	0
Hadj (s)	-0.19	-0.31	0.13
Departure Headway (s)	4.6	4.5	4.8
Degree Utilization, x	0.30	0.16	0.33
Capacity (veh/h)	729	752	717
Control Delay (s)	9.6	8.3	10.1
Approach Delay (s)	9.6	8.3	10.1
Approach LOS	A	A	B

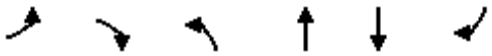
Intersection Summary			
Delay	9.5		
HCM Level of Service	A		
Intersection Capacity Utilization	38.2%	ICU Level of Service	A
Analysis Period (min)	15		



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0			4.0		4.0	4.0		4.0	4.0	
Lane Util. Factor		1.00			1.00		1.00	1.00		1.00	1.00	
Frt		0.93			0.95		1.00	0.99		1.00	0.99	
Flt Protected		0.98			0.98		0.95	1.00		0.95	1.00	
Satd. Flow (prot)		1708			1727		1770	1839		1770	1841	
Flt Permitted		0.83			0.77		0.34	1.00		0.64	1.00	
Satd. Flow (perm)		1453			1360		642	1839		1186	1841	
Volume (vph)	103	33	127	64	17	47	44	162	15	59	408	34
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	112	36	138	70	18	51	48	176	16	64	443	37
RTOR Reduction (vph)	0	83	0	0	31	0	0	8	0	0	8	0
Lane Group Flow (vph)	0	203	0	0	108	0	48	184	0	64	472	0
Turn Type	Perm			Perm			Perm			Perm		
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)		16.0			16.0		16.0	16.0		16.0	16.0	
Effective Green, g (s)		16.0			16.0		16.0	16.0		16.0	16.0	
Actuated g/C Ratio		0.40			0.40		0.40	0.40		0.40	0.40	
Clearance Time (s)		4.0			4.0		4.0	4.0		4.0	4.0	
Lane Grp Cap (vph)		581			544		257	736		474	736	
v/s Ratio Prot								0.10			c0.26	
v/s Ratio Perm		c0.14			0.08		0.07			0.05		
v/c Ratio		0.35			0.20		0.19	0.25		0.14	0.64	
Uniform Delay, d1		8.4			7.8		7.8	8.0		7.6	9.7	
Progression Factor		1.00			1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2		1.7			0.8		1.6	0.8		0.6	4.3	
Delay (s)		10.0			8.6		9.4	8.8		8.2	14.0	
Level of Service		B			A		A	A		A	B	
Approach Delay (s)		10.0			8.6			8.9			13.3	
Approach LOS		B			A			A			B	

Intersection Summary			
HCM Average Control Delay	11.1	HCM Level of Service	B
HCM Volume to Capacity ratio	0.50		
Actuated Cycle Length (s)	40.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	54.5%	ICU Level of Service	A
Analysis Period (min)	15		

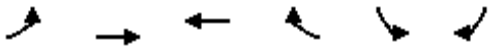
c Critical Lane Group



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	0.85	1.00	1.00	1.00	0.85
Flt Protected	0.95	1.00	0.95	1.00	1.00	1.00
Satd. Flow (prot)	1770	1583	1770	1863	1863	1583
Flt Permitted	0.95	1.00	0.69	1.00	1.00	1.00
Satd. Flow (perm)	1770	1583	1284	1863	1863	1583
Volume (vph)	203	157	307	131	97	259
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	221	171	334	142	105	282
RTOR Reduction (vph)	0	103	0	0	0	169
Lane Group Flow (vph)	221	68	334	142	105	113
Turn Type		Perm	Perm			Perm
Protected Phases	4			2	6	
Permitted Phases		4	2			6
Actuated Green, G (s)	16.0	16.0	16.0	16.0	16.0	16.0
Effective Green, g (s)	16.0	16.0	16.0	16.0	16.0	16.0
Actuated g/C Ratio	0.40	0.40	0.40	0.40	0.40	0.40
Clearance Time (s)	4.0	4.0	4.0	4.0	4.0	4.0
Lane Grp Cap (vph)	708	633	514	745	745	633
v/s Ratio Prot	c0.12			0.08	0.06	
v/s Ratio Perm		0.04	c0.26			0.07
v/c Ratio	0.31	0.11	0.65	0.19	0.14	0.18
Uniform Delay, d1	8.2	7.5	9.7	7.8	7.6	7.8
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	1.1	0.3	6.3	0.6	0.4	0.6
Delay (s)	9.4	7.9	16.0	8.4	8.0	8.4
Level of Service	A	A	B	A	A	A
Approach Delay (s)	8.7			13.7	8.3	
Approach LOS	A			B	A	

Intersection Summary			
HCM Average Control Delay	10.5	HCM Level of Service	B
HCM Volume to Capacity ratio	0.48		
Actuated Cycle Length (s)	40.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	41.6%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Volume (veh/h)	30	131	224	6	6	39
Peak Hour Factor	0.72	0.72	0.72	0.72	0.72	0.72
Hourly flow rate (vph)	42	182	311	8	8	54
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type					None	
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	319				581	315
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	319				581	315
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	97				98	93
cM capacity (veh/h)	1241				460	725

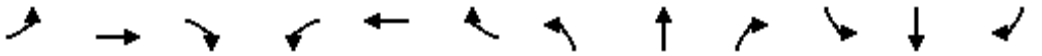
Direction, Lane #	EB 1	WB 1	SB 1
Volume Total	224	319	62
Volume Left	42	0	8
Volume Right	0	8	54
cSH	1241	1700	673
Volume to Capacity	0.03	0.19	0.09
Queue Length 95th (ft)	3	0	8
Control Delay (s)	1.7	0.0	10.9
Lane LOS	A		B
Approach Delay (s)	1.7	0.0	10.9
Approach LOS			B

Intersection Summary			
Average Delay	1.8		
Intersection Capacity Utilization	34.0%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Volume (veh/h)	15	7	4	136	171	13
Peak Hour Factor	0.70	0.70	0.70	0.70	0.70	0.70
Hourly flow rate (vph)	21	10	6	194	244	19
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None					
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	459	254	263			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	459	254	263			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	96	99	100			
cM capacity (veh/h)	557	785	1301			

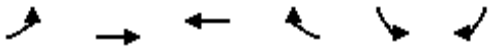
Direction, Lane #	EB 1	NB 1	SB 1
Volume Total	31	200	263
Volume Left	21	6	0
Volume Right	10	0	19
cSH	614	1301	1700
Volume to Capacity	0.05	0.00	0.15
Queue Length 95th (ft)	4	0	0
Control Delay (s)	11.2	0.3	0.0
Lane LOS	B	A	
Approach Delay (s)	11.2	0.3	0.0
Approach LOS	B		

Intersection Summary			
Average Delay	0.8		
Intersection Capacity Utilization	20.4%	ICU Level of Service	A
Analysis Period (min)	15		



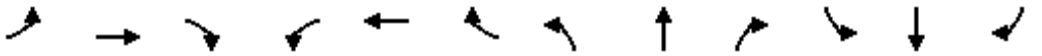
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	0.97	0.95	1.00	0.97	0.95	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1770	3539	1583	1770	3539	1583	3433	3539	1583	3433	3539	1583
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	1770	3539	1583	1770	3539	1583	3433	3539	1583	3433	3539	1583
Volume (vph)	170	1283	792	249	514	105	140	287	61	366	1057	201
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	177	1336	825	259	535	109	146	299	64	381	1101	209
RTOR Reduction (vph)	0	0	209	0	0	72	0	0	48	0	0	85
Lane Group Flow (vph)	177	1336	616	259	535	37	146	299	16	381	1101	124
Turn Type	Prot		Perm	Prot		Perm	Prot		Perm	Prot		Perm
Protected Phases	5	2		1	6		7	4		3	8	
Permitted Phases			2			6			4			8
Actuated Green, G (s)	21.0	42.7	42.7	20.6	42.5	42.5	9.2	31.2	31.2	15.9	37.7	37.7
Effective Green, g (s)	21.2	44.4	44.4	21.0	44.2	44.2	9.4	32.5	32.5	16.1	39.2	39.2
Actuated g/C Ratio	0.16	0.34	0.34	0.16	0.34	0.34	0.07	0.25	0.25	0.12	0.30	0.30
Clearance Time (s)	4.2	5.7	5.7	4.4	5.7	5.7	4.2	5.3	5.3	4.2	5.5	5.5
Vehicle Extension (s)	1.5	2.0	2.0	1.5	2.0	2.0	1.5	2.0	2.0	1.5	2.0	2.0
Lane Grp Cap (vph)	289	1209	541	286	1203	538	248	885	396	425	1067	477
v/s Ratio Prot	0.10	0.38		c0.15	0.15		0.04	0.08		c0.11	c0.31	
v/s Ratio Perm			c0.39			0.02			0.01			0.08
v/c Ratio	0.61	1.11	1.14	0.91	0.44	0.07	0.59	0.34	0.04	0.90	1.03	0.26
Uniform Delay, d1	50.6	42.8	42.8	53.5	33.4	29.0	58.4	39.9	36.9	56.1	45.4	34.4
Progression Factor	1.00	1.00	1.00	0.71	0.95	2.15	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	2.7	59.7	82.7	28.1	1.1	0.2	2.3	1.0	0.2	20.4	36.1	1.3
Delay (s)	53.3	102.5	125.5	66.1	32.9	62.5	60.7	41.0	37.1	76.6	81.5	35.7
Level of Service	D	F	F	E	C	E	E	D	D	E	F	D
Approach Delay (s)		106.9			46.0			46.2			74.7	
Approach LOS		F			D			D			E	

Intersection Summary			
HCM Average Control Delay	81.1	HCM Level of Service	F
HCM Volume to Capacity ratio	1.02		
Actuated Cycle Length (s)	130.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	102.1%	ICU Level of Service	G
Analysis Period (min)	15		
c Critical Lane Group			



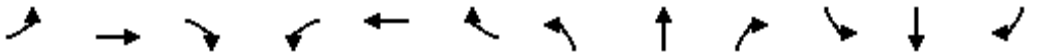
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	1.00	0.95	0.95	1.00	0.97	0.91
Frt	1.00	1.00	1.00	0.85	1.00	0.85
Flt Protected	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (prot)	1770	3539	3539	1583	3433	1441
Flt Permitted	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (perm)	1770	3539	3539	1583	3433	1441
Volume (vph)	170	1564	667	353	727	273
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	179	1646	702	372	765	287
RTOR Reduction (vph)	0	0	0	193	0	214
Lane Group Flow (vph)	179	1646	702	179	765	73
Turn Type	Prot			Perm		Perm
Protected Phases	5	2	6		4	
Permitted Phases				6		4
Actuated Green, G (s)	22.3	86.8	60.5	60.5	31.2	31.2
Effective Green, g (s)	22.3	88.8	62.5	62.5	33.2	33.2
Actuated g/C Ratio	0.17	0.68	0.48	0.48	0.26	0.26
Clearance Time (s)	4.0	6.0	6.0	6.0	6.0	6.0
Vehicle Extension (s)	1.5	2.0	2.0	2.0	2.0	2.0
Lane Grp Cap (vph)	304	2417	1701	761	877	368
v/s Ratio Prot	0.10	c0.47	0.20		c0.22	
v/s Ratio Perm				0.11		0.05
v/c Ratio	0.59	0.68	0.41	0.24	0.87	0.20
Uniform Delay, d1	49.6	12.2	21.9	19.8	46.4	38.0
Progression Factor	0.59	2.64	1.21	8.25	1.00	1.00
Incremental Delay, d2	0.4	0.4	0.7	0.7	9.2	0.1
Delay (s)	29.7	32.6	27.1	163.7	55.6	38.1
Level of Service	C	C	C	F	E	D
Approach Delay (s)		32.3	74.4		50.8	
Approach LOS		C	E		D	

Intersection Summary			
HCM Average Control Delay	48.7	HCM Level of Service	D
HCM Volume to Capacity ratio	0.73		
Actuated Cycle Length (s)	130.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	73.5%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			



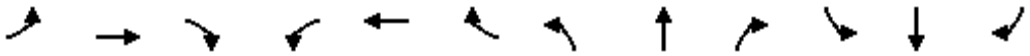
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0	4.0		4.0			4.0	4.0
Lane Util. Factor	1.00	0.95		1.00	0.95	1.00		1.00			1.00	1.00
Frt	1.00	1.00		1.00	1.00	0.85		0.86			1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00	1.00		1.00			0.95	1.00
Satd. Flow (prot)	1770	3539		1770	3539	1583		1611			1770	1583
Flt Permitted	0.95	1.00		0.95	1.00	1.00		1.00			0.76	1.00
Satd. Flow (perm)	1770	3539		1770	3539	1583		1611			1410	1583
Volume (vph)	31	1989	0	10	926	1	0	0	1	162	0	271
Peak-hour factor, PHF	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89
Adj. Flow (vph)	35	2235	0	11	1040	1	0	0	1	182	0	304
RTOR Reduction (vph)	0	0	0	0	0	0	0	1	0	0	0	179
Lane Group Flow (vph)	35	2235	0	11	1040	1	0	0	0	0	182	125
Turn Type	Prot			Prot		Perm	Perm			Perm		Perm
Protected Phases	5	2		1	6			4			8	
Permitted Phases						6	4			8		8
Actuated Green, G (s)	4.5	87.6		2.4	85.5	85.5		25.0			25.0	25.0
Effective Green, g (s)	4.5	89.6		2.4	87.5	87.5		26.0			26.0	26.0
Actuated g/C Ratio	0.03	0.69		0.02	0.67	0.67		0.20			0.20	0.20
Clearance Time (s)	4.0	6.0		4.0	6.0	6.0		5.0			5.0	5.0
Vehicle Extension (s)	1.5	2.0		1.5	2.0	2.0		4.0			4.0	4.0
Lane Grp Cap (vph)	61	2439		33	2382	1065		322			282	317
v/s Ratio Prot	c0.02	c0.63		0.01	0.29			0.00				
v/s Ratio Perm						0.00					c0.13	0.08
v/c Ratio	0.57	0.92		0.33	0.44	0.00		0.00			0.65	0.39
Uniform Delay, d1	61.8	17.0		63.0	9.8	7.0		41.6			47.8	45.2
Progression Factor	0.95	1.34		1.03	1.00	1.24		1.00			1.00	1.00
Incremental Delay, d2	5.3	4.8		2.1	0.6	0.0		0.0			10.9	3.6
Delay (s)	64.3	27.6		67.2	10.4	8.6		41.6			58.6	48.8
Level of Service	E	C		E	B	A		D			E	D
Approach Delay (s)		28.1			11.0			41.6			52.5	
Approach LOS		C			B			D			D	

Intersection Summary			
HCM Average Control Delay	26.5	HCM Level of Service	C
HCM Volume to Capacity ratio	0.83		
Actuated Cycle Length (s)	130.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	77.3%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			



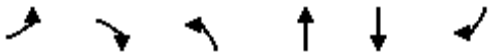
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	0.97	0.95	1.00	0.97	0.95	1.00	0.97	0.95	1.00	0.97	0.95	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	3433	3539	1583	3433	3539	1583	3433	3539	1583	3433	3539	1583
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	3433	3539	1583	3433	3539	1583	3433	3539	1583	3433	3539	1583
Volume (vph)	163	1043	1058	162	254	25	295	186	129	125	552	189
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	172	1098	1114	171	267	26	311	196	136	132	581	199
RTOR Reduction (vph)	0	0	175	0	0	15	0	0	97	0	0	107
Lane Group Flow (vph)	172	1098	939	171	267	11	311	196	39	132	581	93
Turn Type	Prot		Perm	Prot		Perm	Prot		Perm	Prot		Perm
Protected Phases	5	2		1	6		7	4		3	8	
Permitted Phases			2			6			4			8
Actuated Green, G (s)	14.0	54.9	54.9	10.1	51.0	51.0	14.5	35.7	35.7	8.3	30.5	30.5
Effective Green, g (s)	14.0	56.9	56.9	10.1	53.0	53.0	14.5	37.7	37.7	9.3	32.5	32.5
Actuated g/C Ratio	0.11	0.44	0.44	0.08	0.41	0.41	0.11	0.29	0.29	0.07	0.25	0.25
Clearance Time (s)	4.0	6.0	6.0	4.0	6.0	6.0	4.0	6.0	6.0	5.0	6.0	6.0
Vehicle Extension (s)	1.5	2.0	2.0	1.5	2.0	2.0	1.5	2.0	2.0	2.0	2.0	2.0
Lane Grp Cap (vph)	370	1549	693	267	1443	645	383	1026	459	246	885	396
v/s Ratio Prot	0.05	0.31		c0.05	0.08		c0.09	0.06		0.04	c0.16	
v/s Ratio Perm			c0.59			0.01			0.02			0.06
v/c Ratio	0.46	0.71	1.36	0.64	0.19	0.02	0.81	0.19	0.09	0.54	0.66	0.23
Uniform Delay, d1	54.5	29.8	36.5	58.2	24.7	23.0	56.4	34.7	33.6	58.3	43.7	38.8
Progression Factor	1.06	1.12	1.05	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	0.2	1.3	164.3	3.9	0.3	0.0	11.7	0.4	0.4	1.1	3.8	1.4
Delay (s)	57.9	34.6	202.7	62.1	24.9	23.0	68.1	35.1	34.0	59.4	47.5	40.2
Level of Service	E	C	F	E	C	C	E	D	C	E	D	D
Approach Delay (s)		114.8			38.5			50.8			47.7	
Approach LOS		F			D			D			D	

Intersection Summary			
HCM Average Control Delay	83.5	HCM Level of Service	F
HCM Volume to Capacity ratio	1.02		
Actuated Cycle Length (s)	130.0	Sum of lost time (s)	16.0
Intersection Capacity Utilization	95.4%	ICU Level of Service	F
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0	4.0	4.0	4.0						4.0	
Lane Util. Factor		0.95	1.00	1.00	0.95						0.95	
Frt		1.00	0.85	1.00	1.00						0.92	
Flt Protected		1.00	1.00	0.95	1.00						1.00	
Satd. Flow (prot)		3539	1583	1770	3539						3268	
Flt Permitted		1.00	1.00	0.63	1.00						1.00	
Satd. Flow (perm)		3539	1583	1169	3539						3268	
Volume (vph)	0	186	971	5	328	0	0	0	0	3	101	106
Peak-hour factor, PHF	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Adj. Flow (vph)	0	198	1033	5	349	0	0	0	0	3	107	113
RTOR Reduction (vph)	0	0	191	0	0	0	0	0	0	0	81	0
Lane Group Flow (vph)	0	198	842	5	349	0	0	0	0	0	142	0
Turn Type			Perm	Perm						Perm		
Protected Phases		4			8						6	
Permitted Phases			4	8						6		
Actuated Green, G (s)		37.1	37.1	37.1	37.1						18.2	
Effective Green, g (s)		37.1	37.1	37.1	37.1						18.2	
Actuated g/C Ratio		0.59	0.59	0.59	0.59						0.29	
Clearance Time (s)		4.0	4.0	4.0	4.0						4.0	
Vehicle Extension (s)		3.0	3.0	3.0	3.0						3.0	
Lane Grp Cap (vph)		2074	928	685	2074						940	
v/s Ratio Prot		0.06			0.10							
v/s Ratio Perm			c0.53	0.00							0.04	
v/c Ratio		0.10	0.91	0.01	0.17						0.15	
Uniform Delay, d1		5.7	11.6	5.4	6.0						16.8	
Progression Factor		1.00	1.00	1.00	1.00						1.00	
Incremental Delay, d2		0.0	12.3	0.0	0.0						0.3	
Delay (s)		5.8	23.9	5.4	6.1						17.1	
Level of Service		A	C	A	A						B	
Approach Delay (s)		21.0			6.0			0.0			17.1	
Approach LOS		C			A			A			B	

Intersection Summary			
HCM Average Control Delay	17.6	HCM Level of Service	B
HCM Volume to Capacity ratio	0.66		
Actuated Cycle Length (s)	63.3	Sum of lost time (s)	8.0
Intersection Capacity Utilization	79.7%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Sign Control	Stop			Stop	Stop	
Volume (vph)	188	0	333	1	0	0
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	209	0	370	1	0	0

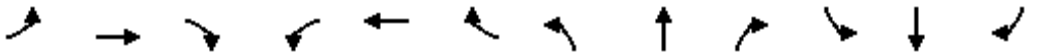
Direction, Lane #	EB 1	EB 2	NB 1	NB 2
Volume Total (vph)	104	104	247	124
Volume Left (vph)	104	104	247	123
Volume Right (vph)	0	0	0	0
Hadj (s)	0.53	0.53	0.53	0.53
Departure Headway (s)	6.0	6.0	5.7	5.7
Degree Utilization, x	0.18	0.18	0.39	0.20
Capacity (veh/h)	565	568	621	618
Control Delay (s)	9.1	9.1	11.0	8.8
Approach Delay (s)	9.1		10.3	
Approach LOS	A		B	

Intersection Summary			
Delay	9.9		
HCM Level of Service	A		
Intersection Capacity Utilization	79.7%	ICU Level of Service	D
Analysis Period (min)	15		

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Volume (veh/h)	6	57	470	14	117	1423
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91
Hourly flow rate (vph)	7	63	516	15	129	1564
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None					
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	1563	266			532	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1563	266			532	
tC, single (s)	6.8	6.9			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	93	91			88	
cM capacity (veh/h)	90	732			1032	

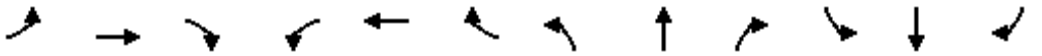
Direction, Lane #	WB 1	WB 2	NB 1	NB 2	SB 1	SB 2	SB 3
Volume Total	7	63	344	188	129	782	782
Volume Left	7	0	0	0	129	0	0
Volume Right	0	63	0	15	0	0	0
cSH	90	732	1700	1700	1032	1700	1700
Volume to Capacity	0.07	0.09	0.20	0.11	0.12	0.46	0.46
Queue Length 95th (ft)	6	7	0	0	11	0	0
Control Delay (s)	48.3	10.4	0.0	0.0	9.0	0.0	0.0
Lane LOS	E	B			A		
Approach Delay (s)	14.0		0.0		0.7		
Approach LOS	B						

Intersection Summary			
Average Delay	0.9		
Intersection Capacity Utilization	49.3%	ICU Level of Service	A
Analysis Period (min)	15		



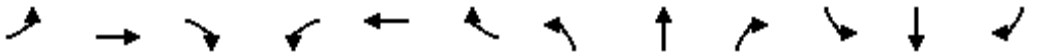
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	1.00	1.00		0.97	0.95	1.00	1.00	0.95	1.00	0.97	0.95	1.00
Frt	1.00	0.91		1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1770	1695		3433	3539	1583	1770	3539	1583	3433	3539	1583
Flt Permitted	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	1770	1695		3433	3539	1583	1770	3539	1583	3433	3539	1583
Volume (vph)	15	9	14	458	52	118	75	338	632	471	1004	3
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	16	10	15	498	57	128	82	367	687	512	1091	3
RTOR Reduction (vph)	0	14	0	0	0	102	0	0	371	0	0	1
Lane Group Flow (vph)	16	11	0	498	57	26	82	367	316	512	1091	2
Turn Type	Prot			Prot		Perm	Prot		Perm	Prot		Perm
Protected Phases	3	8		7	4		5	2		1	6	
Permitted Phases						4			2			6
Actuated Green, G (s)	1.6	4.5		17.2	19.1	19.1	7.4	39.6	39.6	18.1	50.3	50.3
Effective Green, g (s)	3.9	6.8		17.2	20.1	20.1	7.4	41.9	41.9	18.1	52.6	52.6
Actuated g/C Ratio	0.04	0.07		0.17	0.20	0.20	0.07	0.42	0.42	0.18	0.53	0.53
Clearance Time (s)	6.3	6.3		4.0	5.0	5.0	4.0	6.3	6.3	4.0	6.3	6.3
Vehicle Extension (s)	3.0	2.0		1.5	3.0	3.0	1.5	2.0	2.0	2.0	3.0	3.0
Lane Grp Cap (vph)	69	115		590	711	318	131	1483	663	621	1862	833
v/s Ratio Prot	0.01	0.01		c0.15	0.02		0.05	0.10		c0.15	c0.31	
v/s Ratio Perm						c0.02			0.20			0.00
v/c Ratio	0.23	0.10		0.84	0.08	0.08	0.63	0.25	0.48	0.82	0.59	0.00
Uniform Delay, d1	46.6	43.7		40.1	32.4	32.4	45.0	18.8	21.1	39.4	16.2	11.2
Progression Factor	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	1.7	0.1		10.3	0.0	0.1	6.6	0.4	2.4	8.3	1.4	0.0
Delay (s)	48.3	43.8		50.4	32.5	32.6	51.5	19.2	23.5	47.7	17.6	11.2
Level of Service	D	D		D	C	C	D	B	C	D	B	B
Approach Delay (s)		45.6			45.5			24.2			27.2	
Approach LOS		D			D			C			C	

Intersection Summary			
HCM Average Control Delay	30.0	HCM Level of Service	C
HCM Volume to Capacity ratio	0.61		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	66.7%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	
Lane Util. Factor	1.00	0.95		1.00	0.95	1.00	1.00	0.95	1.00	0.97	0.95	
Frt	1.00	0.97		1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.99	
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1770	3422		1770	3539	1583	1770	3539	1583	3433	3493	
Flt Permitted	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (perm)	1770	3422		1770	3539	1583	1770	3539	1583	3433	3493	
Volume (vph)	41	756	215	122	458	121	108	321	123	335	688	66
Peak-hour factor, PHF	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Adj. Flow (vph)	44	804	229	130	487	129	115	341	131	356	732	70
RTOR Reduction (vph)	0	21	0	0	0	72	0	0	97	0	6	0
Lane Group Flow (vph)	44	1012	0	130	487	57	115	341	34	356	796	0
Turn Type	Prot			Prot		Perm	Prot		Perm	Prot		
Protected Phases	5	2		1	6		7	4		3	8	
Permitted Phases						6			4			
Actuated Green, G (s)	5.5	45.0		11.9	51.6	51.6	11.4	29.7	29.7	14.4	32.7	
Effective Green, g (s)	5.5	46.3		12.1	52.9	52.9	11.4	31.0	31.0	14.6	34.2	
Actuated g/C Ratio	0.05	0.39		0.10	0.44	0.44	0.10	0.26	0.26	0.12	0.29	
Clearance Time (s)	4.0	5.3		4.2	5.3	5.3	4.0	5.3	5.3	4.2	5.5	
Vehicle Extension (s)	1.5	2.0		1.5	2.0	2.0	1.5	2.0	2.0	1.5	2.0	
Lane Grp Cap (vph)	81	1320		178	1560	698	168	914	409	418	996	
v/s Ratio Prot	0.02	c0.30		c0.07	0.14		0.06	0.10		c0.10	c0.23	
v/s Ratio Perm						0.04			0.02			
v/c Ratio	0.54	0.77		0.73	0.31	0.08	0.68	0.37	0.08	0.85	0.80	
Uniform Delay, d1	56.0	32.1		52.4	21.8	19.5	52.6	36.5	33.7	51.6	39.7	
Progression Factor	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	3.9	4.3		12.4	0.5	0.2	8.8	0.1	0.0	14.8	4.3	
Delay (s)	60.0	36.4		64.8	22.3	19.7	61.4	36.6	33.8	66.4	44.0	
Level of Service	E	D		E	C	B	E	D	C	E	D	
Approach Delay (s)		37.4			29.2			40.8			50.9	
Approach LOS		D			C			D			D	

Intersection Summary			
HCM Average Control Delay	40.6	HCM Level of Service	D
HCM Volume to Capacity ratio	0.79		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	16.0
Intersection Capacity Utilization	75.0%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0	4.0	4.0	4.0					4.0	4.0	4.0
Lane Util. Factor		0.95	1.00	0.97	0.95					0.95	0.91	0.95
Frt		1.00	0.85	1.00	1.00					1.00	0.86	0.85
Flt Protected		1.00	1.00	0.95	1.00					0.95	1.00	1.00
Satd. Flow (prot)		3539	1583	3433	3539					1681	1451	1504
Flt Permitted		1.00	1.00	0.95	1.00					0.95	1.00	1.00
Satd. Flow (perm)		3539	1583	3433	3539					1681	1451	1504
Volume (vph)	0	178	436	435	524	0	0	0	0	16	2	88
Peak-hour factor, PHF	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89
Adj. Flow (vph)	0	200	490	489	589	0	0	0	0	18	2	99
RTOR Reduction (vph)	0	0	392	0	0	0	0	0	0	0	31	34
Lane Group Flow (vph)	0	200	98	489	589	0	0	0	0	18	18	18
Turn Type			Perm	Prot						Perm		Perm
Protected Phases		4		3	8						6	
Permitted Phases			4							6		6
Actuated Green, G (s)		10.6	10.6	12.8	27.4					18.5	18.5	18.5
Effective Green, g (s)		10.6	10.6	12.8	27.4					18.5	18.5	18.5
Actuated g/C Ratio		0.20	0.20	0.24	0.51					0.34	0.34	0.34
Clearance Time (s)		4.0	4.0	4.0	4.0					4.0	4.0	4.0
Vehicle Extension (s)		3.0	3.0	3.0	3.0					3.0	3.0	3.0
Lane Grp Cap (vph)		696	311	815	1799					577	498	516
v/s Ratio Prot		0.06		c0.14	c0.17						c0.01	
v/s Ratio Perm			0.06							0.01		0.01
v/c Ratio		0.29	0.32	0.60	0.33					0.03	0.04	0.03
Uniform Delay, d1		18.4	18.5	18.3	7.8					11.8	11.8	11.8
Progression Factor		1.00	1.00	1.00	1.00					1.00	1.00	1.00
Incremental Delay, d2		0.2	0.6	1.2	0.1					0.1	0.1	0.1
Delay (s)		18.7	19.1	19.5	7.9					11.9	11.9	11.9
Level of Service		B	B	B	A					B	B	B
Approach Delay (s)		19.0			13.2			0.0			11.9	
Approach LOS		B			B			A			B	

Intersection Summary			
HCM Average Control Delay	15.2	HCM Level of Service	B
HCM Volume to Capacity ratio	0.28		
Actuated Cycle Length (s)	53.9	Sum of lost time (s)	8.0
Intersection Capacity Utilization	52.7%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0			4.0	4.0	4.0
Lane Util. Factor	0.95			0.95	0.97	1.00
Frt	1.00			1.00	1.00	0.85
Flt Protected	1.00			1.00	0.95	1.00
Satd. Flow (prot)	3539			3539	3433	1583
Flt Permitted	1.00			1.00	0.95	1.00
Satd. Flow (perm)	3539			3539	3433	1583
Volume (vph)	195	0	0	624	338	125
Peak-hour factor, PHF	0.89	0.89	0.89	0.89	0.89	0.89
Adj. Flow (vph)	219	0	0	701	380	140
RTOR Reduction (vph)	0	0	0	0	0	56
Lane Group Flow (vph)	219	0	0	701	380	84
Turn Type						Perm
Protected Phases	4			8	2	
Permitted Phases						2
Actuated Green, G (s)	18.6			18.6	40.2	40.2
Effective Green, g (s)	18.6			18.6	40.2	40.2
Actuated g/C Ratio	0.28			0.28	0.60	0.60
Clearance Time (s)	4.0			4.0	4.0	4.0
Vehicle Extension (s)	3.0			3.0	3.0	3.0
Lane Grp Cap (vph)	985			985	2066	953
v/s Ratio Prot	0.06			c0.20	c0.11	
v/s Ratio Perm						0.05
v/c Ratio	0.22			0.71	0.18	0.09
Uniform Delay, d1	18.5			21.7	6.0	5.6
Progression Factor	1.00			1.00	1.00	1.00
Incremental Delay, d2	0.1			2.5	0.2	0.2
Delay (s)	18.7			24.1	6.2	5.8
Level of Service	B			C	A	A
Approach Delay (s)	18.7			24.1	6.1	
Approach LOS	B			C	A	

Intersection Summary			
HCM Average Control Delay	16.8	HCM Level of Service	B
HCM Volume to Capacity ratio	0.35		
Actuated Cycle Length (s)	66.8	Sum of lost time (s)	8.0
Intersection Capacity Utilization	52.7%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Volume (veh/h)	0	0	0	2	2	3	76	241	5	15	630	27
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Hourly flow rate (vph)	0	0	0	2	2	3	84	265	5	16	692	30
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	1044	1177	707	1160	1190	135	722			270		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	1044	1177	707	1160	1190	135	722			270		
tC, single (s)	7.5	6.5	6.9	7.5	6.5	6.9	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	100	100	100	98	99	100	90			99		
cM capacity (veh/h)	166	169	378	138	167	889	876			1290		

Direction, Lane #	WB 1	NB 1	NB 2	NB 3	SB 1	SB 2
Volume Total	8	84	177	94	16	722
Volume Left	2	84	0	0	16	0
Volume Right	3	0	0	5	0	30
cSH	235	876	1700	1700	1290	1700
Volume to Capacity	0.03	0.10	0.10	0.06	0.01	0.42
Queue Length 95th (ft)	3	8	0	0	1	0
Control Delay (s)	20.9	9.5	0.0	0.0	7.8	0.0
Lane LOS	C	A			A	
Approach Delay (s)	20.9	2.3			0.2	
Approach LOS	C					

Intersection Summary				
Average Delay	1.0			
Intersection Capacity Utilization	52.3%	ICU Level of Service	A	
Analysis Period (min)	15			

APPENDIX C - EXISTING PLUS PROJECT LOS RESULTS

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	0.95		1.00	0.95	
Frt	1.00	0.97		1.00	0.94		1.00	0.96		1.00	0.98	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1770	3432		1770	3323		1770	3413		1770	3451	
Flt Permitted	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (perm)	1770	3432		1770	3323		1770	3413		1770	3451	
Volume (vph)	74	382	97	117	401	276	143	539	168	296	216	43
Peak-hour factor, PHF	0.78	0.78	0.78	0.78	0.78	0.78	0.78	0.78	0.78	0.78	0.78	0.78
Adj. Flow (vph)	95	490	124	150	514	354	183	691	215	379	277	55
RTOR Reduction (vph)	0	23	0	0	110	0	0	30	0	0	16	0
Lane Group Flow (vph)	95	591	0	150	758	0	183	876	0	379	316	0
Turn Type	Prot			Prot			Prot			Prot		
Protected Phases	5	2		1	6		7	4		3	8	
Permitted Phases												
Actuated Green, G (s)	8.1	36.0		15.0	42.8		12.8	16.0		14.7	17.0	
Effective Green, g (s)	8.3	37.1		15.0	43.8		13.8	17.0		14.9	18.1	
Actuated g/C Ratio	0.08	0.37		0.15	0.44		0.14	0.17		0.15	0.18	
Clearance Time (s)	4.2	5.1		4.0	5.0		5.0	5.0		4.2	5.1	
Vehicle Extension (s)	1.5	2.0		1.5	2.0		1.5	2.0		1.5	2.0	
Lane Grp Cap (vph)	147	1273		266	1455		244	580		264	625	
v/s Ratio Prot	0.05	0.17		c0.08	c0.23		0.10	c0.26		c0.21	0.09	
v/s Ratio Perm												
v/c Ratio	0.65	0.46		0.56	0.52		0.75	1.51		1.44	0.50	
Uniform Delay, d1	44.4	23.9		39.5	20.5		41.4	41.5		42.5	36.9	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	7.1	1.2		1.6	1.3		10.9	238.6		216.4	0.2	
Delay (s)	51.5	25.1		41.1	21.8		52.3	280.1		258.9	37.1	
Level of Service	D	C		D	C		D	F		F	D	
Approach Delay (s)		28.7			24.6			241.8			155.4	
Approach LOS		C			C			F			F	

Intersection Summary			
HCM Average Control Delay	118.9	HCM Level of Service	F
HCM Volume to Capacity ratio	0.87		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	76.2%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0		4.0	4.0	4.0	4.0	4.0	
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95		1.00	0.95	1.00	1.00	0.95	
Frt	1.00	1.00	0.85	1.00	0.97		1.00	1.00	0.85	1.00	0.96	
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1770	3539	1583	1770	3416		1770	3539	1583	1770	3387	
Flt Permitted	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00	0.33	1.00	
Satd. Flow (perm)	1770	3539	1583	1770	3416		1770	3539	1583	620	3387	
Volume (vph)	418	529	232	192	460	139	196	705	142	153	561	225
Peak-hour factor, PHF	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85
Adj. Flow (vph)	492	622	273	226	541	164	231	829	167	180	660	265
RTOR Reduction (vph)	0	0	178	0	29	0	0	0	102	0	43	0
Lane Group Flow (vph)	492	622	95	226	676	0	231	829	65	180	882	0
Turn Type	Prot		Perm	Prot			Prot		Perm	Perm		
Protected Phases	7	4		3	8		5	2			6	
Permitted Phases			4						2	6		
Actuated Green, G (s)	28.8	34.8	34.8	14.0	20.0		11.0	39.0	39.0	24.0	24.0	
Effective Green, g (s)	28.8	34.8	34.8	14.0	20.0		11.0	39.0	39.0	24.0	24.0	
Actuated g/C Ratio	0.29	0.35	0.35	0.14	0.20		0.11	0.39	0.39	0.24	0.24	
Clearance Time (s)	4.0	4.0	4.0	4.0	4.0		4.0	4.0	4.0	4.0	4.0	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	511	1234	552	248	685		195	1383	619	149	815	
v/s Ratio Prot	c0.28	0.18		0.13	c0.20		c0.13	0.23			0.26	
v/s Ratio Perm			0.06						0.04	c0.29		
v/c Ratio	0.96	0.50	0.17	0.91	0.99		1.18	0.60	0.11	1.21	1.08	
Uniform Delay, d1	35.0	25.7	22.5	42.3	39.8		44.4	24.2	19.3	37.9	37.9	
Progression Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	30.3	0.3	0.1	34.3	30.9		123.1	1.9	0.3	140.4	56.0	
Delay (s)	65.3	26.0	22.7	76.6	70.6		167.5	26.1	19.7	178.3	93.9	
Level of Service	E	C	C	E	E		F	C	B	F	F	
Approach Delay (s)		39.3			72.1			51.8			107.7	
Approach LOS		D			E			D			F	

Intersection Summary			
HCM Average Control Delay	65.4	HCM Level of Service	E
HCM Volume to Capacity ratio	1.07		
Actuated Cycle Length (s)	99.8	Sum of lost time (s)	16.0
Intersection Capacity Utilization	87.2%	ICU Level of Service	E
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0		4.0	4.0			4.0	
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	1.00			1.00	
Frt	1.00	0.97		1.00	0.98		1.00	0.94			0.95	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00			0.98	
Satd. Flow (prot)	1770	3450		1770	3472		1770	1751			1727	
Flt Permitted	0.95	1.00		0.95	1.00		0.58	1.00			0.85	
Satd. Flow (perm)	1770	3450		1770	3472		1088	1751			1490	
Volume (vph)	151	514	104	65	546	79	49	50	33	93	45	93
Peak-hour factor, PHF	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83
Adj. Flow (vph)	182	619	125	78	658	95	59	60	40	112	54	112
RTOR Reduction (vph)	0	23	0	0	15	0	0	17	0	0	17	0
Lane Group Flow (vph)	182	721	0	78	738	0	59	83	0	0	261	0
Turn Type	Prot			Prot			Perm			Perm		
Protected Phases	7	4		3	8			2			6	
Permitted Phases							2			6		
Actuated Green, G (s)	4.0	21.5		4.0	21.5		37.2	37.2			37.2	
Effective Green, g (s)	4.0	21.5		4.0	21.5		37.2	37.2			37.2	
Actuated g/C Ratio	0.05	0.29		0.05	0.29		0.50	0.50			0.50	
Clearance Time (s)	4.0	4.0		4.0	4.0		4.0	4.0			4.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0			3.0	
Lane Grp Cap (vph)	95	993		95	999		542	872			742	
v/s Ratio Prot	c0.10	0.21		0.04	c0.21			0.05				
v/s Ratio Perm							0.05				c0.18	
v/c Ratio	1.92	0.73		0.82	0.74		0.11	0.10			0.35	
Uniform Delay, d1	35.4	24.0		35.0	24.1		10.0	9.9			11.4	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00			1.00	
Incremental Delay, d2	448.5	2.7		41.0	2.9		0.4	0.2			1.3	
Delay (s)	483.9	26.6		76.0	27.0		10.4	10.1			12.7	
Level of Service	F	C		E	C		B	B			B	
Approach Delay (s)		116.5			31.6			10.2			12.7	
Approach LOS		F			C			B			B	

Intersection Summary			
HCM Average Control Delay	63.5	HCM Level of Service	E
HCM Volume to Capacity ratio	0.58		
Actuated Cycle Length (s)	74.7	Sum of lost time (s)	12.0
Intersection Capacity Utilization	55.8%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0		4.0	4.0	4.0	4.0	4.0	
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	1.00	1.00	1.00	1.00	
Frt	1.00	0.94		1.00	0.99		1.00	1.00	0.85	1.00	0.91	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1770	3337		1770	3517		1770	1863	1583	1770	1697	
Flt Permitted	0.95	1.00		0.95	1.00		0.52	1.00	1.00	0.72	1.00	
Satd. Flow (perm)	1770	3337		1770	3517		963	1863	1583	1335	1697	
Volume (vph)	82	352	216	150	464	20	86	57	105	17	110	161
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	89	383	235	163	504	22	93	62	114	18	120	175
RTOR Reduction (vph)	0	109	0	0	4	0	0	0	63	0	41	0
Lane Group Flow (vph)	89	509	0	163	522	0	93	62	51	18	254	0
Turn Type	Prot			Prot			Perm		Perm	Perm		
Protected Phases	7	4		3	8			2			6	
Permitted Phases							2		2	6		
Actuated Green, G (s)	7.2	15.5		9.6	17.9		30.2	30.2	30.2	30.2	30.2	
Effective Green, g (s)	7.2	15.5		9.6	17.9		30.2	30.2	30.2	30.2	30.2	
Actuated g/C Ratio	0.11	0.23		0.14	0.27		0.45	0.45	0.45	0.45	0.45	
Clearance Time (s)	4.0	4.0		4.0	4.0		4.0	4.0	4.0	4.0	4.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	189	769		252	935		432	836	710	599	762	
v/s Ratio Prot	0.05	c0.15		c0.09	0.15			0.03			c0.15	
v/s Ratio Perm							0.10		0.03	0.01		
v/c Ratio	0.47	0.66		0.65	0.56		0.22	0.07	0.07	0.03	0.33	
Uniform Delay, d1	28.3	23.5		27.2	21.3		11.3	10.6	10.6	10.4	12.0	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	1.9	2.1		5.6	0.7		1.1	0.2	0.2	0.1	1.2	
Delay (s)	30.1	25.7		32.9	22.0		12.5	10.8	10.8	10.5	13.2	
Level of Service	C	C		C	C		B	B	B	B	B	
Approach Delay (s)		26.2			24.6			11.3			13.0	
Approach LOS		C			C			B			B	

Intersection Summary			
HCM Average Control Delay	21.5	HCM Level of Service	C
HCM Volume to Capacity ratio	0.47		
Actuated Cycle Length (s)	67.3	Sum of lost time (s)	12.0
Intersection Capacity Utilization	58.7%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	1.00	0.95		1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	0.95		1.00	0.99		1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1770	3348		1770	1838		1770	1863	1583	1770	1863	1583
Flt Permitted	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	1770	3348		1770	1838		1770	1863	1583	1770	1863	1583
Volume (vph)	5	296	167	38	418	40	175	319	27	19	67	27
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	5	312	176	40	440	42	184	336	28	20	71	28
RTOR Reduction (vph)	0	87	0	0	4	0	0	0	15	0	0	18
Lane Group Flow (vph)	5	401	0	40	478	0	184	336	13	20	71	10
Turn Type	Prot			Prot			Prot		Perm	Prot		Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases									2			6
Actuated Green, G (s)	0.9	20.7		2.7	22.5		10.6	34.5	34.5	2.4	26.3	26.3
Effective Green, g (s)	0.9	20.7		2.7	22.5		10.6	34.5	34.5	2.4	26.3	26.3
Actuated g/C Ratio	0.01	0.27		0.04	0.29		0.14	0.45	0.45	0.03	0.34	0.34
Clearance Time (s)	4.0	4.0		4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	21	908		63	542		246	842	716	56	642	546
v/s Ratio Prot	0.00	0.12		c0.02	c0.26		c0.10	c0.18		0.01	0.04	
v/s Ratio Perm									0.01			0.01
v/c Ratio	0.24	0.44		0.63	0.88		0.75	0.40	0.02	0.36	0.11	0.02
Uniform Delay, d1	37.4	23.0		36.3	25.6		31.6	14.0	11.5	36.2	17.0	16.5
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	5.8	0.3		19.1	15.6		11.7	1.4	0.0	3.9	0.3	0.1
Delay (s)	43.2	23.4		55.4	41.2		43.3	15.4	11.6	40.1	17.4	16.5
Level of Service	D	C		E	D		D	B	B	D	B	B
Approach Delay (s)		23.6			42.3			24.6			21.0	
Approach LOS		C			D			C			C	

Intersection Summary			
HCM Average Control Delay	29.5	HCM Level of Service	C
HCM Volume to Capacity ratio	0.60		
Actuated Cycle Length (s)	76.3	Sum of lost time (s)	8.0
Intersection Capacity Utilization	54.5%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0		4.0	4.0	4.0	4.0	4.0	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00		1.00	0.95	1.00	1.00	0.95	
Frt	1.00	1.00	0.85	1.00	0.95		1.00	1.00	0.85	1.00	0.97	
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1770	1863	1583	1770	1773		1770	3539	1583	1770	3418	
Flt Permitted	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00	0.95	1.00	
Satd. Flow (perm)	1770	1863	1583	1770	1773		1770	3539	1583	1770	3418	
Volume (vph)	126	157	128	71	150	71	151	708	94	130	718	213
Peak-hour factor, PHF	0.78	0.78	0.78	0.78	0.78	0.78	0.78	0.78	0.78	0.78	0.78	0.78
Adj. Flow (vph)	162	201	164	91	192	91	194	908	121	167	921	273
RTOR Reduction (vph)	0	0	121	0	16	0	0	0	74	0	21	0
Lane Group Flow (vph)	162	201	43	91	267	0	194	908	47	167	1173	0
Turn Type	Prot		Perm	Prot			Prot		Perm	Prot		
Protected Phases	5	2		1	6		7	4		3	8	
Permitted Phases			2						4			
Actuated Green, G (s)	12.1	23.6	23.6	7.4	18.9		13.3	32.2	32.2	12.2	31.1	
Effective Green, g (s)	12.1	24.6	24.6	7.4	19.9		13.3	33.2	33.2	12.2	32.1	
Actuated g/C Ratio	0.13	0.26	0.26	0.08	0.21		0.14	0.36	0.36	0.13	0.34	
Clearance Time (s)	4.0	5.0	5.0	4.0	5.0		4.0	5.0	5.0	4.0	5.0	
Vehicle Extension (s)	1.5	2.0	2.0	1.5	2.0		1.5	2.0	2.0	1.5	2.0	
Lane Grp Cap (vph)	229	491	417	140	378		252	1258	563	231	1175	
v/s Ratio Prot	c0.09	0.11		0.05	c0.15		c0.11	0.26		0.09	c0.34	
v/s Ratio Perm			0.03						0.03			
v/c Ratio	0.71	0.41	0.10	0.65	0.71		0.77	0.72	0.08	0.72	1.00	
Uniform Delay, d1	39.0	28.4	26.1	41.7	34.0		38.6	26.1	20.0	39.0	30.6	
Progression Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	7.9	0.2	0.0	8.0	4.9		12.0	1.8	0.0	9.1	25.6	
Delay (s)	46.8	28.6	26.1	49.7	38.9		50.6	27.9	20.0	48.1	56.2	
Level of Service	D	C	C	D	D		D	C	C	D	E	
Approach Delay (s)		33.4			41.5			30.7			55.2	
Approach LOS		C			D			C			E	

Intersection Summary			
HCM Average Control Delay	41.9	HCM Level of Service	D
HCM Volume to Capacity ratio	0.84		
Actuated Cycle Length (s)	93.4	Sum of lost time (s)	16.0
Intersection Capacity Utilization	67.5%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	0.93		1.00	0.94		1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1770	1725		1770	1748		1770	1863	1583	1770	1863	1583
Flt Permitted	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	1770	1725		1770	1748		1770	1863	1583	1770	1863	1583
Volume (vph)	45	91	89	94	53	37	98	308	139	71	330	41
Peak-hour factor, PHF	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86
Adj. Flow (vph)	52	106	103	109	62	43	114	358	162	83	384	48
RTOR Reduction (vph)	0	38	0	0	28	0	0	0	92	0	0	28
Lane Group Flow (vph)	52	171	0	109	77	0	114	358	70	83	384	20
Turn Type	Prot			Prot			Prot		Perm	Prot		Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases									2			6
Actuated Green, G (s)	5.1	13.3		8.8	17.0		8.7	35.0	35.0	7.8	34.1	34.1
Effective Green, g (s)	5.1	13.3		8.8	17.0		8.7	35.0	35.0	7.8	34.1	34.1
Actuated g/C Ratio	0.06	0.16		0.11	0.21		0.11	0.43	0.43	0.10	0.42	0.42
Clearance Time (s)	4.0	4.0		4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	112	284		193	367		190	806	685	171	785	667
v/s Ratio Prot	0.03	c0.10		c0.06	c0.04		c0.06	0.19		0.05	c0.21	
v/s Ratio Perm									0.04			0.01
v/c Ratio	0.46	0.60		0.56	0.21		0.60	0.44	0.10	0.49	0.49	0.03
Uniform Delay, d1	36.6	31.3		34.2	26.4		34.4	16.1	13.6	34.6	17.1	13.7
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	3.0	3.6		3.8	0.3		5.0	1.8	0.3	2.2	2.2	0.1
Delay (s)	39.6	34.9		38.0	26.7		39.5	17.9	13.9	36.8	19.2	13.8
Level of Service	D	C		D	C		D	B	B	D	B	B
Approach Delay (s)		35.8			32.4			20.8			21.6	
Approach LOS		D			C			C			C	

Intersection Summary			
HCM Average Control Delay	25.0	HCM Level of Service	C
HCM Volume to Capacity ratio	0.56		
Actuated Cycle Length (s)	80.9	Sum of lost time (s)	20.0
Intersection Capacity Utilization	51.6%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Stop			Stop	
Volume (vph)	0	89	193	44	68	0	81	0	19	0	0	0
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	0	99	214	49	76	0	90	0	21	0	0	0

Direction, Lane #	EB 1	WB 1	NB 1
Volume Total (vph)	313	124	111
Volume Left (vph)	0	49	90
Volume Right (vph)	214	0	21
Hadj (s)	-0.38	0.11	0.08
Departure Headway (s)	4.0	4.6	4.9
Degree Utilization, x	0.34	0.16	0.15
Capacity (veh/h)	884	743	676
Control Delay (s)	9.0	8.5	8.8
Approach Delay (s)	9.0	8.5	8.8
Approach LOS	A	A	A

Intersection Summary				
Delay	8.9			
HCM Level of Service	A			
Intersection Capacity Utilization	38.2%	ICU Level of Service	A	
Analysis Period (min)	15			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0		4.0	4.0	
Lane Util. Factor	1.00	0.95		1.00	0.95	1.00	1.00	1.00		1.00	1.00	
Frt	1.00	0.99		1.00	1.00	0.85	1.00	0.97		1.00	0.91	
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1770	3515		1770	3539	1583	1770	1814		1770	1690	
Flt Permitted	0.95	1.00		0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (perm)	1770	3515		1770	3539	1583	1770	1814		1770	1690	
Volume (vph)	61	550	26	8	517	29	33	53	11	32	43	69
Peak-hour factor, PHF	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Adj. Flow (vph)	66	591	28	9	556	31	35	57	12	34	46	74
RTOR Reduction (vph)	0	2	0	0	0	14	0	9	0	0	64	0
Lane Group Flow (vph)	66	617	0	9	556	17	35	60	0	34	56	0
Turn Type	Prot			Prot		Perm	Prot			Prot		
Protected Phases	5	2		1	6		7	4		3	8	
Permitted Phases						6						
Actuated Green, G (s)	12.3	64.7		1.1	53.5	53.5	4.2	12.0		4.2	12.0	
Effective Green, g (s)	12.3	65.7		1.1	54.5	54.5	4.2	13.0		4.2	13.0	
Actuated g/C Ratio	0.12	0.66		0.01	0.54	0.54	0.04	0.13		0.04	0.13	
Clearance Time (s)	4.0	5.0		4.0	5.0	5.0	4.0	5.0		4.0	5.0	
Vehicle Extension (s)	1.5	2.0		1.5	2.0	2.0	1.5	3.0		1.5	3.0	
Lane Grp Cap (vph)	218	2309		19	1929	863	74	236		74	220	
v/s Ratio Prot	0.04	c0.18		0.01	c0.16		c0.02	c0.03		0.02	0.03	
v/s Ratio Perm						0.01						
v/c Ratio	0.30	0.27		0.47	0.29	0.02	0.47	0.26		0.46	0.25	
Uniform Delay, d1	39.9	7.1		49.2	12.3	10.5	46.8	39.1		46.8	39.1	
Progression Factor	1.00	1.00		1.10	0.46	0.73	1.00	1.00		1.00	1.00	
Incremental Delay, d2	0.3	0.3		6.5	0.4	0.0	1.7	0.6		1.6	0.6	
Delay (s)	40.2	7.4		60.5	6.0	7.7	48.6	39.7		48.4	39.7	
Level of Service	D	A		E	A	A	D	D		D	D	
Approach Delay (s)		10.6			6.9			42.7			41.7	
Approach LOS		B			A			D			D	

Intersection Summary			
HCM Average Control Delay	14.4	HCM Level of Service	B
HCM Volume to Capacity ratio	0.28		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	37.9%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	
Lane Util. Factor	0.97	0.95	1.00	0.97	0.95	1.00	0.97	0.95	1.00	0.97	0.95	
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.96	
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	3433	3539	1583	3433	3539	1583	3433	3539	1583	3433	3415	
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (perm)	3433	3539	1583	3433	3539	1583	3433	3539	1583	3433	3415	
Volume (vph)	115	343	73	152	259	61	166	687	339	123	264	81
Peak-hour factor, PHF	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Adj. Flow (vph)	126	377	80	167	285	67	182	755	373	135	290	89
RTOR Reduction (vph)	0	0	47	0	0	40	0	0	272	0	32	0
Lane Group Flow (vph)	126	377	33	167	285	27	182	755	101	135	347	0
Turn Type	Prot		Perm	Prot		Perm	Prot		Perm	Prot		
Protected Phases	5	2		1	6		7	4		3	8	
Permitted Phases			2			6			4			
Actuated Green, G (s)	9.0	39.8	39.8	8.4	39.2	39.2	9.1	26.1	26.1	7.7	24.7	
Effective Green, g (s)	9.0	40.8	40.8	8.4	40.2	40.2	9.1	27.1	27.1	7.7	25.7	
Actuated g/C Ratio	0.09	0.41	0.41	0.08	0.40	0.40	0.09	0.27	0.27	0.08	0.26	
Clearance Time (s)	4.0	5.0	5.0	4.0	5.0	5.0	4.0	5.0	5.0	4.0	5.0	
Vehicle Extension (s)	1.5	2.0	2.0	1.5	2.0	2.0	1.5	2.0	2.0	1.5	2.0	
Lane Grp Cap (vph)	309	1444	646	288	1423	636	312	959	429	264	878	
v/s Ratio Prot	c0.04	c0.11		c0.05	0.08		c0.05	c0.21		0.04	0.10	
v/s Ratio Perm			0.02			0.02			0.06			
v/c Ratio	0.41	0.26	0.05	0.58	0.20	0.04	0.58	0.79	0.24	0.51	0.40	
Uniform Delay, d1	43.0	19.6	17.9	44.1	19.4	18.2	43.6	33.8	28.4	44.3	30.7	
Progression Factor	0.88	0.80	0.91	1.07	2.00	4.46	1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	0.3	0.4	0.1	1.6	0.3	0.1	1.8	4.0	0.1	0.7	0.1	
Delay (s)	38.2	16.1	16.4	48.6	39.1	81.3	45.4	37.8	28.5	45.0	30.8	
Level of Service	D	B	B	D	D	F	D	D	C	D	C	
Approach Delay (s)		20.9			47.6			36.2			34.6	
Approach LOS		C			D			D			C	

Intersection Summary			
HCM Average Control Delay	34.9	HCM Level of Service	C
HCM Volume to Capacity ratio	0.51		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	16.0
Intersection Capacity Utilization	49.7%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.97	
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1770	3539	1583	1770	3539	1583	1770	3539	1583	1770	3426	
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (perm)	1770	3539	1583	1770	3539	1583	1770	3539	1583	1770	3426	
Volume (vph)	139	742	70	89	493	221	67	765	107	174	363	99
Peak-hour factor, PHF	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88
Adj. Flow (vph)	158	843	80	101	560	251	76	869	122	198	412	112
RTOR Reduction (vph)	0	0	53	0	0	172	0	0	39	0	23	0
Lane Group Flow (vph)	158	843	27	101	560	79	76	869	83	198	501	0
Turn Type	Prot		Perm	Prot		Perm	Prot		Perm	Prot		
Protected Phases	5	2		1	6		7	4		3	8	
Permitted Phases			2			6			4			
Actuated Green, G (s)	10.7	32.8	32.8	8.2	30.3	30.3	7.2	28.2	28.2	12.5	33.5	
Effective Green, g (s)	10.7	33.8	33.8	8.2	31.3	31.3	7.2	29.5	29.5	12.5	34.8	
Actuated g/C Ratio	0.11	0.34	0.34	0.08	0.31	0.31	0.07	0.29	0.29	0.12	0.35	
Clearance Time (s)	4.0	5.0	5.0	4.0	5.0	5.0	4.0	5.3	5.3	4.0	5.3	
Vehicle Extension (s)	1.5	2.0	2.0	1.5	2.0	2.0	1.5	2.0	2.0	1.5	2.0	
Lane Grp Cap (vph)	189	1196	535	145	1108	495	127	1044	467	221	1192	
v/s Ratio Prot	c0.09	c0.24		0.06	0.16		0.04	c0.25		c0.11	0.15	
v/s Ratio Perm			0.02			0.05			0.05			
v/c Ratio	0.84	0.70	0.05	0.70	0.51	0.16	0.60	0.83	0.18	0.90	0.42	
Uniform Delay, d1	43.8	28.8	22.3	44.7	28.0	24.8	45.0	32.9	26.2	43.1	24.9	
Progression Factor	1.12	0.95	0.89	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	24.5	3.4	0.2	11.1	1.6	0.7	5.0	5.5	0.1	33.0	0.1	
Delay (s)	73.7	30.7	20.1	55.8	29.7	25.5	50.0	38.5	26.3	76.1	25.0	
Level of Service	E	C	C	E	C	C	D	D	C	E	C	
Approach Delay (s)		36.2			31.4			37.9			39.0	
Approach LOS		D			C			D			D	

Intersection Summary			
HCM Average Control Delay	36.1	HCM Level of Service	D
HCM Volume to Capacity ratio	0.77		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	69.6%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0			4.0	4.0	4.0	4.0	
Lane Util. Factor	1.00	0.95		1.00	0.95			1.00	1.00	1.00	1.00	
Frt	1.00	0.99		1.00	0.98			1.00	0.85	1.00	0.86	
Flt Protected	0.95	1.00		0.95	1.00			0.95	1.00	0.95	1.00	
Satd. Flow (prot)	1770	3521		1770	3471			1770	1583	1770	1607	
Flt Permitted	0.95	1.00		0.95	1.00			0.75	1.00	0.75	1.00	
Satd. Flow (perm)	1770	3521		1770	3471			1397	1583	1400	1607	
Volume (vph)	32	756	28	78	1134	166	8	0	15	33	1	10
Peak-hour factor, PHF	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89
Adj. Flow (vph)	36	849	31	88	1274	187	9	0	17	37	1	11
RTOR Reduction (vph)	0	1	0	0	5	0	0	0	15	0	9	0
Lane Group Flow (vph)	36	879	0	88	1456	0	0	9	2	37	3	0
Turn Type	Prot			Prot			Perm		Perm	Perm		
Protected Phases	5	2		1	6			4			8	
Permitted Phases							4		4	8		
Actuated Green, G (s)	4.3	73.7		8.2	77.6			15.1	15.1	15.1	15.1	
Effective Green, g (s)	4.3	74.7		8.2	78.6			15.1	15.1	15.1	15.1	
Actuated g/C Ratio	0.04	0.68		0.07	0.71			0.14	0.14	0.14	0.14	
Clearance Time (s)	4.0	5.0		4.0	5.0			4.0	4.0	4.0	4.0	
Vehicle Extension (s)	1.5	2.0		1.5	2.0			2.5	2.5	2.5	2.5	
Lane Grp Cap (vph)	69	2391		132	2480			192	217	192	221	
v/s Ratio Prot	0.02	0.25		c0.05	c0.42						0.00	
v/s Ratio Perm								0.01	0.00	c0.03		
v/c Ratio	0.52	0.37		0.67	0.59			0.05	0.01	0.19	0.01	
Uniform Delay, d1	51.8	7.5		49.6	7.7			41.2	41.0	42.0	41.0	
Progression Factor	1.00	1.00		1.00	1.00			1.00	1.00	1.00	1.00	
Incremental Delay, d2	3.3	0.4		9.4	1.0			0.1	0.0	0.4	0.0	
Delay (s)	55.1	8.0		59.0	8.7			41.3	41.0	42.4	41.0	
Level of Service	E	A		E	A			D	D	D	D	
Approach Delay (s)		9.8			11.6			41.1			42.1	
Approach LOS		A			B			D			D	

Intersection Summary			
HCM Average Control Delay	11.9	HCM Level of Service	B
HCM Volume to Capacity ratio	0.54		
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	58.5%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0	4.0	4.0	4.0					4.0	4.0	4.0
Lane Util. Factor		0.91	0.91	1.00	0.95					0.95	0.95	1.00
Frt		1.00	0.85	1.00	1.00					1.00	1.00	0.85
Flt Protected		1.00	1.00	0.95	1.00					0.95	0.96	1.00
Satd. Flow (prot)		3383	1441	1770	3539					1681	1699	1583
Flt Permitted		1.00	1.00	0.95	1.00					0.95	0.96	1.00
Satd. Flow (perm)		3383	1441	1770	3539					1681	1699	1583
Volume (vph)	0	530	398	75	1063	0	0	0	0	263	26	602
Peak-hour factor, PHF	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89
Adj. Flow (vph)	0	596	447	84	1194	0	0	0	0	296	29	676
RTOR Reduction (vph)	0	1	313	0	0	0	0	0	0	0	0	24
Lane Group Flow (vph)	0	604	125	84	1194	0	0	0	0	158	167	652
Turn Type			Perm	Prot						Perm		Perm
Protected Phases		4		3	8						6	
Permitted Phases			4							6		6
Actuated Green, G (s)		24.6	24.6	8.0	36.6					41.4	41.4	41.4
Effective Green, g (s)		24.6	24.6	8.0	36.6					41.4	41.4	41.4
Actuated g/C Ratio		0.29	0.29	0.09	0.43					0.48	0.48	0.48
Clearance Time (s)		4.0	4.0	4.0	4.0					4.0	4.0	4.0
Vehicle Extension (s)		3.0	3.0	3.0	3.0					3.0	3.0	3.0
Lane Grp Cap (vph)		968	412	165	1506					809	818	762
v/s Ratio Prot		0.18		0.05	c0.34							
v/s Ratio Perm			0.09							0.09	0.10	c0.41
v/c Ratio		0.62	0.30	0.51	0.79					0.20	0.20	0.86
Uniform Delay, d1		26.7	24.0	37.1	21.4					12.8	12.8	19.7
Progression Factor		1.00	1.00	1.00	1.00					1.00	1.00	1.00
Incremental Delay, d2		1.3	0.4	2.5	3.0					0.5	0.6	11.8
Delay (s)		27.9	24.4	39.6	24.4					13.3	13.4	31.5
Level of Service		C	C	D	C					B	B	C
Approach Delay (s)		26.5			25.4			0.0			25.6	
Approach LOS		C			C			A			C	

Intersection Summary			
HCM Average Control Delay	25.8	HCM Level of Service	C
HCM Volume to Capacity ratio	0.83		
Actuated Cycle Length (s)	86.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	62.8%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0		4.0	4.0
Lane Util. Factor	1.00	0.95	0.95		0.97	1.00
Frt	1.00	1.00	0.97		1.00	0.85
Flt Protected	0.95	1.00	1.00		0.95	1.00
Satd. Flow (prot)	1770	3539	3426		3433	1583
Flt Permitted	0.95	1.00	1.00		0.95	1.00
Satd. Flow (perm)	1770	3539	3426		3433	1583
Volume (vph)	181	796	345	94	189	688
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	201	884	383	104	210	764
RTOR Reduction (vph)	0	0	28	0	0	314
Lane Group Flow (vph)	201	884	459	0	210	450
Turn Type	Prot					Perm
Protected Phases	7	4	8		6	
Permitted Phases						6
Actuated Green, G (s)	13.9	33.5	15.6		36.5	36.5
Effective Green, g (s)	13.9	33.5	15.6		36.5	36.5
Actuated g/C Ratio	0.18	0.43	0.20		0.47	0.47
Clearance Time (s)	4.0	4.0	4.0		4.0	4.0
Vehicle Extension (s)	3.0	3.0	3.0		3.0	3.0
Lane Grp Cap (vph)	315	1520	685		1606	741
v/s Ratio Prot	0.11	c0.25	0.13		0.06	
v/s Ratio Perm						c0.28
v/c Ratio	0.64	0.58	0.67		0.13	0.61
Uniform Delay, d1	29.7	16.9	28.8		11.8	15.4
Progression Factor	1.00	1.00	1.00		1.00	1.00
Incremental Delay, d2	4.2	0.6	2.6		0.2	3.7
Delay (s)	33.9	17.5	31.4		11.9	19.1
Level of Service	C	B	C		B	B
Approach Delay (s)		20.5	31.4		17.5	
Approach LOS		C	C		B	

Intersection Summary			
HCM Average Control Delay	21.5	HCM Level of Service	C
HCM Volume to Capacity ratio	0.59		
Actuated Cycle Length (s)	78.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	61.8%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Stop			Stop	
Volume (vph)	36	0	26	0	0	0	157	405	0	0	412	115
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88
Hourly flow rate (vph)	41	0	30	0	0	0	178	460	0	0	468	131

Direction, Lane #	EB 1	NB 1	SB 1	SB 2
Volume Total (vph)	70	639	0	599
Volume Left (vph)	41	178	0	0
Volume Right (vph)	30	0	0	131
Hadj (s)	-0.10	0.09	0.00	-0.12
Departure Headway (s)	6.7	5.1	5.3	5.2
Degree Utilization, x	0.13	0.91	0.00	0.87
Capacity (veh/h)	516	699	678	684
Control Delay (s)	10.7	37.3	7.1	31.0
Approach Delay (s)	10.7	37.3	31.0	
Approach LOS	B	E	D	

Intersection Summary				
Delay		33.0		
HCM Level of Service		D		
Intersection Capacity Utilization		72.3%	ICU Level of Service	C
Analysis Period (min)		15		

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Sign Control	Stop		Stop			Stop
Volume (vph)	176	60	72	177	53	97
Peak Hour Factor	0.78	0.78	0.78	0.78	0.78	0.78
Hourly flow rate (vph)	226	77	92	227	68	124

Direction, Lane #	WB 1	NB 1	SB 1
Volume Total (vph)	303	319	192
Volume Left (vph)	226	0	68
Volume Right (vph)	77	227	0
Hadj (s)	0.03	-0.39	0.10
Departure Headway (s)	5.2	4.6	5.3
Degree Utilization, x	0.43	0.41	0.28
Capacity (veh/h)	653	737	639
Control Delay (s)	12.1	10.8	10.3
Approach Delay (s)	12.1	10.8	10.3
Approach LOS	B	B	B

Intersection Summary			
Delay	11.2		
HCM Level of Service	B		
Intersection Capacity Utilization	46.1%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0			4.0		4.0	4.0		4.0	4.0	
Lane Util. Factor		1.00			1.00		1.00	1.00		1.00	1.00	
Frt		0.98			0.96		1.00	0.99		1.00	0.95	
Flt Protected		0.99			1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)		1801			1788		1770	1849		1770	1766	
Flt Permitted		0.92			0.98		0.63	1.00		0.25	1.00	
Satd. Flow (perm)		1680			1755		1172	1849		466	1766	
Volume (vph)	17	41	11	15	101	41	101	459	23	21	110	58
Peak-hour factor, PHF	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82
Adj. Flow (vph)	21	50	13	18	123	50	123	560	28	26	134	71
RTOR Reduction (vph)	0	8	0	0	30	0	0	5	0	0	43	0
Lane Group Flow (vph)	0	76	0	0	161	0	123	583	0	26	162	0
Turn Type	Perm			Perm			Perm			Perm		
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)		16.0			16.0		16.0	16.0		16.0	16.0	
Effective Green, g (s)		16.0			16.0		16.0	16.0		16.0	16.0	
Actuated g/C Ratio		0.40			0.40		0.40	0.40		0.40	0.40	
Clearance Time (s)		4.0			4.0		4.0	4.0		4.0	4.0	
Lane Grp Cap (vph)		672			702		469	740		186	706	
v/s Ratio Prot								c0.32			0.09	
v/s Ratio Perm		0.05			c0.09		0.10			0.06		
v/c Ratio		0.11			0.23		0.26	0.79		0.14	0.23	
Uniform Delay, d1		7.5			7.9		8.0	10.5		7.6	7.9	
Progression Factor		1.00			1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2		0.3			0.8		1.4	8.3		1.6	0.8	
Delay (s)		7.9			8.7		9.4	18.8		9.2	8.7	
Level of Service		A			A		A	B		A	A	
Approach Delay (s)		7.9			8.7			17.2			8.7	
Approach LOS		A			A			B			A	

Intersection Summary			
HCM Average Control Delay	13.6	HCM Level of Service	B
HCM Volume to Capacity ratio	0.51		
Actuated Cycle Length (s)	40.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	48.4%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	0.85	1.00	1.00	1.00	0.85
Flt Protected	0.95	1.00	0.95	1.00	1.00	1.00
Satd. Flow (prot)	1770	1583	1770	1863	1863	1583
Flt Permitted	0.95	1.00	0.64	1.00	1.00	1.00
Satd. Flow (perm)	1770	1583	1189	1863	1863	1583
Volume (vph)	455	384	70	120	159	281
Peak-hour factor, PHF	0.84	0.84	0.84	0.84	0.84	0.84
Adj. Flow (vph)	542	457	83	143	189	335
RTOR Reduction (vph)	0	274	0	0	0	201
Lane Group Flow (vph)	542	183	83	143	189	134
Turn Type		Perm	Perm			Perm
Protected Phases	4			2	6	
Permitted Phases		4	2			6
Actuated Green, G (s)	16.0	16.0	16.0	16.0	16.0	16.0
Effective Green, g (s)	16.0	16.0	16.0	16.0	16.0	16.0
Actuated g/C Ratio	0.40	0.40	0.40	0.40	0.40	0.40
Clearance Time (s)	4.0	4.0	4.0	4.0	4.0	4.0
Lane Grp Cap (vph)	708	633	476	745	745	633
v/s Ratio Prot	c0.31			0.08	c0.10	
v/s Ratio Perm		0.12	0.07			0.08
v/c Ratio	0.77	0.29	0.17	0.19	0.25	0.21
Uniform Delay, d1	10.4	8.1	7.7	7.8	8.0	7.9
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	7.7	1.2	0.8	0.6	0.8	0.8
Delay (s)	18.1	9.3	8.5	8.4	8.8	8.6
Level of Service	B	A	A	A	A	A
Approach Delay (s)	14.1			8.4	8.7	
Approach LOS	B			A	A	

Intersection Summary			
HCM Average Control Delay	11.7	HCM Level of Service	B
HCM Volume to Capacity ratio	0.51		
Actuated Cycle Length (s)	40.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	47.5%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Volume (veh/h)	46	354	177	2	6	22
Peak Hour Factor	0.78	0.78	0.78	0.78	0.78	0.78
Hourly flow rate (vph)	59	454	227	3	8	28
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type					None	
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	229				800	228
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	229				800	228
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	96				98	97
cM capacity (veh/h)	1339				339	811

Direction, Lane #	EB 1	WB 1	SB 1
Volume Total	513	229	36
Volume Left	59	0	8
Volume Right	0	3	28
cSH	1339	1700	624
Volume to Capacity	0.04	0.13	0.06
Queue Length 95th (ft)	3	0	5
Control Delay (s)	1.3	0.0	11.1
Lane LOS	A		B
Approach Delay (s)	1.3	0.0	11.1
Approach LOS			B

Intersection Summary			
Average Delay	1.4		
Intersection Capacity Utilization	43.9%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Volume (veh/h)	15	6	10	299	201	21
Peak Hour Factor	0.74	0.74	0.74	0.74	0.74	0.74
Hourly flow rate (vph)	20	8	14	404	272	28
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None					
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	717	286	300			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	717	286	300			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	95	99	99			
cM capacity (veh/h)	392	753	1261			

Direction, Lane #	EB 1	NB 1	SB 1
Volume Total	28	418	300
Volume Left	20	14	0
Volume Right	8	0	28
cSH	454	1261	1700
Volume to Capacity	0.06	0.01	0.18
Queue Length 95th (ft)	5	1	0
Control Delay (s)	13.5	0.4	0.0
Lane LOS	B	A	
Approach Delay (s)	13.5	0.4	0.0
Approach LOS	B		

Intersection Summary			
Average Delay	0.7		
Intersection Capacity Utilization	33.8%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	0.97	0.95	1.00	0.97	0.95	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1770	3539	1583	1770	3539	1583	3433	3539	1583	3433	3539	1583
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	1770	3539	1583	1770	3539	1583	3433	3539	1583	3433	3539	1583
Volume (vph)	336	632	131	42	677	158	707	933	233	73	223	190
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	365	687	142	46	736	172	768	1014	253	79	242	207
RTOR Reduction (vph)	0	0	87	0	0	111	0	0	92	0	0	160
Lane Group Flow (vph)	365	687	55	46	736	61	768	1014	161	79	242	47
Turn Type	Prot		Perm	Prot		Perm	Prot		Perm	Prot		Perm
Protected Phases	5	2		1	6		3	8		7	4	
Permitted Phases			2			6			8			4
Actuated Green, G (s)	11.3	49.0	49.0	6.5	44.4	44.4	32.3	36.9	36.9	17.8	22.6	22.6
Effective Green, g (s)	11.5	50.7	50.7	6.9	46.1	46.1	32.5	38.4	38.4	18.0	23.9	23.9
Actuated g/C Ratio	0.09	0.39	0.39	0.05	0.35	0.35	0.25	0.30	0.30	0.14	0.18	0.18
Clearance Time (s)	4.2	5.7	5.7	4.4	5.7	5.7	4.2	5.5	5.5	4.2	5.3	5.3
Vehicle Extension (s)	1.5	2.0	2.0	1.5	2.0	2.0	1.5	2.0	2.0	1.5	2.0	2.0
Lane Grp Cap (vph)	157	1380	617	94	1255	561	858	1045	468	475	651	291
v/s Ratio Prot	c0.21	0.19		0.03	c0.21		c0.22	c0.29		0.02	0.07	
v/s Ratio Perm			0.03			0.04			0.10			0.03
v/c Ratio	2.32	0.50	0.09	0.49	0.59	0.11	0.90	0.97	0.34	0.17	0.37	0.16
Uniform Delay, d1	59.2	30.0	25.1	59.8	34.2	28.2	47.1	45.2	35.9	49.4	46.5	44.6
Progression Factor	1.00	1.00	1.00	1.22	0.93	1.99	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	615.7	1.3	0.3	1.2	1.7	0.3	13.8	21.6	2.0	0.8	1.6	1.2
Delay (s)	674.9	31.3	25.4	74.4	33.6	56.3	60.9	66.8	37.9	50.1	48.1	45.8
Level of Service	F	C	C	E	C	E	E	E	D	D	D	D
Approach Delay (s)		227.3			39.6			61.0			47.5	
Approach LOS		F			D			E			D	

Intersection Summary			
HCM Average Control Delay	97.3	HCM Level of Service	F
HCM Volume to Capacity ratio	0.95		
Actuated Cycle Length (s)	130.0	Sum of lost time (s)	16.0
Intersection Capacity Utilization	79.8%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	1.00	0.95	0.95	1.00	0.97	0.91
Frt	1.00	1.00	1.00	0.85	1.00	0.85
Flt Protected	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (prot)	1770	3539	3539	1583	3433	1441
Flt Permitted	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (perm)	1770	3539	3539	1583	3433	1441
Volume (vph)	283	539	845	756	386	105
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	314	599	939	840	429	117
RTOR Reduction (vph)	0	0	0	303	0	85
Lane Group Flow (vph)	314	599	939	537	429	32
Turn Type	Prot			Perm		Perm
Protected Phases	5	2	6		4	
Permitted Phases				6		4
Actuated Green, G (s)	26.8	84.4	53.6	53.6	33.6	33.6
Effective Green, g (s)	26.8	86.4	55.6	55.6	35.6	35.6
Actuated g/C Ratio	0.21	0.66	0.43	0.43	0.27	0.27
Clearance Time (s)	4.0	6.0	6.0	6.0	6.0	6.0
Vehicle Extension (s)	1.5	2.0	2.0	2.0	2.0	2.0
Lane Grp Cap (vph)	365	2352	1514	677	940	395
v/s Ratio Prot	c0.18	0.17	0.27		c0.12	
v/s Ratio Perm				c0.34		0.02
v/c Ratio	0.86	0.25	0.62	0.79	0.46	0.08
Uniform Delay, d1	49.8	8.8	29.0	32.2	39.2	35.1
Progression Factor	0.65	0.34	0.83	0.98	1.00	1.00
Incremental Delay, d2	16.3	0.2	0.7	3.7	1.6	0.4
Delay (s)	48.7	3.2	24.7	35.3	40.8	35.5
Level of Service	D	A	C	D	D	D
Approach Delay (s)		18.9	29.7		39.6	
Approach LOS		B	C		D	

Intersection Summary			
HCM Average Control Delay	28.3	HCM Level of Service	C
HCM Volume to Capacity ratio	0.71		
Actuated Cycle Length (s)	130.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	69.2%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0	4.0		4.0			4.0	4.0
Lane Util. Factor	1.00	0.95		1.00	0.95	1.00		1.00			1.00	1.00
Frt	1.00	1.00		1.00	1.00	0.85		1.00			1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00	1.00		0.95			0.95	1.00
Satd. Flow (prot)	1770	3539		1770	3539	1583		1770			1770	1583
Flt Permitted	0.95	1.00		0.95	1.00	1.00		0.73			0.75	1.00
Satd. Flow (perm)	1770	3539		1770	3539	1583		1357			1405	1583
Volume (vph)	381	823	0	10	1537	176	4	0	0	38	0	20
Peak-hour factor, PHF	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86
Adj. Flow (vph)	443	957	0	12	1787	205	5	0	0	44	0	23
RTOR Reduction (vph)	0	0	0	0	0	44	0	0	0	0	0	11
Lane Group Flow (vph)	443	957	0	12	1787	161	0	5	0	0	44	12
Turn Type	Prot			Prot		Perm	Perm			Perm		custom
Protected Phases	5	2		1	6			8			4	
Permitted Phases						6	8			4		6
Actuated Green, G (s)	38.1	101.2		2.3	65.4	65.4		11.5			11.5	65.4
Effective Green, g (s)	38.1	103.2		2.3	67.4	67.4		12.5			12.5	67.4
Actuated g/C Ratio	0.29	0.79		0.02	0.52	0.52		0.10			0.10	0.52
Clearance Time (s)	4.0	6.0		4.0	6.0	6.0		5.0			5.0	6.0
Vehicle Extension (s)	1.5	2.0		1.5	2.0	2.0		4.0			4.0	2.0
Lane Grp Cap (vph)	519	2809		31	1835	821		130			135	821
v/s Ratio Prot	c0.25	0.27		0.01	c0.50							
v/s Ratio Perm						0.10		0.00			c0.03	0.01
v/c Ratio	0.85	0.34		0.39	0.97	0.20		0.04			0.33	0.01
Uniform Delay, d1	43.3	3.8		63.2	30.4	16.8		53.3			54.8	15.2
Progression Factor	1.29	0.48		1.38	1.14	1.54		1.00			1.00	1.00
Incremental Delay, d2	12.2	0.3		0.3	2.6	0.0		0.2			1.9	0.0
Delay (s)	68.1	2.2		87.6	37.1	25.8		53.5			56.7	15.2
Level of Service	E	A		F	D	C		D			E	B
Approach Delay (s)		23.0			36.3			53.5			42.5	
Approach LOS		C			D			D			D	

Intersection Summary			
HCM Average Control Delay	31.1	HCM Level of Service	C
HCM Volume to Capacity ratio	0.87		
Actuated Cycle Length (s)	130.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	77.8%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	0.97	0.95	1.00	0.97	0.95	1.00	0.97	0.95	1.00	0.97	0.95	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	3433	3539	1583	3433	3539	1583	3433	3539	1583	3433	3539	1583
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	3433	3539	1583	3433	3539	1583	3433	3539	1583	3433	3539	1583
Volume (vph)	203	263	421	108	440	102	1368	546	445	59	109	93
Peak-hour factor, PHF	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88
Adj. Flow (vph)	231	299	478	123	500	116	1555	620	506	67	124	106
RTOR Reduction (vph)	0	0	307	0	0	81	0	0	358	0	0	71
Lane Group Flow (vph)	231	299	171	123	500	35	1555	620	148	67	124	35
Turn Type	Prot		Perm	Prot		Perm	Prot		Perm	Prot		Perm
Protected Phases	5	2		1	6		7	4		3	8	
Permitted Phases			2			6			4			8
Actuated Green, G (s)	16.0	44.6	44.6	8.4	37.0	37.0	16.0	36.0	36.0	20.0	41.0	41.0
Effective Green, g (s)	16.0	46.6	46.6	8.4	39.0	39.0	16.0	38.0	38.0	21.0	43.0	43.0
Actuated g/C Ratio	0.12	0.36	0.36	0.06	0.30	0.30	0.12	0.29	0.29	0.16	0.33	0.33
Clearance Time (s)	4.0	6.0	6.0	4.0	6.0	6.0	4.0	6.0	6.0	5.0	6.0	6.0
Vehicle Extension (s)	1.5	2.0	2.0	1.5	2.0	2.0	1.5	2.0	2.0	2.0	2.0	2.0
Lane Grp Cap (vph)	423	1269	567	222	1062	475	423	1034	463	555	1171	524
v/s Ratio Prot	c0.07	0.08		0.04	c0.14		c0.45	c0.18		c0.02	0.04	
v/s Ratio Perm			0.11			0.02			0.09			0.02
v/c Ratio	0.55	0.24	0.30	0.55	0.47	0.07	3.68	0.60	0.32	0.12	0.11	0.07
Uniform Delay, d1	53.6	29.2	30.0	59.0	37.1	32.6	57.0	39.5	35.9	46.6	30.2	29.8
Progression Factor	0.80	0.70	1.88	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	0.7	0.4	1.3	1.7	1.5	0.3	1210.1	2.6	1.8	0.0	0.2	0.2
Delay (s)	43.6	20.8	57.8	60.7	38.6	32.9	1267.1	42.0	37.7	46.6	30.4	30.0
Level of Service	D	C	E	E	D	C	F	D	D	D	C	C
Approach Delay (s)		43.6			41.4			751.8			33.9	
Approach LOS		D			D			F			C	

Intersection Summary			
HCM Average Control Delay	444.4	HCM Level of Service	F
HCM Volume to Capacity ratio	0.88		
Actuated Cycle Length (s)	130.0	Sum of lost time (s)	16.0
Intersection Capacity Utilization	73.6%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0	4.0	4.0	4.0						4.0	
Lane Util. Factor		0.95	1.00	1.00	0.95						0.95	
Frt		1.00	0.85	1.00	1.00						0.89	
Flt Protected		1.00	1.00	0.95	1.00						1.00	
Satd. Flow (prot)		3539	1583	1770	3539						3129	
Flt Permitted		1.00	1.00	0.26	1.00						1.00	
Satd. Flow (perm)		3539	1583	477	3539						3129	
Volume (vph)	0	569	261	21	419	0	0	0	0	17	60	240
Peak-hour factor, PHF	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Adj. Flow (vph)	0	625	287	23	460	0	0	0	0	19	66	264
RTOR Reduction (vph)	0	0	209	0	0	0	0	0	0	0	103	0
Lane Group Flow (vph)	0	625	78	23	460	0	0	0	0	0	246	0
Turn Type			Perm	Perm						Perm		
Protected Phases		4			8						6	
Permitted Phases			4	8						6		
Actuated Green, G (s)		18.3	18.3	18.3	18.3						41.2	
Effective Green, g (s)		18.3	18.3	18.3	18.3						41.2	
Actuated g/C Ratio		0.27	0.27	0.27	0.27						0.61	
Clearance Time (s)		4.0	4.0	4.0	4.0						4.0	
Vehicle Extension (s)		3.0	3.0	3.0	3.0						3.0	
Lane Grp Cap (vph)		959	429	129	959						1910	
v/s Ratio Prot		c0.18			0.13							
v/s Ratio Perm			0.05	0.05							0.08	
v/c Ratio		0.65	0.18	0.18	0.48						0.13	
Uniform Delay, d1		21.8	18.9	18.8	20.6						5.6	
Progression Factor		1.00	1.00	1.00	1.00						1.00	
Incremental Delay, d2		1.6	0.2	0.7	0.4						0.1	
Delay (s)		23.4	19.1	19.5	21.0						5.7	
Level of Service		C	B	B	C						A	
Approach Delay (s)		22.0			20.9			0.0			5.7	
Approach LOS		C			C			A			A	

Intersection Summary			
HCM Average Control Delay	18.4	HCM Level of Service	B
HCM Volume to Capacity ratio	0.29		
Actuated Cycle Length (s)	67.5	Sum of lost time (s)	8.0
Intersection Capacity Utilization	41.2%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Sign Control	Stop			Stop	Stop	
Volume (vph)	586	0	439	12	0	0
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Hourly flow rate (vph)	617	0	462	13	0	0

Direction, Lane #	EB 1	EB 2	NB 1	NB 2
Volume Total (vph)	308	308	308	167
Volume Left (vph)	308	308	308	154
Volume Right (vph)	0	0	0	0
Hadj (s)	0.53	0.53	0.53	0.50
Departure Headway (s)	6.5	6.5	6.8	6.8
Degree Utilization, x	0.56	0.56	0.58	0.31
Capacity (veh/h)	538	540	509	514
Control Delay (s)	16.3	16.3	17.6	11.6
Approach Delay (s)	16.3		15.5	
Approach LOS	C		C	

Intersection Summary			
Delay	15.9		
HCM Level of Service	C		
Intersection Capacity Utilization	62.8%	ICU Level of Service	B
Analysis Period (min)	15		

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Volume (veh/h)	6	78	1382	15	45	325
Peak Hour Factor	0.89	0.89	0.89	0.89	0.89	0.89
Hourly flow rate (vph)	7	88	1553	17	51	365
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None					
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	1845	785			1570	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1845	785			1570	
tC, single (s)	6.8	6.9			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	88	74			88	
cM capacity (veh/h)	58	336			416	

Direction, Lane #	WB 1	WB 2	NB 1	NB 2	SB 1	SB 2	SB 3
Volume Total	7	88	1035	534	51	183	183
Volume Left	7	0	0	0	51	0	0
Volume Right	0	88	0	17	0	0	0
cSH	58	336	1700	1700	416	1700	1700
Volume to Capacity	0.12	0.26	0.61	0.31	0.12	0.11	0.11
Queue Length 95th (ft)	9	26	0	0	10	0	0
Control Delay (s)	74.7	19.5	0.0	0.0	14.8	0.0	0.0
Lane LOS	F	C			B		
Approach Delay (s)	23.4		0.0		1.8		
Approach LOS	C						

Intersection Summary			
Average Delay	1.4		
Intersection Capacity Utilization	50.2%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	1.00	1.00		0.97	0.95	1.00	1.00	0.95	1.00	0.97	0.95	1.00
Frt	1.00	0.94		1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1770	1743		3433	3539	1583	1770	3539	1583	3433	3539	1583
Flt Permitted	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	1770	1743		3433	3539	1583	1770	3539	1583	3433	3539	1583
Volume (vph)	2	4	3	508	12	371	18	1003	343	56	272	2
Peak-hour factor, PHF	0.92	0.92	0.92	0.25	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	2	4	3	2032	13	403	20	1090	373	61	296	2
RTOR Reduction (vph)	0	3	0	0	0	309	0	0	264	0	0	1
Lane Group Flow (vph)	2	4	0	2032	13	94	20	1090	109	61	296	1
Turn Type	Prot			Prot		Perm	Prot		Perm	Prot		Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases						8			2			6
Actuated Green, G (s)	0.9	2.0		18.9	21.0	21.0	30.7	26.8	26.8	30.7	26.8	26.8
Effective Green, g (s)	0.9	3.0		21.2	23.3	23.3	30.7	29.1	29.1	30.7	29.1	29.1
Actuated g/C Ratio	0.01	0.03		0.21	0.23	0.23	0.31	0.29	0.29	0.31	0.29	0.29
Clearance Time (s)	4.0	5.0		6.3	6.3	6.3	4.0	6.3	6.3	4.0	6.3	6.3
Vehicle Extension (s)	1.5	3.0		3.0	2.0	2.0	1.5	2.0	2.0	2.0	3.0	3.0
Lane Grp Cap (vph)	16	52		728	825	369	543	1030	461	1054	1030	461
v/s Ratio Prot	0.00	0.00		c0.59	0.00		0.01	c0.31		c0.02	0.08	
v/s Ratio Perm						c0.06			0.07			0.00
v/c Ratio	0.12	0.08		2.79	0.02	0.25	0.04	1.06	0.24	0.06	0.29	0.00
Uniform Delay, d1	49.2	47.2		39.4	29.5	31.3	24.3	35.5	27.0	24.4	27.4	25.1
Progression Factor	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	1.3	0.6		809.9	0.0	0.1	0.1	44.8	1.2	0.1	0.7	0.0
Delay (s)	50.4	47.8		849.3	29.5	31.4	24.4	80.2	28.2	24.6	28.1	25.1
Level of Service	D	D		F	C	C	C	F	C	C	C	C
Approach Delay (s)		48.4			710.3			66.4			27.5	
Approach LOS		D			F			E			C	

Intersection Summary			
HCM Average Control Delay	429.8	HCM Level of Service	F
HCM Volume to Capacity ratio	1.06		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	64.0%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	
Lane Util. Factor	1.00	0.95		1.00	0.95	1.00	1.00	0.95	1.00	0.97	0.95	
Frt	1.00	0.97		1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.99	
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1770	3446		1770	3539	1583	1770	3539	1583	3433	3501	
Flt Permitted	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (perm)	1770	3446		1770	3539	1583	1770	3539	1583	3433	3501	
Volume (vph)	23	310	66	83	618	241	162	1167	159	87	243	19
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	24	326	69	87	651	254	171	1228	167	92	256	20
RTOR Reduction (vph)	0	13	0	0	0	162	0	0	81	0	6	0
Lane Group Flow (vph)	24	382	0	87	651	92	171	1228	86	92	270	0
Turn Type	Prot			Prot		Perm	Prot		Perm	Prot		
Protected Phases	5	2		1	6		7	4		3	8	
Permitted Phases						6			4			
Actuated Green, G (s)	3.7	37.5		8.0	42.0	42.0	15.0	48.5	48.5	7.0	40.5	
Effective Green, g (s)	3.7	38.8		8.2	43.3	43.3	15.0	49.8	49.8	7.2	42.0	
Actuated g/C Ratio	0.03	0.32		0.07	0.36	0.36	0.12	0.41	0.41	0.06	0.35	
Clearance Time (s)	4.0	5.3		4.2	5.3	5.3	4.0	5.3	5.3	4.2	5.5	
Vehicle Extension (s)	1.5	2.0		1.5	2.0	2.0	1.5	2.0	2.0	1.5	2.0	
Lane Grp Cap (vph)	55	1114		121	1277	571	221	1469	657	206	1225	
v/s Ratio Prot	0.01	0.11		c0.05	c0.18		c0.10	c0.35		0.03	0.08	
v/s Ratio Perm						0.06			0.05			
v/c Ratio	0.44	0.34		0.72	0.51	0.16	0.77	0.84	0.13	0.45	0.22	
Uniform Delay, d1	57.1	30.9		54.8	30.0	26.0	50.9	31.4	21.7	54.5	27.5	
Progression Factor	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	2.0	0.8		15.6	1.5	0.6	14.2	4.1	0.0	0.6	0.0	
Delay (s)	59.1	31.7		70.4	31.5	26.6	65.0	35.5	21.7	55.0	27.5	
Level of Service	E	C		E	C	C	E	D	C	E	C	
Approach Delay (s)		33.3			33.7			37.3			34.4	
Approach LOS		C			C			D			C	

Intersection Summary			
HCM Average Control Delay	35.4	HCM Level of Service	D
HCM Volume to Capacity ratio	0.68		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	69.3%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0	4.0	4.0	4.0					4.0	4.0	4.0
Lane Util. Factor		0.95	1.00	0.97	0.95					0.95	0.91	0.95
Frt		1.00	0.85	1.00	1.00					1.00	0.89	0.85
Flt Protected		1.00	1.00	0.95	1.00					0.95	0.99	1.00
Satd. Flow (prot)		3539	1583	3433	3539					1681	1491	1504
Flt Permitted		1.00	1.00	0.95	1.00					0.95	0.99	1.00
Satd. Flow (perm)		3539	1583	3433	3539					1681	1491	1504
Volume (vph)	0	815	266	91	247	0	0	0	0	25	1	41
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	0	906	296	101	274	0	0	0	0	28	1	46
RTOR Reduction (vph)	0	0	189	0	0	0	0	0	0	0	11	18
Lane Group Flow (vph)	0	906	107	101	274	0	0	0	0	23	12	11
Turn Type			Perm	Prot						Perm		Perm
Protected Phases		4		3	8						6	
Permitted Phases			4							6		6
Actuated Green, G (s)		24.2	24.2	5.9	34.1					25.0	25.0	25.0
Effective Green, g (s)		24.2	24.2	5.9	34.1					25.0	25.0	25.0
Actuated g/C Ratio		0.36	0.36	0.09	0.51					0.37	0.37	0.37
Clearance Time (s)		4.0	4.0	4.0	4.0					4.0	4.0	4.0
Vehicle Extension (s)		3.0	3.0	3.0	3.0					3.0	3.0	3.0
Lane Grp Cap (vph)		1276	571	302	1799					626	556	560
v/s Ratio Prot		c0.26		c0.03	0.08							
v/s Ratio Perm			0.07							c0.01	0.01	0.01
v/c Ratio		0.71	0.19	0.33	0.15					0.04	0.02	0.02
Uniform Delay, d1		18.4	14.7	28.8	8.8					13.4	13.3	13.3
Progression Factor		1.00	1.00	1.00	1.00					1.00	1.00	1.00
Incremental Delay, d2		1.9	0.2	0.7	0.0					0.1	0.1	0.1
Delay (s)		20.3	14.9	29.4	8.8					13.5	13.4	13.4
Level of Service		C	B	C	A					B	B	B
Approach Delay (s)		19.0			14.4			0.0			13.4	
Approach LOS		B			B			A			B	

Intersection Summary			
HCM Average Control Delay	17.7	HCM Level of Service	B
HCM Volume to Capacity ratio	0.36		
Actuated Cycle Length (s)	67.1	Sum of lost time (s)	12.0
Intersection Capacity Utilization	50.0%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0			4.0	4.0	4.0
Lane Util. Factor	0.95			0.95	0.97	1.00
Frt	1.00			1.00	1.00	0.85
Flt Protected	1.00			1.00	0.95	1.00
Satd. Flow (prot)	3539			3539	3433	1583
Flt Permitted	1.00			1.00	0.95	1.00
Satd. Flow (perm)	3539			3539	3433	1583
Volume (vph)	841	0	0	182	155	324
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	914	0	0	198	168	352
RTOR Reduction (vph)	0	0	0	0	0	41
Lane Group Flow (vph)	914	0	0	198	168	311
Turn Type						Perm
Protected Phases	4			8	2	
Permitted Phases						2
Actuated Green, G (s)	26.0			26.0	43.2	43.2
Effective Green, g (s)	26.0			26.0	43.2	43.2
Actuated g/C Ratio	0.34			0.34	0.56	0.56
Clearance Time (s)	4.0			4.0	4.0	4.0
Vehicle Extension (s)	3.0			3.0	3.0	3.0
Lane Grp Cap (vph)	1192			1192	1921	886
v/s Ratio Prot	c0.26			0.06	0.05	
v/s Ratio Perm						c0.20
v/c Ratio	0.77			0.17	0.09	0.35
Uniform Delay, d1	22.9			18.0	7.9	9.3
Progression Factor	1.00			1.00	1.00	1.00
Incremental Delay, d2	3.0			0.1	0.1	1.1
Delay (s)	25.9			18.1	8.0	10.4
Level of Service	C			B	A	B
Approach Delay (s)	25.9			18.1	9.6	
Approach LOS	C			B	A	

Intersection Summary			
HCM Average Control Delay	19.8	HCM Level of Service	B
HCM Volume to Capacity ratio	0.51		
Actuated Cycle Length (s)	77.2	Sum of lost time (s)	8.0
Intersection Capacity Utilization	50.0%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Volume (veh/h)	0	0	0	3	12	14	504	664	3	0	179	27
Peak Hour Factor	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85
Hourly flow rate (vph)	0	0	0	4	14	16	593	781	4	0	211	32
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	1826	2197	226	2179	2211	392	242			785		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	1826	2197	226	2179	2211	392	242			785		
tC, single (s)	7.5	6.5	6.9	7.5	6.5	6.9	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	100	100	100	79	41	97	55			100		
cM capacity (veh/h)	17	24	776	17	24	607	1321			830		

Direction, Lane #	WB 1	NB 1	NB 2	NB 3	SB 1	SB 2
Volume Total	34	593	521	264	0	242
Volume Left	4	593	0	0	0	0
Volume Right	16	0	0	4	0	32
cSH	41	1321	1700	1700	1700	1700
Volume to Capacity	0.83	0.45	0.31	0.16	0.00	0.14
Queue Length 95th (ft)	79	60	0	0	0	0
Control Delay (s)	237.8	9.9	0.0	0.0	0.0	0.0
Lane LOS	F	A				
Approach Delay (s)	237.8	4.3			0.0	
Approach LOS	F					

Intersection Summary				
Average Delay	8.5			
Intersection Capacity Utilization	52.3%	ICU Level of Service	A	
Analysis Period (min)	15			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	0.95		1.00	0.95	
Frt	1.00	0.96		1.00	0.95		1.00	0.96		1.00	0.98	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1770	3397		1770	3364		1770	3387		1770	3467	
Flt Permitted	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (perm)	1770	3397		1770	3364		1770	3387		1770	3467	
Volume (vph)	63	335	123	174	335	165	110	321	129	176	319	50
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	66	349	128	181	349	172	115	334	134	183	332	52
RTOR Reduction (vph)	0	37	0	0	53	0	0	42	0	0	12	0
Lane Group Flow (vph)	66	440	0	181	468	0	115	426	0	183	372	0
Turn Type	Prot			Prot			Prot			Prot		
Protected Phases	5	2		1	6		7	4		3	8	
Permitted Phases												
Actuated Green, G (s)	6.7	35.9		15.0	44.1		10.2	17.9		12.9	19.7	
Effective Green, g (s)	6.9	37.0		15.0	45.1		11.2	18.9		13.1	20.8	
Actuated g/C Ratio	0.07	0.37		0.15	0.45		0.11	0.19		0.13	0.21	
Clearance Time (s)	4.2	5.1		4.0	5.0		5.0	5.0		4.2	5.1	
Vehicle Extension (s)	1.5	2.0		1.5	2.0		1.5	2.0		1.5	2.0	
Lane Grp Cap (vph)	122	1257		266	1517		198	640		232	721	
v/s Ratio Prot	0.04	c0.13		c0.10	0.14		0.06	c0.13		c0.10	0.11	
v/s Ratio Perm												
v/c Ratio	0.54	0.35		0.68	0.31		0.58	0.67		0.79	0.52	
Uniform Delay, d1	45.0	22.8		40.2	17.5		42.2	37.6		42.1	35.1	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	2.6	0.8		5.6	0.5		2.8	5.4		15.0	2.6	
Delay (s)	47.6	23.6		45.8	18.0		45.0	43.0		57.1	37.8	
Level of Service	D	C		D	B		D	D		E	D	
Approach Delay (s)		26.5			25.2			43.4			44.0	
Approach LOS		C			C			D			D	

Intersection Summary			
HCM Average Control Delay	34.4	HCM Level of Service	C
HCM Volume to Capacity ratio	0.54		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	16.0
Intersection Capacity Utilization	61.8%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.94	
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1770	3539	1583	1770	3539	1583	1770	3539	1583	1770	3342	
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (perm)	1770	3539	1583	1770	3539	1583	1770	3539	1583	1770	3342	
Volume (vph)	247	678	87	63	526	175	103	316	98	257	328	194
Peak-hour factor, PHF	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Adj. Flow (vph)	271	745	96	69	578	192	113	347	108	282	360	213
RTOR Reduction (vph)	0	0	50	0	0	105	0	0	78	0	71	0
Lane Group Flow (vph)	271	745	46	69	578	87	113	347	30	282	502	0
Turn Type	Prot		Perm	Prot		Perm	Prot		Perm	Prot		
Protected Phases	5	2		1	6		7	4		3	8	
Permitted Phases			2			6			4			
Actuated Green, G (s)	21.9	58.5	58.5	7.6	44.2	44.2	11.5	17.6	17.6	22.0	28.1	
Effective Green, g (s)	21.9	59.5	59.5	7.6	45.2	45.2	11.5	18.9	18.9	22.0	29.4	
Actuated g/C Ratio	0.18	0.48	0.48	0.06	0.36	0.36	0.09	0.15	0.15	0.18	0.24	
Clearance Time (s)	4.0	5.0	5.0	4.0	5.0	5.0	4.0	5.3	5.3	4.0	5.3	
Vehicle Extension (s)	1.5	2.0	2.0	1.5	2.0	2.0	1.5	2.0	2.0	1.5	2.0	
Lane Grp Cap (vph)	313	1698	760	108	1290	577	164	539	241	314	792	
v/s Ratio Prot	c0.15	c0.21		0.04	0.16		0.06	0.10		c0.16	c0.15	
v/s Ratio Perm			0.03			0.05			0.02			
v/c Ratio	0.87	0.44	0.06	0.64	0.45	0.15	0.69	0.64	0.12	0.90	0.63	
Uniform Delay, d1	49.6	21.2	17.3	56.9	29.9	26.5	54.5	49.4	45.4	49.9	42.5	
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	20.7	0.8	0.2	8.8	1.1	0.5	9.2	2.0	0.1	25.9	1.2	
Delay (s)	70.3	22.1	17.4	65.6	31.1	27.0	63.7	51.4	45.5	75.8	43.7	
Level of Service	E	C	B	E	C	C	E	D	D	E	D	
Approach Delay (s)		33.4			33.0			52.7			54.3	
Approach LOS		C			C			D			D	

Intersection Summary			
HCM Average Control Delay	41.8	HCM Level of Service	D
HCM Volume to Capacity ratio	0.63		
Actuated Cycle Length (s)	124.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	64.5%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0			4.0	4.0	4.0	4.0	
Lane Util. Factor	1.00	0.95		1.00	0.95			1.00	1.00	1.00	1.00	
Frt	1.00	0.99		1.00	0.98			1.00	0.85	1.00	0.87	
Flt Protected	0.95	1.00		0.95	1.00			0.97	1.00	0.95	1.00	
Satd. Flow (prot)	1770	3517		1770	3455			1799	1583	1770	1622	
Flt Permitted	0.95	1.00		0.95	1.00			0.81	1.00	0.73	1.00	
Satd. Flow (perm)	1770	3517		1770	3455			1508	1583	1364	1622	
Volume (vph)	82	979	42	45	786	148	26	10	13	71	7	41
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	86	1031	44	47	827	156	27	11	14	75	7	43
RTOR Reduction (vph)	0	1	0	0	7	0	0	0	12	0	37	0
Lane Group Flow (vph)	86	1074	0	47	976	0	0	38	2	75	13	0
Turn Type	Prot			Prot			Perm		Perm	Perm		
Protected Phases	5	2		1	6			4			8	
Permitted Phases							4		4	8		
Actuated Green, G (s)	8.7	87.7		6.3	85.3			18.0	18.0	18.0	18.0	
Effective Green, g (s)	8.7	88.7		6.3	86.3			18.0	18.0	18.0	18.0	
Actuated g/C Ratio	0.07	0.71		0.05	0.69			0.14	0.14	0.14	0.14	
Clearance Time (s)	4.0	5.0		4.0	5.0			4.0	4.0	4.0	4.0	
Vehicle Extension (s)	1.5	1.5		1.5	2.0			2.5	2.5	2.5	2.5	
Lane Grp Cap (vph)	123	2496		89	2385			217	228	196	234	
v/s Ratio Prot	c0.05	c0.31		0.03	0.28						0.01	
v/s Ratio Perm								0.03	0.00	c0.05		
v/c Ratio	0.70	0.43		0.53	0.41			0.18	0.01	0.38	0.06	
Uniform Delay, d1	56.9	7.6		57.9	8.3			47.0	45.9	48.5	46.2	
Progression Factor	1.00	1.00		1.00	1.00			1.00	1.00	1.00	1.00	
Incremental Delay, d2	13.1	0.5		2.6	0.5			0.3	0.0	0.9	0.1	
Delay (s)	70.0	8.1		60.5	8.9			47.3	45.9	49.4	46.2	
Level of Service	E	A		E	A			D	D	D	D	
Approach Delay (s)		12.7			11.2			46.9			48.1	
Approach LOS		B			B			D			D	

Intersection Summary			
HCM Average Control Delay	14.7	HCM Level of Service	B
HCM Volume to Capacity ratio	0.43		
Actuated Cycle Length (s)	125.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	52.3%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0	4.0	4.0	4.0					4.0	4.0	4.0
Lane Util. Factor		0.91	0.91	1.00	0.95					0.95	0.95	1.00
Frt		0.99	0.85	1.00	1.00					1.00	1.00	0.85
Flt Protected		1.00	1.00	0.95	1.00					0.95	0.95	1.00
Satd. Flow (prot)		3345	1441	1770	3539					1681	1681	1583
Flt Permitted		1.00	1.00	0.95	1.00					0.95	0.95	1.00
Satd. Flow (perm)		3345	1441	1770	3539					1681	1681	1583
Volume (vph)	0	566	443	121	703	0	0	0	0	181	0	317
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	0	596	466	127	740	0	0	0	0	191	0	334
RTOR Reduction (vph)	0	8	291	0	0	0	0	0	0	0	0	132
Lane Group Flow (vph)	0	646	117	127	740	0	0	0	0	96	95	202
Turn Type			Perm	Prot						Perm		Perm
Protected Phases		4		3	8						6	
Permitted Phases			4							6		6
Actuated Green, G (s)		21.0	21.0	8.8	33.8					31.3	31.3	31.3
Effective Green, g (s)		21.0	21.0	8.8	33.8					31.3	31.3	31.3
Actuated g/C Ratio		0.29	0.29	0.12	0.46					0.43	0.43	0.43
Clearance Time (s)		4.0	4.0	4.0	4.0					4.0	4.0	4.0
Vehicle Extension (s)		3.0	3.0	3.0	3.0					3.0	3.0	3.0
Lane Grp Cap (vph)		961	414	213	1636					720	720	678
v/s Ratio Prot		c0.19		c0.07	0.21							
v/s Ratio Perm			0.08							0.06	0.06	c0.13
v/c Ratio		0.67	0.28	0.60	0.45					0.13	0.13	0.30
Uniform Delay, d1		23.0	20.2	30.5	13.4					12.7	12.7	13.7
Progression Factor		1.00	1.00	1.00	1.00					1.00	1.00	1.00
Incremental Delay, d2		1.9	0.4	4.4	0.2					0.4	0.4	1.1
Delay (s)		24.9	20.6	34.9	13.6					13.1	13.0	14.8
Level of Service		C	C	C	B					B	B	B
Approach Delay (s)		23.2			16.7			0.0			14.2	
Approach LOS		C			B			A			B	

Intersection Summary			
HCM Average Control Delay	19.0	HCM Level of Service	B
HCM Volume to Capacity ratio	0.47		
Actuated Cycle Length (s)	73.1	Sum of lost time (s)	12.0
Intersection Capacity Utilization	46.7%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0		4.0	4.0
Lane Util. Factor	1.00	0.95	0.95		0.97	1.00
Frt	1.00	1.00	0.97		1.00	0.85
Flt Protected	0.95	1.00	1.00		0.95	1.00
Satd. Flow (prot)	1770	3539	3421		3433	1583
Flt Permitted	0.95	1.00	1.00		0.95	1.00
Satd. Flow (perm)	1770	3539	3421		3433	1583
Volume (vph)	228	550	483	138	128	344
Peak-hour factor, PHF	0.91	0.91	0.91	0.91	0.91	0.91
Adj. Flow (vph)	251	604	531	152	141	378
RTOR Reduction (vph)	0	0	28	0	0	232
Lane Group Flow (vph)	251	604	655	0	141	146
Turn Type	Prot					Perm
Protected Phases	7	4	8		6	
Permitted Phases						6
Actuated Green, G (s)	16.2	40.9	20.7		30.7	30.7
Effective Green, g (s)	16.2	40.9	20.7		30.7	30.7
Actuated g/C Ratio	0.20	0.51	0.26		0.39	0.39
Clearance Time (s)	4.0	4.0	4.0		4.0	4.0
Vehicle Extension (s)	3.0	3.0	3.0		3.0	3.0
Lane Grp Cap (vph)	360	1818	890		1324	611
v/s Ratio Prot	c0.14	0.17	c0.19		0.04	
v/s Ratio Perm						c0.09
v/c Ratio	0.70	0.33	0.74		0.11	0.24
Uniform Delay, d1	29.4	11.3	26.9		15.7	16.5
Progression Factor	1.00	1.00	1.00		1.00	1.00
Incremental Delay, d2	5.8	0.1	3.2		0.2	0.9
Delay (s)	35.2	11.5	30.1		15.8	17.5
Level of Service	D	B	C		B	B
Approach Delay (s)		18.4	30.1		17.0	
Approach LOS		B	C		B	

Intersection Summary			
HCM Average Control Delay	22.0	HCM Level of Service	C
HCM Volume to Capacity ratio	0.50		
Actuated Cycle Length (s)	79.6	Sum of lost time (s)	12.0
Intersection Capacity Utilization	45.7%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	0.95		1.00	0.95	
Frt	1.00	0.96		1.00	0.94		1.00	0.96		1.00	0.99	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1770	3409		1770	3326		1770	3383		1770	3493	
Flt Permitted	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (perm)	1770	3409		1770	3326		1770	3383		1770	3493	
Volume (vph)	74	647	211	254	374	252	138	385	161	349	682	64
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	80	703	229	276	407	274	150	418	175	379	741	70
RTOR Reduction (vph)	0	32	0	0	103	0	0	46	0	0	6	0
Lane Group Flow (vph)	80	901	0	276	578	0	150	547	0	379	805	0
Turn Type	Prot			Prot			Prot			Prot		
Protected Phases	5	2		1	6		7	4		3	8	
Permitted Phases												
Actuated Green, G (s)	7.4	35.9		15.0	43.4		11.7	15.9		14.9	18.2	
Effective Green, g (s)	7.6	37.0		15.0	44.4		12.7	16.9		15.1	19.3	
Actuated g/C Ratio	0.08	0.37		0.15	0.44		0.13	0.17		0.15	0.19	
Clearance Time (s)	4.2	5.1		4.0	5.0		5.0	5.0		4.2	5.1	
Vehicle Extension (s)	1.5	2.0		1.5	2.0		1.5	2.0		1.5	2.0	
Lane Grp Cap (vph)	135	1261		266	1477		225	572		267	674	
v/s Ratio Prot	0.05	c0.26		c0.16	0.17		0.08	0.16		c0.21	c0.23	
v/s Ratio Perm												
v/c Ratio	0.59	0.71		1.04	0.39		0.67	0.96		1.42	1.19	
Uniform Delay, d1	44.7	27.0		42.5	18.7		41.6	41.2		42.5	40.4	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	4.6	3.5		65.3	0.8		5.7	28.4		209.3	101.3	
Delay (s)	49.3	30.4		107.8	19.5		47.3	69.5		251.8	141.7	
Level of Service	D	C		F	B		D	E		F	F	
Approach Delay (s)		31.9			45.0			65.1			176.7	
Approach LOS		C			D			E			F	

Intersection Summary			
HCM Average Control Delay	85.6	HCM Level of Service	F
HCM Volume to Capacity ratio	0.97		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	87.2%	ICU Level of Service	E
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0		4.0	4.0	4.0	4.0	4.0	
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95		1.00	0.95	1.00	1.00	0.95	
Frt	1.00	1.00	0.85	1.00	0.96		1.00	1.00	0.85	1.00	0.97	
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1770	3539	1583	1770	3399		1770	3539	1583	1770	3447	
Flt Permitted	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00	0.36	1.00	
Satd. Flow (perm)	1770	3539	1583	1770	3399		1770	3539	1583	679	3447	
Volume (vph)	302	514	379	224	398	143	403	734	284	213	892	187
Peak-hour factor, PHF	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Adj. Flow (vph)	311	530	391	231	410	147	415	757	293	220	920	193
RTOR Reduction (vph)	0	0	235	0	36	0	0	0	142	0	17	0
Lane Group Flow (vph)	311	530	156	231	521	0	415	757	151	220	1096	0
Turn Type	Prot		Perm	Prot			Prot		Perm	Perm		
Protected Phases	7	4		3	8		5	2			6	
Permitted Phases			4						2	6		
Actuated Green, G (s)	19.8	20.6	20.6	15.2	16.0		14.0	51.0	51.0	33.0	33.0	
Effective Green, g (s)	19.8	20.6	20.6	15.2	16.0		14.0	51.0	51.0	33.0	33.0	
Actuated g/C Ratio	0.20	0.21	0.21	0.15	0.16		0.14	0.52	0.52	0.33	0.33	
Clearance Time (s)	4.0	4.0	4.0	4.0	4.0		4.0	4.0	4.0	4.0	4.0	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	355	738	330	272	550		251	1827	817	227	1151	
v/s Ratio Prot	c0.18	0.15		0.13	c0.15		c0.23	0.21			0.32	
v/s Ratio Perm			0.10						0.10	c0.32		
v/c Ratio	0.88	0.72	0.47	0.85	0.95		1.65	0.41	0.19	0.97	0.95	
Uniform Delay, d1	38.3	36.4	34.3	40.7	41.0		42.4	14.7	12.8	32.4	32.1	
Progression Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	20.7	3.4	1.1	21.1	25.6		311.2	0.7	0.5	52.3	17.2	
Delay (s)	59.0	39.8	35.4	61.8	66.5		353.6	15.4	13.3	84.7	49.4	
Level of Service	E	D	D	E	E		F	B	B	F	D	
Approach Delay (s)		43.2			65.2			110.8			55.2	
Approach LOS		D			E			F			E	

Intersection Summary			
HCM Average Control Delay	70.7	HCM Level of Service	E
HCM Volume to Capacity ratio	1.06		
Actuated Cycle Length (s)	98.8	Sum of lost time (s)	16.0
Intersection Capacity Utilization	98.6%	ICU Level of Service	F
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0		4.0	4.0			4.0	
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	1.00			1.00	
Frt	1.00	0.99		1.00	0.99		1.00	0.89			0.96	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00			0.98	
Satd. Flow (prot)	1770	3486		1770	3505		1770	1665			1739	
Flt Permitted	0.95	1.00		0.95	1.00		0.67	1.00			0.85	
Satd. Flow (perm)	1770	3486		1770	3505		1242	1665			1507	
Volume (vph)	52	730	81	40	657	45	103	19	45	66	27	45
Peak-hour factor, PHF	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85
Adj. Flow (vph)	61	859	95	47	773	53	121	22	53	78	32	53
RTOR Reduction (vph)	0	9	0	0	5	0	0	30	0	0	14	0
Lane Group Flow (vph)	61	945	0	47	821	0	121	45	0	0	149	0
Turn Type	Prot			Prot			Perm			Perm		
Protected Phases	7	4		3	8			2			6	
Permitted Phases							2			6		
Actuated Green, G (s)	5.0	25.4		4.6	25.0		31.3	31.3			31.3	
Effective Green, g (s)	5.0	25.4		4.6	25.0		31.3	31.3			31.3	
Actuated g/C Ratio	0.07	0.35		0.06	0.34		0.43	0.43			0.43	
Clearance Time (s)	4.0	4.0		4.0	4.0		4.0	4.0			4.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0			3.0	
Lane Grp Cap (vph)	121	1208		111	1195		530	711			644	
v/s Ratio Prot	c0.03	c0.27		0.03	0.23			0.03				
v/s Ratio Perm							0.10				c0.10	
v/c Ratio	0.50	0.78		0.42	0.69		0.23	0.06			0.23	
Uniform Delay, d1	33.0	21.5		33.1	20.8		13.3	12.4			13.3	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00			1.00	
Incremental Delay, d2	3.3	3.4		2.6	1.7		1.0	0.2			0.8	
Delay (s)	36.2	24.8		35.7	22.4		14.3	12.5			14.2	
Level of Service	D	C		D	C		B	B			B	
Approach Delay (s)		25.5			23.2			13.6			14.2	
Approach LOS		C			C			B			B	

Intersection Summary			
HCM Average Control Delay	22.7	HCM Level of Service	C
HCM Volume to Capacity ratio	0.45		
Actuated Cycle Length (s)	73.3	Sum of lost time (s)	8.0
Intersection Capacity Utilization	50.6%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0		4.0	4.0	4.0	4.0	4.0	
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	1.00	1.00	1.00	1.00	
Frt	1.00	0.95		1.00	0.99		1.00	1.00	0.85	1.00	0.93	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1770	3368		1770	3512		1770	1863	1583	1770	1730	
Flt Permitted	0.95	1.00		0.95	1.00		0.48	1.00	1.00	0.66	1.00	
Satd. Flow (perm)	1770	3368		1770	3512		886	1863	1583	1235	1730	
Volume (vph)	200	429	204	174	337	18	251	134	241	14	152	137
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	217	466	222	189	366	20	273	146	262	15	165	149
RTOR Reduction (vph)	0	63	0	0	4	0	0	0	149	0	28	0
Lane Group Flow (vph)	217	625	0	189	382	0	273	146	113	15	286	0
Turn Type	Prot			Prot			Perm		Perm	Perm		
Protected Phases	7	4		3	8			2			6	
Permitted Phases							2		2	6		
Actuated Green, G (s)	13.7	20.2		13.7	20.2		34.6	34.6	34.6	34.6	34.6	
Effective Green, g (s)	13.7	20.2		13.7	20.2		34.6	34.6	34.6	34.6	34.6	
Actuated g/C Ratio	0.17	0.25		0.17	0.25		0.43	0.43	0.43	0.43	0.43	
Clearance Time (s)	4.0	4.0		4.0	4.0		4.0	4.0	4.0	4.0	4.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	301	845		301	881		381	801	680	531	744	
v/s Ratio Prot	c0.12	c0.19		0.11	0.11			0.08			0.17	
v/s Ratio Perm							c0.31		0.07	0.01		
v/c Ratio	0.72	0.74		0.63	0.43		0.72	0.18	0.17	0.03	0.38	
Uniform Delay, d1	31.6	27.7		31.0	25.3		18.9	14.2	14.1	13.2	15.7	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	8.2	3.4		4.1	0.3		11.0	0.5	0.5	0.1	1.5	
Delay (s)	39.8	31.2		35.1	25.7		29.9	14.7	14.6	13.3	17.2	
Level of Service	D	C		D	C		C	B	B	B	B	
Approach Delay (s)		33.2			28.8			20.8			17.0	
Approach LOS		C			C			C			B	

Intersection Summary			
HCM Average Control Delay	26.6	HCM Level of Service	C
HCM Volume to Capacity ratio	0.72		
Actuated Cycle Length (s)	80.5	Sum of lost time (s)	12.0
Intersection Capacity Utilization	71.6%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	1.00	0.95		1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	0.94		1.00	0.99		1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1770	3333		1770	1844		1770	1863	1583	1770	1863	1583
Flt Permitted	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	1770	3333		1770	1844		1770	1863	1583	1770	1863	1583
Volume (vph)	18	394	251	41	298	22	183	101	45	40	332	35
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	19	415	264	43	314	23	193	106	47	42	349	37
RTOR Reduction (vph)	0	106	0	0	3	0	0	0	0	0	0	22
Lane Group Flow (vph)	19	573	0	43	334	0	193	106	47	42	349	15
Turn Type	Prot			Prot			Prot		Free	Prot		Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases									Free			6
Actuated Green, G (s)	2.1	20.0		3.7	21.6		14.1	47.2	90.6	3.7	36.8	36.8
Effective Green, g (s)	2.1	20.0		3.7	21.6		14.1	47.2	90.6	3.7	36.8	36.8
Actuated g/C Ratio	0.02	0.22		0.04	0.24		0.16	0.52	1.00	0.04	0.41	0.41
Clearance Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	4.0
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	3.0
Lane Grp Cap (vph)	41	736		72	440		275	971	1583	72	757	643
v/s Ratio Prot	0.01	0.17		c0.02	c0.18		c0.11	0.06		0.02	c0.19	
v/s Ratio Perm									c0.03			0.01
v/c Ratio	0.46	0.78		0.60	0.76		0.70	0.11	0.03	0.58	0.46	0.02
Uniform Delay, d1	43.7	33.2		42.7	32.1		36.3	11.0	0.0	42.7	19.7	16.1
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	8.1	5.2		12.6	7.4		7.9	0.2	0.0	11.5	2.0	0.1
Delay (s)	51.8	38.4		55.3	39.4		44.1	11.2	0.0	54.2	21.7	16.2
Level of Service	D	D		E	D		D	B	A	D	C	B
Approach Delay (s)		38.8			41.2			28.1			24.4	
Approach LOS		D			D			C			C	

Intersection Summary			
HCM Average Control Delay	34.0	HCM Level of Service	C
HCM Volume to Capacity ratio	0.58		
Actuated Cycle Length (s)	90.6	Sum of lost time (s)	12.0
Intersection Capacity Utilization	63.2%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0		4.0	4.0	4.0	4.0	4.0	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00		1.00	0.95	1.00	1.00	0.95	
Frt	1.00	1.00	0.85	1.00	0.98		1.00	1.00	0.85	1.00	0.99	
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1770	1863	1583	1770	1830		1770	3539	1583	1770	3497	
Flt Permitted	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00	0.95	1.00	
Satd. Flow (perm)	1770	1863	1583	1770	1830		1770	3539	1583	1770	3497	
Volume (vph)	135	187	193	111	163	22	176	1076	141	165	1296	113
Peak-hour factor, PHF	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Adj. Flow (vph)	144	199	205	118	173	23	187	1145	150	176	1379	120
RTOR Reduction (vph)	0	0	141	0	4	0	0	0	79	0	5	0
Lane Group Flow (vph)	144	199	64	118	192	0	187	1145	71	176	1494	0
Turn Type	Prot		Perm	Prot			Prot		Perm	Prot		
Protected Phases	5	2		1	6		7	4		3	8	
Permitted Phases			2						4			
Actuated Green, G (s)	12.3	31.7	31.7	10.8	30.2		14.3	30.7	30.7	13.9	30.3	
Effective Green, g (s)	12.3	32.7	32.7	10.8	31.2		14.3	31.7	31.7	13.9	31.3	
Actuated g/C Ratio	0.12	0.31	0.31	0.10	0.30		0.14	0.30	0.30	0.13	0.30	
Clearance Time (s)	4.0	5.0	5.0	4.0	5.0		4.0	5.0	5.0	4.0	5.0	
Vehicle Extension (s)	1.5	2.0	2.0	1.5	2.0		1.5	2.0	2.0	1.5	2.0	
Lane Grp Cap (vph)	207	580	493	182	543		241	1067	477	234	1041	
v/s Ratio Prot	c0.08	c0.11		0.07	0.10		c0.11	0.32		0.10	c0.43	
v/s Ratio Perm			0.04						0.04			
v/c Ratio	0.70	0.34	0.13	0.65	0.35		0.78	1.07	0.15	0.75	1.44	
Uniform Delay, d1	44.6	27.9	26.0	45.3	29.0		43.9	36.7	26.8	43.9	36.9	
Progression Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	7.9	1.6	0.5	5.8	1.8		13.3	49.4	0.7	11.4	201.4	
Delay (s)	52.5	29.5	26.5	51.2	30.8		57.1	86.1	27.5	55.4	238.3	
Level of Service	D	C	C	D	C		E	F	C	E	F	
Approach Delay (s)		34.4			38.5			76.5			219.1	
Approach LOS		C			D			E			F	

Intersection Summary			
HCM Average Control Delay	127.2	HCM Level of Service	F
HCM Volume to Capacity ratio	0.81		
Actuated Cycle Length (s)	105.1	Sum of lost time (s)	12.0
Intersection Capacity Utilization	79.9%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	0.90		1.00	0.93		1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1770	1681		1770	1723		1770	1863	1583	1770	1863	1583
Flt Permitted	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	1770	1681		1770	1723		1770	1863	1583	1770	1863	1583
Volume (vph)	66	87	163	172	109	109	135	481	150	93	503	50
Peak-hour factor, PHF	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Adj. Flow (vph)	73	96	179	189	120	120	148	529	165	102	553	55
RTOR Reduction (vph)	0	71	0	0	40	0	0	0	98	0	0	33
Lane Group Flow (vph)	73	204	0	189	200	0	148	529	67	102	553	22
Turn Type	Prot			Prot			Prot		Perm	Prot		Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases									2			6
Actuated Green, G (s)	6.8	14.1		11.4	18.7		9.1	33.6	33.6	8.1	32.6	32.6
Effective Green, g (s)	6.8	14.1		11.4	18.7		9.1	33.6	33.6	8.1	32.6	32.6
Actuated g/C Ratio	0.08	0.17		0.14	0.22		0.11	0.40	0.40	0.10	0.39	0.39
Clearance Time (s)	4.0	4.0		4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	145	285		243	387		194	752	639	172	730	620
v/s Ratio Prot	0.04	c0.12		c0.11	0.12		c0.08	0.28		0.06	c0.30	
v/s Ratio Perm									0.04			0.01
v/c Ratio	0.50	0.72		0.78	0.52		0.76	0.70	0.10	0.59	0.76	0.03
Uniform Delay, d1	36.6	32.7		34.7	28.3		36.0	20.7	15.4	36.0	21.9	15.6
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	2.7	8.3		14.5	1.2		16.2	5.5	0.3	5.4	7.2	0.1
Delay (s)	39.3	41.0		49.1	29.5		52.2	26.1	15.8	41.4	29.1	15.7
Level of Service	D	D		D	C		D	C	B	D	C	B
Approach Delay (s)		40.6			38.1			28.7			29.8	
Approach LOS		D			D			C			C	

Intersection Summary			
HCM Average Control Delay	32.6	HCM Level of Service	C
HCM Volume to Capacity ratio	0.75		
Actuated Cycle Length (s)	83.2	Sum of lost time (s)	16.0
Intersection Capacity Utilization	71.4%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Stop			Stop	
Volume (vph)	0	77	222	31	101	0	238	0	16	0	0	0
Peak Hour Factor	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89
Hourly flow rate (vph)	0	87	249	35	113	0	267	0	18	0	0	0

Direction, Lane #	EB 1	WB 1	NB 1
Volume Total (vph)	336	148	285
Volume Left (vph)	0	35	267
Volume Right (vph)	249	0	18
Hadj (s)	-0.41	0.08	0.18
Departure Headway (s)	4.5	5.2	5.2
Degree Utilization, x	0.42	0.21	0.41
Capacity (veh/h)	756	643	639
Control Delay (s)	10.7	9.6	11.9
Approach Delay (s)	10.7	9.6	11.9
Approach LOS	B	A	B

Intersection Summary				
Delay	10.9			
HCM Level of Service	B			
Intersection Capacity Utilization	48.9%	ICU Level of Service	A	
Analysis Period (min)	15			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0		4.0	4.0	
Lane Util. Factor	1.00	0.95		1.00	0.95	1.00	1.00	1.00		1.00	1.00	
Frt	1.00	0.99		1.00	1.00	0.85	1.00	0.94		1.00	0.94	
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1770	3507		1770	3539	1583	1770	1748		1770	1742	
Flt Permitted	0.95	1.00		0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (perm)	1770	3507		1770	3539	1583	1770	1748		1770	1742	
Volume (vph)	81	1211	77	34	792	34	41	62	43	74	124	94
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	88	1316	84	37	861	37	45	67	47	80	135	102
RTOR Reduction (vph)	0	4	0	0	0	21	0	19	0	0	20	0
Lane Group Flow (vph)	88	1396	0	37	861	16	45	95	0	80	217	0
Turn Type	Prot			Prot		Perm	Prot			Prot		
Protected Phases	5	2		1	6		7	4		3	8	
Permitted Phases						6						
Actuated Green, G (s)	8.8	56.8		5.4	53.4	53.4	6.2	36.4		8.4	38.6	
Effective Green, g (s)	8.8	57.8		5.4	54.4	54.4	6.2	37.4		8.4	39.6	
Actuated g/C Ratio	0.07	0.46		0.04	0.44	0.44	0.05	0.30		0.07	0.32	
Clearance Time (s)	4.0	5.0		4.0	5.0	5.0	4.0	5.0		4.0	5.0	
Vehicle Extension (s)	1.5	2.0		1.5	2.0	2.0	1.5	3.0		1.5	3.0	
Lane Grp Cap (vph)	125	1622		76	1540	689	88	523		119	552	
v/s Ratio Prot	0.05	c0.40		0.02	c0.24		0.03	0.05		c0.05	c0.12	
v/s Ratio Perm						0.01						
v/c Ratio	0.70	0.86		0.49	0.56	0.02	0.51	0.18		0.67	0.39	
Uniform Delay, d1	56.8	30.0		58.4	26.3	20.1	57.9	32.5		57.0	33.3	
Progression Factor	1.00	1.00		1.29	1.60	2.46	1.00	1.00		1.00	1.00	
Incremental Delay, d2	13.7	6.2		1.7	1.4	0.1	2.1	0.8		11.1	2.1	
Delay (s)	70.5	36.2		77.3	43.6	49.7	60.0	33.2		68.1	35.4	
Level of Service	E	D		E	D	D	E	C		E	D	
Approach Delay (s)		38.3			45.1			40.8			43.7	
Approach LOS		D			D			D			D	

Intersection Summary			
HCM Average Control Delay	41.2	HCM Level of Service	D
HCM Volume to Capacity ratio	0.64		
Actuated Cycle Length (s)	125.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	68.2%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	
Lane Util. Factor	0.97	0.95	1.00	0.97	0.95	1.00	0.97	0.95	1.00	0.97	0.95	
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.99	
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	3433	3539	1583	3433	3539	1583	3433	3539	1583	3433	3491	
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (perm)	3433	3539	1583	3433	3539	1583	3433	3539	1583	3433	3491	
Volume (vph)	143	835	320	548	497	157	188	402	373	201	897	90
Peak-hour factor, PHF	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Adj. Flow (vph)	157	918	352	602	546	173	207	442	410	221	986	99
RTOR Reduction (vph)	0	0	209	0	0	100	0	0	181	0	6	0
Lane Group Flow (vph)	157	918	143	602	546	73	207	442	229	221	1079	0
Turn Type	Prot		Perm	Prot		Perm	Prot		Perm	Prot		
Protected Phases	5	2		1	6		7	4		3	8	
Permitted Phases			2			6			4			
Actuated Green, G (s)	9.0	47.9	47.9	13.0	51.9	51.9	11.1	34.4	34.4	11.7	35.0	
Effective Green, g (s)	9.0	48.9	48.9	13.0	52.9	52.9	11.1	35.4	35.4	11.7	36.0	
Actuated g/C Ratio	0.07	0.39	0.39	0.10	0.42	0.42	0.09	0.28	0.28	0.09	0.29	
Clearance Time (s)	4.0	5.0	5.0	4.0	5.0	5.0	4.0	5.0	5.0	4.0	5.0	
Vehicle Extension (s)	1.5	2.0	2.0	1.5	2.0	2.0	1.5	2.0	2.0	1.5	2.0	
Lane Grp Cap (vph)	247	1384	619	357	1498	670	305	1002	448	321	1005	
v/s Ratio Prot	0.05	c0.26		c0.18	0.15		c0.06	0.12		0.06	c0.31	
v/s Ratio Perm			0.09			0.05			0.14			
v/c Ratio	0.64	0.66	0.23	1.69	0.36	0.11	0.68	0.44	0.51	0.69	1.07	
Uniform Delay, d1	56.4	31.3	25.5	56.0	24.6	21.8	55.2	36.7	37.6	54.9	44.5	
Progression Factor	0.85	0.59	1.48	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	2.4	1.5	0.5	320.8	0.7	0.3	4.7	0.1	0.4	4.8	50.4	
Delay (s)	50.0	20.1	38.1	376.8	25.3	22.1	59.9	36.8	38.0	59.7	94.9	
Level of Service	D	C	D	F	C	C	E	D	D	E	F	
Approach Delay (s)		27.8			185.0			41.8			89.0	
Approach LOS		C			F			D			F	

Intersection Summary			
HCM Average Control Delay	87.0	HCM Level of Service	F
HCM Volume to Capacity ratio	0.92		
Actuated Cycle Length (s)	125.0	Sum of lost time (s)	16.0
Intersection Capacity Utilization	85.1%	ICU Level of Service	E
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.97	
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1770	3539	1583	1770	3539	1583	1770	3539	1583	1770	3450	
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (perm)	1770	3539	1583	1770	3539	1583	1770	3539	1583	1770	3450	
Volume (vph)	230	1133	98	87	943	183	99	498	93	317	878	177
Peak-hour factor, PHF	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Adj. Flow (vph)	235	1156	100	89	962	187	101	508	95	323	896	181
RTOR Reduction (vph)	0	0	49	0	0	70	0	0	41	0	12	0
Lane Group Flow (vph)	235	1156	51	89	962	117	101	508	54	323	1065	0
Turn Type	Prot		Perm	Prot		Perm	Prot		Perm	Prot		
Protected Phases	5	2		1	6		7	4		3	8	
Permitted Phases			2			6			4			
Actuated Green, G (s)	19.5	42.7	42.7	10.0	33.2	33.2	10.6	30.0	30.0	23.0	42.4	
Effective Green, g (s)	19.5	43.7	43.7	10.0	34.2	34.2	10.6	31.3	31.3	23.0	43.7	
Actuated g/C Ratio	0.16	0.35	0.35	0.08	0.28	0.28	0.09	0.25	0.25	0.19	0.35	
Clearance Time (s)	4.0	5.0	5.0	4.0	5.0	5.0	4.0	5.3	5.3	4.0	5.3	
Vehicle Extension (s)	1.5	2.0	2.0	1.5	2.0	2.0	1.5	2.0	2.0	1.5	2.0	
Lane Grp Cap (vph)	278	1247	558	143	976	437	151	893	400	328	1216	
v/s Ratio Prot	c0.13	c0.33		0.05	0.27		0.06	0.14		c0.18	c0.31	
v/s Ratio Perm			0.03			0.07			0.03			
v/c Ratio	0.85	0.93	0.09	0.62	0.99	0.27	0.67	0.57	0.13	0.98	0.88	
Uniform Delay, d1	50.8	38.6	26.9	55.2	44.7	35.1	55.0	40.5	35.9	50.3	37.6	
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	19.6	13.1	0.3	5.9	25.6	1.5	8.4	0.5	0.1	45.1	7.1	
Delay (s)	70.4	51.7	27.2	61.1	70.2	36.6	63.4	41.0	35.9	95.4	44.7	
Level of Service	E	D	C	E	E	D	E	D	D	F	D	
Approach Delay (s)		53.0			64.5			43.5			56.4	
Approach LOS		D			E			D			E	

Intersection Summary			
HCM Average Control Delay	55.6	HCM Level of Service	E
HCM Volume to Capacity ratio	0.89		
Actuated Cycle Length (s)	124.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	87.5%	ICU Level of Service	E
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0			4.0	4.0	4.0	4.0	
Lane Util. Factor	1.00	0.95		1.00	0.95			1.00	1.00	1.00	1.00	
Frt	1.00	1.00		1.00	0.99			1.00	0.85	1.00	0.86	
Flt Protected	0.95	1.00		0.95	1.00			0.97	1.00	0.95	1.00	
Satd. Flow (prot)	1770	3530		1770	3492			1801	1583	1770	1609	
Flt Permitted	0.95	1.00		0.95	1.00			0.85	1.00	0.74	1.00	
Satd. Flow (perm)	1770	3530		1770	3492			1575	1583	1375	1609	
Volume (vph)	44	2282	42	73	1206	117	19	8	12	116	3	28
Peak-hour factor, PHF	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Adj. Flow (vph)	47	2454	45	78	1297	126	20	9	13	125	3	30
RTOR Reduction (vph)	0	1	0	0	3	0	0	0	11	0	25	0
Lane Group Flow (vph)	47	2498	0	78	1420	0	0	29	2	125	8	0
Turn Type	Prot			Prot			Perm		Perm	Perm		
Protected Phases	5	2		1	6			4			8	
Permitted Phases							4		4	8		
Actuated Green, G (s)	6.3	82.5		8.2	84.4			21.3	21.3	21.3	21.3	
Effective Green, g (s)	6.3	83.5		8.2	85.4			21.3	21.3	21.3	21.3	
Actuated g/C Ratio	0.05	0.67		0.07	0.68			0.17	0.17	0.17	0.17	
Clearance Time (s)	4.0	5.0		4.0	5.0			4.0	4.0	4.0	4.0	
Vehicle Extension (s)	1.5	1.5		1.5	2.0			2.5	2.5	2.5	2.5	
Lane Grp Cap (vph)	89	2358		116	2386			268	270	234	274	
v/s Ratio Prot	0.03	c0.71		c0.04	0.41						0.01	
v/s Ratio Perm								0.02	0.00	c0.09		
v/c Ratio	0.53	1.06		0.67	0.59			0.11	0.01	0.53	0.03	
Uniform Delay, d1	57.9	20.8		57.1	10.6			43.8	43.1	47.3	43.2	
Progression Factor	1.00	1.00		1.00	1.00			1.00	1.00	1.00	1.00	
Incremental Delay, d2	2.6	36.7		11.4	1.1			0.1	0.0	1.8	0.0	
Delay (s)	60.5	57.4		68.5	11.7			44.0	43.1	49.1	43.3	
Level of Service	E	E		E	B			D	D	D	D	
Approach Delay (s)		57.5			14.6			43.7			47.9	
Approach LOS		E			B			D			D	

Intersection Summary			
HCM Average Control Delay	41.9	HCM Level of Service	D
HCM Volume to Capacity ratio	0.93		
Actuated Cycle Length (s)	125.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	84.2%	ICU Level of Service	E
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0	4.0	4.0	4.0					4.0	4.0	4.0
Lane Util. Factor		0.91	0.91	1.00	0.95					0.95	0.95	1.00
Frt		0.95	0.85	1.00	1.00					1.00	1.00	0.85
Flt Protected		1.00	1.00	0.95	1.00					0.95	1.00	1.00
Satd. Flow (prot)		3210	1441	1770	3539					1681	1770	1583
Flt Permitted		1.00	1.00	0.95	1.00					0.95	1.00	1.00
Satd. Flow (perm)		3210	1441	1770	3539					1681	1770	1583
Volume (vph)	0	1115	1384	317	1189	0	0	0	0	91	183	308
Peak-hour factor, PHF	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Adj. Flow (vph)	0	1225	1521	348	1307	0	0	0	0	100	201	338
RTOR Reduction (vph)	0	66	67	0	0	0	0	0	0	0	0	90
Lane Group Flow (vph)	0	1833	780	348	1307	0	0	0	0	100	201	248
Turn Type			Perm	Prot						Perm		Perm
Protected Phases		4		3	8						6	
Permitted Phases			4							6		6
Actuated Green, G (s)		55.0	55.0	16.0	75.0					17.0	17.0	17.0
Effective Green, g (s)		55.0	55.0	16.0	75.0					17.0	17.0	17.0
Actuated g/C Ratio		0.55	0.55	0.16	0.75					0.17	0.17	0.17
Clearance Time (s)		4.0	4.0	4.0	4.0					4.0	4.0	4.0
Vehicle Extension (s)		3.0	3.0	3.0	3.0					3.0	3.0	3.0
Lane Grp Cap (vph)		1766	793	283	2654					286	301	269
v/s Ratio Prot		c0.57		c0.20	0.37						0.11	
v/s Ratio Perm			0.54							0.06		c0.16
v/c Ratio		1.04	0.98	1.23	0.49					0.35	0.67	0.92
Uniform Delay, d1		22.5	22.1	42.0	5.0					36.6	38.9	40.8
Progression Factor		1.00	1.00	1.00	1.00					1.00	1.00	1.00
Incremental Delay, d2		32.0	27.7	130.4	0.1					3.3	11.2	37.7
Delay (s)		54.5	49.8	172.4	5.1					40.0	50.0	78.5
Level of Service		D	D	F	A					D	D	E
Approach Delay (s)		53.1			40.3			0.0			63.5	
Approach LOS		D			D			A			E	

Intersection Summary			
HCM Average Control Delay	50.2	HCM Level of Service	D
HCM Volume to Capacity ratio	1.05		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	82.9%	ICU Level of Service	E
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0		4.0	4.0
Lane Util. Factor	1.00	0.95	0.95		0.97	1.00
Frt	1.00	1.00	0.97		1.00	0.85
Flt Protected	0.95	1.00	1.00		0.95	1.00
Satd. Flow (prot)	1770	3539	3416		3433	1583
Flt Permitted	0.95	1.00	1.00		0.95	1.00
Satd. Flow (perm)	1770	3539	3416		3433	1583
Volume (vph)	556	655	876	264	146	630
Peak-hour factor, PHF	0.87	0.87	0.87	0.87	0.87	0.87
Adj. Flow (vph)	639	753	1007	303	168	724
RTOR Reduction (vph)	0	0	28	0	0	315
Lane Group Flow (vph)	639	753	1282	0	168	409
Turn Type	Prot					Perm
Protected Phases	7	4	8		6	
Permitted Phases						6
Actuated Green, G (s)	23.0	66.0	39.0		26.0	26.0
Effective Green, g (s)	23.0	66.0	39.0		26.0	26.0
Actuated g/C Ratio	0.23	0.66	0.39		0.26	0.26
Clearance Time (s)	4.0	4.0	4.0		4.0	4.0
Vehicle Extension (s)	3.0	3.0	3.0		3.0	3.0
Lane Grp Cap (vph)	407	2336	1332		893	412
v/s Ratio Prot	c0.36	0.21	c0.38		0.05	
v/s Ratio Perm						c0.26
v/c Ratio	1.57	0.32	0.96		0.19	0.99
Uniform Delay, d1	38.5	7.3	29.8		28.8	36.9
Progression Factor	1.00	1.00	1.00		1.00	1.00
Incremental Delay, d2	268.2	0.1	16.4		0.5	42.4
Delay (s)	306.7	7.4	46.2		29.3	79.3
Level of Service	F	A	D		C	E
Approach Delay (s)		144.8	46.2		69.9	
Approach LOS		F	D		E	

Intersection Summary			
HCM Average Control Delay	90.3	HCM Level of Service	F
HCM Volume to Capacity ratio	1.13		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	78.3%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Volume (veh/h)	180	0	150	0	0	0	119	477	0	0	513	103
Peak Hour Factor	0.78	0.78	0.78	0.78	0.78	0.78	0.78	0.78	0.78	0.78	0.78	0.78
Hourly flow rate (vph)	231	0	192	0	0	0	153	612	0	0	658	132
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (ft)								954			667	
pX, platoon unblocked												
vC, conflicting volume	1640	1640	724	1767	1706	612	790			612		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	1640	1640	724	1767	1706	612	790			612		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	0	100	55	100	100	100	82			100		
cM capacity (veh/h)	69	82	426	31	74	493	830			967		

Direction, Lane #	EB 1	NB 1	SB 1	SB 2
Volume Total	423	764	0	790
Volume Left	231	153	0	0
Volume Right	192	0	0	132
cSH	111	830	1700	1700
Volume to Capacity	3.81	0.18	0.00	0.46
Queue Length 95th (ft)	Err	17	0	0
Control Delay (s)	Err	4.4	0.0	0.0
Lane LOS	F	A		
Approach Delay (s)	Err	4.4	0.0	
Approach LOS	F			

Intersection Summary				
Average Delay	2141.6			
Intersection Capacity Utilization	94.1%	ICU Level of Service	F	
Analysis Period (min)	15			

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Sign Control	Stop		Stop			Stop
Volume (vph)	288	114	51	252	114	114
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	313	124	55	274	124	124

Direction, Lane #	WB 1	NB 1	SB 1
Volume Total (vph)	437	329	248
Volume Left (vph)	313	0	124
Volume Right (vph)	124	274	0
Hadj (s)	0.01	-0.47	0.13
Departure Headway (s)	5.5	5.2	5.9
Degree Utilization, x	0.66	0.47	0.40
Capacity (veh/h)	632	648	573
Control Delay (s)	18.5	12.7	12.7
Approach Delay (s)	18.5	12.7	12.7
Approach LOS	C	B	B

Intersection Summary			
Delay	15.2		
HCM Level of Service	C		
Intersection Capacity Utilization	63.4%	ICU Level of Service	B
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0			4.0		4.0	4.0		4.0	4.0	
Lane Util. Factor		1.00			1.00		1.00	1.00		1.00	1.00	
Frt		0.95			0.97		1.00	0.99		1.00	0.99	
Flt Protected		0.99			0.98		0.95	1.00		0.95	1.00	
Satd. Flow (prot)		1754			1771		1770	1839		1770	1841	
Flt Permitted		0.86			0.82		0.34	1.00		0.64	1.00	
Satd. Flow (perm)		1523			1484		642	1839		1186	1841	
Volume (vph)	103	145	127	64	79	47	44	162	15	59	408	34
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	112	158	138	70	86	51	48	176	16	64	443	37
RTOR Reduction (vph)	0	46	0	0	29	0	0	8	0	0	8	0
Lane Group Flow (vph)	0	362	0	0	178	0	48	184	0	64	472	0
Turn Type	Perm			Perm			Perm			Perm		
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)		16.0			16.0		16.0	16.0		16.0	16.0	
Effective Green, g (s)		16.0			16.0		16.0	16.0		16.0	16.0	
Actuated g/C Ratio		0.40			0.40		0.40	0.40		0.40	0.40	
Clearance Time (s)		4.0			4.0		4.0	4.0		4.0	4.0	
Lane Grp Cap (vph)		609			594		257	736		474	736	
v/s Ratio Prot								0.10			c0.26	
v/s Ratio Perm		c0.24			0.12		0.07			0.05		
v/c Ratio		0.59			0.30		0.19	0.25		0.14	0.64	
Uniform Delay, d1		9.4			8.2		7.8	8.0		7.6	9.7	
Progression Factor		1.00			1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2		4.2			1.3		1.6	0.8		0.6	4.3	
Delay (s)		13.7			9.5		9.4	8.8		8.2	14.0	
Level of Service		B			A		A	A		A	B	
Approach Delay (s)		13.7			9.5			8.9			13.3	
Approach LOS		B			A			A			B	

Intersection Summary			
HCM Average Control Delay	12.1	HCM Level of Service	B
HCM Volume to Capacity ratio	0.62		
Actuated Cycle Length (s)	40.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	62.8%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	0.85	1.00	1.00	1.00	0.85
Flt Protected	0.95	1.00	0.95	1.00	1.00	1.00
Satd. Flow (prot)	1770	1583	1770	1863	1863	1583
Flt Permitted	0.95	1.00	0.60	1.00	1.00	1.00
Satd. Flow (perm)	1770	1583	1114	1863	1863	1583
Volume (vph)	328	201	373	252	238	449
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	357	218	405	274	259	488
RTOR Reduction (vph)	0	131	0	0	0	293
Lane Group Flow (vph)	357	87	405	274	259	195
Turn Type		Perm	Perm			Perm
Protected Phases	4			2	6	
Permitted Phases		4	2			6
Actuated Green, G (s)	16.0	16.0	16.0	16.0	16.0	16.0
Effective Green, g (s)	16.0	16.0	16.0	16.0	16.0	16.0
Actuated g/C Ratio	0.40	0.40	0.40	0.40	0.40	0.40
Clearance Time (s)	4.0	4.0	4.0	4.0	4.0	4.0
Lane Grp Cap (vph)	708	633	446	745	745	633
v/s Ratio Prot	c0.20			0.15	0.14	
v/s Ratio Perm		0.06	c0.36			0.12
v/c Ratio	0.50	0.14	0.91	0.37	0.35	0.31
Uniform Delay, d1	9.0	7.6	11.3	8.4	8.4	8.2
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	2.6	0.5	24.9	1.4	1.3	1.3
Delay (s)	11.6	8.1	36.2	9.8	9.6	9.5
Level of Service	B	A	D	A	A	A
Approach Delay (s)	10.2			25.6	9.5	
Approach LOS	B			C	A	

Intersection Summary			
HCM Average Control Delay	15.2	HCM Level of Service	B
HCM Volume to Capacity ratio	0.71		
Actuated Cycle Length (s)	40.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	61.4%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Volume (veh/h)	30	315	411	6	6	39
Peak Hour Factor	0.72	0.72	0.72	0.72	0.72	0.72
Hourly flow rate (vph)	42	438	571	8	8	54
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type					None	
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	579				1096	575
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	579				1096	575
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	96				96	90
cM capacity (veh/h)	995				226	518

Direction, Lane #	EB 1	WB 1	SB 1
Volume Total	479	579	62
Volume Left	42	0	8
Volume Right	0	8	54
cSH	995	1700	442
Volume to Capacity	0.04	0.34	0.14
Queue Length 95th (ft)	3	0	12
Control Delay (s)	1.2	0.0	14.5
Lane LOS	A		B
Approach Delay (s)	1.2	0.0	14.5
Approach LOS			B

Intersection Summary			
Average Delay	1.3		
Intersection Capacity Utilization	51.5%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Volume (veh/h)	15	7	4	320	358	13
Peak Hour Factor	0.70	0.70	0.70	0.70	0.70	0.70
Hourly flow rate (vph)	21	10	6	457	511	19
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None					
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	989	521	530			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	989	521	530			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	92	98	99			
cM capacity (veh/h)	272	556	1037			

Direction, Lane #	EB 1	NB 1	SB 1
Volume Total	31	463	530
Volume Left	21	6	0
Volume Right	10	0	19
cSH	325	1037	1700
Volume to Capacity	0.10	0.01	0.31
Queue Length 95th (ft)	8	0	0
Control Delay (s)	17.3	0.2	0.0
Lane LOS	C	A	
Approach Delay (s)	17.3	0.2	0.0
Approach LOS	C		

Intersection Summary			
Average Delay	0.6		
Intersection Capacity Utilization	30.0%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	0.97	0.95	1.00	0.97	0.95	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1770	3539	1583	1770	3539	1583	3433	3539	1583	3433	3539	1583
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	1770	3539	1583	1770	3539	1583	3433	3539	1583	3433	3539	1583
Volume (vph)	336	1345	792	255	618	130	140	317	64	381	1112	503
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	350	1401	825	266	644	135	146	330	67	397	1158	524
RTOR Reduction (vph)	0	0	208	0	0	89	0	0	50	0	0	203
Lane Group Flow (vph)	350	1401	617	266	644	46	146	330	17	397	1158	321
Turn Type	Prot		Perm	Prot		Perm	Prot		Perm	Prot		Perm
Protected Phases	5	2		1	6		7	4		3	8	
Permitted Phases			2			6			4			8
Actuated Green, G (s)	21.0	42.5	42.5	20.8	42.5	42.5	9.2	31.0	31.0	16.1	37.7	37.7
Effective Green, g (s)	21.2	44.2	44.2	21.2	44.2	44.2	9.4	32.3	32.3	16.3	39.2	39.2
Actuated g/C Ratio	0.16	0.34	0.34	0.16	0.34	0.34	0.07	0.25	0.25	0.13	0.30	0.30
Clearance Time (s)	4.2	5.7	5.7	4.4	5.7	5.7	4.2	5.3	5.3	4.2	5.5	5.5
Vehicle Extension (s)	1.5	2.0	2.0	1.5	2.0	2.0	1.5	2.0	2.0	1.5	2.0	2.0
Lane Grp Cap (vph)	289	1203	538	289	1203	538	248	879	393	430	1067	477
v/s Ratio Prot	0.20	c0.40		c0.15	0.18		0.04	0.09		c0.12	c0.33	
v/s Ratio Perm			0.39			0.03			0.01			0.20
v/c Ratio	1.21	1.16	1.15	0.92	0.54	0.09	0.59	0.38	0.04	0.92	1.09	0.67
Uniform Delay, d1	54.4	42.9	42.9	53.6	34.6	29.2	58.4	40.5	37.1	56.2	45.4	39.8
Progression Factor	1.00	1.00	1.00	0.72	0.97	2.25	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	122.7	83.5	86.2	30.7	1.6	0.3	2.3	1.2	0.2	25.0	53.7	7.4
Delay (s)	177.1	126.4	129.1	69.3	35.2	65.8	60.7	41.7	37.3	81.2	99.1	47.2
Level of Service	F	F	F	E	D	E	E	D	D	F	F	D
Approach Delay (s)		134.1			47.9			46.3			82.6	
Approach LOS		F			D			D			F	

Intersection Summary			
HCM Average Control Delay	94.9	HCM Level of Service	F
HCM Volume to Capacity ratio	1.05		
Actuated Cycle Length (s)	130.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	103.9%	ICU Level of Service	G
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	1.00	0.95	0.95	1.00	0.97	0.91
Frt	1.00	1.00	1.00	0.85	1.00	0.85
Flt Protected	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (prot)	1770	3539	3539	1583	3433	1441
Flt Permitted	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (perm)	1770	3539	3539	1583	3433	1441
Volume (vph)	180	1640	794	599	1103	290
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	189	1726	836	631	1161	305
RTOR Reduction (vph)	0	0	0	302	0	151
Lane Group Flow (vph)	189	1726	836	329	1161	154
Turn Type	Prot			Perm		Perm
Protected Phases	5	2	6		4	
Permitted Phases				6		4
Actuated Green, G (s)	7.0	76.7	65.7	65.7	41.3	41.3
Effective Green, g (s)	7.0	78.7	67.7	67.7	43.3	43.3
Actuated g/C Ratio	0.05	0.61	0.52	0.52	0.33	0.33
Clearance Time (s)	4.0	6.0	6.0	6.0	6.0	6.0
Vehicle Extension (s)	1.5	2.0	2.0	2.0	2.0	2.0
Lane Grp Cap (vph)	95	2142	1843	824	1143	480
v/s Ratio Prot	c0.11	c0.49	0.24		c0.34	
v/s Ratio Perm				0.21		0.11
v/c Ratio	1.99	0.81	0.45	0.40	1.02	0.32
Uniform Delay, d1	61.5	19.8	19.5	18.8	43.4	32.4
Progression Factor	0.69	2.08	1.28	10.80	1.00	1.00
Incremental Delay, d2	448.7	0.3	0.6	1.1	30.6	0.1
Delay (s)	491.4	41.3	25.6	204.6	74.0	32.5
Level of Service	F	D	C	F	E	C
Approach Delay (s)		85.8	102.6		65.3	
Approach LOS		F	F		E	

Intersection Summary			
HCM Average Control Delay	84.7	HCM Level of Service	F
HCM Volume to Capacity ratio	0.94		
Actuated Cycle Length (s)	130.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	86.5%	ICU Level of Service	E
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0	4.0		4.0			4.0	4.0
Lane Util. Factor	1.00	0.95		1.00	0.95	1.00		1.00			1.00	1.00
Frt	1.00	1.00		1.00	1.00	0.85		0.86			1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00	1.00		1.00			0.95	1.00
Satd. Flow (prot)	1770	3539		1770	3539	1583		1611			1770	1583
Flt Permitted	0.95	1.00		0.95	1.00	1.00		1.00			0.76	1.00
Satd. Flow (perm)	1770	3539		1770	3539	1583		1611			1410	1583
Volume (vph)	69	2428	0	10	1218	65	0	0	1	267	0	335
Peak-hour factor, PHF	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89
Adj. Flow (vph)	78	2728	0	11	1369	73	0	0	1	300	0	376
RTOR Reduction (vph)	0	0	0	0	0	17	0	1	0	0	0	138
Lane Group Flow (vph)	78	2728	0	11	1369	56	0	0	0	0	300	238
Turn Type	Prot			Prot		Perm	Perm			Perm		Perm
Protected Phases	5	2		1	6			4			8	
Permitted Phases						6	4			8		8
Actuated Green, G (s)	8.4	87.6		2.4	81.6	81.6		25.0			25.0	25.0
Effective Green, g (s)	8.4	89.6		2.4	83.6	83.6		26.0			26.0	26.0
Actuated g/C Ratio	0.06	0.69		0.02	0.64	0.64		0.20			0.20	0.20
Clearance Time (s)	4.0	6.0		4.0	6.0	6.0		5.0			5.0	5.0
Vehicle Extension (s)	1.5	2.0		1.5	2.0	2.0		4.0			4.0	4.0
Lane Grp Cap (vph)	114	2439		33	2276	1018		322			282	317
v/s Ratio Prot	c0.04	c0.77		0.01	0.39			0.00				
v/s Ratio Perm						0.04					c0.21	0.15
v/c Ratio	0.68	1.12		0.33	0.60	0.05		0.00			1.06	0.75
Uniform Delay, d1	59.5	20.2		63.0	13.5	8.6		41.6			52.0	49.0
Progression Factor	0.94	1.14		0.99	1.49	1.47		1.00			1.00	1.00
Incremental Delay, d2	6.9	56.7		1.8	1.0	0.1		0.0			71.5	15.2
Delay (s)	62.8	79.8		63.9	21.0	12.7		41.6			123.5	64.1
Level of Service	E	E		E	C	B		D			F	E
Approach Delay (s)		79.3			20.9			41.6			90.5	
Approach LOS		E			C			D			F	

Intersection Summary			
HCM Average Control Delay	63.6	HCM Level of Service	E
HCM Volume to Capacity ratio	1.11		
Actuated Cycle Length (s)	130.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	95.2%	ICU Level of Service	F
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	0.97	0.95	1.00	0.97	0.95	1.00	0.97	0.95	1.00	0.97	0.95	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	3433	3539	1583	3433	3539	1583	3433	3539	1583	3433	3539	1583
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	3433	3539	1583	3433	3539	1583	3433	3539	1583	3433	3539	1583
Volume (vph)	230	1187	1391	162	341	67	478	246	129	195	652	275
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	242	1249	1464	171	359	71	503	259	136	205	686	289
RTOR Reduction (vph)	0	0	170	0	0	42	0	0	97	0	0	133
Lane Group Flow (vph)	242	1249	1294	171	359	29	503	259	39	205	686	156
Turn Type	Prot		Perm	Prot		Perm	Prot		Perm	Prot		Perm
Protected Phases	5	2		1	6		7	4		3	8	
Permitted Phases			2			6			4			8
Actuated Green, G (s)	14.0	54.9	54.9	10.1	51.0	51.0	16.0	35.0	35.0	9.0	29.0	29.0
Effective Green, g (s)	14.0	56.9	56.9	10.1	53.0	53.0	16.0	37.0	37.0	10.0	31.0	31.0
Actuated g/C Ratio	0.11	0.44	0.44	0.08	0.41	0.41	0.12	0.28	0.28	0.08	0.24	0.24
Clearance Time (s)	4.0	6.0	6.0	4.0	6.0	6.0	4.0	6.0	6.0	5.0	6.0	6.0
Vehicle Extension (s)	1.5	2.0	2.0	1.5	2.0	2.0	1.5	2.0	2.0	2.0	2.0	2.0
Lane Grp Cap (vph)	370	1549	693	267	1443	645	423	1007	451	264	844	377
v/s Ratio Prot	0.07	0.35		c0.05	0.10		c0.15	0.07		0.06	c0.19	
v/s Ratio Perm			c0.82			0.02			0.02			0.10
v/c Ratio	0.65	0.81	1.87	0.64	0.25	0.04	1.19	0.26	0.09	0.78	0.81	0.41
Uniform Delay, d1	55.7	31.8	36.5	58.2	25.4	23.2	57.0	35.9	34.1	58.9	46.8	41.8
Progression Factor	1.09	1.16	1.19	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	0.3	0.4	390.9	3.9	0.4	0.1	106.5	0.6	0.4	12.2	8.4	3.3
Delay (s)	61.0	37.3	434.3	62.1	25.8	23.4	163.5	36.5	34.5	71.2	55.2	45.1
Level of Service	E	D	F	E	C	C	F	D	C	E	E	D
Approach Delay (s)		235.9			35.8			107.3			55.5	
Approach LOS		F			D			F			E	

Intersection Summary			
HCM Average Control Delay	156.3	HCM Level of Service	F
HCM Volume to Capacity ratio	1.38		
Actuated Cycle Length (s)	130.0	Sum of lost time (s)	16.0
Intersection Capacity Utilization	118.8%	ICU Level of Service	H
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0	4.0	4.0	4.0						4.0	
Lane Util. Factor		0.95	1.00	1.00	0.95						0.95	
Frt		1.00	0.85	1.00	1.00						0.91	
Flt Protected		1.00	1.00	0.95	1.00						1.00	
Satd. Flow (prot)		3539	1583	1770	3539						3230	
Flt Permitted		1.00	1.00	0.59	1.00						1.00	
Satd. Flow (perm)		3539	1583	1100	3539						3230	
Volume (vph)	0	245	1126	5	421	0	0	0	0	3	101	142
Peak-hour factor, PHF	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Adj. Flow (vph)	0	261	1198	5	448	0	0	0	0	3	107	151
RTOR Reduction (vph)	0	0	138	0	0	0	0	0	0	0	120	0
Lane Group Flow (vph)	0	261	1060	5	448	0	0	0	0	0	141	0
Turn Type			Perm	Perm						Perm		
Protected Phases		4			8						6	
Permitted Phases			4	8						6		
Actuated Green, G (s)		58.9	58.9	58.9	58.9						17.2	
Effective Green, g (s)		58.9	58.9	58.9	58.9						17.2	
Actuated g/C Ratio		0.70	0.70	0.70	0.70						0.20	
Clearance Time (s)		4.0	4.0	4.0	4.0						4.0	
Vehicle Extension (s)		3.0	3.0	3.0	3.0						3.0	
Lane Grp Cap (vph)		2479	1109	770	2479						661	
v/s Ratio Prot		0.07			0.13							
v/s Ratio Perm			c0.67	0.00							0.04	
v/c Ratio		0.11	0.96	0.01	0.18						0.21	
Uniform Delay, d1		4.1	11.4	3.8	4.3						27.8	
Progression Factor		1.00	1.00	1.00	1.00						1.00	
Incremental Delay, d2		0.0	17.3	0.0	0.0						0.7	
Delay (s)		4.1	28.7	3.8	4.4						28.6	
Level of Service		A	C	A	A						C	
Approach Delay (s)		24.3			4.4			0.0			28.6	
Approach LOS		C			A			A			C	

Intersection Summary			
HCM Average Control Delay	20.6	HCM Level of Service	C
HCM Volume to Capacity ratio	0.79		
Actuated Cycle Length (s)	84.1	Sum of lost time (s)	8.0
Intersection Capacity Utilization	90.5%	ICU Level of Service	E
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Sign Control	Stop			Stop	Stop	
Volume (vph)	247	0	426	1	0	0
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	274	0	473	1	0	0

Direction, Lane #	EB 1	EB 2	NB 1	NB 2
Volume Total (vph)	137	137	316	159
Volume Left (vph)	137	137	316	158
Volume Right (vph)	0	0	0	0
Hadj (s)	0.53	0.53	0.53	0.53
Departure Headway (s)	6.3	6.3	5.9	5.9
Degree Utilization, x	0.24	0.24	0.52	0.26
Capacity (veh/h)	540	542	599	594
Control Delay (s)	10.2	10.2	13.8	9.7
Approach Delay (s)	10.2		12.4	
Approach LOS	B		B	

Intersection Summary			
Delay	11.6		
HCM Level of Service	B		
Intersection Capacity Utilization	90.5%	ICU Level of Service	E
Analysis Period (min)	15		

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Volume (veh/h)	6	57	503	14	117	1484
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91
Hourly flow rate (vph)	7	63	553	15	129	1631
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None					
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	1633	284			568	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1633	284			568	
tC, single (s)	6.8	6.9			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	92	91			87	
cM capacity (veh/h)	80	713			1000	

Direction, Lane #	WB 1	WB 2	NB 1	NB 2	SB 1	SB 2	SB 3
Volume Total	7	63	368	200	129	815	815
Volume Left	7	0	0	0	129	0	0
Volume Right	0	63	0	15	0	0	0
cSH	80	713	1700	1700	1000	1700	1700
Volume to Capacity	0.08	0.09	0.22	0.12	0.13	0.48	0.48
Queue Length 95th (ft)	7	7	0	0	11	0	0
Control Delay (s)	53.9	10.5	0.0	0.0	9.1	0.0	0.0
Lane LOS	F	B			A		
Approach Delay (s)	14.7		0.0		0.7		
Approach LOS	B						

Intersection Summary			
Average Delay	0.9		
Intersection Capacity Utilization	51.0%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	1.00	1.00		0.97	0.95	1.00	1.00	0.95	1.00	0.97	0.95	1.00
Frt	1.00	0.91		1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1770	1695		3433	3539	1583	1770	3539	1583	3433	3539	1583
Flt Permitted	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	1770	1695		3433	3539	1583	1770	3539	1583	3433	3539	1583
Volume (vph)	15	9	14	460	52	118	75	371	633	471	1065	3
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	16	10	15	500	57	128	82	403	688	512	1158	3
RTOR Reduction (vph)	0	14	0	0	0	102	0	0	371	0	0	1
Lane Group Flow (vph)	16	11	0	500	57	26	82	403	317	512	1158	2
Turn Type	Prot			Prot		Perm	Prot		Perm	Prot		Perm
Protected Phases	3	8		7	4		5	2		1	6	
Permitted Phases						4			2			6
Actuated Green, G (s)	1.6	4.4		17.3	19.1	19.1	7.4	39.6	39.6	18.1	50.3	50.3
Effective Green, g (s)	3.9	6.7		17.3	20.1	20.1	7.4	41.9	41.9	18.1	52.6	52.6
Actuated g/C Ratio	0.04	0.07		0.17	0.20	0.20	0.07	0.42	0.42	0.18	0.53	0.53
Clearance Time (s)	6.3	6.3		4.0	5.0	5.0	4.0	6.3	6.3	4.0	6.3	6.3
Vehicle Extension (s)	3.0	2.0		1.5	3.0	3.0	1.5	2.0	2.0	2.0	3.0	3.0
Lane Grp Cap (vph)	69	114		594	711	318	131	1483	663	621	1862	833
v/s Ratio Prot	0.01	0.01		c0.15	0.02		0.05	0.11		c0.15	c0.33	
v/s Ratio Perm						c0.02			0.20			0.00
v/c Ratio	0.23	0.10		0.84	0.08	0.08	0.63	0.27	0.48	0.82	0.62	0.00
Uniform Delay, d1	46.6	43.8		40.0	32.4	32.4	45.0	19.0	21.1	39.4	16.7	11.2
Progression Factor	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	1.7	0.1		10.1	0.0	0.1	6.6	0.5	2.5	8.3	1.6	0.0
Delay (s)	48.3	43.9		50.1	32.5	32.6	51.5	19.5	23.6	47.7	18.3	11.2
Level of Service	D	D		D	C	C	D	B	C	D	B	B
Approach Delay (s)		45.7			45.3			24.1			27.3	
Approach LOS		D			D			C			C	

Intersection Summary			
HCM Average Control Delay	29.9	HCM Level of Service	C
HCM Volume to Capacity ratio	0.63		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	66.8%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	
Lane Util. Factor	1.00	0.95		1.00	0.95	1.00	1.00	0.95	1.00	0.97	0.95	
Frt	1.00	0.97		1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.99	
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1770	3422		1770	3539	1583	1770	3539	1583	3433	3503	
Flt Permitted	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (perm)	1770	3422		1770	3539	1583	1770	3539	1583	3433	3503	
Volume (vph)	42	756	215	122	458	121	108	452	123	335	921	68
Peak-hour factor, PHF	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Adj. Flow (vph)	45	804	229	130	487	129	115	481	131	356	980	72
RTOR Reduction (vph)	0	22	0	0	0	76	0	0	93	0	4	0
Lane Group Flow (vph)	45	1011	0	130	487	53	115	481	38	356	1048	0
Turn Type	Prot			Prot		Perm	Prot		Perm	Prot		
Protected Phases	5	2		1	6		7	4		3	8	
Permitted Phases						6			4			
Actuated Green, G (s)	5.5	41.0		11.9	47.6	47.6	11.4	33.7	33.7	14.4	36.7	
Effective Green, g (s)	5.5	42.3		12.1	48.9	48.9	11.4	35.0	35.0	14.6	38.2	
Actuated g/C Ratio	0.05	0.35		0.10	0.41	0.41	0.10	0.29	0.29	0.12	0.32	
Clearance Time (s)	4.0	5.3		4.2	5.3	5.3	4.0	5.3	5.3	4.2	5.5	
Vehicle Extension (s)	1.5	2.0		1.5	2.0	2.0	1.5	2.0	2.0	1.5	2.0	
Lane Grp Cap (vph)	81	1206		178	1442	645	168	1032	462	418	1115	
v/s Ratio Prot	0.03	c0.30		c0.07	0.14		0.06	0.14		c0.10	c0.30	
v/s Ratio Perm						0.03			0.02			
v/c Ratio	0.56	0.84		0.73	0.34	0.08	0.68	0.47	0.08	0.85	0.94	
Uniform Delay, d1	56.1	35.7		52.4	24.4	21.8	52.6	34.8	30.8	51.6	39.8	
Progression Factor	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	4.6	7.1		12.4	0.6	0.2	8.8	0.1	0.0	14.8	14.4	
Delay (s)	60.7	42.8		64.8	25.1	22.0	61.4	35.0	30.9	66.4	54.2	
Level of Service	E	D		E	C	C	E	C	C	E	D	
Approach Delay (s)		43.5			31.5			38.4			57.3	
Approach LOS		D			C			D			E	

Intersection Summary			
HCM Average Control Delay	45.2	HCM Level of Service	D
HCM Volume to Capacity ratio	0.88		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	16.0
Intersection Capacity Utilization	81.5%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0	4.0	4.0	4.0					4.0	4.0	4.0
Lane Util. Factor		0.95	1.00	0.97	0.95					0.95	0.91	0.95
Frt		1.00	0.85	1.00	1.00					1.00	0.86	0.85
Flt Protected		1.00	1.00	0.95	1.00					0.95	1.00	1.00
Satd. Flow (prot)		3539	1583	3433	3539					1681	1451	1504
Flt Permitted		1.00	1.00	0.95	1.00					0.95	1.00	1.00
Satd. Flow (perm)		3539	1583	3433	3539					1681	1451	1504
Volume (vph)	0	178	436	435	524	0	0	0	0	16	2	88
Peak-hour factor, PHF	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89
Adj. Flow (vph)	0	200	490	489	589	0	0	0	0	18	2	99
RTOR Reduction (vph)	0	0	392	0	0	0	0	0	0	0	31	34
Lane Group Flow (vph)	0	200	98	489	589	0	0	0	0	18	18	18
Turn Type			Perm	Prot						Perm		Perm
Protected Phases		4		3	8						6	
Permitted Phases			4							6		6
Actuated Green, G (s)		10.6	10.6	12.8	27.4					18.5	18.5	18.5
Effective Green, g (s)		10.6	10.6	12.8	27.4					18.5	18.5	18.5
Actuated g/C Ratio		0.20	0.20	0.24	0.51					0.34	0.34	0.34
Clearance Time (s)		4.0	4.0	4.0	4.0					4.0	4.0	4.0
Vehicle Extension (s)		3.0	3.0	3.0	3.0					3.0	3.0	3.0
Lane Grp Cap (vph)		696	311	815	1799					577	498	516
v/s Ratio Prot		0.06		c0.14	c0.17						c0.01	
v/s Ratio Perm			0.06							0.01		0.01
v/c Ratio		0.29	0.32	0.60	0.33					0.03	0.04	0.03
Uniform Delay, d1		18.4	18.5	18.3	7.8					11.8	11.8	11.8
Progression Factor		1.00	1.00	1.00	1.00					1.00	1.00	1.00
Incremental Delay, d2		0.2	0.6	1.2	0.1					0.1	0.1	0.1
Delay (s)		18.7	19.1	19.5	7.9					11.9	11.9	11.9
Level of Service		B	B	B	A					B	B	B
Approach Delay (s)		19.0			13.2			0.0			11.9	
Approach LOS		B			B			A			B	

Intersection Summary			
HCM Average Control Delay	15.2	HCM Level of Service	B
HCM Volume to Capacity ratio	0.28		
Actuated Cycle Length (s)	53.9	Sum of lost time (s)	8.0
Intersection Capacity Utilization	52.7%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0			4.0	4.0	4.0
Lane Util. Factor	0.95			0.95	0.97	1.00
Frt	1.00			1.00	1.00	0.85
Flt Protected	1.00			1.00	0.95	1.00
Satd. Flow (prot)	3539			3539	3433	1583
Flt Permitted	1.00			1.00	0.95	1.00
Satd. Flow (perm)	3539			3539	3433	1583
Volume (vph)	195	0	0	624	338	125
Peak-hour factor, PHF	0.89	0.89	0.89	0.89	0.89	0.89
Adj. Flow (vph)	219	0	0	701	380	140
RTOR Reduction (vph)	0	0	0	0	0	56
Lane Group Flow (vph)	219	0	0	701	380	84
Turn Type						Perm
Protected Phases	4			8	2	
Permitted Phases						2
Actuated Green, G (s)	18.6			18.6	40.2	40.2
Effective Green, g (s)	18.6			18.6	40.2	40.2
Actuated g/C Ratio	0.28			0.28	0.60	0.60
Clearance Time (s)	4.0			4.0	4.0	4.0
Vehicle Extension (s)	3.0			3.0	3.0	3.0
Lane Grp Cap (vph)	985			985	2066	953
v/s Ratio Prot	0.06			c0.20	c0.11	
v/s Ratio Perm						0.05
v/c Ratio	0.22			0.71	0.18	0.09
Uniform Delay, d1	18.5			21.7	6.0	5.6
Progression Factor	1.00			1.00	1.00	1.00
Incremental Delay, d2	0.1			2.5	0.2	0.2
Delay (s)	18.7			24.1	6.2	5.8
Level of Service	B			C	A	A
Approach Delay (s)	18.7			24.1	6.1	
Approach LOS	B			C	A	

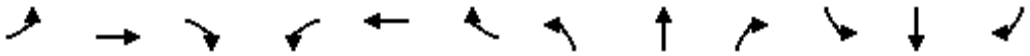
Intersection Summary			
HCM Average Control Delay	16.8	HCM Level of Service	B
HCM Volume to Capacity ratio	0.35		
Actuated Cycle Length (s)	66.8	Sum of lost time (s)	8.0
Intersection Capacity Utilization	52.7%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Volume (veh/h)	0	0	0	2	2	3	76	241	5	15	630	27
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Hourly flow rate (vph)	0	0	0	2	2	3	84	265	5	16	692	30
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	1044	1177	707	1160	1190	135	722			270		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	1044	1177	707	1160	1190	135	722			270		
tC, single (s)	7.5	6.5	6.9	7.5	6.5	6.9	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	100	100	100	98	99	100	90			99		
cM capacity (veh/h)	166	169	378	138	167	889	876			1290		

Direction, Lane #	WB 1	NB 1	NB 2	NB 3	SB 1	SB 2
Volume Total	8	84	177	94	16	722
Volume Left	2	84	0	0	16	0
Volume Right	3	0	0	5	0	30
cSH	235	876	1700	1700	1290	1700
Volume to Capacity	0.03	0.10	0.10	0.06	0.01	0.42
Queue Length 95th (ft)	3	8	0	0	1	0
Control Delay (s)	20.9	9.5	0.0	0.0	7.8	0.0
Lane LOS	C	A			A	
Approach Delay (s)	20.9	2.3			0.2	
Approach LOS	C					

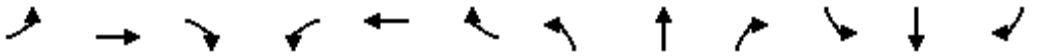
Intersection Summary				
Average Delay	1.0			
Intersection Capacity Utilization	52.3%	ICU Level of Service	A	
Analysis Period (min)	15			

APPENDIX D - CUMULATIVE NO PROJECT LOS RESULTS



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	0.95		1.00	0.95	
Frt	1.00	0.98		1.00	0.94		1.00	0.96		1.00	0.97	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1770	3467		1770	3337		1770	3410		1770	3440	
Flt Permitted	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (perm)	1770	3467		1770	3337		1770	3410		1770	3440	
Volume (vph)	86	366	58	136	433	267	143	607	195	194	216	50
Peak-hour factor, PHF	0.78	0.78	0.78	0.78	0.78	0.78	0.78	0.78	0.78	0.78	0.78	0.78
Adj. Flow (vph)	110	469	74	174	555	342	183	778	250	249	277	64
RTOR Reduction (vph)	0	13	0	0	87	0	0	31	0	0	20	0
Lane Group Flow (vph)	110	530	0	174	810	0	183	997	0	249	321	0
Turn Type	Prot			Prot			Prot			Prot		
Protected Phases	5	2		1	6		7	4		3	8	
Permitted Phases												
Actuated Green, G (s)	9.9	36.0		15.0	41.0		12.8	16.0		14.7	17.0	
Effective Green, g (s)	10.1	37.1		15.0	42.0		13.8	17.0		14.9	18.1	
Actuated g/C Ratio	0.10	0.37		0.15	0.42		0.14	0.17		0.15	0.18	
Clearance Time (s)	4.2	5.1		4.0	5.0		5.0	5.0		4.2	5.1	
Vehicle Extension (s)	1.5	2.0		1.5	2.0		1.5	2.0		1.5	2.0	
Lane Grp Cap (vph)	179	1286		266	1402		244	580		264	623	
v/s Ratio Prot	0.06	0.15		c0.10	c0.24		0.10	c0.29		c0.14	0.09	
v/s Ratio Perm												
v/c Ratio	0.61	0.41		0.65	0.58		0.75	1.72		0.94	0.52	
Uniform Delay, d1	43.1	23.4		40.1	22.2		41.4	41.5		42.1	37.0	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	4.3	1.0		4.4	1.7		10.9	331.0		39.6	0.3	
Delay (s)	47.4	24.3		44.4	23.9		52.3	372.5		81.7	37.3	
Level of Service	D	C		D	C		D	F		F	D	
Approach Delay (s)		28.2			27.3			324.1			56.0	
Approach LOS		C			C			F			E	

Intersection Summary			
HCM Average Control Delay	134.3	HCM Level of Service	F
HCM Volume to Capacity ratio	0.86		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	72.4%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			

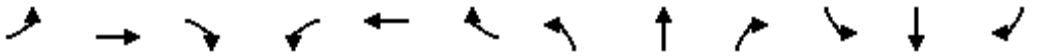


Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0		4.0	4.0	4.0	4.0	4.0	
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95		1.00	0.95	1.00	1.00	0.95	
Frt	1.00	1.00	0.85	1.00	0.97		1.00	1.00	0.85	1.00	0.95	
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1770	3539	1583	1770	3415		1770	3539	1583	1770	3352	
Flt Permitted	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00	0.30	1.00	
Satd. Flow (perm)	1770	3539	1583	1770	3415		1770	3539	1583	555	3352	
Volume (vph)	485	476	120	125	497	151	164	744	115	140	479	261
Peak-hour factor, PHF	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85
Adj. Flow (vph)	571	560	141	147	585	178	193	875	135	165	564	307
RTOR Reduction (vph)	0	0	89	0	29	0	0	0	82	0	73	0
Lane Group Flow (vph)	571	560	52	147	734	0	193	875	53	165	798	0
Turn Type	Prot		Perm	Prot			Prot		Perm	Perm		
Protected Phases	7	4		3	8		5	2			6	
Permitted Phases			4						2	6		
Actuated Green, G (s)	29.0	36.8	36.8	12.2	20.0		11.0	39.0	39.0	24.0	24.0	
Effective Green, g (s)	29.0	36.8	36.8	12.2	20.0		11.0	39.0	39.0	24.0	24.0	
Actuated g/C Ratio	0.29	0.37	0.37	0.12	0.20		0.11	0.39	0.39	0.24	0.24	
Clearance Time (s)	4.0	4.0	4.0	4.0	4.0		4.0	4.0	4.0	4.0	4.0	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	513	1302	583	216	683		195	1380	617	133	804	
v/s Ratio Prot	c0.32	0.16		0.08	c0.21		c0.11	0.25			0.24	
v/s Ratio Perm			0.03						0.03	c0.30		
v/c Ratio	1.11	0.43	0.09	0.68	1.07		0.99	0.63	0.09	1.24	0.99	
Uniform Delay, d1	35.5	23.7	20.6	42.0	40.0		44.4	24.7	19.2	38.0	37.9	
Progression Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	74.5	0.2	0.1	8.5	56.4		60.8	2.2	0.3	156.5	30.0	
Delay (s)	110.0	24.0	20.7	50.5	96.4		105.3	26.9	19.5	194.5	67.9	
Level of Service	F	C	C	D	F		F	C	B	F	E	
Approach Delay (s)		62.2			89.0			38.7			88.1	
Approach LOS		E			F			D			F	

Intersection Summary			
HCM Average Control Delay	67.4	HCM Level of Service	E
HCM Volume to Capacity ratio	1.12		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	16.0
Intersection Capacity Utilization	89.4%	ICU Level of Service	E
Analysis Period (min)	15		
c Critical Lane Group			

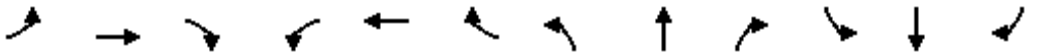
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0		4.0	4.0			4.0	
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	1.00			1.00	
Frt	1.00	0.98		1.00	0.98		1.00	0.94			0.95	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00			0.98	
Satd. Flow (prot)	1770	3472		1770	3457		1770	1756			1727	
Flt Permitted	0.95	1.00		0.95	1.00		0.56	1.00			0.84	
Satd. Flow (perm)	1770	3472		1770	3457		1038	1756			1473	
Volume (vph)	175	432	62	65	505	92	41	58	36	108	52	108
Peak-hour factor, PHF	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83
Adj. Flow (vph)	211	520	75	78	608	111	49	70	43	130	63	130
RTOR Reduction (vph)	0	15	0	0	20	0	0	15	0	0	17	0
Lane Group Flow (vph)	211	580	0	78	699	0	49	98	0	0	306	0
Turn Type	Prot			Prot			Perm			Perm		
Protected Phases	7	4		3	8			2			6	
Permitted Phases							2			6		
Actuated Green, G (s)	4.0	20.4		4.0	20.4		37.2	37.2			37.2	
Effective Green, g (s)	4.0	20.4		4.0	20.4		37.2	37.2			37.2	
Actuated g/C Ratio	0.05	0.28		0.05	0.28		0.51	0.51			0.51	
Clearance Time (s)	4.0	4.0		4.0	4.0		4.0	4.0			4.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0			3.0	
Lane Grp Cap (vph)	96	962		96	958		525	888			745	
v/s Ratio Prot	c0.12	0.17		0.04	c0.20			0.06				
v/s Ratio Perm							0.05				c0.21	
v/c Ratio	2.20	0.60		0.81	0.73		0.09	0.11			0.41	
Uniform Delay, d1	34.8	23.1		34.4	24.1		9.4	9.5			11.4	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00			1.00	
Incremental Delay, d2	571.5	1.1		38.8	2.8		0.4	0.3			1.7	
Delay (s)	606.3	24.2		73.2	26.9		9.8	9.8			13.0	
Level of Service	F	C		E	C		A	A			B	
Approach Delay (s)		176.6			31.4			9.8			13.0	
Approach LOS		F			C			A			B	

Intersection Summary			
HCM Average Control Delay	82.9	HCM Level of Service	F
HCM Volume to Capacity ratio	0.63		
Actuated Cycle Length (s)	73.6	Sum of lost time (s)	12.0
Intersection Capacity Utilization	58.6%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			



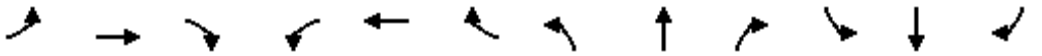
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0		4.0	4.0	4.0	4.0	4.0	
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	1.00	1.00	1.00	1.00	
Frt	1.00	0.96		1.00	0.99		1.00	1.00	0.85	1.00	0.92	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1770	3406		1770	3517		1770	1863	1583	1770	1720	
Flt Permitted	0.95	1.00		0.95	1.00		0.64	1.00	1.00	0.72	1.00	
Satd. Flow (perm)	1770	3406		1770	3517		1196	1863	1583	1340	1720	
Volume (vph)	49	403	135	110	533	23	68	53	100	20	81	85
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	53	438	147	120	579	25	74	58	109	22	88	92
RTOR Reduction (vph)	0	38	0	0	3	0	0	0	60	0	29	0
Lane Group Flow (vph)	53	547	0	120	601	0	74	58	49	22	151	0
Turn Type	Prot			Prot			Perm		Perm	Perm		
Protected Phases	7	4		3	8			2			6	
Permitted Phases							2		2	6		
Actuated Green, G (s)	4.7	16.5		8.2	20.0		29.9	29.9	29.9	29.9	29.9	
Effective Green, g (s)	4.7	16.5		8.2	20.0		29.9	29.9	29.9	29.9	29.9	
Actuated g/C Ratio	0.07	0.25		0.12	0.30		0.45	0.45	0.45	0.45	0.45	
Clearance Time (s)	4.0	4.0		4.0	4.0		4.0	4.0	4.0	4.0	4.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	125	844		218	1056		537	836	711	602	772	
v/s Ratio Prot	0.03	0.16		c0.07	c0.17			0.03			c0.09	
v/s Ratio Perm							0.06		0.03	0.02		
v/c Ratio	0.42	0.65		0.55	0.57		0.14	0.07	0.07	0.04	0.20	
Uniform Delay, d1	29.7	22.5		27.5	19.7		10.8	10.4	10.4	10.3	11.1	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	2.3	1.7		3.0	0.7		0.5	0.2	0.2	0.1	0.6	
Delay (s)	32.0	24.2		30.5	20.4		11.3	10.6	10.6	10.4	11.6	
Level of Service	C	C		C	C		B	B	B	B	B	
Approach Delay (s)		24.8			22.0			10.8			11.5	
Approach LOS		C			C			B			B	

Intersection Summary			
HCM Average Control Delay	20.3	HCM Level of Service	C
HCM Volume to Capacity ratio	0.38		
Actuated Cycle Length (s)	66.6	Sum of lost time (s)	12.0
Intersection Capacity Utilization	48.1%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			



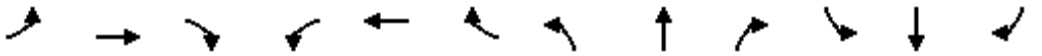
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	1.00	0.95		1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	0.94		1.00	0.99		1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1770	3338		1770	1835		1770	1863	1583	1770	1863	1583
Flt Permitted	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	1770	3338		1770	1835		1770	1863	1583	1770	1863	1583
Volume (vph)	6	316	194	44	414	46	203	370	31	22	78	31
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	6	333	204	46	436	48	214	389	33	23	82	33
RTOR Reduction (vph)	0	106	0	0	4	0	0	0	18	0	0	23
Lane Group Flow (vph)	6	431	0	46	480	0	214	389	15	23	82	10
Turn Type	Prot			Prot			Prot		Perm	Prot		Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases									2			6
Actuated Green, G (s)	1.0	20.3		4.3	23.6		13.5	35.0	35.0	2.4	23.9	23.9
Effective Green, g (s)	1.0	20.3		4.3	23.6		13.5	35.0	35.0	2.4	23.9	23.9
Actuated g/C Ratio	0.01	0.26		0.06	0.30		0.17	0.45	0.45	0.03	0.31	0.31
Clearance Time (s)	4.0	4.0		4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	23	869		98	555		306	836	710	54	571	485
v/s Ratio Prot	0.00	0.13		c0.03	c0.26		c0.12	c0.21		0.01	0.04	
v/s Ratio Perm									0.01			0.01
v/c Ratio	0.26	0.50		0.47	0.86		0.70	0.47	0.02	0.43	0.14	0.02
Uniform Delay, d1	38.1	24.5		35.7	25.7		30.3	15.0	12.0	37.1	19.6	18.9
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	6.0	0.4		3.5	13.2		6.8	1.9	0.1	5.3	0.5	0.1
Delay (s)	44.1	25.0		39.3	38.9		37.2	16.8	12.0	42.5	20.2	19.0
Level of Service	D	C		D	D		D	B	B	D	C	B
Approach Delay (s)		25.2			38.9			23.4			23.6	
Approach LOS		C			D			C			C	

Intersection Summary			
HCM Average Control Delay	28.4	HCM Level of Service	C
HCM Volume to Capacity ratio	0.66		
Actuated Cycle Length (s)	78.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	57.4%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			



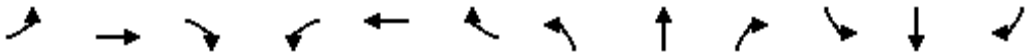
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0		4.0	4.0	4.0	4.0	4.0	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00		1.00	0.95	1.00	1.00	0.95	
Frt	1.00	1.00	0.85	1.00	0.95		1.00	1.00	0.85	1.00	0.95	
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1770	1863	1583	1770	1771		1770	3539	1583	1770	3359	
Flt Permitted	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00	0.95	1.00	
Satd. Flow (perm)	1770	1863	1583	1770	1771		1770	3539	1583	1770	3359	
Volume (vph)	131	124	55	81	159	78	137	672	107	52	468	240
Peak-hour factor, PHF	0.78	0.78	0.78	0.78	0.78	0.78	0.78	0.78	0.78	0.78	0.78	0.78
Adj. Flow (vph)	168	159	71	104	204	100	176	862	137	67	600	308
RTOR Reduction (vph)	0	0	53	0	15	0	0	0	83	0	50	0
Lane Group Flow (vph)	168	159	18	104	289	0	176	862	54	67	858	0
Turn Type	Prot		Perm	Prot			Prot		Perm	Prot		
Protected Phases	5	2		1	6		7	4		3	8	
Permitted Phases			2						4			
Actuated Green, G (s)	9.7	20.6	20.6	7.2	18.1		10.0	31.5	31.5	5.7	27.2	
Effective Green, g (s)	9.7	21.6	21.6	7.2	19.1		10.0	32.5	32.5	5.7	28.2	
Actuated g/C Ratio	0.12	0.26	0.26	0.09	0.23		0.12	0.39	0.39	0.07	0.34	
Clearance Time (s)	4.0	5.0	5.0	4.0	5.0		4.0	5.0	5.0	4.0	5.0	
Vehicle Extension (s)	1.5	2.0	2.0	1.5	2.0		1.5	2.0	2.0	1.5	2.0	
Lane Grp Cap (vph)	207	485	412	154	408		213	1386	620	122	1141	
v/s Ratio Prot	c0.09	0.09		0.06	c0.16		c0.10	0.24		0.04	c0.26	
v/s Ratio Perm			0.01						0.03			
v/c Ratio	0.81	0.33	0.04	0.68	0.71		0.83	0.62	0.09	0.55	0.75	
Uniform Delay, d1	35.8	24.8	23.0	36.8	29.4		35.7	20.3	15.9	37.4	24.3	
Progression Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	20.0	0.1	0.0	8.8	4.5		21.3	0.6	0.0	2.7	2.5	
Delay (s)	55.7	25.0	23.0	45.6	33.9		57.0	20.9	15.9	40.1	26.8	
Level of Service	E	C	C	D	C		E	C	B	D	C	
Approach Delay (s)		37.6			36.9			25.8			27.7	
Approach LOS		D			D			C			C	

Intersection Summary			
HCM Average Control Delay	29.5	HCM Level of Service	C
HCM Volume to Capacity ratio	0.75		
Actuated Cycle Length (s)	83.0	Sum of lost time (s)	16.0
Intersection Capacity Utilization	61.9%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	0.94		1.00	0.94		1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1770	1749		1770	1748		1770	1863	1583	1770	1863	1583
Flt Permitted	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	1770	1749		1770	1748		1770	1863	1583	1770	1863	1583
Volume (vph)	42	106	72	109	62	43	52	183	161	82	181	45
Peak-hour factor, PHF	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86
Adj. Flow (vph)	49	123	84	127	72	50	60	213	187	95	210	52
RTOR Reduction (vph)	0	26	0	0	28	0	0	0	111	0	0	29
Lane Group Flow (vph)	49	181	0	127	94	0	60	213	76	95	210	23
Turn Type	Prot			Prot			Prot		Perm	Prot		Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases									2			6
Actuated Green, G (s)	4.9	13.5		9.1	17.7		5.2	31.7	31.7	8.0	34.5	34.5
Effective Green, g (s)	4.9	13.5		9.1	17.7		5.2	31.7	31.7	8.0	34.5	34.5
Actuated g/C Ratio	0.06	0.17		0.12	0.23		0.07	0.40	0.40	0.10	0.44	0.44
Clearance Time (s)	4.0	4.0		4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	111	302		206	395		118	754	641	181	821	697
v/s Ratio Prot	0.03	c0.10		c0.07	0.05		0.03	c0.11		c0.05	c0.11	
v/s Ratio Perm									0.05			0.01
v/c Ratio	0.44	0.60		0.62	0.24		0.51	0.28	0.12	0.52	0.26	0.03
Uniform Delay, d1	35.4	29.9		32.9	24.8		35.3	15.7	14.6	33.3	13.8	12.4
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	2.8	3.2		5.4	0.3		3.4	0.9	0.4	2.7	0.8	0.1
Delay (s)	38.2	33.1		38.3	25.1		38.7	16.6	14.9	36.1	14.6	12.5
Level of Service	D	C		D	C		D	B	B	D	B	B
Approach Delay (s)		34.0			31.8			18.8			20.0	
Approach LOS		C			C			B			B	

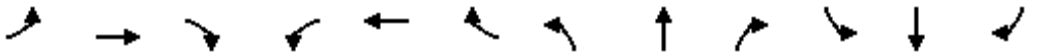
Intersection Summary			
HCM Average Control Delay	24.5	HCM Level of Service	C
HCM Volume to Capacity ratio	0.45		
Actuated Cycle Length (s)	78.3	Sum of lost time (s)	20.0
Intersection Capacity Utilization	43.5%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Stop			Stop	
Volume (vph)	0	103	224	51	79	0	94	0	22	0	0	0
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	0	114	249	57	88	0	104	0	24	0	0	0

Direction, Lane #	EB 1	WB 1	NB 1
Volume Total (vph)	363	144	129
Volume Left (vph)	0	57	104
Volume Right (vph)	249	0	24
Hadj (s)	-0.38	0.11	0.08
Departure Headway (s)	4.0	4.7	5.1
Degree Utilization, x	0.41	0.19	0.18
Capacity (veh/h)	864	722	651
Control Delay (s)	9.8	8.8	9.2
Approach Delay (s)	9.8	8.8	9.2
Approach LOS	A	A	A

Intersection Summary			
Delay	9.5		
HCM Level of Service	A		
Intersection Capacity Utilization	42.7%	ICU Level of Service	A
Analysis Period (min)	15		

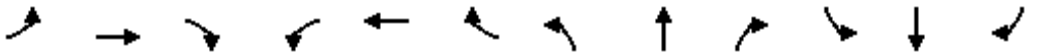


Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0		4.0	4.0	
Lane Util. Factor	1.00	0.95		1.00	0.95	1.00	1.00	1.00		1.00	1.00	
Frt	1.00	0.99		1.00	1.00	0.85	1.00	0.97		1.00	0.91	
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1770	3509		1770	3539	1583	1770	1814		1770	1691	
Flt Permitted	0.95	1.00		0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (perm)	1770	3509		1770	3539	1583	1770	1814		1770	1691	
Volume (vph)	71	498	30	9	544	34	38	62	13	37	50	80
Peak-hour factor, PHF	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Adj. Flow (vph)	76	535	32	10	585	37	41	67	14	40	54	86
RTOR Reduction (vph)	0	2	0	0	0	17	0	9	0	0	65	0
Lane Group Flow (vph)	76	565	0	10	585	20	41	72	0	40	75	0
Turn Type	Prot			Prot		Perm	Prot			Prot		
Protected Phases	5	2		1	6		7	4		3	8	
Permitted Phases						6						
Actuated Green, G (s)	11.1	63.9		1.2	54.0	54.0	4.5	12.5		4.4	12.4	
Effective Green, g (s)	11.1	64.9		1.2	55.0	55.0	4.5	13.5		4.4	13.4	
Actuated g/C Ratio	0.11	0.65		0.01	0.55	0.55	0.04	0.14		0.04	0.13	
Clearance Time (s)	4.0	5.0		4.0	5.0	5.0	4.0	5.0		4.0	5.0	
Vehicle Extension (s)	1.5	2.0		1.5	2.0	2.0	1.5	3.0		1.5	3.0	
Lane Grp Cap (vph)	196	2277		21	1946	871	80	245		78	227	
v/s Ratio Prot	c0.04	0.16		0.01	c0.17		c0.02	0.04		0.02	c0.04	
v/s Ratio Perm						0.01						
v/c Ratio	0.39	0.25		0.48	0.30	0.02	0.51	0.30		0.51	0.33	
Uniform Delay, d1	41.3	7.3		49.1	12.1	10.3	46.7	39.0		46.8	39.2	
Progression Factor	1.00	1.00		1.09	0.49	0.81	1.00	1.00		1.00	1.00	
Incremental Delay, d2	0.5	0.3		5.9	0.4	0.0	2.3	0.7		2.4	0.9	
Delay (s)	41.8	7.6		59.6	6.4	8.3	49.0	39.6		49.1	40.1	
Level of Service	D	A		E	A	A	D	D		D	D	
Approach Delay (s)		11.6			7.3			42.8			42.1	
Approach LOS		B			A			D			D	

Intersection Summary			
HCM Average Control Delay	15.8	HCM Level of Service	B
HCM Volume to Capacity ratio	0.33		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	16.0
Intersection Capacity Utilization	43.2%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	
Lane Util. Factor	0.97	0.95	1.00	0.97	0.95	1.00	0.97	0.95	1.00	0.97	0.95	
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.96	
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	3433	3539	1583	3433	3539	1583	3433	3539	1583	3433	3409	
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (perm)	3433	3539	1583	3433	3539	1583	3433	3539	1583	3433	3409	
Volume (vph)	128	265	84	77	252	41	187	761	137	57	287	93
Peak-hour factor, PHF	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Adj. Flow (vph)	141	291	92	85	277	45	205	836	151	63	315	102
RTOR Reduction (vph)	0	0	51	0	0	27	0	0	107	0	36	0
Lane Group Flow (vph)	141	291	41	85	277	18	205	836	44	63	381	0
Turn Type	Prot		Perm	Prot		Perm	Prot		Perm	Prot		
Protected Phases	5	2		1	6		7	4		3	8	
Permitted Phases			2			6			4			
Actuated Green, G (s)	9.9	43.3	43.3	5.6	39.0	39.0	9.7	28.2	28.2	4.9	23.4	
Effective Green, g (s)	9.9	44.3	44.3	5.6	40.0	40.0	9.7	29.2	29.2	4.9	24.4	
Actuated g/C Ratio	0.10	0.44	0.44	0.06	0.40	0.40	0.10	0.29	0.29	0.05	0.24	
Clearance Time (s)	4.0	5.0	5.0	4.0	5.0	5.0	4.0	5.0	5.0	4.0	5.0	
Vehicle Extension (s)	1.5	2.0	2.0	1.5	2.0	2.0	1.5	2.0	2.0	1.5	2.0	
Lane Grp Cap (vph)	340	1568	701	192	1416	633	333	1033	462	168	832	
v/s Ratio Prot	c0.04	0.08		c0.02	c0.08		c0.06	c0.24		0.02	0.11	
v/s Ratio Perm			0.03			0.01			0.03			
v/c Ratio	0.41	0.19	0.06	0.44	0.20	0.03	0.62	0.81	0.10	0.38	0.46	
Uniform Delay, d1	42.3	16.9	15.9	45.7	19.5	18.2	43.4	32.8	25.8	46.1	32.2	
Progression Factor	0.90	0.77	0.91	1.00	1.94	3.73	1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	0.3	0.3	0.2	0.6	0.3	0.1	2.4	4.5	0.0	0.5	0.1	
Delay (s)	38.3	13.3	14.7	46.3	38.1	67.9	45.7	37.3	25.8	46.6	32.3	
Level of Service	D	B	B	D	D	E	D	D	C	D	C	
Approach Delay (s)		20.2			43.1			37.3			34.2	
Approach LOS		C			D			D			C	

Intersection Summary			
HCM Average Control Delay	34.2	HCM Level of Service	C
HCM Volume to Capacity ratio	0.46		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	48.4%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

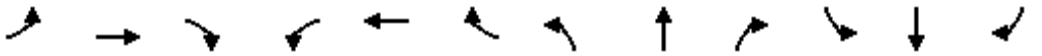


Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.96	
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1770	3539	1583	1770	3539	1583	1770	3539	1583	1770	3386	
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (perm)	1770	3539	1583	1770	3539	1583	1770	3539	1583	1770	3386	
Volume (vph)	161	400	65	93	397	194	73	631	107	158	284	115
Peak-hour factor, PHF	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88
Adj. Flow (vph)	183	455	74	106	451	220	83	717	122	180	323	131
RTOR Reduction (vph)	0	0	47	0	0	150	0	0	50	0	44	0
Lane Group Flow (vph)	183	455	27	106	451	70	83	717	72	180	410	0
Turn Type	Prot		Perm	Prot		Perm	Prot		Perm	Prot		
Protected Phases	5	2		1	6		7	4		3	8	
Permitted Phases			2			6			4			
Actuated Green, G (s)	14.0	35.7	35.7	9.1	30.8	30.8	7.5	24.8	24.8	12.1	29.4	
Effective Green, g (s)	14.0	36.7	36.7	9.1	31.8	31.8	7.5	26.1	26.1	12.1	30.7	
Actuated g/C Ratio	0.14	0.37	0.37	0.09	0.32	0.32	0.08	0.26	0.26	0.12	0.31	
Clearance Time (s)	4.0	5.0	5.0	4.0	5.0	5.0	4.0	5.3	5.3	4.0	5.3	
Vehicle Extension (s)	1.5	2.0	2.0	1.5	2.0	2.0	1.5	2.0	2.0	1.5	2.0	
Lane Grp Cap (vph)	248	1299	581	161	1125	503	133	924	413	214	1040	
v/s Ratio Prot	c0.10	0.13		0.06	c0.13		0.05	c0.20		c0.10	0.12	
v/s Ratio Perm			0.02			0.04			0.05			
v/c Ratio	0.74	0.35	0.05	0.66	0.40	0.14	0.62	0.78	0.17	0.84	0.39	
Uniform Delay, d1	41.2	23.0	20.4	43.9	26.7	24.3	44.9	34.2	28.6	43.0	27.3	
Progression Factor	1.04	0.84	0.64	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	9.4	0.7	0.2	7.2	1.1	0.6	6.4	3.8	0.1	23.8	0.1	
Delay (s)	52.2	20.1	13.2	51.2	27.7	24.9	51.3	38.0	28.7	66.8	27.4	
Level of Service	D	C	B	D	C	C	D	D	C	E	C	
Approach Delay (s)		27.7			30.1			38.0			38.6	
Approach LOS		C			C			D			D	

Intersection Summary			
HCM Average Control Delay	33.7	HCM Level of Service	C
HCM Volume to Capacity ratio	0.64		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	16.0
Intersection Capacity Utilization	59.4%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			

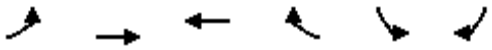
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0			4.0	4.0	4.0	4.0	
Lane Util. Factor	1.00	0.95		1.00	0.95			1.00	1.00	1.00	1.00	
Frt	1.00	0.99		1.00	0.95			1.00	0.85	1.00	0.86	
Flt Protected	0.95	1.00		0.95	1.00			0.95	1.00	0.95	1.00	
Satd. Flow (prot)	1770	3502		1770	3369			1770	1583	1770	1603	
Flt Permitted	0.95	1.00		0.95	1.00			0.75	1.00	0.75	1.00	
Satd. Flow (perm)	1770	3502		1770	3369			1394	1583	1399	1603	
Volume (vph)	37	420	32	91	410	193	9	0	17	38	1	12
Peak-hour factor, PHF	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89
Adj. Flow (vph)	42	472	36	102	461	217	10	0	19	43	1	13
RTOR Reduction (vph)	0	3	0	0	24	0	0	0	16	0	11	0
Lane Group Flow (vph)	42	505	0	102	654	0	0	10	3	43	3	0
Turn Type	Prot			Prot			Perm		Perm	Perm		
Protected Phases	5	2		1	6			4			8	
Permitted Phases							4		4	8		
Actuated Green, G (s)	4.6	71.3		10.1	76.8			15.6	15.6	15.6	15.6	
Effective Green, g (s)	4.6	72.3		10.1	77.8			15.6	15.6	15.6	15.6	
Actuated g/C Ratio	0.04	0.66		0.09	0.71			0.14	0.14	0.14	0.14	
Clearance Time (s)	4.0	5.0		4.0	5.0			4.0	4.0	4.0	4.0	
Vehicle Extension (s)	1.5	2.0		1.5	2.0			2.5	2.5	2.5	2.5	
Lane Grp Cap (vph)	74	2302		163	2383			198	224	198	227	
v/s Ratio Prot	0.02	0.14		c0.06	c0.19						0.00	
v/s Ratio Perm								0.01	0.00	c0.03		
v/c Ratio	0.57	0.22		0.63	0.27			0.05	0.01	0.22	0.01	
Uniform Delay, d1	51.7	7.5		48.1	5.8			40.8	40.6	41.8	40.6	
Progression Factor	1.00	1.00		1.00	1.00			1.00	1.00	1.00	1.00	
Incremental Delay, d2	5.8	0.2		5.3	0.3			0.1	0.0	0.4	0.0	
Delay (s)	57.6	7.8		53.4	6.1			40.9	40.6	42.2	40.6	
Level of Service	E	A		D	A			D	D	D	D	
Approach Delay (s)		11.6			12.3			40.7			41.8	
Approach LOS		B			B			D			D	

Intersection Summary			
HCM Average Control Delay	13.8	HCM Level of Service	B
HCM Volume to Capacity ratio	0.30		
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	39.6%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			



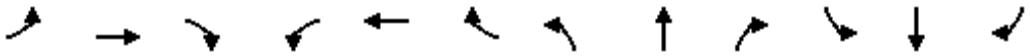
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0	4.0	4.0	4.0					4.0	4.0	4.0
Lane Util. Factor		0.91	0.91	1.00	0.95					0.95	0.95	1.00
Frt		0.99	0.85	1.00	1.00					1.00	1.00	0.85
Flt Protected		1.00	1.00	0.95	1.00					0.95	0.96	1.00
Satd. Flow (prot)		3356	1441	1770	3539					1681	1705	1583
Flt Permitted		1.00	1.00	0.95	1.00					0.95	0.96	1.00
Satd. Flow (perm)		3356	1441	1770	3539					1681	1705	1583
Volume (vph)	0	354	266	50	619	0	0	0	0	216	30	407
Peak-hour factor, PHF	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89
Adj. Flow (vph)	0	398	299	56	696	0	0	0	0	243	34	457
RTOR Reduction (vph)	0	5	210	0	0	0	0	0	0	0	0	81
Lane Group Flow (vph)	0	422	60	56	696	0	0	0	0	135	142	376
Turn Type			Perm	Prot						Perm		Perm
Protected Phases		4		3	8						6	
Permitted Phases			4							6		6
Actuated Green, G (s)		16.6	16.6	5.1	25.7					41.6	41.6	41.6
Effective Green, g (s)		16.6	16.6	5.1	25.7					41.6	41.6	41.6
Actuated g/C Ratio		0.22	0.22	0.07	0.34					0.55	0.55	0.55
Clearance Time (s)		4.0	4.0	4.0	4.0					4.0	4.0	4.0
Vehicle Extension (s)		3.0	3.0	3.0	3.0					3.0	3.0	3.0
Lane Grp Cap (vph)		740	318	120	1208					929	942	875
v/s Ratio Prot		0.13		0.03	c0.20							
v/s Ratio Perm			0.04							0.08	0.08	c0.24
v/c Ratio		0.57	0.19	0.47	0.58					0.15	0.15	0.43
Uniform Delay, d1		26.2	23.9	33.8	20.3					8.2	8.2	9.9
Progression Factor		1.00	1.00	1.00	1.00					1.00	1.00	1.00
Incremental Delay, d2		1.0	0.3	2.9	0.7					0.3	0.3	1.5
Delay (s)		27.2	24.2	36.6	21.0					8.5	8.6	11.4
Level of Service		C	C	D	C					A	A	B
Approach Delay (s)		26.0			22.2			0.0			10.3	
Approach LOS		C			C			A			B	

Intersection Summary			
HCM Average Control Delay	19.4	HCM Level of Service	B
HCM Volume to Capacity ratio	0.49		
Actuated Cycle Length (s)	75.3	Sum of lost time (s)	8.0
Intersection Capacity Utilization	44.5%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0		4.0	4.0
Lane Util. Factor	1.00	0.95	0.95		0.97	1.00
Frt	1.00	1.00	0.96		1.00	0.85
Flt Protected	0.95	1.00	1.00		0.95	1.00
Satd. Flow (prot)	1770	3539	3397		3433	1583
Flt Permitted	0.95	1.00	1.00		0.95	1.00
Satd. Flow (perm)	1770	3539	3397		3433	1583
Volume (vph)	93	690	230	85	81	317
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	103	767	256	94	90	352
RTOR Reduction (vph)	0	0	43	0	0	166
Lane Group Flow (vph)	103	767	307	0	90	186
Turn Type	Prot					Perm
Protected Phases	7	4	8		6	
Permitted Phases						6
Actuated Green, G (s)	7.9	24.4	12.5		36.4	36.4
Effective Green, g (s)	7.9	24.4	12.5		36.4	36.4
Actuated g/C Ratio	0.11	0.35	0.18		0.53	0.53
Clearance Time (s)	4.0	4.0	4.0		4.0	4.0
Vehicle Extension (s)	3.0	3.0	3.0		3.0	3.0
Lane Grp Cap (vph)	203	1255	617		1816	838
v/s Ratio Prot	0.06	c0.22	0.09		0.03	
v/s Ratio Perm						c0.12
v/c Ratio	0.51	0.61	0.50		0.05	0.22
Uniform Delay, d1	28.6	18.3	25.3		7.8	8.6
Progression Factor	1.00	1.00	1.00		1.00	1.00
Incremental Delay, d2	2.0	0.9	0.6		0.1	0.6
Delay (s)	30.6	19.2	26.0		7.9	9.3
Level of Service	C	B	C		A	A
Approach Delay (s)		20.5	26.0		9.0	
Approach LOS		C	C		A	

Intersection Summary			
HCM Average Control Delay	18.6	HCM Level of Service	B
HCM Volume to Capacity ratio	0.38		
Actuated Cycle Length (s)	68.8	Sum of lost time (s)	8.0
Intersection Capacity Utilization	35.4%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Stop			Stop	
Volume (vph)	15	0	3	0	0	0	82	268	0	0	328	35
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88
Hourly flow rate (vph)	17	0	3	0	0	0	93	305	0	0	373	40

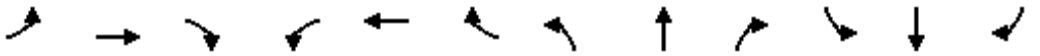
Direction, Lane #	EB 1	NB 1	SB 1	SB 2
Volume Total (vph)	20	398	0	413
Volume Left (vph)	17	93	0	0
Volume Right (vph)	3	0	0	40
Hadj (s)	0.10	0.08	0.00	-0.03
Departure Headway (s)	5.9	4.6	4.8	4.8
Degree Utilization, x	0.03	0.51	0.00	0.55
Capacity (veh/h)	535	770	748	738
Control Delay (s)	9.1	12.3	6.6	12.4
Approach Delay (s)	9.1	12.3	12.4	
Approach LOS	A	B	B	

Intersection Summary			
Delay	12.2		
HCM Level of Service	B		
Intersection Capacity Utilization	51.4%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Sign Control	Stop		Stop			Stop
Volume (vph)	78	70	84	30	62	113
Peak Hour Factor	0.78	0.78	0.78	0.78	0.78	0.78
Hourly flow rate (vph)	100	90	108	38	79	145

Direction, Lane #	WB 1	NB 1	SB 1
Volume Total (vph)	190	146	224
Volume Left (vph)	100	0	79
Volume Right (vph)	90	38	0
Hadj (s)	-0.14	-0.12	0.10
Departure Headway (s)	4.6	4.5	4.7
Degree Utilization, x	0.24	0.18	0.29
Capacity (veh/h)	724	754	737
Control Delay (s)	9.1	8.5	9.5
Approach Delay (s)	9.1	8.5	9.5
Approach LOS	A	A	A

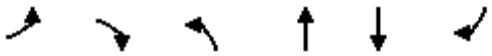
Intersection Summary			
Delay	9.1		
HCM Level of Service	A		
Intersection Capacity Utilization	31.3%	ICU Level of Service	A
Analysis Period (min)	15		



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0			4.0		4.0	4.0		4.0	4.0	
Lane Util. Factor		1.00			1.00		1.00	1.00		1.00	1.00	
Frt		0.96			0.93		1.00	0.99		1.00	0.95	
Flt Protected		0.98			0.99		0.95	1.00		0.95	1.00	
Satd. Flow (prot)		1751			1714		1770	1849		1770	1766	
Flt Permitted		0.89			0.96		0.61	1.00		0.25	1.00	
Satd. Flow (perm)		1595			1656		1138	1849		466	1766	
Volume (vph)	20	12	13	17	26	48	117	533	27	24	128	67
Peak-hour factor, PHF	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82
Adj. Flow (vph)	24	15	16	21	32	59	143	650	33	29	156	82
RTOR Reduction (vph)	0	10	0	0	35	0	0	5	0	0	47	0
Lane Group Flow (vph)	0	45	0	0	77	0	143	678	0	29	191	0
Turn Type	Perm			Perm			Perm			Perm		
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)		16.0			16.0		16.0	16.0		16.0	16.0	
Effective Green, g (s)		16.0			16.0		16.0	16.0		16.0	16.0	
Actuated g/C Ratio		0.40			0.40		0.40	0.40		0.40	0.40	
Clearance Time (s)		4.0			4.0		4.0	4.0		4.0	4.0	
Lane Grp Cap (vph)		638			662		455	740		186	706	
v/s Ratio Prot								c0.37			0.11	
v/s Ratio Perm		0.03			c0.05		0.13			0.06		
v/c Ratio		0.07			0.12		0.31	0.92		0.16	0.27	
Uniform Delay, d1		7.4			7.5		8.2	11.4		7.7	8.1	
Progression Factor		1.00			1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2		0.2			0.4		1.8	18.0		1.8	0.9	
Delay (s)		7.6			7.9		10.0	29.4		9.5	9.0	
Level of Service		A			A		B	C		A	A	
Approach Delay (s)		7.6			7.9			26.1			9.1	
Approach LOS		A			A			C			A	

Intersection Summary			
HCM Average Control Delay	20.0	HCM Level of Service	C
HCM Volume to Capacity ratio	0.52		
Actuated Cycle Length (s)	40.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	48.6%	ICU Level of Service	A
Analysis Period (min)	15		

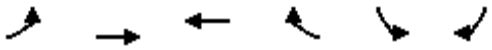
c Critical Lane Group



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	0.85	1.00	1.00	1.00	0.85
Flt Protected	0.95	1.00	0.95	1.00	1.00	1.00
Satd. Flow (prot)	1770	1583	1770	1863	1863	1583
Flt Permitted	0.95	1.00	0.70	1.00	1.00	1.00
Satd. Flow (perm)	1770	1583	1295	1863	1863	1583
Volume (vph)	327	376	55	39	80	255
Peak-hour factor, PHF	0.84	0.84	0.84	0.84	0.84	0.84
Adj. Flow (vph)	389	448	65	46	95	304
RTOR Reduction (vph)	0	269	0	0	0	182
Lane Group Flow (vph)	389	179	65	46	95	122
Turn Type		Perm	Perm			Perm
Protected Phases	4			2	6	
Permitted Phases		4	2			6
Actuated Green, G (s)	16.0	16.0	16.0	16.0	16.0	16.0
Effective Green, g (s)	16.0	16.0	16.0	16.0	16.0	16.0
Actuated g/C Ratio	0.40	0.40	0.40	0.40	0.40	0.40
Clearance Time (s)	4.0	4.0	4.0	4.0	4.0	4.0
Lane Grp Cap (vph)	708	633	518	745	745	633
v/s Ratio Prot	c0.22			0.02	0.05	
v/s Ratio Perm		0.11	0.05			c0.08
v/c Ratio	0.55	0.28	0.13	0.06	0.13	0.19
Uniform Delay, d1	9.2	8.1	7.6	7.4	7.6	7.8
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	3.1	1.1	0.5	0.2	0.4	0.7
Delay (s)	12.3	9.2	8.1	7.5	7.9	8.5
Level of Service	B	A	A	A	A	A
Approach Delay (s)	10.7			7.9	8.3	
Approach LOS	B			A	A	

Intersection Summary			
HCM Average Control Delay	9.7	HCM Level of Service	A
HCM Volume to Capacity ratio	0.37		
Actuated Cycle Length (s)	40.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	34.5%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Volume (veh/h)	53	236	79	2	7	26
Peak Hour Factor	0.78	0.78	0.78	0.78	0.78	0.78
Hourly flow rate (vph)	68	303	101	3	9	33
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type					None	
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	104				541	103
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	104				541	103
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	95				98	97
cM capacity (veh/h)	1488				479	952

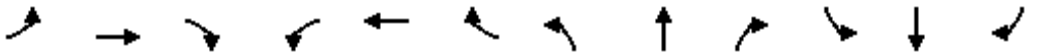
Direction, Lane #	EB 1	WB 1	SB 1
Volume Total	371	104	42
Volume Left	68	0	9
Volume Right	0	3	33
cSH	1488	1700	787
Volume to Capacity	0.05	0.06	0.05
Queue Length 95th (ft)	4	0	4
Control Delay (s)	1.7	0.0	9.8
Lane LOS	A		A
Approach Delay (s)	1.7	0.0	9.8
Approach LOS			A

Intersection Summary			
Average Delay	2.0		
Intersection Capacity Utilization	32.0%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Volume (veh/h)	17	7	12	172	107	24
Peak Hour Factor	0.74	0.74	0.74	0.74	0.74	0.74
Hourly flow rate (vph)	23	9	16	232	145	32
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None					
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	426	161	177			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	426	161	177			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	96	99	99			
cM capacity (veh/h)	579	884	1399			

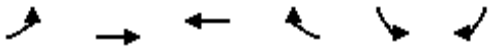
Direction, Lane #	EB 1	NB 1	SB 1
Volume Total	32	249	177
Volume Left	23	16	0
Volume Right	9	0	32
cSH	644	1399	1700
Volume to Capacity	0.05	0.01	0.10
Queue Length 95th (ft)	4	1	0
Control Delay (s)	10.9	0.6	0.0
Lane LOS	B	A	
Approach Delay (s)	10.9	0.6	0.0
Approach LOS	B		

Intersection Summary			
Average Delay	1.1		
Intersection Capacity Utilization	28.9%	ICU Level of Service	A
Analysis Period (min)	15		



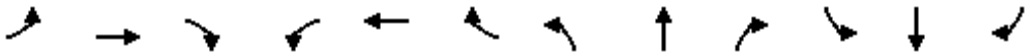
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	0.97	0.95	1.00	0.97	0.95	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1770	3539	1583	1770	3539	1583	3433	3539	1583	3433	3539	1583
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	1770	3539	1583	1770	3539	1583	3433	3539	1583	3433	3539	1583
Volume (vph)	154	630	152	46	740	160	820	1042	265	70	243	131
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	167	685	165	50	804	174	891	1133	288	76	264	142
RTOR Reduction (vph)	0	0	101	0	0	107	0	0	94	0	0	116
Lane Group Flow (vph)	167	685	64	50	804	67	891	1133	194	76	264	26
Turn Type	Prot		Perm	Prot		Perm	Prot		Perm	Prot		Perm
Protected Phases	5	2		1	6		3	8		7	4	
Permitted Phases			2			6			8			4
Actuated Green, G (s)	11.3	48.7	48.7	6.8	44.4	44.4	32.3	36.9	36.9	17.8	22.6	22.6
Effective Green, g (s)	11.5	50.4	50.4	7.2	46.1	46.1	32.5	38.4	38.4	18.0	23.9	23.9
Actuated g/C Ratio	0.09	0.39	0.39	0.06	0.35	0.35	0.25	0.30	0.30	0.14	0.18	0.18
Clearance Time (s)	4.2	5.7	5.7	4.4	5.7	5.7	4.2	5.5	5.5	4.2	5.3	5.3
Vehicle Extension (s)	1.5	2.0	2.0	1.5	2.0	2.0	1.5	2.0	2.0	1.5	2.0	2.0
Lane Grp Cap (vph)	157	1372	614	98	1255	561	858	1045	468	475	651	291
v/s Ratio Prot	c0.09	0.19		0.03	c0.23		c0.26	c0.32		0.02	0.07	
v/s Ratio Perm			0.04			0.04			0.12			0.02
v/c Ratio	1.06	0.50	0.10	0.51	0.64	0.12	1.04	1.08	0.42	0.16	0.41	0.09
Uniform Delay, d1	59.2	30.2	25.4	59.7	35.0	28.3	48.8	45.8	36.8	49.3	46.8	44.0
Progression Factor	1.00	1.00	1.00	1.21	0.94	2.01	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	89.8	1.3	0.3	1.4	1.9	0.3	41.1	53.6	2.7	0.7	1.9	0.6
Delay (s)	149.0	31.5	25.7	73.7	34.9	57.2	89.9	99.4	39.5	50.1	48.7	44.6
Level of Service	F	C	C	E	C	E	F	F	D	D	D	D
Approach Delay (s)		49.9			40.6			88.3			47.7	
Approach LOS		D			D			F			D	

Intersection Summary			
HCM Average Control Delay	66.0	HCM Level of Service	E
HCM Volume to Capacity ratio	0.88		
Actuated Cycle Length (s)	130.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	74.5%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			



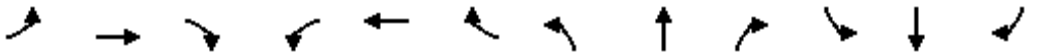
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	1.00	0.95	0.95	1.00	0.97	0.91
Frt	1.00	1.00	1.00	0.85	1.00	0.85
Flt Protected	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (prot)	1770	3539	3539	1583	3433	1441
Flt Permitted	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (perm)	1770	3539	3539	1583	3433	1441
Volume (vph)	310	511	911	562	305	117
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	344	568	1012	624	339	130
RTOR Reduction (vph)	0	0	0	215	0	94
Lane Group Flow (vph)	344	568	1012	409	339	36
Turn Type	Prot			Perm		Perm
Protected Phases	5	2	6		4	
Permitted Phases				6		4
Actuated Green, G (s)	28.3	83.6	51.3	51.3	34.4	34.4
Effective Green, g (s)	28.3	85.6	53.3	53.3	36.4	36.4
Actuated g/C Ratio	0.22	0.66	0.41	0.41	0.28	0.28
Clearance Time (s)	4.0	6.0	6.0	6.0	6.0	6.0
Vehicle Extension (s)	1.5	2.0	2.0	2.0	2.0	2.0
Lane Grp Cap (vph)	385	2330	1451	649	961	403
v/s Ratio Prot	c0.19	0.16	c0.29		c0.10	
v/s Ratio Perm				0.26		0.03
v/c Ratio	0.89	0.24	0.70	0.63	0.35	0.09
Uniform Delay, d1	49.4	9.0	31.7	30.5	37.4	34.6
Progression Factor	0.66	0.42	0.79	0.72	1.00	1.00
Incremental Delay, d2	19.9	0.2	1.2	2.0	1.0	0.4
Delay (s)	52.6	4.1	26.1	23.8	38.4	35.0
Level of Service	D	A	C	C	D	D
Approach Delay (s)		22.4	25.2		37.5	
Approach LOS		C	C		D	

Intersection Summary			
HCM Average Control Delay	26.3	HCM Level of Service	C
HCM Volume to Capacity ratio	0.64		
Actuated Cycle Length (s)	130.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	62.3%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			



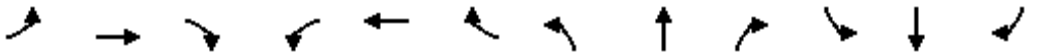
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0	4.0		4.0			4.0	4.0
Lane Util. Factor	1.00	0.95		1.00	0.95	1.00		1.00			1.00	1.00
Frt	1.00	1.00		1.00	1.00	0.85		1.00			1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00	1.00		0.95			0.95	1.00
Satd. Flow (prot)	1770	3539		1770	3539	1583		1770			1770	1583
Flt Permitted	0.95	1.00		0.95	1.00	1.00		0.75			0.75	1.00
Satd. Flow (perm)	1770	3539		1770	3539	1583		1392			1404	1583
Volume (vph)	373	696	0	12	1481	89	5	0	0	14	0	5
Peak-hour factor, PHF	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86
Adj. Flow (vph)	434	809	0	14	1722	103	6	0	0	16	0	6
RTOR Reduction (vph)	0	0	0	0	0	24	0	0	0	0	0	3
Lane Group Flow (vph)	434	809	0	14	1722	79	0	6	0	0	16	3
Turn Type	Prot			Prot		Perm	Perm			Perm		custom
Protected Phases	5	2		1	6			8			4	
Permitted Phases						6	8			4		6
Actuated Green, G (s)	44.0	105.5		2.4	63.9	63.9		7.1			7.1	63.9
Effective Green, g (s)	44.0	107.5		2.4	65.9	65.9		8.1			8.1	65.9
Actuated g/C Ratio	0.34	0.83		0.02	0.51	0.51		0.06			0.06	0.51
Clearance Time (s)	4.0	6.0		4.0	6.0	6.0		5.0			5.0	6.0
Vehicle Extension (s)	1.5	2.0		1.5	2.0	2.0		4.0			4.0	2.0
Lane Grp Cap (vph)	599	2926		33	1794	802		87			87	802
v/s Ratio Prot	c0.25	0.23		0.01	c0.49							
v/s Ratio Perm						0.05		0.00			c0.01	0.00
v/c Ratio	0.72	0.28		0.42	0.96	0.10		0.07			0.18	0.00
Uniform Delay, d1	37.7	2.5		63.1	30.8	16.6		57.4			57.8	15.8
Progression Factor	1.27	0.50		1.34	1.19	1.44		1.00			1.00	1.00
Incremental Delay, d2	3.6	0.2		0.3	1.8	0.0		0.5			1.4	0.0
Delay (s)	51.7	1.5		84.7	38.3	23.9		57.9			59.2	15.8
Level of Service	D	A		F	D	C		E			E	B
Approach Delay (s)		19.0			37.8			57.9			47.4	
Approach LOS		B			D			E			D	

Intersection Summary			
HCM Average Control Delay	30.4	HCM Level of Service	C
HCM Volume to Capacity ratio	0.82		
Actuated Cycle Length (s)	130.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	75.8%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			



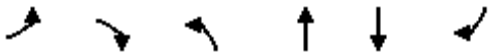
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	0.97	0.95	1.00	0.97	0.95	1.00	0.97	0.95	1.00	0.97	0.95	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	3433	3539	1583	3433	3539	1583	3433	3539	1583	3433	3539	1583
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	3433	3539	1583	3433	3539	1583	3433	3539	1583	3433	3539	1583
Volume (vph)	151	215	375	125	389	42	1338	525	516	48	97	60
Peak-hour factor, PHF	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88
Adj. Flow (vph)	172	244	426	142	442	48	1520	597	586	55	110	68
RTOR Reduction (vph)	0	0	275	0	0	34	0	0	415	0	0	46
Lane Group Flow (vph)	172	244	151	142	442	14	1520	597	171	55	110	22
Turn Type	Prot		Perm	Prot		Perm	Prot		Perm	Prot		Perm
Protected Phases	5	2		1	6		7	4		3	8	
Permitted Phases			2			6			4			8
Actuated Green, G (s)	16.0	44.0	44.0	9.0	37.0	37.0	16.0	36.0	36.0	20.0	41.0	41.0
Effective Green, g (s)	16.0	46.0	46.0	9.0	39.0	39.0	16.0	38.0	38.0	21.0	43.0	43.0
Actuated g/C Ratio	0.12	0.35	0.35	0.07	0.30	0.30	0.12	0.29	0.29	0.16	0.33	0.33
Clearance Time (s)	4.0	6.0	6.0	4.0	6.0	6.0	4.0	6.0	6.0	5.0	6.0	6.0
Vehicle Extension (s)	1.5	2.0	2.0	1.5	2.0	2.0	1.5	2.0	2.0	2.0	2.0	2.0
Lane Grp Cap (vph)	423	1252	560	238	1062	475	423	1034	463	555	1171	524
v/s Ratio Prot	c0.05	0.07		c0.04	c0.12		c0.44	c0.17		0.02	c0.03	
v/s Ratio Perm			0.10			0.01			0.11			0.01
v/c Ratio	0.41	0.19	0.27	0.60	0.42	0.03	3.59	0.58	0.37	0.10	0.09	0.04
Uniform Delay, d1	52.6	29.1	30.0	58.7	36.4	32.1	57.0	39.2	36.5	46.4	30.0	29.5
Progression Factor	0.79	0.70	1.67	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	0.2	0.3	1.2	2.7	1.2	0.1	1172.9	2.3	2.3	0.0	0.2	0.2
Delay (s)	41.6	20.8	51.2	61.4	37.6	32.3	1229.9	41.5	38.8	46.5	30.2	29.7
Level of Service	D	C	D	E	D	C	F	D	D	D	C	C
Approach Delay (s)		40.4			42.5			709.2			33.9	
Approach LOS		D			D			F			C	

Intersection Summary			
HCM Average Control Delay	450.3	HCM Level of Service	F
HCM Volume to Capacity ratio	0.81		
Actuated Cycle Length (s)	130.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	69.9%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0	4.0	4.0	4.0						4.0	
Lane Util. Factor		0.95	1.00	1.00	0.95						0.95	
Frt		1.00	0.85	1.00	1.00						0.89	
Flt Protected		1.00	1.00	0.95	1.00						1.00	
Satd. Flow (prot)		3539	1583	1770	3539						3148	
Flt Permitted		1.00	1.00	0.23	1.00						1.00	
Satd. Flow (perm)		3539	1583	419	3539						3148	
Volume (vph)	0	623	229	24	338	0	0	0	0	20	70	229
Peak-hour factor, PHF	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Adj. Flow (vph)	0	685	252	26	371	0	0	0	0	22	77	252
RTOR Reduction (vph)	0	0	180	0	0	0	0	0	0	0	101	0
Lane Group Flow (vph)	0	685	72	26	371	0	0	0	0	0	250	0
Turn Type			Perm	Perm						Perm		
Protected Phases		4			8						6	
Permitted Phases			4	8						6		
Actuated Green, G (s)		19.6	19.6	19.6	19.6						41.2	
Effective Green, g (s)		19.6	19.6	19.6	19.6						41.2	
Actuated g/C Ratio		0.28	0.28	0.28	0.28						0.60	
Clearance Time (s)		4.0	4.0	4.0	4.0						4.0	
Vehicle Extension (s)		3.0	3.0	3.0	3.0						3.0	
Lane Grp Cap (vph)		1008	451	119	1008						1885	
v/s Ratio Prot		c0.19			0.10							
v/s Ratio Perm			0.05	0.06							0.08	
v/c Ratio		0.68	0.16	0.22	0.37						0.13	
Uniform Delay, d1		21.8	18.4	18.8	19.7						6.0	
Progression Factor		1.00	1.00	1.00	1.00						1.00	
Incremental Delay, d2		1.8	0.2	0.9	0.2						0.1	
Delay (s)		23.7	18.6	19.7	19.9						6.2	
Level of Service		C	B	B	B						A	
Approach Delay (s)		22.3			19.9			0.0			6.2	
Approach LOS		C			B			A			A	

Intersection Summary			
HCM Average Control Delay	18.4	HCM Level of Service	B
HCM Volume to Capacity ratio	0.31		
Actuated Cycle Length (s)	68.8	Sum of lost time (s)	8.0
Intersection Capacity Utilization	42.2%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Sign Control	Stop			Stop	Stop	
Volume (vph)	643	0	361	14	0	0
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Hourly flow rate (vph)	677	0	380	15	0	0

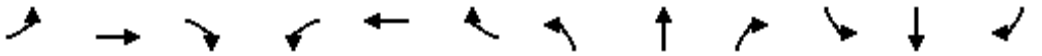
Direction, Lane #	EB 1	EB 2	NB 1	NB 2
Volume Total (vph)	338	338	253	141
Volume Left (vph)	338	338	253	127
Volume Right (vph)	0	0	0	0
Hadj (s)	0.53	0.53	0.53	0.48
Departure Headway (s)	6.3	6.3	6.9	6.8
Degree Utilization, x	0.59	0.59	0.48	0.27
Capacity (veh/h)	557	550	498	506
Control Delay (s)	16.9	16.9	15.0	11.1
Approach Delay (s)	16.9		13.6	
Approach LOS	C		B	

Intersection Summary			
Delay	15.7		
HCM Level of Service	C		
Intersection Capacity Utilization	63.9%	ICU Level of Service	B
Analysis Period (min)	15		

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Volume (veh/h)	7	91	1557	17	52	359
Peak Hour Factor	0.89	0.89	0.89	0.89	0.89	0.89
Hourly flow rate (vph)	8	102	1749	19	58	403
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None					
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	2078	884			1769	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	2078	884			1769	
tC, single (s)	6.8	6.9			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	80	65			83	
cM capacity (veh/h)	38	288			348	

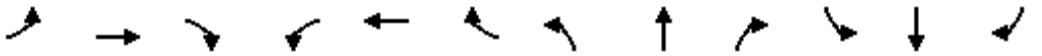
Direction, Lane #	WB 1	WB 2	NB 1	NB 2	SB 1	SB 2	SB 3
Volume Total	8	102	1166	602	58	202	202
Volume Left	8	0	0	0	58	0	0
Volume Right	0	102	0	19	0	0	0
cSH	38	288	1700	1700	348	1700	1700
Volume to Capacity	0.20	0.35	0.69	0.35	0.17	0.12	0.12
Queue Length 95th (ft)	16	39	0	0	15	0	0
Control Delay (s)	121.4	24.2	0.0	0.0	17.4	0.0	0.0
Lane LOS	F	C			C		
Approach Delay (s)	31.1		0.0		2.2		
Approach LOS	D						

Intersection Summary			
Average Delay	1.9		
Intersection Capacity Utilization	55.9%	ICU Level of Service	B
Analysis Period (min)	15		



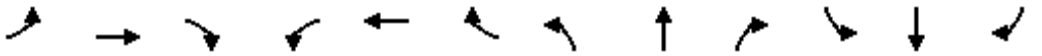
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	1.00	1.00		0.97	0.95	1.00	1.00	0.95	1.00	0.97	0.95	1.00
Frt	1.00	0.94		1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1770	1758		3433	3539	1583	1770	3539	1583	3433	3539	1583
Flt Permitted	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	1770	1758		3433	3539	1583	1770	3539	1583	3433	3539	1583
Volume (vph)	2	5	3	590	14	431	21	1118	396	65	297	2
Peak-hour factor, PHF	0.92	0.92	0.92	0.25	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	2	5	3	2360	15	468	23	1215	430	71	323	2
RTOR Reduction (vph)	0	3	0	0	0	360	0	0	283	0	0	1
Lane Group Flow (vph)	2	5	0	2360	15	108	23	1215	147	71	323	1
Turn Type	Prot			Prot		Perm	Prot		Perm	Prot		Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases						8			2			6
Actuated Green, G (s)	0.9	2.0		18.7	20.8	20.8	30.7	27.0	27.0	30.7	27.0	27.0
Effective Green, g (s)	0.9	3.0		21.0	23.1	23.1	30.7	29.3	29.3	30.7	29.3	29.3
Actuated g/C Ratio	0.01	0.03		0.21	0.23	0.23	0.31	0.29	0.29	0.31	0.29	0.29
Clearance Time (s)	4.0	5.0		6.3	6.3	6.3	4.0	6.3	6.3	4.0	6.3	6.3
Vehicle Extension (s)	1.5	3.0		3.0	2.0	2.0	1.5	2.0	2.0	2.0	3.0	3.0
Lane Grp Cap (vph)	16	53		721	818	366	543	1037	464	1054	1037	464
v/s Ratio Prot	0.00	0.00		c0.69	0.00		0.01	c0.34		c0.02	0.09	
v/s Ratio Perm						c0.07			0.09			0.00
v/c Ratio	0.12	0.10		3.27	0.02	0.30	0.04	1.17	0.32	0.07	0.31	0.00
Uniform Delay, d1	49.2	47.2		39.5	29.7	31.7	24.3	35.4	27.6	24.5	27.5	25.0
Progression Factor	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	1.3	0.8		1026.5	0.0	0.2	0.1	87.7	1.8	0.1	0.8	0.0
Delay (s)	50.4	48.0		1066.0	29.7	31.9	24.5	123.0	29.3	24.6	28.3	25.0
Level of Service	D	D		F	C	C	C	F	C	C	C	C
Approach Delay (s)		48.5			890.3			97.5			27.6	
Approach LOS		D			F			F			C	

Intersection Summary			
HCM Average Control Delay	550.2	HCM Level of Service	F
HCM Volume to Capacity ratio	1.21		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	70.9%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	
Lane Util. Factor	1.00	0.95		1.00	0.95	1.00	1.00	0.95	1.00	0.97	0.95	
Frt	1.00	0.97		1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.99	
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1770	3446		1770	3539	1583	1770	3539	1583	3433	3488	
Flt Permitted	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (perm)	1770	3446		1770	3539	1583	1770	3539	1583	3433	3488	
Volume (vph)	24	360	77	96	717	280	188	1162	185	101	205	22
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	25	379	81	101	755	295	198	1223	195	106	216	23
RTOR Reduction (vph)	0	14	0	0	0	189	0	0	95	0	8	0
Lane Group Flow (vph)	25	446	0	101	755	106	198	1223	100	106	231	0
Turn Type	Prot			Prot		Perm	Prot		Perm	Prot		
Protected Phases	5	2		1	6		7	4		3	8	
Permitted Phases						6			4			
Actuated Green, G (s)	3.7	35.9		9.5	41.9	41.9	12.4	48.1	48.1	7.5	43.2	
Effective Green, g (s)	3.7	37.2		9.7	43.2	43.2	12.4	49.4	49.4	7.7	44.7	
Actuated g/C Ratio	0.03	0.31		0.08	0.36	0.36	0.10	0.41	0.41	0.06	0.37	
Clearance Time (s)	4.0	5.3		4.2	5.3	5.3	4.0	5.3	5.3	4.2	5.5	
Vehicle Extension (s)	1.5	2.0		1.5	2.0	2.0	1.5	2.0	2.0	1.5	2.0	
Lane Grp Cap (vph)	55	1068		143	1274	570	183	1457	652	220	1299	
v/s Ratio Prot	0.01	0.13		c0.06	c0.21		c0.11	c0.35		0.03	0.07	
v/s Ratio Perm						0.07			0.06			
v/c Ratio	0.45	0.42		0.71	0.59	0.19	1.08	0.84	0.15	0.48	0.18	
Uniform Delay, d1	57.2	32.8		53.8	31.2	26.3	53.8	31.7	22.2	54.2	25.3	
Progression Factor	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	2.2	1.2		12.2	2.0	0.7	90.1	4.2	0.0	0.6	0.0	
Delay (s)	59.3	34.0		66.0	33.3	27.1	143.9	36.0	22.2	54.8	25.3	
Level of Service	E	C		E	C	C	F	D	C	D	C	
Approach Delay (s)		35.3			34.6			47.5			34.4	
Approach LOS		D			C			D			C	

Intersection Summary			
HCM Average Control Delay	40.5	HCM Level of Service	D
HCM Volume to Capacity ratio	0.74		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	71.9%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0	4.0	4.0	4.0					4.0	4.0	4.0
Lane Util. Factor		0.95	1.00	0.97	0.95					0.95	0.91	0.95
Frt		1.00	0.85	1.00	1.00					1.00	0.89	0.85
Flt Protected		1.00	1.00	0.95	1.00					0.95	0.99	1.00
Satd. Flow (prot)		3539	1583	3433	3539					1681	1490	1504
Flt Permitted		1.00	1.00	0.95	1.00					0.95	0.99	1.00
Satd. Flow (perm)		3539	1583	3433	3539					1681	1490	1504
Volume (vph)	0	946	309	106	287	0	0	0	0	29	1	48
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	0	1051	343	118	319	0	0	0	0	32	1	53
RTOR Reduction (vph)	0	0	206	0	0	0	0	0	0	0	13	22
Lane Group Flow (vph)	0	1051	137	118	319	0	0	0	0	26	14	11
Turn Type			Perm	Prot						Perm		Perm
Protected Phases		4		3	8						6	
Permitted Phases			4							6		6
Actuated Green, G (s)		29.1	29.1	6.3	39.4					25.2	25.2	25.2
Effective Green, g (s)		29.1	29.1	6.3	39.4					25.2	25.2	25.2
Actuated g/C Ratio		0.40	0.40	0.09	0.54					0.35	0.35	0.35
Clearance Time (s)		4.0	4.0	4.0	4.0					4.0	4.0	4.0
Vehicle Extension (s)		3.0	3.0	3.0	3.0					3.0	3.0	3.0
Lane Grp Cap (vph)		1419	635	298	1921					583	517	522
v/s Ratio Prot		c0.30		c0.03	0.09							
v/s Ratio Perm			0.09							c0.02	0.01	0.01
v/c Ratio		0.74	0.22	0.40	0.17					0.04	0.03	0.02
Uniform Delay, d1		18.5	14.3	31.4	8.3					15.7	15.6	15.6
Progression Factor		1.00	1.00	1.00	1.00					1.00	1.00	1.00
Incremental Delay, d2		2.1	0.2	0.9	0.0					0.1	0.1	0.1
Delay (s)		20.7	14.4	32.2	8.4					15.9	15.7	15.7
Level of Service		C	B	C	A					B	B	B
Approach Delay (s)		19.1			14.8			0.0			15.7	
Approach LOS		B			B			A			B	

Intersection Summary			
HCM Average Control Delay	18.0	HCM Level of Service	B
HCM Volume to Capacity ratio	0.42		
Actuated Cycle Length (s)	72.6	Sum of lost time (s)	12.0
Intersection Capacity Utilization	56.9%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			

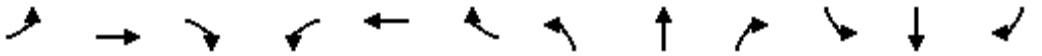
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0			4.0	4.0	4.0
Lane Util. Factor	0.95			0.95	0.97	1.00
Frt	1.00			1.00	1.00	0.85
Flt Protected	1.00			1.00	0.95	1.00
Satd. Flow (prot)	3539			3539	3433	1583
Flt Permitted	1.00			1.00	0.95	1.00
Satd. Flow (perm)	3539			3539	3433	1583
Volume (vph)	976	0	0	211	180	376
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	1061	0	0	229	196	409
RTOR Reduction (vph)	0	0	0	0	0	28
Lane Group Flow (vph)	1061	0	0	229	196	381
Turn Type						Perm
Protected Phases	4			8	2	
Permitted Phases						2
Actuated Green, G (s)	31.0			31.0	43.3	43.3
Effective Green, g (s)	31.0			31.0	43.3	43.3
Actuated g/C Ratio	0.38			0.38	0.53	0.53
Clearance Time (s)	4.0			4.0	4.0	4.0
Vehicle Extension (s)	3.0			3.0	3.0	3.0
Lane Grp Cap (vph)	1333			1333	1806	833
v/s Ratio Prot	c0.30			0.06	0.06	
v/s Ratio Perm						c0.24
v/c Ratio	0.80			0.17	0.11	0.46
Uniform Delay, d1	22.8			17.1	9.8	12.2
Progression Factor	1.00			1.00	1.00	1.00
Incremental Delay, d2	3.4			0.1	0.1	1.8
Delay (s)	26.2			17.2	9.9	14.0
Level of Service	C			B	A	B
Approach Delay (s)	26.2			17.2	12.7	
Approach LOS	C			B	B	

Intersection Summary			
HCM Average Control Delay	20.8	HCM Level of Service	C
HCM Volume to Capacity ratio	0.60		
Actuated Cycle Length (s)	82.3	Sum of lost time (s)	8.0
Intersection Capacity Utilization	56.9%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Volume (veh/h)	0	0	0	3	14	16	585	771	3	0	208	31
Peak Hour Factor	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85
Hourly flow rate (vph)	0	0	0	4	16	19	688	907	4	0	245	36
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	2120	2550	263	2530	2566	455	281			911		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	2120	2550	263	2530	2566	455	281			911		
tC, single (s)	7.5	6.5	6.9	7.5	6.5	6.9	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	0	100	100	55	0	97	46			100		
cM capacity (veh/h)	0	12	736	8	12	552	1278			744		

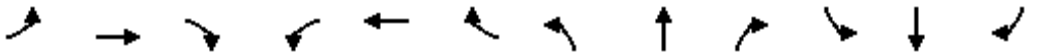
Direction, Lane #	WB 1	NB 1	NB 2	NB 3	SB 1	SB 2
Volume Total	39	688	605	306	0	281
Volume Left	4	688	0	0	0	0
Volume Right	19	0	0	4	0	36
cSH	21	1278	1700	1700	1700	1700
Volume to Capacity	1.87	0.54	0.36	0.18	0.00	0.17
Queue Length 95th (ft)	128	84	0	0	0	0
Control Delay (s)	802.0	11.1	0.0	0.0	0.0	0.0
Lane LOS	F	B				
Approach Delay (s)	802.0	4.8			0.0	
Approach LOS	F					

Intersection Summary				
Average Delay	20.2			
Intersection Capacity Utilization	58.6%	ICU Level of Service	B	
Analysis Period (min)	15			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	0.95		1.00	0.95	
Frt	1.00	0.96		1.00	0.96		1.00	0.96		1.00	0.98	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1770	3403		1770	3393		1770	3381		1770	3464	
Flt Permitted	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (perm)	1770	3403		1770	3393		1770	3381		1770	3464	
Volume (vph)	73	357	124	202	357	135	109	352	150	147	349	58
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	76	372	129	210	372	141	114	367	156	153	364	60
RTOR Reduction (vph)	0	35	0	0	34	0	0	46	0	0	13	0
Lane Group Flow (vph)	76	466	0	210	479	0	114	477	0	153	411	0
Turn Type	Prot			Prot			Prot			Prot		
Protected Phases	5	2		1	6		7	4		3	8	
Permitted Phases												
Actuated Green, G (s)	7.1	35.9		15.0	43.7		10.1	19.0		11.8	19.8	
Effective Green, g (s)	7.3	37.0		15.0	44.7		11.1	20.0		12.0	20.9	
Actuated g/C Ratio	0.07	0.37		0.15	0.45		0.11	0.20		0.12	0.21	
Clearance Time (s)	4.2	5.1		4.0	5.0		5.0	5.0		4.2	5.1	
Vehicle Extension (s)	1.5	2.0		1.5	2.0		1.5	2.0		1.5	2.0	
Lane Grp Cap (vph)	129	1259		266	1517		196	676		212	724	
v/s Ratio Prot	0.04	c0.14		c0.12	0.14		0.06	c0.14		c0.09	0.12	
v/s Ratio Perm												
v/c Ratio	0.59	0.37		0.79	0.32		0.58	0.71		0.72	0.57	
Uniform Delay, d1	44.9	23.0		41.0	17.8		42.2	37.3		42.4	35.5	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	4.4	0.8		13.3	0.5		2.8	6.1		9.8	3.2	
Delay (s)	49.3	23.8		54.3	18.3		45.1	43.4		52.2	38.7	
Level of Service	D	C		D	B		D	D		D	D	
Approach Delay (s)		27.2			28.8			43.7			42.3	
Approach LOS		C			C			D			D	

Intersection Summary			
HCM Average Control Delay	35.3	HCM Level of Service	D
HCM Volume to Capacity ratio	0.58		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	16.0
Intersection Capacity Utilization	62.3%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.93	
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1770	3539	1583	1770	3539	1583	1770	3539	1583	1770	3303	
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (perm)	1770	3539	1583	1770	3539	1583	1770	3539	1583	1770	3303	
Volume (vph)	287	628	93	62	451	175	111	267	102	270	281	225
Peak-hour factor, PHF	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Adj. Flow (vph)	315	690	102	68	496	192	122	293	112	297	309	247
RTOR Reduction (vph)	0	0	54	0	0	129	0	0	96	0	120	0
Lane Group Flow (vph)	315	690	48	68	496	63	122	293	16	297	436	0
Turn Type	Prot		Perm	Prot		Perm	Prot		Perm	Prot		
Protected Phases	5	2		1	6		7	4		3	8	
Permitted Phases			2			6			4			
Actuated Green, G (s)	25.6	57.8	57.8	7.6	39.8	39.8	12.1	16.2	16.2	24.1	28.2	
Effective Green, g (s)	25.6	58.8	58.8	7.6	40.8	40.8	12.1	17.5	17.5	24.1	29.5	
Actuated g/C Ratio	0.21	0.47	0.47	0.06	0.33	0.33	0.10	0.14	0.14	0.19	0.24	
Clearance Time (s)	4.0	5.0	5.0	4.0	5.0	5.0	4.0	5.3	5.3	4.0	5.3	
Vehicle Extension (s)	1.5	2.0	2.0	1.5	2.0	2.0	1.5	2.0	2.0	1.5	2.0	
Lane Grp Cap (vph)	365	1678	751	108	1164	521	173	499	223	344	786	
v/s Ratio Prot	c0.18	c0.19		0.04	0.14		0.07	0.08		c0.17	c0.13	
v/s Ratio Perm			0.03			0.04			0.01			
v/c Ratio	0.86	0.41	0.06	0.63	0.43	0.12	0.71	0.59	0.07	0.86	0.56	
Uniform Delay, d1	47.5	21.3	17.7	56.8	32.5	29.1	54.2	49.9	46.2	48.4	41.5	
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	18.0	0.7	0.2	8.0	1.1	0.5	10.2	1.1	0.0	18.9	0.5	
Delay (s)	65.5	22.0	17.8	64.8	33.6	29.5	64.4	51.0	46.2	67.3	42.0	
Level of Service	E	C	B	E	C	C	E	D	D	E	D	
Approach Delay (s)		34.0			35.4			53.1			50.8	
Approach LOS		C			D			D			D	

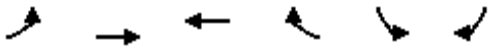
Intersection Summary			
HCM Average Control Delay	41.8	HCM Level of Service	D
HCM Volume to Capacity ratio	0.62		
Actuated Cycle Length (s)	124.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	64.0%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0			4.0	4.0	4.0	4.0	
Lane Util. Factor	1.00	0.95		1.00	0.95			1.00	1.00	1.00	1.00	
Frt	1.00	0.99		1.00	0.97			1.00	0.85	1.00	0.87	
Flt Protected	0.95	1.00		0.95	1.00			0.97	1.00	0.95	1.00	
Satd. Flow (prot)	1770	3509		1770	3419			1799	1583	1770	1621	
Flt Permitted	0.95	1.00		0.95	1.00			0.80	1.00	0.73	1.00	
Satd. Flow (perm)	1770	3509		1770	3419			1491	1583	1356	1621	
Volume (vph)	95	812	49	52	588	172	30	12	15	82	8	48
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	100	855	52	55	619	181	32	13	16	86	8	51
RTOR Reduction (vph)	0	2	0	0	14	0	0	0	13	0	43	0
Lane Group Flow (vph)	100	905	0	55	786	0	0	45	3	86	16	0
Turn Type	Prot			Prot			Perm		Perm	Perm		
Protected Phases	5	2		1	6			4			8	
Permitted Phases							4		4	8		
Actuated Green, G (s)	10.8	85.5		6.8	81.5			19.7	19.7	19.7	19.7	
Effective Green, g (s)	10.8	86.5		6.8	82.5			19.7	19.7	19.7	19.7	
Actuated g/C Ratio	0.09	0.69		0.05	0.66			0.16	0.16	0.16	0.16	
Clearance Time (s)	4.0	5.0		4.0	5.0			4.0	4.0	4.0	4.0	
Vehicle Extension (s)	1.5	1.5		1.5	2.0			2.5	2.5	2.5	2.5	
Lane Grp Cap (vph)	153	2428		96	2257			235	249	214	255	
v/s Ratio Prot	c0.06	c0.26		0.03	0.23						0.01	
v/s Ratio Perm								0.03	0.00	c0.06		
v/c Ratio	0.65	0.37		0.57	0.35			0.19	0.01	0.40	0.06	
Uniform Delay, d1	55.3	8.0		57.7	9.4			45.7	44.4	47.4	44.8	
Progression Factor	1.00	1.00		1.00	1.00			1.00	1.00	1.00	1.00	
Incremental Delay, d2	7.4	0.4		5.0	0.4			0.3	0.0	0.9	0.1	
Delay (s)	62.7	8.4		62.7	9.8			46.0	44.4	48.3	44.9	
Level of Service	E	A		E	A			D	D	D	D	
Approach Delay (s)		13.8			13.2			45.6			46.9	
Approach LOS		B			B			D			D	

Intersection Summary			
HCM Average Control Delay	16.8	HCM Level of Service	B
HCM Volume to Capacity ratio	0.40		
Actuated Cycle Length (s)	125.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	48.5%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

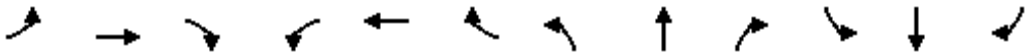
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0	4.0	4.0	4.0					4.0	4.0	4.0
Lane Util. Factor		0.91	0.91	1.00	0.95					0.95	0.95	1.00
Frt		0.99	0.85	1.00	1.00					1.00	1.00	0.85
Flt Protected		1.00	1.00	0.95	1.00					0.95	0.95	1.00
Satd. Flow (prot)		3341	1441	1770	3539					1681	1681	1583
Flt Permitted		1.00	1.00	0.95	1.00					0.95	0.95	1.00
Satd. Flow (perm)		3341	1441	1770	3539					1681	1681	1583
Volume (vph)	0	482	366	70	581	0	0	0	0	164	0	279
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	0	507	385	74	612	0	0	0	0	173	0	294
RTOR Reduction (vph)	0	9	245	0	0	0	0	0	0	0	0	153
Lane Group Flow (vph)	0	552	86	74	612	0	0	0	0	87	86	141
Turn Type			Perm	Prot						Perm		Perm
Protected Phases		4		3	8						6	
Permitted Phases			4							6		6
Actuated Green, G (s)		17.0	17.0	5.1	26.1					31.3	31.3	31.3
Effective Green, g (s)		17.0	17.0	5.1	26.1					31.3	31.3	31.3
Actuated g/C Ratio		0.26	0.26	0.08	0.40					0.48	0.48	0.48
Clearance Time (s)		4.0	4.0	4.0	4.0					4.0	4.0	4.0
Vehicle Extension (s)		3.0	3.0	3.0	3.0					3.0	3.0	3.0
Lane Grp Cap (vph)		868	375	138	1412					805	805	758
v/s Ratio Prot		c0.17		0.04	c0.17							
v/s Ratio Perm			0.06							0.05	0.05	c0.09
v/c Ratio		0.64	0.23	0.54	0.43					0.11	0.11	0.19
Uniform Delay, d1		21.5	19.0	29.0	14.3					9.4	9.4	9.8
Progression Factor		1.00	1.00	1.00	1.00					1.00	1.00	1.00
Incremental Delay, d2		1.5	0.3	4.0	0.2					0.3	0.3	0.5
Delay (s)		23.0	19.4	33.0	14.5					9.6	9.6	10.3
Level of Service		C	B	C	B					A	A	B
Approach Delay (s)		21.6			16.5			0.0			10.1	
Approach LOS		C			B			A			B	

Intersection Summary			
HCM Average Control Delay	17.3	HCM Level of Service	B
HCM Volume to Capacity ratio	0.36		
Actuated Cycle Length (s)	65.4	Sum of lost time (s)	12.0
Intersection Capacity Utilization	41.2%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			



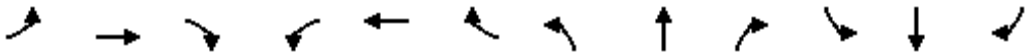
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0		4.0	4.0
Lane Util. Factor	1.00	0.95	0.95		0.97	1.00
Frt	1.00	1.00	0.97		1.00	0.85
Flt Protected	0.95	1.00	1.00		0.95	1.00
Satd. Flow (prot)	1770	3539	3423		3433	1583
Flt Permitted	0.95	1.00	1.00		0.95	1.00
Satd. Flow (perm)	1770	3539	3423		3433	1583
Volume (vph)	175	506	404	114	78	251
Peak-hour factor, PHF	0.91	0.91	0.91	0.91	0.91	0.91
Adj. Flow (vph)	192	556	444	125	86	276
RTOR Reduction (vph)	0	0	28	0	0	159
Lane Group Flow (vph)	192	556	541	0	86	117
Turn Type	Prot					Perm
Protected Phases	7	4	8		6	
Permitted Phases						6
Actuated Green, G (s)	12.9	33.5	16.6		30.5	30.5
Effective Green, g (s)	12.9	33.5	16.6		30.5	30.5
Actuated g/C Ratio	0.18	0.47	0.23		0.42	0.42
Clearance Time (s)	4.0	4.0	4.0		4.0	4.0
Vehicle Extension (s)	3.0	3.0	3.0		3.0	3.0
Lane Grp Cap (vph)	317	1647	789		1454	671
v/s Ratio Prot	c0.11	0.16	c0.16		0.03	
v/s Ratio Perm						c0.07
v/c Ratio	0.61	0.34	0.69		0.06	0.17
Uniform Delay, d1	27.2	12.2	25.3		12.3	12.9
Progression Factor	1.00	1.00	1.00		1.00	1.00
Incremental Delay, d2	3.3	0.1	2.5		0.1	0.6
Delay (s)	30.5	12.3	27.8		12.3	13.5
Level of Service	C	B	C		B	B
Approach Delay (s)		17.0	27.8		13.2	
Approach LOS		B	C		B	

Intersection Summary			
HCM Average Control Delay	19.8	HCM Level of Service	B
HCM Volume to Capacity ratio	0.41		
Actuated Cycle Length (s)	72.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	37.8%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	0.95		1.00	0.95	
Frt	1.00	0.97		1.00	0.97		1.00	0.95		1.00	0.99	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1770	3421		1770	3432		1770	3371		1770	3493	
Flt Permitted	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (perm)	1770	3421		1770	3432		1770	3371		1770	3493	
Volume (vph)	86	688	198	295	323	82	75	404	187	288	766	74
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	93	748	215	321	351	89	82	439	203	313	833	80
RTOR Reduction (vph)	0	27	0	0	21	0	0	53	0	0	7	0
Lane Group Flow (vph)	93	936	0	321	419	0	82	589	0	313	906	0
Turn Type	Prot			Prot			Prot			Prot		
Protected Phases	5	2		1	6		7	4		3	8	
Permitted Phases												
Actuated Green, G (s)	8.0	34.9		15.0	41.8		7.5	16.9		14.9	23.4	
Effective Green, g (s)	8.2	36.0		15.0	42.8		8.5	17.9		15.1	24.5	
Actuated g/C Ratio	0.08	0.36		0.15	0.43		0.08	0.18		0.15	0.24	
Clearance Time (s)	4.2	5.1		4.0	5.0		5.0	5.0		4.2	5.1	
Vehicle Extension (s)	1.5	2.0		1.5	2.0		1.5	2.0		1.5	2.0	
Lane Grp Cap (vph)	145	1232		266	1469		150	603		267	856	
v/s Ratio Prot	0.05	c0.27		c0.18	0.12		0.05	0.17		c0.18	c0.26	
v/s Ratio Perm												
v/c Ratio	0.64	0.76		1.21	0.29		0.55	0.98		1.17	1.06	
Uniform Delay, d1	44.5	28.2		42.5	18.6		43.9	40.8		42.5	37.8	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	7.1	4.4		122.9	0.5		2.2	31.2		109.9	47.5	
Delay (s)	51.5	32.6		165.4	19.1		46.1	72.1		152.3	85.2	
Level of Service	D	C		F	B		D	E		F	F	
Approach Delay (s)		34.3			80.8			69.1			102.4	
Approach LOS		C			F			E			F	

Intersection Summary			
HCM Average Control Delay	72.6	HCM Level of Service	E
HCM Volume to Capacity ratio	0.96		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	88.1%	ICU Level of Service	E
Analysis Period (min)	15		
c Critical Lane Group			

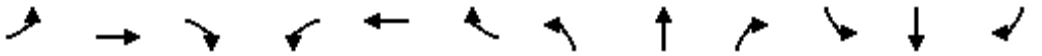


Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0		4.0	4.0	4.0	4.0	4.0	
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95		1.00	0.95	1.00	1.00	0.95	
Frt	1.00	1.00	0.85	1.00	0.96		1.00	1.00	0.85	1.00	0.97	
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1770	3539	1583	1770	3387		1770	3539	1583	1770	3435	
Flt Permitted	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00	0.42	1.00	
Satd. Flow (perm)	1770	3539	1583	1770	3387		1770	3539	1583	784	3435	
Volume (vph)	350	508	311	173	314	126	230	592	168	224	891	217
Peak-hour factor, PHF	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Adj. Flow (vph)	361	524	321	178	324	130	237	610	173	231	919	224
RTOR Reduction (vph)	0	0	248	0	43	0	0	0	84	0	21	0
Lane Group Flow (vph)	361	524	73	178	411	0	237	610	89	231	1122	0
Turn Type	Prot		Perm	Prot			Prot		Perm	Perm		
Protected Phases	7	4		3	8		5	2			6	
Permitted Phases			4						2	6		
Actuated Green, G (s)	21.0	22.4	22.4	13.8	15.2		14.0	51.0	51.0	33.0	33.0	
Effective Green, g (s)	21.0	22.4	22.4	13.8	15.2		14.0	51.0	51.0	33.0	33.0	
Actuated g/C Ratio	0.21	0.23	0.23	0.14	0.15		0.14	0.51	0.51	0.33	0.33	
Clearance Time (s)	4.0	4.0	4.0	4.0	4.0		4.0	4.0	4.0	4.0	4.0	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	375	799	357	246	519		250	1819	814	261	1143	
v/s Ratio Prot	c0.20	0.15		0.10	c0.12		c0.13	0.17			c0.33	
v/s Ratio Perm			0.05						0.06	0.29		
v/c Ratio	0.96	0.66	0.21	0.72	0.79		0.95	0.34	0.11	0.89	0.98	
Uniform Delay, d1	38.7	34.9	31.2	40.9	40.5		42.2	14.1	12.4	31.3	32.8	
Progression Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	36.5	2.0	0.3	10.1	8.1		42.3	0.5	0.3	32.6	22.5	
Delay (s)	75.2	36.8	31.5	50.9	48.5		84.5	14.6	12.7	63.9	55.3	
Level of Service	E	D	C	D	D		F	B	B	E	E	
Approach Delay (s)		46.9			49.2			30.5			56.7	
Approach LOS		D			D			C			E	

Intersection Summary			
HCM Average Control Delay	46.5	HCM Level of Service	D
HCM Volume to Capacity ratio	0.94		
Actuated Cycle Length (s)	99.2	Sum of lost time (s)	16.0
Intersection Capacity Utilization	89.7%	ICU Level of Service	E
Analysis Period (min)	15		
c Critical Lane Group			

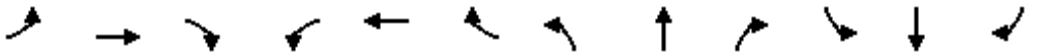
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0		4.0	4.0			4.0	
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	1.00			1.00	
Frt	1.00	0.99		1.00	0.99		1.00	0.90			0.96	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00			0.98	
Satd. Flow (prot)	1770	3495		1770	3494		1770	1680			1739	
Flt Permitted	0.95	1.00		0.95	1.00		0.65	1.00			0.84	
Satd. Flow (perm)	1770	3495		1770	3494		1218	1680			1498	
Volume (vph)	60	612	56	39	552	52	57	22	42	77	31	52
Peak-hour factor, PHF	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85
Adj. Flow (vph)	71	720	66	46	649	61	67	26	49	91	36	61
RTOR Reduction (vph)	0	8	0	0	8	0	0	27	0	0	14	0
Lane Group Flow (vph)	71	778	0	46	702	0	67	48	0	0	174	0
Turn Type	Prot			Prot			Perm			Perm		
Protected Phases	7	4		3	8			2			6	
Permitted Phases							2			6		
Actuated Green, G (s)	5.1	20.5		4.5	19.9		31.2	31.2			31.2	
Effective Green, g (s)	5.1	20.5		4.5	19.9		31.2	31.2			31.2	
Actuated g/C Ratio	0.07	0.30		0.07	0.29		0.46	0.46			0.46	
Clearance Time (s)	4.0	4.0		4.0	4.0		4.0	4.0			4.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0			3.0	
Lane Grp Cap (vph)	132	1051		117	1020		557	769			685	
v/s Ratio Prot	c0.04	c0.22		0.03	0.20			0.03				
v/s Ratio Perm							0.06				c0.12	
v/c Ratio	0.54	0.74		0.39	0.69		0.12	0.06			0.25	
Uniform Delay, d1	30.4	21.5		30.5	21.4		10.6	10.3			11.4	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00			1.00	
Incremental Delay, d2	4.2	2.8		2.2	2.0		0.4	0.2			0.9	
Delay (s)	34.6	24.3		32.7	23.4		11.1	10.5			12.3	
Level of Service	C	C		C	C		B	B			B	
Approach Delay (s)		25.2			23.9			10.8			12.3	
Approach LOS		C			C			B			B	

Intersection Summary			
HCM Average Control Delay	22.4	HCM Level of Service	C
HCM Volume to Capacity ratio	0.43		
Actuated Cycle Length (s)	68.2	Sum of lost time (s)	8.0
Intersection Capacity Utilization	47.8%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			



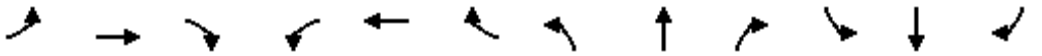
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0		4.0	4.0	4.0	4.0	4.0	
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	1.00	1.00	1.00	1.00	
Frt	1.00	0.96		1.00	0.99		1.00	1.00	0.85	1.00	0.95	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1770	3407		1770	3512		1770	1863	1583	1770	1772	
Flt Permitted	0.95	1.00		0.95	1.00		0.56	1.00	1.00	0.68	1.00	
Satd. Flow (perm)	1770	3407		1770	3512		1038	1863	1583	1272	1772	
Volume (vph)	68	489	162	152	385	21	168	106	190	16	146	71
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	74	532	176	165	418	23	183	115	207	17	159	77
RTOR Reduction (vph)	0	34	0	0	4	0	0	0	119	0	15	0
Lane Group Flow (vph)	74	674	0	165	437	0	183	115	88	17	221	0
Turn Type	Prot			Prot			Perm		Perm	Perm		
Protected Phases	7	4		3	8			2			6	
Permitted Phases							2		2	6		
Actuated Green, G (s)	7.4	22.4		12.6	27.6		34.6	34.6	34.6	34.6	34.6	
Effective Green, g (s)	7.4	22.4		12.6	27.6		34.6	34.6	34.6	34.6	34.6	
Actuated g/C Ratio	0.09	0.27		0.15	0.34		0.42	0.42	0.42	0.42	0.42	
Clearance Time (s)	4.0	4.0		4.0	4.0		4.0	4.0	4.0	4.0	4.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	161	935		273	1188		440	790	671	539	751	
v/s Ratio Prot	0.04	c0.20		c0.09	0.12			0.06			0.12	
v/s Ratio Perm							c0.18		0.06	0.01		
v/c Ratio	0.46	0.72		0.60	0.37		0.42	0.15	0.13	0.03	0.29	
Uniform Delay, d1	35.2	26.8		32.2	20.4		16.4	14.4	14.3	13.7	15.5	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	2.1	2.8		3.7	0.2		2.9	0.4	0.4	0.1	1.0	
Delay (s)	37.3	29.5		35.9	20.6		19.3	14.8	14.7	13.8	16.5	
Level of Service	D	C		D	C		B	B	B	B	B	
Approach Delay (s)		30.3			24.8			16.4			16.3	
Approach LOS		C			C			B			B	

Intersection Summary			
HCM Average Control Delay	23.8	HCM Level of Service	C
HCM Volume to Capacity ratio	0.55		
Actuated Cycle Length (s)	81.6	Sum of lost time (s)	12.0
Intersection Capacity Utilization	61.8%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			



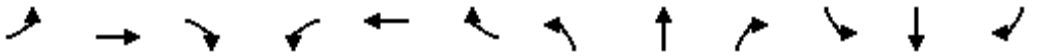
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	1.00	0.95		1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	0.93		1.00	0.99		1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1770	3302		1770	1840		1770	1863	1583	1770	1863	1583
Flt Permitted	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	1770	3302		1770	1840		1770	1863	1583	1770	1863	1583
Volume (vph)	21	359	291	48	290	26	212	117	52	46	385	41
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	22	378	306	51	305	27	223	123	55	48	405	43
RTOR Reduction (vph)	0	154	0	0	3	0	0	0	0	0	0	26
Lane Group Flow (vph)	22	530	0	51	329	0	223	123	55	48	405	17
Turn Type	Prot			Prot			Prot		Free	Prot		Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases									Free			6
Actuated Green, G (s)	2.1	19.5		3.7	21.1		15.1	47.4	90.3	3.7	36.0	36.0
Effective Green, g (s)	2.1	19.5		3.7	21.1		15.1	47.4	90.3	3.7	36.0	36.0
Actuated g/C Ratio	0.02	0.22		0.04	0.23		0.17	0.52	1.00	0.04	0.40	0.40
Clearance Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	4.0
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	3.0
Lane Grp Cap (vph)	41	713		73	430		296	978	1583	73	743	631
v/s Ratio Prot	0.01	0.16		c0.03	c0.18		c0.13	0.07		0.03	c0.22	
v/s Ratio Perm									c0.03			0.01
v/c Ratio	0.54	0.74		0.70	0.76		0.75	0.13	0.03	0.66	0.55	0.03
Uniform Delay, d1	43.6	33.1		42.7	32.3		35.8	10.9	0.0	42.7	20.9	16.5
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	12.8	4.2		25.3	7.9		10.4	0.3	0.0	19.3	2.9	0.1
Delay (s)	56.5	37.3		68.0	40.2		46.2	11.2	0.0	62.0	23.7	16.6
Level of Service	E	D		E	D		D	B	A	E	C	B
Approach Delay (s)		37.9			43.9			29.1			26.8	
Approach LOS		D			D			C			C	

Intersection Summary			
HCM Average Control Delay	34.5	HCM Level of Service	C
HCM Volume to Capacity ratio	0.64		
Actuated Cycle Length (s)	90.3	Sum of lost time (s)	12.0
Intersection Capacity Utilization	67.9%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			



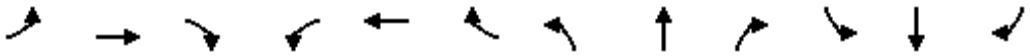
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0		4.0	4.0	4.0	4.0	4.0	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00		1.00	0.95	1.00	1.00	0.95	
Frt	1.00	1.00	0.85	1.00	0.98		1.00	1.00	0.85	1.00	0.99	
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1770	1863	1583	1770	1825		1770	3539	1583	1770	3493	
Flt Permitted	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00	0.95	1.00	
Satd. Flow (perm)	1770	1863	1583	1770	1825		1770	3539	1583	1770	3493	
Volume (vph)	146	180	143	126	128	20	53	663	162	67	1187	114
Peak-hour factor, PHF	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Adj. Flow (vph)	155	191	152	134	136	21	56	705	172	71	1263	121
RTOR Reduction (vph)	0	0	102	0	4	0	0	0	117	0	5	0
Lane Group Flow (vph)	155	191	50	134	153	0	56	705	55	71	1379	0
Turn Type	Prot		Perm	Prot			Prot		Perm	Prot		
Protected Phases	5	2		1	6		7	4		3	8	
Permitted Phases			2						4			
Actuated Green, G (s)	12.2	31.4	31.4	11.1	30.3		6.1	30.3	30.3	6.8	31.0	
Effective Green, g (s)	12.2	32.4	32.4	11.1	31.3		6.1	31.3	31.3	6.8	32.0	
Actuated g/C Ratio	0.12	0.33	0.33	0.11	0.32		0.06	0.32	0.32	0.07	0.33	
Clearance Time (s)	4.0	5.0	5.0	4.0	5.0		4.0	5.0	5.0	4.0	5.0	
Vehicle Extension (s)	1.5	2.0	2.0	1.5	2.0		1.5	2.0	2.0	1.5	2.0	
Lane Grp Cap (vph)	221	618	526	201	585		111	1135	508	123	1145	
v/s Ratio Prot	c0.09	c0.10		0.08	0.08		0.03	0.20		c0.04	c0.39	
v/s Ratio Perm			0.03						0.03			
v/c Ratio	0.70	0.31	0.10	0.67	0.26		0.50	0.62	0.11	0.58	1.20	
Uniform Delay, d1	41.0	24.3	22.5	41.5	24.6		44.3	28.1	23.3	44.0	32.8	
Progression Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	7.9	1.3	0.4	6.3	1.1		1.3	2.6	0.4	4.0	100.3	
Delay (s)	48.9	25.6	22.9	47.8	25.7		45.6	30.7	23.8	48.0	133.1	
Level of Service	D	C	C	D	C		D	C	C	D	F	
Approach Delay (s)		32.0			35.9			30.3			129.0	
Approach LOS		C			D			C			F	

Intersection Summary			
HCM Average Control Delay	76.3	HCM Level of Service	E
HCM Volume to Capacity ratio	0.68		
Actuated Cycle Length (s)	97.6	Sum of lost time (s)	8.0
Intersection Capacity Utilization	69.6%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	0.92		1.00	0.93		1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1770	1712		1770	1723		1770	1863	1583	1770	1863	1583
Flt Permitted	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	1770	1712		1770	1723		1770	1863	1583	1770	1863	1583
Volume (vph)	70	101	118	200	126	126	103	281	174	108	338	48
Peak-hour factor, PHF	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Adj. Flow (vph)	77	111	130	220	138	138	113	309	191	119	371	53
RTOR Reduction (vph)	0	44	0	0	37	0	0	0	123	0	0	34
Lane Group Flow (vph)	77	197	0	220	239	0	113	309	68	119	371	19
Turn Type	Prot			Prot			Prot		Perm	Prot		Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases									2			6
Actuated Green, G (s)	7.0	15.2		14.7	22.9		8.5	30.4	30.4	8.7	30.6	30.6
Effective Green, g (s)	7.0	15.2		14.7	22.9		8.5	30.4	30.4	8.7	30.6	30.6
Actuated g/C Ratio	0.08	0.18		0.17	0.27		0.10	0.36	0.36	0.10	0.36	0.36
Clearance Time (s)	4.0	4.0		4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	146	306		306	464		177	666	566	181	671	570
v/s Ratio Prot	0.04	c0.12		c0.12	0.14		0.06	0.17		c0.07	c0.20	
v/s Ratio Perm									0.04			0.01
v/c Ratio	0.53	0.65		0.72	0.51		0.64	0.46	0.12	0.66	0.55	0.03
Uniform Delay, d1	37.4	32.4		33.2	26.3		36.8	21.0	18.3	36.7	21.7	17.6
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	3.4	4.6		7.8	1.0		7.4	2.3	0.4	8.3	3.3	0.1
Delay (s)	40.8	37.0		41.0	27.3		44.1	23.3	18.8	45.0	25.0	17.7
Level of Service	D	D		D	C		D	C	B	D	C	B
Approach Delay (s)		37.9			33.4			25.7			28.7	
Approach LOS		D			C			C			C	

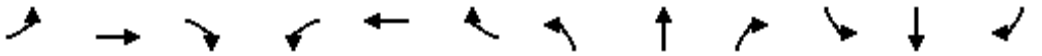
Intersection Summary			
HCM Average Control Delay	30.5	HCM Level of Service	C
HCM Volume to Capacity ratio	0.59		
Actuated Cycle Length (s)	85.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	60.4%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Stop			Stop	
Volume (vph)	0	89	258	36	117	0	276	0	19	0	0	0
Peak Hour Factor	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89
Hourly flow rate (vph)	0	100	290	40	131	0	310	0	21	0	0	0

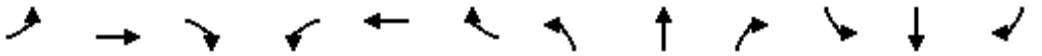
Direction, Lane #	EB 1	WB 1	NB 1
Volume Total (vph)	390	172	331
Volume Left (vph)	0	40	310
Volume Right (vph)	290	0	21
Hadj (s)	-0.41	0.08	0.18
Departure Headway (s)	4.7	5.5	5.5
Degree Utilization, x	0.51	0.26	0.50
Capacity (veh/h)	723	607	616
Control Delay (s)	12.7	10.5	13.9
Approach Delay (s)	12.7	10.5	13.9
Approach LOS	B	B	B

Intersection Summary			
Delay	12.7		
HCM Level of Service	B		
Intersection Capacity Utilization	55.2%	ICU Level of Service	B
Analysis Period (min)	15		



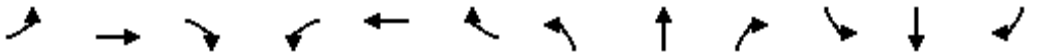
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0		4.0	4.0	
Lane Util. Factor	1.00	0.95		1.00	0.95	1.00	1.00	1.00		1.00	1.00	
Frt	1.00	0.99		1.00	1.00	0.85	1.00	0.94		1.00	0.94	
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1770	3505		1770	3539	1583	1770	1748		1770	1743	
Flt Permitted	0.95	1.00		0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (perm)	1770	3505		1770	3539	1583	1770	1748		1770	1743	
Volume (vph)	94	1293	89	39	715	39	48	72	50	86	144	109
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	102	1405	97	42	777	42	52	78	54	93	157	118
RTOR Reduction (vph)	0	4	0	0	0	24	0	19	0	0	20	0
Lane Group Flow (vph)	102	1498	0	42	777	18	52	113	0	93	255	0
Turn Type	Prot			Prot		Perm	Prot			Prot		
Protected Phases	5	2		1	6		7	4		3	8	
Permitted Phases						6						
Actuated Green, G (s)	10.9	55.0		7.2	51.3	51.3	6.7	34.5		10.3	38.1	
Effective Green, g (s)	10.9	56.0		7.2	52.3	52.3	6.7	35.5		10.3	39.1	
Actuated g/C Ratio	0.09	0.45		0.06	0.42	0.42	0.05	0.28		0.08	0.31	
Clearance Time (s)	4.0	5.0		4.0	5.0	5.0	4.0	5.0		4.0	5.0	
Vehicle Extension (s)	1.5	2.0		1.5	2.0	2.0	1.5	3.0		1.5	3.0	
Lane Grp Cap (vph)	154	1570		102	1481	662	95	496		146	545	
v/s Ratio Prot	0.06	c0.43		0.02	c0.22		0.03	0.06		c0.05	c0.15	
v/s Ratio Perm						0.01						
v/c Ratio	0.66	0.95		0.41	0.52	0.03	0.55	0.23		0.64	0.47	
Uniform Delay, d1	55.3	33.3		56.9	27.1	21.4	57.7	34.3		55.5	34.6	
Progression Factor	1.00	1.00		1.31	1.61	2.68	1.00	1.00		1.00	1.00	
Incremental Delay, d2	8.0	14.2		0.9	1.2	0.1	3.4	1.1		6.5	2.9	
Delay (s)	63.3	47.4		75.5	44.7	57.3	61.1	35.3		62.1	37.4	
Level of Service	E	D		E	D	E	E	D		E	D	
Approach Delay (s)		48.4			46.8			42.6			43.7	
Approach LOS		D			D			D			D	

Intersection Summary			
HCM Average Control Delay	47.0	HCM Level of Service	D
HCM Volume to Capacity ratio	0.73		
Actuated Cycle Length (s)	125.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	72.8%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	
Lane Util. Factor	0.97	0.95	1.00	0.97	0.95	1.00	0.97	0.95	1.00	0.97	0.95	
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.99	
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	3433	3539	1583	3433	3539	1583	3433	3539	1583	3433	3492	
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (perm)	3433	3539	1583	3433	3539	1583	3433	3539	1583	3433	3492	
Volume (vph)	162	862	369	241	384	65	214	431	218	167	1006	99
Peak-hour factor, PHF	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Adj. Flow (vph)	178	947	405	265	422	71	235	474	240	184	1105	109
RTOR Reduction (vph)	0	0	226	0	0	42	0	0	168	0	6	0
Lane Group Flow (vph)	178	947	179	265	422	29	235	474	72	184	1208	0
Turn Type	Prot		Perm	Prot		Perm	Prot		Perm	Prot		
Protected Phases	5	2		1	6		7	4		3	8	
Permitted Phases			2			6			4			
Actuated Green, G (s)	9.8	46.9	46.9	13.0	50.1	50.1	12.1	36.7	36.7	10.4	35.0	
Effective Green, g (s)	9.8	47.9	47.9	13.0	51.1	51.1	12.1	37.7	37.7	10.4	36.0	
Actuated g/C Ratio	0.08	0.38	0.38	0.10	0.41	0.41	0.10	0.30	0.30	0.08	0.29	
Clearance Time (s)	4.0	5.0	5.0	4.0	5.0	5.0	4.0	5.0	5.0	4.0	5.0	
Vehicle Extension (s)	1.5	2.0	2.0	1.5	2.0	2.0	1.5	2.0	2.0	1.5	2.0	
Lane Grp Cap (vph)	269	1356	607	357	1447	647	332	1067	477	286	1006	
v/s Ratio Prot	0.05	c0.27		c0.08	0.12		c0.07	0.13		0.05	c0.35	
v/s Ratio Perm			0.11			0.02			0.05			
v/c Ratio	0.66	0.70	0.29	0.74	0.29	0.04	0.71	0.44	0.15	0.64	1.20	
Uniform Delay, d1	56.0	32.5	26.8	54.4	24.8	22.3	54.7	35.2	31.9	55.5	44.5	
Progression Factor	0.85	0.61	1.29	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	2.2	1.4	0.6	7.1	0.5	0.1	5.5	0.1	0.1	3.7	100.2	
Delay (s)	49.6	21.2	35.2	61.5	25.3	22.4	60.3	35.3	32.0	59.2	144.7	
Level of Service	D	C	D	E	C	C	E	D	C	E	F	
Approach Delay (s)		28.2			37.7			40.7			133.4	
Approach LOS		C			D			D			F	

Intersection Summary			
HCM Average Control Delay	64.0	HCM Level of Service	E
HCM Volume to Capacity ratio	0.87		
Actuated Cycle Length (s)	125.0	Sum of lost time (s)	16.0
Intersection Capacity Utilization	81.1%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			

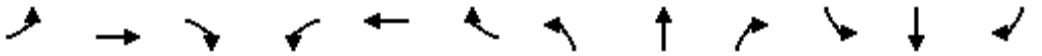


Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.96	
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1770	3539	1583	1770	3539	1583	1770	3539	1583	1770	3410	
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (perm)	1770	3539	1583	1770	3539	1583	1770	3539	1583	1770	3410	
Volume (vph)	267	938	103	82	407	142	97	321	91	265	639	205
Peak-hour factor, PHF	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Adj. Flow (vph)	272	957	105	84	415	145	99	328	93	270	652	209
RTOR Reduction (vph)	0	0	57	0	0	102	0	0	65	0	23	0
Lane Group Flow (vph)	272	957	48	84	415	43	99	328	28	270	838	0
Turn Type	Prot		Perm	Prot		Perm	Prot		Perm	Prot		
Protected Phases	5	2		1	6		7	4		3	8	
Permitted Phases			2			6			4			
Actuated Green, G (s)	21.7	49.2	49.2	8.6	36.1	36.1	10.5	27.0	27.0	20.9	37.4	
Effective Green, g (s)	21.7	50.2	50.2	8.6	37.1	37.1	10.5	28.3	28.3	20.9	38.7	
Actuated g/C Ratio	0.17	0.40	0.40	0.07	0.30	0.30	0.08	0.23	0.23	0.17	0.31	
Clearance Time (s)	4.0	5.0	5.0	4.0	5.0	5.0	4.0	5.3	5.3	4.0	5.3	
Vehicle Extension (s)	1.5	2.0	2.0	1.5	2.0	2.0	1.5	2.0	2.0	1.5	2.0	
Lane Grp Cap (vph)	310	1433	641	123	1059	474	150	808	361	298	1064	
v/s Ratio Prot	c0.15	c0.27		0.05	0.12		0.06	0.09		c0.15	c0.25	
v/s Ratio Perm			0.03			0.03			0.02			
v/c Ratio	0.88	0.67	0.07	0.68	0.39	0.09	0.66	0.41	0.08	0.91	0.79	
Uniform Delay, d1	49.9	30.1	22.6	56.4	34.5	31.3	55.0	40.7	37.6	50.6	38.9	
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	22.6	2.5	0.2	11.8	1.1	0.4	8.1	0.1	0.0	28.5	3.6	
Delay (s)	72.4	32.6	22.9	68.1	35.6	31.7	63.2	40.8	37.6	79.1	42.5	
Level of Service	E	C	C	E	D	C	E	D	D	E	D	
Approach Delay (s)		39.9			39.0			44.5			51.3	
Approach LOS		D			D			D			D	

Intersection Summary			
HCM Average Control Delay	44.0	HCM Level of Service	D
HCM Volume to Capacity ratio	0.76		
Actuated Cycle Length (s)	124.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	73.4%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			

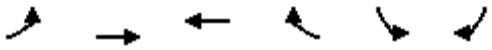
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0			4.0	4.0	4.0	4.0	
Lane Util. Factor	1.00	0.95		1.00	0.95			1.00	1.00	1.00	1.00	
Frt	1.00	0.99		1.00	0.97			1.00	0.85	1.00	0.86	
Flt Protected	0.95	1.00		0.95	1.00			0.97	1.00	0.95	1.00	
Satd. Flow (prot)	1770	3518		1770	3433			1799	1583	1770	1606	
Flt Permitted	0.95	1.00		0.95	1.00			0.83	1.00	0.73	1.00	
Satd. Flow (perm)	1770	3518		1770	3433			1552	1583	1369	1606	
Volume (vph)	51	1193	49	85	541	136	22	9	14	135	3	32
Peak-hour factor, PHF	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Adj. Flow (vph)	55	1283	53	91	582	146	24	10	15	145	3	34
RTOR Reduction (vph)	0	2	0	0	11	0	0	0	12	0	28	0
Lane Group Flow (vph)	55	1334	0	91	717	0	0	34	3	145	9	0
Turn Type	Prot			Prot			Perm		Perm	Perm		
Protected Phases	5	2		1	6			4			8	
Permitted Phases							4		4	8		
Actuated Green, G (s)	6.8	79.7		10.1	83.0			22.2	22.2	22.2	22.2	
Effective Green, g (s)	6.8	80.7		10.1	84.0			22.2	22.2	22.2	22.2	
Actuated g/C Ratio	0.05	0.65		0.08	0.67			0.18	0.18	0.18	0.18	
Clearance Time (s)	4.0	5.0		4.0	5.0			4.0	4.0	4.0	4.0	
Vehicle Extension (s)	1.5	1.5		1.5	2.0			2.5	2.5	2.5	2.5	
Lane Grp Cap (vph)	96	2271		143	2307			276	281	243	285	
v/s Ratio Prot	0.03	c0.38		c0.05	c0.21						0.01	
v/s Ratio Perm								0.02	0.00	c0.11		
v/c Ratio	0.57	0.59		0.64	0.31			0.12	0.01	0.60	0.03	
Uniform Delay, d1	57.7	12.6		55.7	8.5			43.2	42.3	47.3	42.5	
Progression Factor	1.00	1.00		1.00	1.00			1.00	1.00	1.00	1.00	
Incremental Delay, d2	5.0	1.1		6.6	0.4			0.1	0.0	3.3	0.0	
Delay (s)	62.7	13.8		62.3	8.8			43.4	42.4	50.6	42.5	
Level of Service	E	B		E	A			D	D	D	D	
Approach Delay (s)		15.7			14.8			43.1			48.9	
Approach LOS		B			B			D			D	

Intersection Summary			
HCM Average Control Delay	18.4	HCM Level of Service	B
HCM Volume to Capacity ratio	0.61		
Actuated Cycle Length (s)	125.0	Sum of lost time (s)	16.0
Intersection Capacity Utilization	63.4%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			



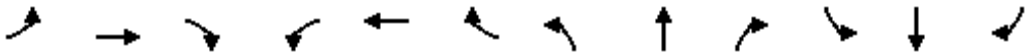
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0	4.0	4.0	4.0					4.0	4.0	4.0
Lane Util. Factor		0.91	0.91	1.00	0.95					0.95	0.95	1.00
Frt		0.94	0.85	1.00	1.00					1.00	1.00	0.85
Flt Protected		1.00	1.00	0.95	1.00					0.95	1.00	1.00
Satd. Flow (prot)		3189	1441	1770	3539					1681	1770	1583
Flt Permitted		1.00	1.00	0.95	1.00					0.95	1.00	1.00
Satd. Flow (perm)		3189	1441	1770	3539					1681	1770	1583
Volume (vph)	0	605	840	222	771	0	0	0	0	49	212	108
Peak-hour factor, PHF	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Adj. Flow (vph)	0	665	923	244	847	0	0	0	0	54	233	119
RTOR Reduction (vph)	0	94	94	0	0	0	0	0	0	0	0	92
Lane Group Flow (vph)	0	1007	393	244	847	0	0	0	0	54	233	27
Turn Type			Perm	Prot						Perm		Perm
Protected Phases		4		3	8						6	
Permitted Phases			4							6		6
Actuated Green, G (s)		33.1	33.1	14.5	51.6					17.5	17.5	17.5
Effective Green, g (s)		33.1	33.1	14.5	51.6					17.5	17.5	17.5
Actuated g/C Ratio		0.43	0.43	0.19	0.67					0.23	0.23	0.23
Clearance Time (s)		4.0	4.0	4.0	4.0					4.0	4.0	4.0
Vehicle Extension (s)		3.0	3.0	3.0	3.0					3.0	3.0	3.0
Lane Grp Cap (vph)		1369	619	333	2369					382	402	359
v/s Ratio Prot		c0.32		c0.14	0.24						c0.13	
v/s Ratio Perm			0.27							0.03		0.02
v/c Ratio		0.74	0.64	0.73	0.36					0.14	0.58	0.08
Uniform Delay, d1		18.4	17.3	29.5	5.5					23.8	26.5	23.4
Progression Factor		1.00	1.00	1.00	1.00					1.00	1.00	1.00
Incremental Delay, d2		2.1	2.1	8.1	0.1					0.8	6.0	0.4
Delay (s)		20.4	19.4	37.6	5.6					24.6	32.5	23.8
Level of Service		C	B	D	A					C	C	C
Approach Delay (s)		20.1			12.8			0.0			28.9	
Approach LOS		C			B			A			C	

Intersection Summary			
HCM Average Control Delay	18.7	HCM Level of Service	B
HCM Volume to Capacity ratio	0.69		
Actuated Cycle Length (s)	77.1	Sum of lost time (s)	12.0
Intersection Capacity Utilization	48.3%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0		4.0	4.0
Lane Util. Factor	1.00	0.95	0.95		0.97	1.00
Frt	1.00	1.00	0.96		1.00	0.85
Flt Protected	0.95	1.00	1.00		0.95	1.00
Satd. Flow (prot)	1770	3539	3413		3433	1583
Flt Permitted	0.95	1.00	1.00		0.95	1.00
Satd. Flow (perm)	1770	3539	3413		3433	1583
Volume (vph)	185	473	675	211	81	317
Peak-hour factor, PHF	0.87	0.87	0.87	0.87	0.87	0.87
Adj. Flow (vph)	213	544	776	243	93	364
RTOR Reduction (vph)	0	0	32	0	0	247
Lane Group Flow (vph)	213	544	987	0	93	117
Turn Type	Prot					Perm
Protected Phases	7	4	8		6	
Permitted Phases						6
Actuated Green, G (s)	15.0	48.5	29.5		26.6	26.6
Effective Green, g (s)	15.0	48.5	29.5		26.6	26.6
Actuated g/C Ratio	0.18	0.58	0.35		0.32	0.32
Clearance Time (s)	4.0	4.0	4.0		4.0	4.0
Vehicle Extension (s)	3.0	3.0	3.0		3.0	3.0
Lane Grp Cap (vph)	319	2065	1212		1099	507
v/s Ratio Prot	c0.12	0.15	c0.29		0.03	
v/s Ratio Perm						c0.07
v/c Ratio	0.67	0.26	0.81		0.08	0.23
Uniform Delay, d1	31.7	8.5	24.3		19.7	20.7
Progression Factor	1.00	1.00	1.00		1.00	1.00
Incremental Delay, d2	5.2	0.1	4.3		0.2	1.1
Delay (s)	36.9	8.6	28.6		19.9	21.8
Level of Service	D	A	C		B	C
Approach Delay (s)		16.6	28.6		21.4	
Approach LOS		B	C		C	

Intersection Summary			
HCM Average Control Delay	23.1	HCM Level of Service	C
HCM Volume to Capacity ratio	0.56		
Actuated Cycle Length (s)	83.1	Sum of lost time (s)	12.0
Intersection Capacity Utilization	51.7%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Volume (veh/h)	103	0	68	0	0	0	74	331	0	0	317	57
Peak Hour Factor	0.78	0.78	0.78	0.78	0.78	0.78	0.78	0.78	0.78	0.78	0.78	0.78
Hourly flow rate (vph)	132	0	87	0	0	0	95	424	0	0	406	73
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (ft)								954			667	
pX, platoon unblocked												
vC, conflicting volume	1057	1057	443	1108	1094	424	479			424		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	1057	1057	443	1108	1094	424	479			424		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	30	100	86	100	100	100	91			100		
cM capacity (veh/h)	189	205	615	150	195	630	1083			1135		

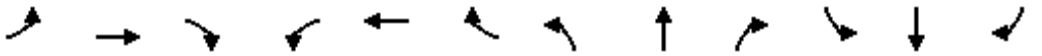
Direction, Lane #	EB 1	NB 1	SB 1	SB 2
Volume Total	219	519	0	479
Volume Left	132	95	0	0
Volume Right	87	0	0	73
cSH	261	1083	1700	1700
Volume to Capacity	0.84	0.09	0.00	0.28
Queue Length 95th (ft)	170	7	0	0
Control Delay (s)	63.4	2.4	0.0	0.0
Lane LOS	F	A		
Approach Delay (s)	63.4	2.4	0.0	
Approach LOS	F			

Intersection Summary				
Average Delay	12.4			
Intersection Capacity Utilization	61.5%	ICU Level of Service	B	
Analysis Period (min)	15			

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Sign Control	Stop		Stop			Stop
Volume (vph)	117	132	59	79	132	132
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	127	143	64	86	143	143

Direction, Lane #	WB 1	NB 1	SB 1
Volume Total (vph)	271	150	287
Volume Left (vph)	127	0	143
Volume Right (vph)	143	86	0
Hadj (s)	-0.19	-0.31	0.13
Departure Headway (s)	4.8	4.7	4.9
Degree Utilization, x	0.36	0.19	0.39
Capacity (veh/h)	704	719	694
Control Delay (s)	10.4	8.8	11.1
Approach Delay (s)	10.4	8.8	11.1
Approach LOS	B	A	B

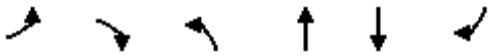
Intersection Summary			
Delay	10.3		
HCM Level of Service	B		
Intersection Capacity Utilization	46.8%	ICU Level of Service	A
Analysis Period (min)	15		



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0			4.0		4.0	4.0		4.0	4.0	
Lane Util. Factor		1.00			1.00		1.00	1.00		1.00	1.00	
Frt		0.93			0.95		1.00	0.99		1.00	0.99	
Flt Protected		0.98			0.98		0.95	1.00		0.95	1.00	
Satd. Flow (prot)		1708			1727		1770	1840		1770	1842	
Flt Permitted		0.82			0.77		0.26	1.00		0.62	1.00	
Satd. Flow (perm)		1425			1370		492	1840		1154	1842	
Volume (vph)	120	38	147	74	20	55	51	188	17	68	473	39
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	130	41	160	80	22	60	55	204	18	74	514	42
RTOR Reduction (vph)	0	84	0	0	36	0	0	8	0	0	7	0
Lane Group Flow (vph)	0	247	0	0	126	0	55	214	0	74	549	0
Turn Type	Perm			Perm			Perm			Perm		
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)		16.0			16.0		16.0	16.0		16.0	16.0	
Effective Green, g (s)		16.0			16.0		16.0	16.0		16.0	16.0	
Actuated g/C Ratio		0.40			0.40		0.40	0.40		0.40	0.40	
Clearance Time (s)		4.0			4.0		4.0	4.0		4.0	4.0	
Lane Grp Cap (vph)		570			548		197	736		462	737	
v/s Ratio Prot								0.12			c0.30	
v/s Ratio Perm		c0.17			0.09		0.11			0.06		
v/c Ratio		0.43			0.23		0.28	0.29		0.16	0.74	
Uniform Delay, d1		8.7			7.9		8.1	8.1		7.7	10.3	
Progression Factor		1.00			1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2		2.4			1.0		3.5	1.0		0.7	6.7	
Delay (s)		11.1			8.9		11.6	9.1		8.4	17.0	
Level of Service		B			A		B	A		A	B	
Approach Delay (s)		11.1			8.9			9.6			16.0	
Approach LOS		B			A			A			B	

Intersection Summary			
HCM Average Control Delay	12.8	HCM Level of Service	B
HCM Volume to Capacity ratio	0.59		
Actuated Cycle Length (s)	40.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	61.1%	ICU Level of Service	B
Analysis Period (min)	15		

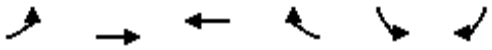
c Critical Lane Group



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	0.85	1.00	1.00	1.00	0.85
Flt Protected	0.95	1.00	0.95	1.00	1.00	1.00
Satd. Flow (prot)	1770	1583	1770	1863	1863	1583
Flt Permitted	0.95	1.00	0.68	1.00	1.00	1.00
Satd. Flow (perm)	1770	1583	1263	1863	1863	1583
Volume (vph)	236	182	356	152	113	301
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	257	198	387	165	123	327
RTOR Reduction (vph)	0	119	0	0	0	196
Lane Group Flow (vph)	257	79	387	165	123	131
Turn Type		Perm	Perm			Perm
Protected Phases	4			2	6	
Permitted Phases		4	2			6
Actuated Green, G (s)	16.0	16.0	16.0	16.0	16.0	16.0
Effective Green, g (s)	16.0	16.0	16.0	16.0	16.0	16.0
Actuated g/C Ratio	0.40	0.40	0.40	0.40	0.40	0.40
Clearance Time (s)	4.0	4.0	4.0	4.0	4.0	4.0
Lane Grp Cap (vph)	708	633	505	745	745	633
v/s Ratio Prot	c0.15			0.09	0.07	
v/s Ratio Perm		0.05	c0.31			0.08
v/c Ratio	0.36	0.13	0.77	0.22	0.17	0.21
Uniform Delay, d1	8.4	7.6	10.4	7.9	7.7	7.8
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	1.4	0.4	10.6	0.7	0.5	0.7
Delay (s)	9.9	8.0	21.0	8.6	8.2	8.6
Level of Service	A	A	C	A	A	A
Approach Delay (s)	9.0			17.3	8.5	
Approach LOS	A			B	A	

Intersection Summary			
HCM Average Control Delay	12.0	HCM Level of Service	B
HCM Volume to Capacity ratio	0.56		
Actuated Cycle Length (s)	40.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	46.1%	ICU Level of Service	A
Analysis Period (min)	15		

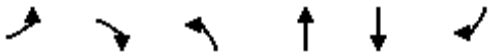
c Critical Lane Group



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Volume (veh/h)	35	152	260	7	7	45
Peak Hour Factor	0.72	0.72	0.72	0.72	0.72	0.72
Hourly flow rate (vph)	49	211	361	10	10	62
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type					None	
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	371				674	366
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	371				674	366
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	96				98	91
cM capacity (veh/h)	1188				403	679

Direction, Lane #	EB 1	WB 1	SB 1
Volume Total	260	371	72
Volume Left	49	0	10
Volume Right	0	10	62
cSH	1188	1700	622
Volume to Capacity	0.04	0.22	0.12
Queue Length 95th (ft)	3	0	10
Control Delay (s)	1.8	0.0	11.6
Lane LOS	A		B
Approach Delay (s)	1.8	0.0	11.6
Approach LOS			B

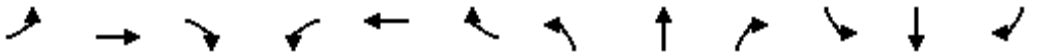
Intersection Summary			
Average Delay	1.9		
Intersection Capacity Utilization	37.4%	ICU Level of Service	A
Analysis Period (min)	15		



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Volume (veh/h)	17	8	5	158	198	15
Peak Hour Factor	0.70	0.70	0.70	0.70	0.70	0.70
Hourly flow rate (vph)	24	11	7	226	283	21
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None					
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	534	294	304			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	534	294	304			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	95	98	99			
cM capacity (veh/h)	504	746	1257			

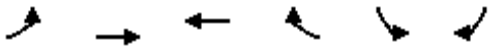
Direction, Lane #	EB 1	NB 1	SB 1
Volume Total	36	233	304
Volume Left	24	7	0
Volume Right	11	0	21
cSH	562	1257	1700
Volume to Capacity	0.06	0.01	0.18
Queue Length 95th (ft)	5	0	0
Control Delay (s)	11.8	0.3	0.0
Lane LOS	B	A	
Approach Delay (s)	11.8	0.3	0.0
Approach LOS	B		

Intersection Summary			
Average Delay	0.9		
Intersection Capacity Utilization	22.4%	ICU Level of Service	A
Analysis Period (min)	15		



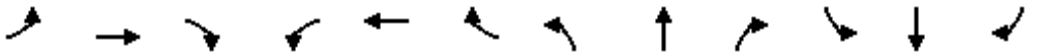
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	0.97	0.95	1.00	0.97	0.95	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1770	3539	1583	1770	3539	1583	3433	3539	1583	3433	3539	1583
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	1770	3539	1583	1770	3539	1583	3433	3539	1583	3433	3539	1583
Volume (vph)	197	1489	919	289	596	122	162	333	71	425	1227	233
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	205	1551	957	301	621	127	169	347	74	443	1278	243
RTOR Reduction (vph)	0	0	203	0	0	84	0	0	56	0	0	86
Lane Group Flow (vph)	205	1551	754	301	621	43	169	347	18	443	1278	157
Turn Type	Prot		Perm	Prot		Perm	Prot		Perm	Prot		Perm
Protected Phases	5	2		1	6		7	4		3	8	
Permitted Phases			2			6			4			8
Actuated Green, G (s)	21.0	41.6	41.6	21.7	42.5	42.5	10.1	30.8	30.8	16.3	36.8	36.8
Effective Green, g (s)	21.2	43.3	43.3	22.1	44.2	44.2	10.3	32.1	32.1	16.5	38.3	38.3
Actuated g/C Ratio	0.16	0.33	0.33	0.17	0.34	0.34	0.08	0.25	0.25	0.13	0.29	0.29
Clearance Time (s)	4.2	5.7	5.7	4.4	5.7	5.7	4.2	5.3	5.3	4.2	5.5	5.5
Vehicle Extension (s)	1.5	2.0	2.0	1.5	2.0	2.0	1.5	2.0	2.0	1.5	2.0	2.0
Lane Grp Cap (vph)	289	1179	527	301	1203	538	272	874	391	436	1043	466
v/s Ratio Prot	0.12	0.44		c0.17	0.18		0.05	0.10		c0.13	c0.36	
v/s Ratio Perm			c0.48			0.03			0.01			0.10
v/c Ratio	0.71	1.32	1.43	1.00	0.52	0.08	0.62	0.40	0.05	1.02	1.23	0.34
Uniform Delay, d1	51.5	43.4	43.4	54.0	34.3	29.1	58.0	40.9	37.3	56.8	45.9	35.9
Progression Factor	1.00	1.00	1.00	0.74	0.98	2.10	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	6.4	148.1	204.8	49.6	1.5	0.3	3.2	1.3	0.2	47.2	110.0	1.9
Delay (s)	57.9	191.4	248.1	89.3	35.1	61.3	61.1	42.2	37.5	104.0	155.9	37.9
Level of Service	E	F	F	F	D	E	E	D	D	F	F	D
Approach Delay (s)		201.3			53.8			47.0			129.6	
Approach LOS		F			D			D			F	

Intersection Summary			
HCM Average Control Delay	140.1	HCM Level of Service	F
HCM Volume to Capacity ratio	1.21		
Actuated Cycle Length (s)	130.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	116.8%	ICU Level of Service	H
Analysis Period (min)	15		
c Critical Lane Group			



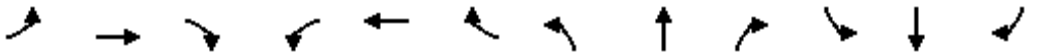
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	1.00	0.95	0.95	1.00	0.97	0.91
Frt	1.00	1.00	1.00	0.85	1.00	0.85
Flt Protected	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (prot)	1770	3539	3539	1583	3433	1441
Flt Permitted	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (perm)	1770	3539	3539	1583	3433	1441
Volume (vph)	197	1815	774	410	844	317
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	207	1911	815	432	888	334
RTOR Reduction (vph)	0	0	0	188	0	189
Lane Group Flow (vph)	207	1911	815	244	888	145
Turn Type	Prot			Perm		Perm
Protected Phases	5	2	6		4	
Permitted Phases				6		4
Actuated Green, G (s)	9.0	84.5	71.5	71.5	33.5	33.5
Effective Green, g (s)	9.0	86.5	73.5	73.5	35.5	35.5
Actuated g/C Ratio	0.07	0.67	0.57	0.57	0.27	0.27
Clearance Time (s)	4.0	6.0	6.0	6.0	6.0	6.0
Vehicle Extension (s)	1.5	2.0	2.0	2.0	2.0	2.0
Lane Grp Cap (vph)	123	2355	2001	895	937	394
v/s Ratio Prot	c0.12	c0.54	0.23		c0.26	
v/s Ratio Perm				0.15		0.10
v/c Ratio	1.68	0.81	0.41	0.27	0.95	0.37
Uniform Delay, d1	60.5	15.8	16.0	14.5	46.3	38.2
Progression Factor	0.67	2.22	1.57	8.99	1.00	1.00
Incremental Delay, d2	310.5	0.3	0.5	0.6	17.7	0.2
Delay (s)	350.9	35.5	25.6	131.2	64.1	38.4
Level of Service	F	D	C	F	E	D
Approach Delay (s)		66.3	62.2		57.0	
Approach LOS		E	E		E	

Intersection Summary			
HCM Average Control Delay	62.7	HCM Level of Service	E
HCM Volume to Capacity ratio	0.91		
Actuated Cycle Length (s)	130.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	84.2%	ICU Level of Service	E
Analysis Period (min)	15		
c Critical Lane Group			



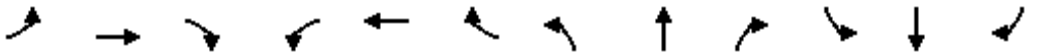
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0	4.0		4.0			4.0	4.0
Lane Util. Factor	1.00	0.95		1.00	0.95	1.00		1.00			1.00	1.00
Frt	1.00	1.00		1.00	1.00	0.85		0.86			1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00	1.00		1.00			0.95	1.00
Satd. Flow (prot)	1770	3539		1770	3539	1583		1611			1770	1583
Flt Permitted	0.95	1.00		0.95	1.00	1.00		1.00			0.76	1.00
Satd. Flow (perm)	1770	3539		1770	3539	1583		1611			1410	1583
Volume (vph)	36	2308	0	12	1075	1	0	0	1	188	0	314
Peak-hour factor, PHF	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89
Adj. Flow (vph)	40	2593	0	13	1208	1	0	0	1	211	0	353
RTOR Reduction (vph)	0	0	0	0	0	0	0	1	0	0	0	154
Lane Group Flow (vph)	40	2593	0	13	1208	1	0	0	0	0	211	199
Turn Type	Prot			Prot		Perm	Perm			Perm		Perm
Protected Phases	5	2		1	6			4			8	
Permitted Phases						6	4			8		8
Actuated Green, G (s)	5.9	87.5		2.5	84.1	84.1		25.0			25.0	25.0
Effective Green, g (s)	5.9	89.5		2.5	86.1	86.1		26.0			26.0	26.0
Actuated g/C Ratio	0.05	0.69		0.02	0.66	0.66		0.20			0.20	0.20
Clearance Time (s)	4.0	6.0		4.0	6.0	6.0		5.0			5.0	5.0
Vehicle Extension (s)	1.5	2.0		1.5	2.0	2.0		4.0			4.0	4.0
Lane Grp Cap (vph)	80	2436		34	2344	1048		322			282	317
v/s Ratio Prot	c0.02	c0.73		0.01	0.34			0.00				
v/s Ratio Perm						0.00					c0.15	0.13
v/c Ratio	0.50	1.06		0.38	0.52	0.00		0.00			0.75	0.63
Uniform Delay, d1	60.6	20.2		63.0	11.3	7.4		41.6			48.9	47.6
Progression Factor	0.99	1.17		1.02	1.19	1.21		1.00			1.00	1.00
Incremental Delay, d2	0.9	34.3		2.4	0.8	0.0		0.0			16.6	9.0
Delay (s)	60.9	58.1		66.9	14.2	9.0		41.6			65.5	56.6
Level of Service	E	E		E	B	A		D			E	E
Approach Delay (s)		58.1			14.8			41.6			59.9	
Approach LOS		E			B			D			E	

Intersection Summary			
HCM Average Control Delay	46.4	HCM Level of Service	D
HCM Volume to Capacity ratio	0.99		
Actuated Cycle Length (s)	130.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	87.5%	ICU Level of Service	E
Analysis Period (min)	15		
c Critical Lane Group			



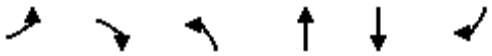
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	0.97	0.95	1.00	0.97	0.95	1.00	0.97	0.95	1.00	0.97	0.95	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	3433	3539	1583	3433	3539	1583	3433	3539	1583	3433	3539	1583
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	3433	3539	1583	3433	3539	1583	3433	3539	1583	3433	3539	1583
Volume (vph)	189	1210	1228	188	295	29	342	216	150	145	641	219
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	199	1274	1293	198	311	31	360	227	158	153	675	231
RTOR Reduction (vph)	0	0	162	0	0	18	0	0	113	0	0	107
Lane Group Flow (vph)	199	1274	1131	198	311	13	360	227	45	153	675	124
Turn Type	Prot		Perm	Prot		Perm	Prot		Perm	Prot		Perm
Protected Phases	5	2		1	6		7	4		3	8	
Permitted Phases			2			6			4			8
Actuated Green, G (s)	14.0	53.9	53.9	11.1	51.0	51.0	15.4	35.4	35.4	8.6	29.6	29.6
Effective Green, g (s)	14.0	55.9	55.9	11.1	53.0	53.0	15.4	37.4	37.4	9.6	31.6	31.6
Actuated g/C Ratio	0.11	0.43	0.43	0.09	0.41	0.41	0.12	0.29	0.29	0.07	0.24	0.24
Clearance Time (s)	4.0	6.0	6.0	4.0	6.0	6.0	4.0	6.0	6.0	5.0	6.0	6.0
Vehicle Extension (s)	1.5	2.0	2.0	1.5	2.0	2.0	1.5	2.0	2.0	2.0	2.0	2.0
Lane Grp Cap (vph)	370	1522	681	293	1443	645	407	1018	455	254	860	385
v/s Ratio Prot	0.06	0.36		c0.06	0.09		c0.10	0.06		0.04	c0.19	
v/s Ratio Perm			c0.71			0.01			0.03			0.08
v/c Ratio	0.54	0.84	1.66	0.68	0.22	0.02	0.88	0.22	0.10	0.60	0.78	0.32
Uniform Delay, d1	54.9	33.0	37.0	57.7	25.0	23.0	56.4	35.2	34.0	58.3	46.0	40.4
Progression Factor	1.10	1.16	1.19	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	0.1	0.5	298.0	4.8	0.3	0.1	19.4	0.5	0.4	2.7	7.1	2.2
Delay (s)	60.5	38.9	341.9	62.5	25.3	23.0	75.8	35.7	34.4	61.1	53.1	42.6
Level of Service	E	D	F	E	C	C	E	D	C	E	D	D
Approach Delay (s)		182.1			38.8			54.8			52.0	
Approach LOS		F			D			D			D	

Intersection Summary			
HCM Average Control Delay	121.4	HCM Level of Service	F
HCM Volume to Capacity ratio	1.22		
Actuated Cycle Length (s)	130.0	Sum of lost time (s)	16.0
Intersection Capacity Utilization	109.1%	ICU Level of Service	H
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0	4.0	4.0	4.0						4.0	
Lane Util. Factor		0.95	1.00	1.00	0.95						0.95	
Frt		1.00	0.85	1.00	1.00						0.92	
Flt Protected		1.00	1.00	0.95	1.00						1.00	
Satd. Flow (prot)		3539	1583	1770	3539						3268	
Flt Permitted		1.00	1.00	0.61	1.00						1.00	
Satd. Flow (perm)		3539	1583	1133	3539						3268	
Volume (vph)	0	216	1127	6	381	0	0	0	0	3	117	123
Peak-hour factor, PHF	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Adj. Flow (vph)	0	230	1199	6	405	0	0	0	0	3	124	131
RTOR Reduction (vph)	0	0	115	0	0	0	0	0	0	0	105	0
Lane Group Flow (vph)	0	230	1084	6	405	0	0	0	0	0	153	0
Turn Type			Perm	Perm						Perm		
Protected Phases		4			8						6	
Permitted Phases			4	8						6		
Actuated Green, G (s)		61.8	61.8	61.8	61.8						16.9	
Effective Green, g (s)		61.8	61.8	61.8	61.8						16.9	
Actuated g/C Ratio		0.71	0.71	0.71	0.71						0.19	
Clearance Time (s)		4.0	4.0	4.0	4.0						4.0	
Vehicle Extension (s)		3.0	3.0	3.0	3.0						3.0	
Lane Grp Cap (vph)		2523	1128	808	2523						637	
v/s Ratio Prot		0.06			0.11							
v/s Ratio Perm			c0.68	0.01							0.05	
v/c Ratio		0.09	0.96	0.01	0.16						0.24	
Uniform Delay, d1		3.8	11.3	3.6	4.0						29.5	
Progression Factor		1.00	1.00	1.00	1.00						1.00	
Incremental Delay, d2		0.0	18.1	0.0	0.0						0.9	
Delay (s)		3.8	29.4	3.6	4.1						30.4	
Level of Service		A	C	A	A						C	
Approach Delay (s)		25.3			4.1			0.0			30.4	
Approach LOS		C			A			A			C	

Intersection Summary			
HCM Average Control Delay	21.8	HCM Level of Service	C
HCM Volume to Capacity ratio	0.81		
Actuated Cycle Length (s)	86.7	Sum of lost time (s)	8.0
Intersection Capacity Utilization	90.4%	ICU Level of Service	E
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Sign Control	Stop			Stop	Stop	
Volume (vph)	218	0	386	1	0	0
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	242	0	429	1	0	0

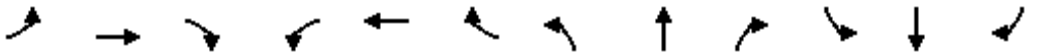
Direction, Lane #	EB 1	EB 2	NB 1	NB 2
Volume Total (vph)	121	121	286	144
Volume Left (vph)	121	121	286	143
Volume Right (vph)	0	0	0	0
Hadj (s)	0.53	0.53	0.53	0.53
Departure Headway (s)	6.2	6.2	5.8	5.8
Degree Utilization, x	0.21	0.21	0.46	0.23
Capacity (veh/h)	550	553	609	605
Control Delay (s)	9.6	9.6	12.4	9.3
Approach Delay (s)	9.6		11.3	
Approach LOS	A		B	

Intersection Summary			
Delay	10.7		
HCM Level of Service	B		
Intersection Capacity Utilization	90.4%	ICU Level of Service	E
Analysis Period (min)	15		

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Volume (veh/h)	7	66	545	16	136	1651
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91
Hourly flow rate (vph)	8	73	599	18	149	1814
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None					
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	1814	308			616	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1814	308			616	
tC, single (s)	6.8	6.9			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	87	89			84	
cM capacity (veh/h)	59	688			959	

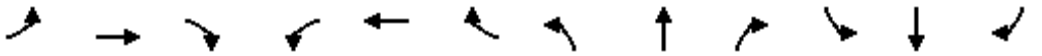
Direction, Lane #	WB 1	WB 2	NB 1	NB 2	SB 1	SB 2	SB 3
Volume Total	8	73	399	217	149	907	907
Volume Left	8	0	0	0	149	0	0
Volume Right	0	73	0	18	0	0	0
cSH	59	688	1700	1700	959	1700	1700
Volume to Capacity	0.13	0.11	0.23	0.13	0.16	0.53	0.53
Queue Length 95th (ft)	11	9	0	0	14	0	0
Control Delay (s)	75.3	10.9	0.0	0.0	9.4	0.0	0.0
Lane LOS	F	B			A		
Approach Delay (s)	17.0		0.0		0.7		
Approach LOS	C						

Intersection Summary			
Average Delay	1.0		
Intersection Capacity Utilization	55.6%	ICU Level of Service	B
Analysis Period (min)	15		



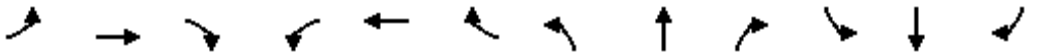
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	1.00	1.00		0.97	0.95	1.00	1.00	0.95	1.00	0.97	0.95	1.00
Frt	1.00	0.91		1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1770	1693		3433	3539	1583	1770	3539	1583	3433	3539	1583
Flt Permitted	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	1770	1693		3433	3539	1583	1770	3539	1583	3433	3539	1583
Volume (vph)	17	10	16	532	60	137	87	392	733	547	1165	3
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	18	11	17	578	65	149	95	426	797	595	1266	3
RTOR Reduction (vph)	0	16	0	0	0	117	0	0	398	0	0	2
Lane Group Flow (vph)	18	12	0	578	65	32	95	426	399	595	1266	1
Turn Type	Prot			Prot		Perm	Prot		Perm	Prot		Perm
Protected Phases	3	8		7	4		5	2		1	6	
Permitted Phases						4			2			6
Actuated Green, G (s)	3.0	5.5		18.7	20.2	20.2	8.0	34.6	34.6	20.6	47.2	47.2
Effective Green, g (s)	5.3	7.8		18.7	21.2	21.2	8.0	36.9	36.9	20.6	49.5	49.5
Actuated g/C Ratio	0.05	0.08		0.19	0.21	0.21	0.08	0.37	0.37	0.21	0.50	0.50
Clearance Time (s)	6.3	6.3		4.0	5.0	5.0	4.0	6.3	6.3	4.0	6.3	6.3
Vehicle Extension (s)	3.0	2.0		1.5	3.0	3.0	1.5	2.0	2.0	2.0	3.0	3.0
Lane Grp Cap (vph)	94	132		642	750	336	142	1306	584	707	1752	784
v/s Ratio Prot	0.01	0.01		c0.17	0.02		0.05	0.12		c0.17	c0.36	
v/s Ratio Perm						c0.02			0.25			0.00
v/c Ratio	0.19	0.09		0.90	0.09	0.09	0.67	0.33	0.68	0.84	0.72	0.00
Uniform Delay, d1	45.3	42.8		39.7	31.6	31.7	44.7	22.6	26.6	38.1	19.9	12.8
Progression Factor	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	1.0	0.1		15.4	0.1	0.1	8.9	0.7	6.4	8.6	2.6	0.0
Delay (s)	46.3	42.9		55.2	31.7	31.8	53.6	23.3	33.0	46.7	22.5	12.8
Level of Service	D	D		E	C	C	D	C	C	D	C	B
Approach Delay (s)		44.2			48.9			31.3			30.2	
Approach LOS		D			D			C			C	

Intersection Summary			
HCM Average Control Delay	34.4	HCM Level of Service	C
HCM Volume to Capacity ratio	0.69		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	75.2%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	
Lane Util. Factor	1.00	0.95		1.00	0.95	1.00	1.00	0.95	1.00	0.97	0.95	
Frt	1.00	0.97		1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.99	
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1770	3421		1770	3539	1583	1770	3539	1583	3433	3492	
Flt Permitted	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (perm)	1770	3421		1770	3539	1583	1770	3539	1583	3433	3492	
Volume (vph)	48	877	250	142	532	140	125	373	143	389	798	77
Peak-hour factor, PHF	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Adj. Flow (vph)	51	933	266	151	566	149	133	397	152	414	849	82
RTOR Reduction (vph)	0	21	0	0	0	84	0	0	108	0	6	0
Lane Group Flow (vph)	51	1178	0	151	566	65	133	397	44	414	925	0
Turn Type	Prot			Prot		Perm	Prot		Perm	Prot		
Protected Phases	5	2		1	6		7	4		3	8	
Permitted Phases						6			4			
Actuated Green, G (s)	5.7	43.5		12.8	50.8	50.8	12.6	33.7	33.7	11.0	32.1	
Effective Green, g (s)	5.7	44.8		13.0	52.1	52.1	12.6	35.0	35.0	11.2	33.6	
Actuated g/C Ratio	0.05	0.37		0.11	0.43	0.43	0.10	0.29	0.29	0.09	0.28	
Clearance Time (s)	4.0	5.3		4.2	5.3	5.3	4.0	5.3	5.3	4.2	5.5	
Vehicle Extension (s)	1.5	2.0		1.5	2.0	2.0	1.5	2.0	2.0	1.5	2.0	
Lane Grp Cap (vph)	84	1277		192	1537	687	186	1032	462	320	978	
v/s Ratio Prot	0.03	c0.34		c0.09	0.16		0.08	0.11		c0.12	c0.26	
v/s Ratio Perm						0.04			0.03			
v/c Ratio	0.61	0.92		0.79	0.37	0.09	0.72	0.38	0.10	1.29	0.95	
Uniform Delay, d1	56.1	35.9		52.1	22.9	20.0	52.0	33.9	31.0	54.4	42.3	
Progression Factor	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	8.2	12.4		17.5	0.7	0.3	10.3	0.1	0.0	153.5	17.0	
Delay (s)	64.3	48.3		69.7	23.5	20.3	62.3	34.0	31.0	207.9	59.3	
Level of Service	E	D		E	C	C	E	C	C	F	E	
Approach Delay (s)		48.9			31.0			38.8			105.0	
Approach LOS		D			C			D			F	

Intersection Summary			
HCM Average Control Delay	61.7	HCM Level of Service	E
HCM Volume to Capacity ratio	0.94		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	16.0
Intersection Capacity Utilization	84.9%	ICU Level of Service	E
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0	4.0	4.0	4.0					4.0	4.0	4.0
Lane Util. Factor		0.95	1.00	0.97	0.95					0.95	0.91	0.95
Frt		1.00	0.85	1.00	1.00					1.00	0.86	0.85
Flt Protected		1.00	1.00	0.95	1.00					0.95	1.00	1.00
Satd. Flow (prot)		3539	1583	3433	3539					1681	1450	1504
Flt Permitted		1.00	1.00	0.95	1.00					0.95	1.00	1.00
Satd. Flow (perm)		3539	1583	3433	3539					1681	1450	1504
Volume (vph)	0	207	506	505	608	0	0	0	0	19	2	102
Peak-hour factor, PHF	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89
Adj. Flow (vph)	0	233	569	567	683	0	0	0	0	21	2	115
RTOR Reduction (vph)	0	0	346	0	0	0	0	0	0	0	37	42
Lane Group Flow (vph)	0	233	223	567	683	0	0	0	0	21	19	19
Turn Type			Perm	Prot						Perm		Perm
Protected Phases		4		3	8						6	
Permitted Phases			4							6		6
Actuated Green, G (s)		14.2	14.2	15.2	33.4					18.9	18.9	18.9
Effective Green, g (s)		14.2	14.2	15.2	33.4					18.9	18.9	18.9
Actuated g/C Ratio		0.24	0.24	0.25	0.55					0.31	0.31	0.31
Clearance Time (s)		4.0	4.0	4.0	4.0					4.0	4.0	4.0
Vehicle Extension (s)		3.0	3.0	3.0	3.0					3.0	3.0	3.0
Lane Grp Cap (vph)		833	373	865	1960					527	454	471
v/s Ratio Prot		0.07		c0.17	0.19						c0.01	
v/s Ratio Perm			c0.14							0.01		0.01
v/c Ratio		0.28	0.60	0.66	0.35					0.04	0.04	0.04
Uniform Delay, d1		18.9	20.5	20.2	7.4					14.4	14.4	14.4
Progression Factor		1.00	1.00	1.00	1.00					1.00	1.00	1.00
Incremental Delay, d2		0.2	2.6	1.8	0.1					0.1	0.2	0.2
Delay (s)		19.0	23.1	22.0	7.5					14.5	14.6	14.6
Level of Service		B	C	C	A					B	B	B
Approach Delay (s)		21.9			14.1			0.0			14.6	
Approach LOS		C			B			A			B	

Intersection Summary			
HCM Average Control Delay	17.0	HCM Level of Service	B
HCM Volume to Capacity ratio	0.40		
Actuated Cycle Length (s)	60.3	Sum of lost time (s)	12.0
Intersection Capacity Utilization	59.1%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0			4.0	4.0	4.0
Lane Util. Factor	0.95			0.95	0.97	1.00
Frt	1.00			1.00	1.00	0.85
Flt Protected	1.00			1.00	0.95	1.00
Satd. Flow (prot)	3539			3539	3433	1583
Flt Permitted	1.00			1.00	0.95	1.00
Satd. Flow (perm)	3539			3539	3433	1583
Volume (vph)	226	0	0	724	392	145
Peak-hour factor, PHF	0.89	0.89	0.89	0.89	0.89	0.89
Adj. Flow (vph)	254	0	0	813	440	163
RTOR Reduction (vph)	0	0	0	0	0	69
Lane Group Flow (vph)	254	0	0	813	440	94
Turn Type						Perm
Protected Phases	4			8	2	
Permitted Phases						2
Actuated Green, G (s)	21.8			21.8	40.2	40.2
Effective Green, g (s)	21.8			21.8	40.2	40.2
Actuated g/C Ratio	0.31			0.31	0.57	0.57
Clearance Time (s)	4.0			4.0	4.0	4.0
Vehicle Extension (s)	3.0			3.0	3.0	3.0
Lane Grp Cap (vph)	1102			1102	1972	909
v/s Ratio Prot	0.07			c0.23	c0.13	
v/s Ratio Perm						0.06
v/c Ratio	0.23			0.74	0.22	0.10
Uniform Delay, d1	17.9			21.5	7.3	6.7
Progression Factor	1.00			1.00	1.00	1.00
Incremental Delay, d2	0.1			2.6	0.3	0.2
Delay (s)	18.0			24.2	7.5	7.0
Level of Service	B			C	A	A
Approach Delay (s)	18.0			24.2	7.4	
Approach LOS	B			C	A	

Intersection Summary			
HCM Average Control Delay	17.2	HCM Level of Service	B
HCM Volume to Capacity ratio	0.40		
Actuated Cycle Length (s)	70.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	59.1%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Volume (veh/h)	0	0	0	2	2	3	88	280	6	17	731	31
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Hourly flow rate (vph)	0	0	0	2	2	3	97	308	7	19	803	34
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	1209	1365	820	1345	1379	157	837			314		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	1209	1365	820	1345	1379	157	837			314		
tC, single (s)	7.5	6.5	6.9	7.5	6.5	6.9	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	100	100	100	98	98	100	88			98		
cM capacity (veh/h)	122	126	318	99	124	860	793			1243		

Direction, Lane #	WB 1	NB 1	NB 2	NB 3	SB 1	SB 2
Volume Total	8	97	205	109	19	837
Volume Left	2	97	0	0	19	0
Volume Right	3	0	0	7	0	34
cSH	175	793	1700	1700	1243	1700
Volume to Capacity	0.04	0.12	0.12	0.06	0.02	0.49
Queue Length 95th (ft)	3	10	0	0	1	0
Control Delay (s)	26.5	10.2	0.0	0.0	7.9	0.0
Lane LOS	D	B			A	
Approach Delay (s)	26.5	2.4			0.2	
Approach LOS	D					

Intersection Summary				
Average Delay	1.0			
Intersection Capacity Utilization	58.6%	ICU Level of Service	B	
Analysis Period (min)	15			

APPENDIX E - CUMULATIVE WITH PROJECT LOS RESULTS

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	0.95		1.00	0.95	
Frt	1.00	0.97		1.00	0.94		1.00	0.96		1.00	0.97	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1770	3435		1770	3325		1770	3413		1770	3450	
Flt Permitted	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (perm)	1770	3435		1770	3325		1770	3413		1770	3450	
Volume (vph)	86	433	105	136	461	313	163	623	195	323	246	50
Peak-hour factor, PHF	0.78	0.78	0.78	0.78	0.78	0.78	0.78	0.78	0.78	0.78	0.78	0.78
Adj. Flow (vph)	110	555	135	174	591	401	209	799	250	414	315	64
RTOR Reduction (vph)	0	21	0	0	110	0	0	30	0	0	17	0
Lane Group Flow (vph)	110	669	0	174	882	0	209	1019	0	414	362	0
Turn Type	Prot			Prot			Prot			Prot		
Protected Phases	5	2		1	6		7	4		3	8	
Permitted Phases												
Actuated Green, G (s)	9.9	36.0		15.0	41.0		13.6	16.0		14.7	16.2	
Effective Green, g (s)	10.1	37.1		15.0	42.0		14.6	17.0		14.9	17.3	
Actuated g/C Ratio	0.10	0.37		0.15	0.42		0.15	0.17		0.15	0.17	
Clearance Time (s)	4.2	5.1		4.0	5.0		5.0	5.0		4.2	5.1	
Vehicle Extension (s)	1.5	2.0		1.5	2.0		1.5	2.0		1.5	2.0	
Lane Grp Cap (vph)	179	1274		266	1397		258	580		264	597	
v/s Ratio Prot	0.06	0.19		c0.10	c0.27		0.12	c0.30		c0.23	0.11	
v/s Ratio Perm												
v/c Ratio	0.61	0.52		0.65	0.63		0.81	1.76		1.57	0.61	
Uniform Delay, d1	43.1	24.6		40.1	22.9		41.4	41.5		42.5	38.2	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	4.3	1.5		4.4	2.2		16.4	347.8		273.3	1.2	
Delay (s)	47.4	26.1		44.4	25.1		57.8	389.3		315.8	39.4	
Level of Service	D	C		D	C		E	F		F	D	
Approach Delay (s)		29.0			28.0			334.2			183.7	
Approach LOS		C			C			F			F	

Intersection Summary			
HCM Average Control Delay	154.8	HCM Level of Service	F
HCM Volume to Capacity ratio	1.00		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	82.5%	ICU Level of Service	E
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0		4.0	4.0	4.0	4.0	4.0	
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95		1.00	0.95	1.00	1.00	0.95	
Frt	1.00	1.00	0.85	1.00	0.97		1.00	1.00	0.85	1.00	0.96	
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1770	3539	1583	1770	3416		1770	3539	1583	1770	3383	
Flt Permitted	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00	0.24	1.00	
Satd. Flow (perm)	1770	3539	1583	1770	3416		1770	3539	1583	455	3383	
Volume (vph)	485	595	249	209	529	160	219	808	158	172	627	261
Peak-hour factor, PHF	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85
Adj. Flow (vph)	571	700	293	246	622	188	258	951	186	202	738	307
RTOR Reduction (vph)	0	0	184	0	29	0	0	0	113	0	46	0
Lane Group Flow (vph)	571	700	109	246	781	0	258	951	73	202	999	0
Turn Type	Prot		Perm	Prot			Prot		Perm	Perm		
Protected Phases	7	4		3	8		5	2			6	
Permitted Phases			4						2	6		
Actuated Green, G (s)	29.0	35.0	35.0	14.0	20.0		11.0	39.0	39.0	24.0	24.0	
Effective Green, g (s)	29.0	35.0	35.0	14.0	20.0		11.0	39.0	39.0	24.0	24.0	
Actuated g/C Ratio	0.29	0.35	0.35	0.14	0.20		0.11	0.39	0.39	0.24	0.24	
Clearance Time (s)	4.0	4.0	4.0	4.0	4.0		4.0	4.0	4.0	4.0	4.0	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	513	1239	554	248	683		195	1380	617	109	812	
v/s Ratio Prot	c0.32	0.20		0.14	c0.23		c0.15	0.27			0.30	
v/s Ratio Perm			0.07						0.05	c0.44		
v/c Ratio	1.11	0.56	0.20	0.99	1.14		1.32	0.69	0.12	1.85	1.23	
Uniform Delay, d1	35.5	26.3	22.7	42.9	40.0		44.5	25.4	19.5	38.0	38.0	
Progression Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	74.5	0.6	0.2	54.7	81.4		176.5	2.8	0.4	417.0	114.6	
Delay (s)	110.0	26.9	22.9	97.6	121.4		221.0	28.3	19.9	455.0	152.6	
Level of Service	F	C	C	F	F		F	C	B	F	F	
Approach Delay (s)		56.5			115.8			62.8			201.6	
Approach LOS		E			F			E			F	

Intersection Summary			
HCM Average Control Delay	104.5	HCM Level of Service	F
HCM Volume to Capacity ratio	1.36		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	16.0
Intersection Capacity Utilization	97.7%	ICU Level of Service	F
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0		4.0	4.0			4.0	
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	1.00			1.00	
Frt	1.00	0.98		1.00	0.98		1.00	0.94			0.95	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00			0.98	
Satd. Flow (prot)	1770	3452		1770	3470		1770	1752			1727	
Flt Permitted	0.95	1.00		0.95	1.00		0.55	1.00			0.83	
Satd. Flow (perm)	1770	3452		1770	3470		1025	1752			1467	
Volume (vph)	175	574	113	74	616	92	55	58	38	108	52	108
Peak-hour factor, PHF	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83
Adj. Flow (vph)	211	692	136	89	742	111	66	70	46	130	63	130
RTOR Reduction (vph)	0	21	0	0	15	0	0	17	0	0	18	0
Lane Group Flow (vph)	211	807	0	89	838	0	66	99	0	0	305	0
Turn Type	Prot			Prot			Perm			Perm		
Protected Phases	7	4		3	8			2			6	
Permitted Phases							2			6		
Actuated Green, G (s)	4.0	24.5		4.0	24.5		37.2	37.2			37.2	
Effective Green, g (s)	4.0	24.5		4.0	24.5		37.2	37.2			37.2	
Actuated g/C Ratio	0.05	0.32		0.05	0.32		0.48	0.48			0.48	
Clearance Time (s)	4.0	4.0		4.0	4.0		4.0	4.0			4.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0			3.0	
Lane Grp Cap (vph)	91	1088		91	1094		491	839			702	
v/s Ratio Prot	c0.12	0.23		0.05	c0.24			0.06				
v/s Ratio Perm							0.06				c0.21	
v/c Ratio	2.32	0.74		0.98	0.77		0.13	0.12			0.43	
Uniform Delay, d1	36.9	23.8		36.8	24.0		11.3	11.2			13.3	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00			1.00	
Incremental Delay, d2	626.4	2.8		86.2	3.3		0.6	0.3			2.0	
Delay (s)	663.2	26.5		123.0	27.3		11.8	11.5			15.3	
Level of Service	F	C		F	C		B	B			B	
Approach Delay (s)		155.8			36.3			11.6			15.3	
Approach LOS		F			D			B			B	

Intersection Summary			
HCM Average Control Delay	81.7	HCM Level of Service	F
HCM Volume to Capacity ratio	0.67		
Actuated Cycle Length (s)	77.7	Sum of lost time (s)	12.0
Intersection Capacity Utilization	61.6%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0		4.0	4.0	4.0	4.0	4.0	
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	1.00	1.00	1.00	1.00	
Frt	1.00	0.95		1.00	0.99		1.00	1.00	0.85	1.00	0.91	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1770	3345		1770	3517		1770	1863	1583	1770	1699	
Flt Permitted	0.95	1.00		0.95	1.00		0.48	1.00	1.00	0.71	1.00	
Satd. Flow (perm)	1770	3345		1770	3517		891	1863	1583	1325	1699	
Volume (vph)	89	408	235	165	538	23	95	64	119	20	121	173
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	97	443	255	179	585	25	103	70	129	22	132	188
RTOR Reduction (vph)	0	92	0	0	4	0	0	0	74	0	41	0
Lane Group Flow (vph)	97	606	0	179	606	0	103	70	55	22	279	0
Turn Type	Prot			Prot			Perm		Perm	Perm		
Protected Phases	7	4		3	8			2			6	
Permitted Phases							2		2	6		
Actuated Green, G (s)	7.7	18.1		10.3	20.7		30.4	30.4	30.4	30.4	30.4	
Effective Green, g (s)	7.7	18.1		10.3	20.7		30.4	30.4	30.4	30.4	30.4	
Actuated g/C Ratio	0.11	0.26		0.15	0.29		0.43	0.43	0.43	0.43	0.43	
Clearance Time (s)	4.0	4.0		4.0	4.0		4.0	4.0	4.0	4.0	4.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	193	855		258	1028		383	800	680	569	730	
v/s Ratio Prot	0.05	c0.18		c0.10	c0.17			0.04			c0.16	
v/s Ratio Perm							0.12		0.03	0.02		
v/c Ratio	0.50	0.71		0.69	0.59		0.27	0.09	0.08	0.04	0.38	
Uniform Delay, d1	29.7	24.0		28.8	21.4		13.0	12.0	11.9	11.7	13.8	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	2.1	2.7		7.8	0.9		1.7	0.2	0.2	0.1	1.5	
Delay (s)	31.8	26.7		36.6	22.3		14.8	12.2	12.2	11.8	15.3	
Level of Service	C	C		D	C		B	B	B	B	B	
Approach Delay (s)		27.3			25.5			13.1			15.1	
Approach LOS		C			C			B			B	

Intersection Summary			
HCM Average Control Delay	22.9	HCM Level of Service	C
HCM Volume to Capacity ratio	0.56		
Actuated Cycle Length (s)	70.8	Sum of lost time (s)	16.0
Intersection Capacity Utilization	63.5%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	1.00	0.95		1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	0.95		1.00	0.99		1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1770	3347		1770	1838		1770	1863	1583	1770	1863	1583
Flt Permitted	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	1770	3347		1770	1838		1770	1863	1583	1770	1863	1583
Volume (vph)	6	340	194	44	475	46	203	370	31	22	78	31
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	6	358	204	46	500	48	214	389	33	23	82	33
RTOR Reduction (vph)	0	88	0	0	3	0	0	0	19	0	0	23
Lane Group Flow (vph)	6	474	0	46	545	0	214	389	14	23	82	10
Turn Type	Prot			Prot			Prot		Perm	Prot		Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases									2			6
Actuated Green, G (s)	1.0	22.7		4.4	26.1		13.7	34.9	34.9	2.5	23.7	23.7
Effective Green, g (s)	1.0	22.7		4.4	26.1		13.7	34.9	34.9	2.5	23.7	23.7
Actuated g/C Ratio	0.01	0.28		0.05	0.32		0.17	0.43	0.43	0.03	0.29	0.29
Clearance Time (s)	4.0	4.0		4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	22	944		97	596		301	808	686	55	548	466
v/s Ratio Prot	0.00	0.14		c0.03	c0.30		c0.12	c0.21		0.01	0.04	
v/s Ratio Perm									0.01			0.01
v/c Ratio	0.27	0.50		0.47	0.91		0.71	0.48	0.02	0.42	0.15	0.02
Uniform Delay, d1	39.4	24.2		36.9	26.1		31.5	16.3	13.0	38.3	21.0	20.2
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	6.6	0.4		3.6	18.5		7.7	2.1	0.1	5.1	0.6	0.1
Delay (s)	46.0	24.6		40.6	44.7		39.2	18.4	13.1	43.4	21.5	20.2
Level of Service	D	C		D	D		D	B	B	D	C	C
Approach Delay (s)		24.8			44.3			25.1			24.9	
Approach LOS		C			D			C			C	

Intersection Summary			
HCM Average Control Delay	30.9	HCM Level of Service	C
HCM Volume to Capacity ratio	0.69		
Actuated Cycle Length (s)	80.5	Sum of lost time (s)	12.0
Intersection Capacity Utilization	60.6%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0		4.0	4.0	4.0	4.0	4.0	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00		1.00	0.95	1.00	1.00	0.95	
Frt	1.00	1.00	0.85	1.00	0.95		1.00	1.00	0.85	1.00	0.96	
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1770	1863	1583	1770	1773		1770	3539	1583	1770	3412	
Flt Permitted	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00	0.95	1.00	
Satd. Flow (perm)	1770	1863	1583	1770	1773		1770	3539	1583	1770	3412	
Volume (vph)	144	174	136	82	172	82	170	801	109	137	783	246
Peak-hour factor, PHF	0.78	0.78	0.78	0.78	0.78	0.78	0.78	0.78	0.78	0.78	0.78	0.78
Adj. Flow (vph)	185	223	174	105	221	105	218	1027	140	176	1004	315
RTOR Reduction (vph)	0	0	125	0	15	0	0	0	78	0	23	0
Lane Group Flow (vph)	185	223	49	105	311	0	218	1027	62	176	1296	0
Turn Type	Prot		Perm	Prot			Prot		Perm	Prot		
Protected Phases	5	2		1	6		7	4		3	8	
Permitted Phases			2						4			
Actuated Green, G (s)	13.5	26.8	26.8	8.3	21.6		15.0	32.9	32.9	13.1	31.0	
Effective Green, g (s)	13.5	27.8	27.8	8.3	22.6		15.0	33.9	33.9	13.1	32.0	
Actuated g/C Ratio	0.14	0.28	0.28	0.08	0.23		0.15	0.34	0.34	0.13	0.32	
Clearance Time (s)	4.0	5.0	5.0	4.0	5.0		4.0	5.0	5.0	4.0	5.0	
Vehicle Extension (s)	1.5	2.0	2.0	1.5	2.0		1.5	2.0	2.0	1.5	2.0	
Lane Grp Cap (vph)	241	523	444	148	404		268	1211	542	234	1102	
v/s Ratio Prot	c0.10	0.12		0.06	c0.18		c0.12	0.29		0.10	c0.38	
v/s Ratio Perm			0.03						0.04			
v/c Ratio	0.77	0.43	0.11	0.71	0.77		0.81	0.85	0.12	0.75	1.18	
Uniform Delay, d1	41.3	29.1	26.5	44.2	35.8		40.7	30.2	22.3	41.4	33.5	
Progression Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	12.4	0.2	0.0	12.0	7.7		16.2	5.5	0.0	11.4	88.9	
Delay (s)	53.6	29.3	26.5	56.2	43.5		56.9	35.7	22.4	52.9	122.5	
Level of Service	D	C	C	E	D		E	D	C	D	F	
Approach Delay (s)		36.2			46.6			37.7			114.3	
Approach LOS		D			D			D			F	

Intersection Summary			
HCM Average Control Delay	67.9	HCM Level of Service	E
HCM Volume to Capacity ratio	0.93		
Actuated Cycle Length (s)	99.1	Sum of lost time (s)	16.0
Intersection Capacity Utilization	74.3%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	0.93		1.00	0.94		1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1770	1728		1770	1748		1770	1863	1583	1770	1863	1583
Flt Permitted	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	1770	1728		1770	1748		1770	1863	1583	1770	1863	1583
Volume (vph)	51	106	99	109	62	43	105	333	161	82	355	47
Peak-hour factor, PHF	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86
Adj. Flow (vph)	59	123	115	127	72	50	122	387	187	95	413	55
RTOR Reduction (vph)	0	36	0	0	28	0	0	0	109	0	0	33
Lane Group Flow (vph)	59	202	0	127	94	0	122	387	78	95	413	22
Turn Type	Prot			Prot			Prot		Perm	Prot		Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases									2			6
Actuated Green, G (s)	5.3	14.8		9.4	18.9		8.8	34.3	34.3	8.2	33.7	33.7
Effective Green, g (s)	5.3	14.8		9.4	18.9		8.8	34.3	34.3	8.2	33.7	33.7
Actuated g/C Ratio	0.06	0.18		0.11	0.23		0.11	0.41	0.41	0.10	0.41	0.41
Clearance Time (s)	4.0	4.0		4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	113	309		201	399		188	773	657	176	759	645
v/s Ratio Prot	0.03	c0.12		c0.07	0.05		c0.07	0.21		0.05	c0.22	
v/s Ratio Perm									0.05			0.01
v/c Ratio	0.52	0.65		0.63	0.24		0.65	0.50	0.12	0.54	0.54	0.03
Uniform Delay, d1	37.5	31.6		35.0	26.0		35.5	17.9	14.9	35.5	18.7	14.7
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	4.3	4.9		6.3	0.3		7.5	2.3	0.4	3.2	2.8	0.1
Delay (s)	41.8	36.5		41.3	26.3		43.0	20.2	15.3	38.6	21.4	14.8
Level of Service	D	D		D	C		D	C	B	D	C	B
Approach Delay (s)		37.5			34.0			22.9			23.7	
Approach LOS		D			C			C			C	

Intersection Summary			
HCM Average Control Delay	27.1	HCM Level of Service	C
HCM Volume to Capacity ratio	0.59		
Actuated Cycle Length (s)	82.7	Sum of lost time (s)	16.0
Intersection Capacity Utilization	55.5%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Stop			Stop	
Volume (vph)	0	103	224	51	79	0	94	0	22	0	0	0
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	0	114	249	57	88	0	104	0	24	0	0	0

Direction, Lane #	EB 1	WB 1	NB 1
Volume Total (vph)	363	144	129
Volume Left (vph)	0	57	104
Volume Right (vph)	249	0	24
Hadj (s)	-0.38	0.11	0.08
Departure Headway (s)	4.0	4.7	5.1
Degree Utilization, x	0.41	0.19	0.18
Capacity (veh/h)	864	722	651
Control Delay (s)	9.8	8.8	9.2
Approach Delay (s)	9.8	8.8	9.2
Approach LOS	A	A	A

Intersection Summary				
Delay	9.5			
HCM Level of Service	A			
Intersection Capacity Utilization	42.7%	ICU Level of Service	A	
Analysis Period (min)	15			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0		4.0	4.0	
Lane Util. Factor	1.00	0.95		1.00	0.95	1.00	1.00	1.00		1.00	1.00	
Frt	1.00	0.99		1.00	1.00	0.85	1.00	0.97		1.00	0.91	
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1770	3515		1770	3539	1583	1770	1814		1770	1691	
Flt Permitted	0.95	1.00		0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (perm)	1770	3515		1770	3539	1583	1770	1814		1770	1691	
Volume (vph)	71	619	30	9	592	34	38	62	13	37	50	80
Peak-hour factor, PHF	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Adj. Flow (vph)	76	666	32	10	637	37	41	67	14	40	54	86
RTOR Reduction (vph)	0	2	0	0	0	17	0	9	0	0	65	0
Lane Group Flow (vph)	76	696	0	10	637	20	41	72	0	40	75	0
Turn Type	Prot			Prot		Perm	Prot			Prot		
Protected Phases	5	2		1	6		7	4		3	8	
Permitted Phases						6						
Actuated Green, G (s)	11.6	64.4		1.2	54.0	54.0	4.5	12.0		4.4	11.9	
Effective Green, g (s)	11.6	65.4		1.2	55.0	55.0	4.5	13.0		4.4	12.9	
Actuated g/C Ratio	0.12	0.65		0.01	0.55	0.55	0.04	0.13		0.04	0.13	
Clearance Time (s)	4.0	5.0		4.0	5.0	5.0	4.0	5.0		4.0	5.0	
Vehicle Extension (s)	1.5	2.0		1.5	2.0	2.0	1.5	3.0		1.5	3.0	
Lane Grp Cap (vph)	205	2299		21	1946	871	80	236		78	218	
v/s Ratio Prot	c0.04	0.20		0.01	c0.18		c0.02	0.04		0.02	c0.04	
v/s Ratio Perm						0.01						
v/c Ratio	0.37	0.30		0.48	0.33	0.02	0.51	0.31		0.51	0.34	
Uniform Delay, d1	40.8	7.5		49.1	12.3	10.3	46.7	39.4		46.8	39.7	
Progression Factor	1.00	1.00		1.10	0.54	0.98	1.00	1.00		1.00	1.00	
Incremental Delay, d2	0.4	0.3		5.9	0.4	0.0	2.3	0.7		2.4	0.9	
Delay (s)	41.2	7.8		60.0	7.1	10.1	49.0	40.2		49.1	40.6	
Level of Service	D	A		E	A	B	D	D		D	D	
Approach Delay (s)		11.1			8.1			43.1			42.5	
Approach LOS		B			A			D			D	

Intersection Summary			
HCM Average Control Delay	15.3	HCM Level of Service	B
HCM Volume to Capacity ratio	0.35		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	16.0
Intersection Capacity Utilization	45.6%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	
Lane Util. Factor	0.97	0.95	1.00	0.97	0.95	1.00	0.97	0.95	1.00	0.97	0.95	
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.96	
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	3433	3539	1583	3433	3539	1583	3433	3539	1583	3433	3414	
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (perm)	3433	3539	1583	3433	3539	1583	3433	3539	1583	3433	3414	
Volume (vph)	133	380	85	163	294	67	192	792	358	131	304	94
Peak-hour factor, PHF	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Adj. Flow (vph)	146	418	93	179	323	74	211	870	393	144	334	103
RTOR Reduction (vph)	0	0	58	0	0	47	0	0	262	0	32	0
Lane Group Flow (vph)	146	418	35	179	323	27	211	870	131	144	405	0
Turn Type	Prot		Perm	Prot		Perm	Prot		Perm	Prot		
Protected Phases	5	2		1	6		7	4		3	8	
Permitted Phases			2			6			4			
Actuated Green, G (s)	9.0	36.3	36.3	8.5	35.8	35.8	9.9	29.2	29.2	8.0	27.3	
Effective Green, g (s)	9.0	37.3	37.3	8.5	36.8	36.8	9.9	30.2	30.2	8.0	28.3	
Actuated g/C Ratio	0.09	0.37	0.37	0.08	0.37	0.37	0.10	0.30	0.30	0.08	0.28	
Clearance Time (s)	4.0	5.0	5.0	4.0	5.0	5.0	4.0	5.0	5.0	4.0	5.0	
Vehicle Extension (s)	1.5	2.0	2.0	1.5	2.0	2.0	1.5	2.0	2.0	1.5	2.0	
Lane Grp Cap (vph)	309	1320	590	292	1302	583	340	1069	478	275	966	
v/s Ratio Prot	c0.04	c0.12		c0.05	0.09		c0.06	c0.25		0.04	0.12	
v/s Ratio Perm			0.02			0.02			0.08			
v/c Ratio	0.47	0.32	0.06	0.61	0.25	0.05	0.62	0.81	0.27	0.52	0.42	
Uniform Delay, d1	43.2	22.3	20.1	44.2	22.0	20.3	43.2	32.3	26.6	44.2	29.2	
Progression Factor	0.87	0.80	0.85	1.09	1.99	4.42	1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	0.4	0.6	0.2	2.3	0.4	0.1	2.5	4.6	0.1	0.8	0.1	
Delay (s)	37.9	18.3	17.3	50.3	44.1	90.0	45.8	36.9	26.7	45.0	29.3	
Level of Service	D	B	B	D	D	F	D	D	C	D	C	
Approach Delay (s)		22.5			51.9			35.4			33.2	
Approach LOS		C			D			D			C	

Intersection Summary			
HCM Average Control Delay	35.4	HCM Level of Service	D
HCM Volume to Capacity ratio	0.57		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	16.0
Intersection Capacity Utilization	54.1%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.97	
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1770	3539	1583	1770	3539	1583	1770	3539	1583	1770	3421	
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (perm)	1770	3539	1583	1770	3539	1583	1770	3539	1583	1770	3421	
Volume (vph)	161	797	79	102	548	248	77	852	122	196	402	115
Peak-hour factor, PHF	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88
Adj. Flow (vph)	183	906	90	116	623	282	88	968	139	223	457	131
RTOR Reduction (vph)	0	0	62	0	0	201	0	0	39	0	24	0
Lane Group Flow (vph)	183	906	28	116	623	81	88	968	100	223	564	0
Turn Type	Prot		Perm	Prot		Perm	Prot		Perm	Prot		
Protected Phases	5	2		1	6		7	4		3	8	
Permitted Phases			2			6			4			
Actuated Green, G (s)	11.1	30.6	30.6	8.3	27.8	27.8	7.8	29.8	29.8	13.0	35.0	
Effective Green, g (s)	11.1	31.6	31.6	8.3	28.8	28.8	7.8	31.1	31.1	13.0	36.3	
Actuated g/C Ratio	0.11	0.32	0.32	0.08	0.29	0.29	0.08	0.31	0.31	0.13	0.36	
Clearance Time (s)	4.0	5.0	5.0	4.0	5.0	5.0	4.0	5.3	5.3	4.0	5.3	
Vehicle Extension (s)	1.5	2.0	2.0	1.5	2.0	2.0	1.5	2.0	2.0	1.5	2.0	
Lane Grp Cap (vph)	196	1118	500	147	1019	456	138	1101	492	230	1242	
v/s Ratio Prot	c0.10	c0.26		0.07	0.18		0.05	c0.27		c0.13	0.16	
v/s Ratio Perm			0.02			0.05			0.06			
v/c Ratio	0.93	0.81	0.06	0.79	0.61	0.18	0.64	0.88	0.20	0.97	0.45	
Uniform Delay, d1	44.1	31.4	23.8	45.0	30.8	26.7	44.7	32.7	25.3	43.3	24.3	
Progression Factor	1.17	0.92	0.84	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	44.0	6.2	0.2	22.3	2.7	0.9	6.9	8.0	0.1	49.9	0.1	
Delay (s)	95.5	35.2	20.3	67.3	33.5	27.6	51.6	40.6	25.4	93.2	24.4	
Level of Service	F	D	C	E	C	C	D	D	C	F	C	
Approach Delay (s)		43.5			35.7			39.7			43.3	
Approach LOS		D			D			D			D	

Intersection Summary			
HCM Average Control Delay	40.5	HCM Level of Service	D
HCM Volume to Capacity ratio	0.89		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	16.0
Intersection Capacity Utilization	75.4%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0			4.0	4.0	4.0	4.0	
Lane Util. Factor	1.00	0.95		1.00	0.95			1.00	1.00	1.00	1.00	
Frt	1.00	0.99		1.00	0.98			1.00	0.85	1.00	0.86	
Flt Protected	0.95	1.00		0.95	1.00			0.95	1.00	0.95	1.00	
Satd. Flow (prot)	1770	3519		1770	3465			1770	1583	1770	1603	
Flt Permitted	0.95	1.00		0.95	1.00			0.75	1.00	0.75	1.00	
Satd. Flow (perm)	1770	3519		1770	3465			1394	1583	1399	1603	
Volume (vph)	37	814	32	91	1191	193	9	0	17	38	1	12
Peak-hour factor, PHF	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89
Adj. Flow (vph)	42	915	36	102	1338	217	10	0	19	43	1	13
RTOR Reduction (vph)	0	2	0	0	5	0	0	0	16	0	11	0
Lane Group Flow (vph)	42	949	0	102	1550	0	0	10	3	43	3	0
Turn Type	Prot			Prot			Perm		Perm	Perm		
Protected Phases	5	2		1	6			4			8	
Permitted Phases							4		4	8		
Actuated Green, G (s)	4.6	71.7		10.1	77.2			15.2	15.2	15.2	15.2	
Effective Green, g (s)	4.6	72.7		10.1	78.2			15.2	15.2	15.2	15.2	
Actuated g/C Ratio	0.04	0.66		0.09	0.71			0.14	0.14	0.14	0.14	
Clearance Time (s)	4.0	5.0		4.0	5.0			4.0	4.0	4.0	4.0	
Vehicle Extension (s)	1.5	2.0		1.5	2.0			2.5	2.5	2.5	2.5	
Lane Grp Cap (vph)	74	2326		163	2463			193	219	193	222	
v/s Ratio Prot	0.02	0.27		c0.06	c0.45						0.00	
v/s Ratio Perm								0.01	0.00	c0.03		
v/c Ratio	0.57	0.41		0.63	0.63			0.05	0.01	0.22	0.01	
Uniform Delay, d1	51.7	8.7		48.1	8.3			41.1	40.9	42.1	40.9	
Progression Factor	1.00	1.00		1.00	1.00			1.00	1.00	1.00	1.00	
Incremental Delay, d2	5.8	0.5		5.3	1.2			0.1	0.0	0.4	0.0	
Delay (s)	57.6	9.2		53.4	9.5			41.2	40.9	42.6	40.9	
Level of Service	E	A		D	A			D	D	D	D	
Approach Delay (s)		11.2			12.2			41.0			42.2	
Approach LOS		B			B			D			D	

Intersection Summary			
HCM Average Control Delay	12.8	HCM Level of Service	B
HCM Volume to Capacity ratio	0.56		
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	61.2%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0	4.0	4.0	4.0					4.0	4.0	4.0
Lane Util. Factor		0.91	0.91	1.00	0.95					0.95	0.95	1.00
Frt		1.00	0.85	1.00	1.00					1.00	1.00	0.85
Flt Protected		1.00	1.00	0.95	1.00					0.95	0.96	1.00
Satd. Flow (prot)		3390	1441	1770	3539					1681	1700	1583
Flt Permitted		1.00	1.00	0.95	1.00					0.95	0.96	1.00
Satd. Flow (perm)		3390	1441	1770	3539					1681	1700	1583
Volume (vph)	0	579	435	82	1149	0	0	0	0	293	30	658
Peak-hour factor, PHF	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89
Adj. Flow (vph)	0	651	489	92	1291	0	0	0	0	329	34	739
RTOR Reduction (vph)	0	0	340	0	0	0	0	0	0	0	0	19
Lane Group Flow (vph)	0	651	149	92	1291	0	0	0	0	177	186	720
Turn Type			Perm	Prot						Perm		Perm
Protected Phases		4		3	8						6	
Permitted Phases			4							6		6
Actuated Green, G (s)		27.1	27.1	8.4	39.5					41.4	41.4	41.4
Effective Green, g (s)		27.1	27.1	8.4	39.5					41.4	41.4	41.4
Actuated g/C Ratio		0.30	0.30	0.09	0.44					0.47	0.47	0.47
Clearance Time (s)		4.0	4.0	4.0	4.0					4.0	4.0	4.0
Vehicle Extension (s)		3.0	3.0	3.0	3.0					3.0	3.0	3.0
Lane Grp Cap (vph)		1033	439	167	1572					783	792	737
v/s Ratio Prot		0.19		0.05	c0.36							
v/s Ratio Perm			0.10							0.11	0.11	c0.45
v/c Ratio		0.63	0.34	0.55	0.82					0.23	0.23	0.98
Uniform Delay, d1		26.6	24.0	38.4	21.6					14.2	14.2	23.3
Progression Factor		1.00	1.00	1.00	1.00					1.00	1.00	1.00
Incremental Delay, d2		1.3	0.5	3.9	3.6					0.7	0.7	27.9
Delay (s)		27.8	24.4	42.3	25.2					14.9	14.9	51.2
Level of Service		C	C	D	C					B	B	D
Approach Delay (s)		26.4			26.3			0.0			39.2	
Approach LOS		C			C			A			D	

Intersection Summary			
HCM Average Control Delay	30.3	HCM Level of Service	C
HCM Volume to Capacity ratio	0.90		
Actuated Cycle Length (s)	88.9	Sum of lost time (s)	8.0
Intersection Capacity Utilization	68.0%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0		4.0	4.0
Lane Util. Factor	1.00	0.95	0.95		0.97	1.00
Frt	1.00	1.00	0.97		1.00	0.85
Flt Protected	0.95	1.00	1.00		0.95	1.00
Satd. Flow (prot)	1770	3539	3423		3433	1583
Flt Permitted	0.95	1.00	1.00		0.95	1.00
Satd. Flow (perm)	1770	3539	3423		3433	1583
Volume (vph)	194	891	377	106	200	732
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	216	990	419	118	222	813
RTOR Reduction (vph)	0	0	28	0	0	314
Lane Group Flow (vph)	216	990	509	0	222	499
Turn Type	Prot					Perm
Protected Phases	7	4	8		6	
Permitted Phases						6
Actuated Green, G (s)	14.8	36.1	17.3		36.5	36.5
Effective Green, g (s)	14.8	36.1	17.3		36.5	36.5
Actuated g/C Ratio	0.18	0.45	0.21		0.45	0.45
Clearance Time (s)	4.0	4.0	4.0		4.0	4.0
Vehicle Extension (s)	3.0	3.0	3.0		3.0	3.0
Lane Grp Cap (vph)	325	1585	735		1555	717
v/s Ratio Prot	0.12	c0.28	0.15		0.06	
v/s Ratio Perm						c0.32
v/c Ratio	0.66	0.62	0.69		0.14	0.70
Uniform Delay, d1	30.6	17.1	29.2		12.9	17.6
Progression Factor	1.00	1.00	1.00		1.00	1.00
Incremental Delay, d2	5.1	0.8	2.8		0.2	5.5
Delay (s)	35.6	17.8	32.0		13.1	23.1
Level of Service	D	B	C		B	C
Approach Delay (s)		21.0	32.0		21.0	
Approach LOS		C	C		C	

Intersection Summary			
HCM Average Control Delay	23.1	HCM Level of Service	C
HCM Volume to Capacity ratio	0.66		
Actuated Cycle Length (s)	80.6	Sum of lost time (s)	8.0
Intersection Capacity Utilization	65.8%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Stop			Stop	
Volume (vph)	38	0	26	0	0	0	168	442	0	0	457	120
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88
Hourly flow rate (vph)	43	0	30	0	0	0	191	502	0	0	519	136

Direction, Lane #	EB 1	NB 1	SB 1	SB 2
Volume Total (vph)	73	693	0	656
Volume Left (vph)	43	191	0	0
Volume Right (vph)	30	0	0	136
Hadj (s)	-0.09	0.09	0.00	-0.11
Departure Headway (s)	6.9	5.2	5.4	5.2
Degree Utilization, x	0.14	1.00	0.00	0.95
Capacity (veh/h)	515	693	669	674
Control Delay (s)	11.0	57.9	7.2	45.3
Approach Delay (s)	11.0	57.9	45.3	
Approach LOS	B	F	E	

Intersection Summary				
Delay		49.7		
HCM Level of Service		E		
Intersection Capacity Utilization		77.6%	ICU Level of Service	D
Analysis Period (min)		15		

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Sign Control	Stop		Stop			Stop
Volume (vph)	187	70	84	181	62	113
Peak Hour Factor	0.78	0.78	0.78	0.78	0.78	0.78
Hourly flow rate (vph)	240	90	108	232	79	145

Direction, Lane #	WB 1	NB 1	SB 1
Volume Total (vph)	329	340	224
Volume Left (vph)	240	0	79
Volume Right (vph)	90	232	0
Hadj (s)	0.02	-0.38	0.10
Departure Headway (s)	5.3	4.8	5.4
Degree Utilization, x	0.49	0.46	0.34
Capacity (veh/h)	634	710	622
Control Delay (s)	13.3	11.8	11.2
Approach Delay (s)	13.3	11.8	11.2
Approach LOS	B	B	B

Intersection Summary			
Delay	12.2		
HCM Level of Service	B		
Intersection Capacity Utilization	49.6%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0			4.0		4.0	4.0		4.0	4.0	
Lane Util. Factor		1.00			1.00		1.00	1.00		1.00	1.00	
Frt		0.98			0.96		1.00	0.99		1.00	0.95	
Flt Protected		0.99			0.99		0.95	1.00		0.95	1.00	
Satd. Flow (prot)		1796			1782		1770	1849		1770	1766	
Flt Permitted		0.91			0.97		0.61	1.00		0.25	1.00	
Satd. Flow (perm)		1659			1743		1138	1849		466	1766	
Volume (vph)	20	43	13	17	105	48	117	533	27	24	128	67
Peak-hour factor, PHF	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82
Adj. Flow (vph)	24	52	16	21	128	59	143	650	33	29	156	82
RTOR Reduction (vph)	0	10	0	0	35	0	0	5	0	0	47	0
Lane Group Flow (vph)	0	82	0	0	173	0	143	678	0	29	191	0
Turn Type	Perm			Perm			Perm			Perm		
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)		16.0			16.0		16.0	16.0		16.0	16.0	
Effective Green, g (s)		16.0			16.0		16.0	16.0		16.0	16.0	
Actuated g/C Ratio		0.40			0.40		0.40	0.40		0.40	0.40	
Clearance Time (s)		4.0			4.0		4.0	4.0		4.0	4.0	
Lane Grp Cap (vph)		664			697		455	740		186	706	
v/s Ratio Prot								c0.37			0.11	
v/s Ratio Perm		0.05			c0.10		0.13			0.06		
v/c Ratio		0.12			0.25		0.31	0.92		0.16	0.27	
Uniform Delay, d1		7.6			8.0		8.2	11.4		7.7	8.1	
Progression Factor		1.00			1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2		0.4			0.8		1.8	18.0		1.8	0.9	
Delay (s)		8.0			8.8		10.0	29.4		9.5	9.0	
Level of Service		A			A		B	C		A	A	
Approach Delay (s)		8.0			8.8			26.1			9.1	
Approach LOS		A			A			C			A	

Intersection Summary			
HCM Average Control Delay	19.0	HCM Level of Service	B
HCM Volume to Capacity ratio	0.58		
Actuated Cycle Length (s)	40.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	53.3%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	0.85	1.00	1.00	1.00	0.85
Flt Protected	0.95	1.00	0.95	1.00	1.00	1.00
Satd. Flow (prot)	1770	1583	1770	1863	1863	1583
Flt Permitted	0.95	1.00	0.63	1.00	1.00	1.00
Satd. Flow (perm)	1770	1583	1175	1863	1863	1583
Volume (vph)	500	436	78	125	170	316
Peak-hour factor, PHF	0.84	0.84	0.84	0.84	0.84	0.84
Adj. Flow (vph)	595	519	93	149	202	376
RTOR Reduction (vph)	0	311	0	0	0	226
Lane Group Flow (vph)	595	208	93	149	202	150
Turn Type		Perm	Perm			Perm
Protected Phases	4			2	6	
Permitted Phases		4	2			6
Actuated Green, G (s)	16.0	16.0	16.0	16.0	16.0	16.0
Effective Green, g (s)	16.0	16.0	16.0	16.0	16.0	16.0
Actuated g/C Ratio	0.40	0.40	0.40	0.40	0.40	0.40
Clearance Time (s)	4.0	4.0	4.0	4.0	4.0	4.0
Lane Grp Cap (vph)	708	633	470	745	745	633
v/s Ratio Prot	c0.34			0.08	c0.11	
v/s Ratio Perm		0.13	0.08			0.09
v/c Ratio	0.84	0.33	0.20	0.20	0.27	0.24
Uniform Delay, d1	10.8	8.3	7.8	7.8	8.1	8.0
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	11.5	1.4	0.9	0.6	0.9	0.9
Delay (s)	22.4	9.7	8.8	8.4	9.0	8.8
Level of Service	C	A	A	A	A	A
Approach Delay (s)	16.5			8.6	8.9	
Approach LOS	B			A	A	

Intersection Summary			
HCM Average Control Delay	13.2	HCM Level of Service	B
HCM Volume to Capacity ratio	0.56		
Actuated Cycle Length (s)	40.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	51.0%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Volume (veh/h)	53	387	188	2	7	26
Peak Hour Factor	0.78	0.78	0.78	0.78	0.78	0.78
Hourly flow rate (vph)	68	496	241	3	9	33
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type					None	
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	244				874	242
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	244				874	242
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	95				97	96
cM capacity (veh/h)	1323				304	797

Direction, Lane #	EB 1	WB 1	SB 1
Volume Total	564	244	42
Volume Left	68	0	9
Volume Right	0	3	33
cSH	1323	1700	592
Volume to Capacity	0.05	0.14	0.07
Queue Length 95th (ft)	4	0	6
Control Delay (s)	1.4	0.0	11.5
Lane LOS	A		B
Approach Delay (s)	1.4	0.0	11.5
Approach LOS			B

Intersection Summary			
Average Delay	1.5		
Intersection Capacity Utilization	46.6%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Volume (veh/h)	17	7	12	323	216	24
Peak Hour Factor	0.74	0.74	0.74	0.74	0.74	0.74
Hourly flow rate (vph)	23	9	16	436	292	32
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None					
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	777	308	324			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	777	308	324			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	94	99	99			
cM capacity (veh/h)	361	732	1235			

Direction, Lane #	EB 1	NB 1	SB 1
Volume Total	32	453	324
Volume Left	23	16	0
Volume Right	9	0	32
cSH	423	1235	1700
Volume to Capacity	0.08	0.01	0.19
Queue Length 95th (ft)	6	1	0
Control Delay (s)	14.2	0.4	0.0
Lane LOS	B	A	
Approach Delay (s)	14.2	0.4	0.0
Approach LOS	B		

Intersection Summary			
Average Delay	0.8		
Intersection Capacity Utilization	36.7%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	0.97	0.95	1.00	0.97	0.95	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1770	3539	1583	1770	3539	1583	3433	3539	1583	3433	3539	1583
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	1770	3539	1583	1770	3539	1583	3433	3539	1583	3433	3539	1583
Volume (vph)	357	719	152	48	779	180	820	1077	270	83	257	208
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	388	782	165	52	847	196	891	1171	293	90	279	226
RTOR Reduction (vph)	0	0	101	0	0	114	0	0	92	0	0	149
Lane Group Flow (vph)	388	782	64	52	847	82	891	1171	201	90	279	77
Turn Type	Prot		Perm	Prot		Perm	Prot		Perm	Prot		Perm
Protected Phases	5	2		1	6		3	8		7	4	
Permitted Phases			2			6			8			4
Actuated Green, G (s)	11.3	48.6	48.6	6.9	44.4	44.4	32.3	36.9	36.9	16.7	22.6	22.6
Effective Green, g (s)	11.5	50.3	50.3	7.3	46.1	46.1	32.5	38.4	38.4	18.0	23.9	23.9
Actuated g/C Ratio	0.09	0.39	0.39	0.06	0.35	0.35	0.25	0.30	0.30	0.14	0.18	0.18
Clearance Time (s)	4.2	5.7	5.7	4.4	5.7	5.7	4.2	5.5	5.5	5.3	5.3	5.3
Vehicle Extension (s)	1.5	2.0	2.0	1.5	2.0	2.0	1.5	2.0	2.0	2.0	2.0	2.0
Lane Grp Cap (vph)	157	1369	612	99	1255	561	858	1045	468	475	651	291
v/s Ratio Prot	c0.22	0.22		0.03	c0.24		c0.26	c0.33		0.03	0.08	
v/s Ratio Perm			0.04			0.05			0.13			0.05
v/c Ratio	2.47	0.57	0.10	0.53	0.67	0.15	1.04	1.12	0.43	0.19	0.43	0.26
Uniform Delay, d1	59.2	31.4	25.5	59.7	35.6	28.5	48.8	45.8	37.0	49.5	47.0	45.5
Progression Factor	1.00	1.00	1.00	1.20	0.98	1.94	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	680.8	1.7	0.3	1.7	2.2	0.4	41.1	67.2	2.9	0.9	2.1	2.2
Delay (s)	740.1	33.1	25.8	73.3	37.1	55.7	89.9	113.0	39.8	50.4	49.1	47.7
Level of Service	F	C	C	E	D	E	F	F	D	D	D	D
Approach Delay (s)		237.7			42.1			95.1			48.7	
Approach LOS		F			D			F			D	

Intersection Summary			
HCM Average Control Delay	114.6	HCM Level of Service	F
HCM Volume to Capacity ratio	1.04		
Actuated Cycle Length (s)	130.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	87.7%	ICU Level of Service	E
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	1.00	0.95	0.95	1.00	0.97	0.91
Frt	1.00	1.00	1.00	0.85	1.00	0.85
Flt Protected	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (prot)	1770	3539	3539	1583	3433	1441
Flt Permitted	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (perm)	1770	3539	3539	1583	3433	1441
Volume (vph)	326	610	971	834	428	121
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	362	678	1079	927	476	134
RTOR Reduction (vph)	0	0	0	290	0	100
Lane Group Flow (vph)	362	678	1079	637	476	34
Turn Type	Prot			Perm		Perm
Protected Phases	5	2	6		4	
Permitted Phases				6		4
Actuated Green, G (s)	29.3	87.0	53.7	53.7	31.0	31.0
Effective Green, g (s)	29.3	89.0	55.7	55.7	33.0	33.0
Actuated g/C Ratio	0.23	0.68	0.43	0.43	0.25	0.25
Clearance Time (s)	4.0	6.0	6.0	6.0	6.0	6.0
Vehicle Extension (s)	1.5	2.0	2.0	2.0	2.0	2.0
Lane Grp Cap (vph)	399	2423	1516	678	871	366
v/s Ratio Prot	c0.20	0.19	0.30		c0.14	
v/s Ratio Perm				c0.40		0.02
v/c Ratio	0.91	0.28	0.71	0.94	0.55	0.09
Uniform Delay, d1	49.0	8.0	30.5	35.5	42.0	37.1
Progression Factor	0.65	0.37	0.81	0.89	1.00	1.00
Incremental Delay, d2	20.8	0.2	0.3	3.3	2.5	0.5
Delay (s)	52.8	3.2	25.0	34.8	44.5	37.6
Level of Service	D	A	C	C	D	D
Approach Delay (s)		20.5	29.5		43.0	
Approach LOS		C	C		D	

Intersection Summary			
HCM Average Control Delay	29.2	HCM Level of Service	C
HCM Volume to Capacity ratio	0.82		
Actuated Cycle Length (s)	130.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	76.4%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0	4.0		4.0			4.0	4.0
Lane Util. Factor	1.00	0.95		1.00	0.95	1.00		1.00			1.00	1.00
Frt	1.00	1.00		1.00	1.00	0.85		1.00			1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00	1.00		0.95			0.95	1.00
Satd. Flow (prot)	1770	3539		1770	3539	1583		1770			1770	1583
Flt Permitted	0.95	1.00		0.95	1.00	1.00		0.73			0.75	1.00
Satd. Flow (perm)	1770	3539		1770	3539	1583		1353			1404	1583
Volume (vph)	433	919	0	12	1742	188	5	0	0	40	0	21
Peak-hour factor, PHF	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86
Adj. Flow (vph)	503	1069	0	14	2026	219	6	0	0	47	0	24
RTOR Reduction (vph)	0	0	0	0	0	40	0	0	0	0	0	11
Lane Group Flow (vph)	503	1069	0	14	2026	179	0	6	0	0	47	13
Turn Type	Prot			Prot		Perm	Perm			Perm		custom
Protected Phases	5	2		1	6			8			4	
Permitted Phases						6	8			4		6
Actuated Green, G (s)	36.4	101.0		2.4	67.0	67.0		11.6			11.6	67.0
Effective Green, g (s)	36.4	103.0		2.4	69.0	69.0		12.6			12.6	69.0
Actuated g/C Ratio	0.28	0.79		0.02	0.53	0.53		0.10			0.10	0.53
Clearance Time (s)	4.0	6.0		4.0	6.0	6.0		5.0			5.0	6.0
Vehicle Extension (s)	1.5	2.0		1.5	2.0	2.0		4.0			4.0	2.0
Lane Grp Cap (vph)	496	2804		33	1878	840		131			136	840
v/s Ratio Prot	c0.28	0.30		0.01	c0.57							
v/s Ratio Perm						0.11		0.00			c0.03	0.01
v/c Ratio	1.01	0.38		0.42	1.08	0.21		0.05			0.35	0.02
Uniform Delay, d1	46.8	4.0		63.1	30.5	16.1		53.2			54.8	14.4
Progression Factor	1.34	0.47		1.37	1.17	1.46		1.00			1.00	1.00
Incremental Delay, d2	43.4	0.4		0.3	36.6	0.0		0.2			2.1	0.0
Delay (s)	106.2	2.3		86.7	72.3	23.6		53.4			56.9	14.4
Level of Service	F	A		F	E	C		D			E	B
Approach Delay (s)		35.5			67.6			53.4			42.6	
Approach LOS		D			E			D			D	

Intersection Summary			
HCM Average Control Delay	54.3	HCM Level of Service	D
HCM Volume to Capacity ratio	0.98		
Actuated Cycle Length (s)	130.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	86.3%	ICU Level of Service	E
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	0.97	0.95	1.00	0.97	0.95	1.00	0.97	0.95	1.00	0.97	0.95	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	3433	3539	1583	3433	3539	1583	3433	3539	1583	3433	3539	1583
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	3433	3539	1583	3433	3539	1583	3433	3539	1583	3433	3539	1583
Volume (vph)	224	293	473	125	494	108	1553	619	516	66	122	101
Peak-hour factor, PHF	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88
Adj. Flow (vph)	255	333	538	142	561	123	1765	703	586	75	139	115
RTOR Reduction (vph)	0	0	348	0	0	86	0	0	415	0	0	77
Lane Group Flow (vph)	255	333	190	142	561	37	1765	703	171	75	139	38
Turn Type	Prot		Perm	Prot		Perm	Prot		Perm	Prot		Perm
Protected Phases	5	2		1	6		7	4		3	8	
Permitted Phases			2			6			4			8
Actuated Green, G (s)	16.0	44.0	44.0	9.0	37.0	37.0	16.0	36.0	36.0	20.0	41.0	41.0
Effective Green, g (s)	16.0	46.0	46.0	9.0	39.0	39.0	16.0	38.0	38.0	21.0	43.0	43.0
Actuated g/C Ratio	0.12	0.35	0.35	0.07	0.30	0.30	0.12	0.29	0.29	0.16	0.33	0.33
Clearance Time (s)	4.0	6.0	6.0	4.0	6.0	6.0	4.0	6.0	6.0	5.0	6.0	6.0
Vehicle Extension (s)	1.5	2.0	2.0	1.5	2.0	2.0	1.5	2.0	2.0	2.0	2.0	2.0
Lane Grp Cap (vph)	423	1252	560	238	1062	475	423	1034	463	555	1171	524
v/s Ratio Prot	c0.07	0.09		0.04	c0.16		c0.51	c0.20		c0.02	0.04	
v/s Ratio Perm			0.12			0.02			0.11			0.02
v/c Ratio	0.60	0.27	0.34	0.60	0.53	0.08	4.17	0.68	0.37	0.14	0.12	0.07
Uniform Delay, d1	54.0	30.0	30.8	58.7	37.8	32.6	57.0	40.6	36.5	46.7	30.3	29.8
Progression Factor	0.81	0.71	1.91	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	1.6	0.5	1.6	2.7	1.9	0.3	1433.2	3.6	2.3	0.0	0.2	0.3
Delay (s)	45.3	21.8	60.5	61.4	39.7	32.9	1490.2	44.2	38.8	46.8	30.5	30.1
Level of Service	D	C	E	E	D	C	F	D	D	D	C	C
Approach Delay (s)		45.6			42.4			878.9			34.1	
Approach LOS		D			D			F			C	

Intersection Summary			
HCM Average Control Delay	521.4	HCM Level of Service	F
HCM Volume to Capacity ratio	1.00		
Actuated Cycle Length (s)	130.0	Sum of lost time (s)	16.0
Intersection Capacity Utilization	81.8%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0	4.0	4.0	4.0						4.0	
Lane Util. Factor		0.95	1.00	1.00	0.95						0.95	
Frt		1.00	0.85	1.00	1.00						0.89	
Flt Protected		1.00	1.00	0.95	1.00						1.00	
Satd. Flow (prot)		3539	1583	1770	3539						3132	
Flt Permitted		1.00	1.00	0.22	1.00						1.00	
Satd. Flow (perm)		3539	1583	404	3539						3132	
Volume (vph)	0	655	293	24	466	0	0	0	0	20	70	272
Peak-hour factor, PHF	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Adj. Flow (vph)	0	720	322	26	512	0	0	0	0	22	77	299
RTOR Reduction (vph)	0	0	224	0	0	0	0	0	0	0	123	0
Lane Group Flow (vph)	0	720	98	26	512	0	0	0	0	0	275	0
Turn Type			Perm	Perm						Perm		
Protected Phases		4			8						6	
Permitted Phases			4	8						6		
Actuated Green, G (s)		21.4	21.4	21.4	21.4						41.2	
Effective Green, g (s)		21.4	21.4	21.4	21.4						41.2	
Actuated g/C Ratio		0.30	0.30	0.30	0.30						0.58	
Clearance Time (s)		4.0	4.0	4.0	4.0						4.0	
Vehicle Extension (s)		3.0	3.0	3.0	3.0						3.0	
Lane Grp Cap (vph)		1073	480	122	1073						1828	
v/s Ratio Prot		c0.20			0.14							
v/s Ratio Perm			0.06	0.06							0.09	
v/c Ratio		0.67	0.20	0.21	0.48						0.15	
Uniform Delay, d1		21.5	18.3	18.3	20.0						6.7	
Progression Factor		1.00	1.00	1.00	1.00						1.00	
Incremental Delay, d2		1.7	0.2	0.9	0.3						0.2	
Delay (s)		23.2	18.5	19.2	20.4						6.9	
Level of Service		C	B	B	C						A	
Approach Delay (s)		21.7			20.3			0.0			6.9	
Approach LOS		C			C			A			A	

Intersection Summary			
HCM Average Control Delay	18.4	HCM Level of Service	B
HCM Volume to Capacity ratio	0.33		
Actuated Cycle Length (s)	70.6	Sum of lost time (s)	8.0
Intersection Capacity Utilization	43.1%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Sign Control	Stop			Stop	Stop	
Volume (vph)	675	0	489	14	0	0
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Hourly flow rate (vph)	711	0	515	15	0	0

Direction, Lane #	EB 1	EB 2	NB 1	NB 2
Volume Total (vph)	355	355	343	186
Volume Left (vph)	355	355	343	172
Volume Right (vph)	0	0	0	0
Hadj (s)	0.53	0.53	0.53	0.49
Departure Headway (s)	6.7	6.7	7.1	7.0
Degree Utilization, x	0.66	0.66	0.67	0.36
Capacity (veh/h)	526	520	495	498
Control Delay (s)	20.8	20.8	22.2	12.8
Approach Delay (s)	20.8		18.8	
Approach LOS	C		C	

Intersection Summary			
Delay	19.9		
HCM Level of Service	C		
Intersection Capacity Utilization	64.8%	ICU Level of Service	C
Analysis Period (min)	15		

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Volume (veh/h)	7	91	1597	17	52	375
Peak Hour Factor	0.89	0.89	0.89	0.89	0.89	0.89
Hourly flow rate (vph)	8	102	1794	19	58	421
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None					
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	2131	907			1813	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	2131	907			1813	
tC, single (s)	6.8	6.9			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	78	63			83	
cM capacity (veh/h)	35	279			335	

Direction, Lane #	WB 1	WB 2	NB 1	NB 2	SB 1	SB 2	SB 3
Volume Total	8	102	1196	617	58	211	211
Volume Left	8	0	0	0	58	0	0
Volume Right	0	102	0	19	0	0	0
cSH	35	279	1700	1700	335	1700	1700
Volume to Capacity	0.22	0.37	0.70	0.36	0.17	0.12	0.12
Queue Length 95th (ft)	18	41	0	0	16	0	0
Control Delay (s)	135.4	25.2	0.0	0.0	18.0	0.0	0.0
Lane LOS	F	D			C		
Approach Delay (s)	33.1		0.0		2.2		
Approach LOS	D						

Intersection Summary			
Average Delay	2.0		
Intersection Capacity Utilization	57.0%	ICU Level of Service	B
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	1.00	1.00		0.97	0.95	1.00	1.00	0.95	1.00	0.97	0.95	1.00
Frt	1.00	0.94		1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1770	1758		3433	3539	1583	1770	3539	1583	3433	3539	1583
Flt Permitted	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	1770	1758		3433	3539	1583	1770	3539	1583	3433	3539	1583
Volume (vph)	2	5	3	590	14	431	21	1158	398	65	313	2
Peak-hour factor, PHF	0.92	0.92	0.92	0.25	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	2	5	3	2360	15	468	23	1259	433	71	340	2
RTOR Reduction (vph)	0	3	0	0	0	360	0	0	274	0	0	1
Lane Group Flow (vph)	2	5	0	2360	15	108	23	1259	159	71	340	1
Turn Type	Prot			Prot		Perm	Prot		Perm	Prot		Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases						8			2			6
Actuated Green, G (s)	0.9	2.0		18.7	20.8	20.8	30.7	27.0	27.0	30.7	27.0	27.0
Effective Green, g (s)	0.9	3.0		21.0	23.1	23.1	30.7	29.3	29.3	30.7	29.3	29.3
Actuated g/C Ratio	0.01	0.03		0.21	0.23	0.23	0.31	0.29	0.29	0.31	0.29	0.29
Clearance Time (s)	4.0	5.0		6.3	6.3	6.3	4.0	6.3	6.3	4.0	6.3	6.3
Vehicle Extension (s)	1.5	3.0		3.0	2.0	2.0	1.5	2.0	2.0	2.0	3.0	3.0
Lane Grp Cap (vph)	16	53		721	818	366	543	1037	464	1054	1037	464
v/s Ratio Prot	0.00	0.00		c0.69	0.00		0.01	c0.36		c0.02	0.10	
v/s Ratio Perm						c0.07			0.10			0.00
v/c Ratio	0.12	0.10		3.27	0.02	0.30	0.04	1.21	0.34	0.07	0.33	0.00
Uniform Delay, d1	49.2	47.2		39.5	29.7	31.7	24.3	35.4	27.8	24.5	27.6	25.0
Progression Factor	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	1.3	0.8		1026.5	0.0	0.2	0.1	105.3	2.0	0.1	0.8	0.0
Delay (s)	50.4	48.0		1066.0	29.7	31.9	24.5	140.7	29.8	24.6	28.5	25.0
Level of Service	D	D		F	C	C	C	F	C	C	C	C
Approach Delay (s)		48.5			890.3			111.1			27.8	
Approach LOS		D			F			F			C	

Intersection Summary			
HCM Average Control Delay	548.8	HCM Level of Service	F
HCM Volume to Capacity ratio	1.23		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	72.0%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	
Lane Util. Factor	1.00	0.95		1.00	0.95	1.00	1.00	0.95	1.00	0.97	0.95	
Frt	1.00	0.97		1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.99	
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1770	3446		1770	3539	1583	1770	3539	1583	3433	3500	
Flt Permitted	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (perm)	1770	3446		1770	3539	1583	1770	3539	1583	3433	3500	
Volume (vph)	26	360	77	96	717	280	188	1328	185	101	271	22
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	27	379	81	101	755	295	198	1398	195	106	285	23
RTOR Reduction (vph)	0	15	0	0	0	213	0	0	72	0	5	0
Lane Group Flow (vph)	27	445	0	101	755	82	198	1398	123	106	303	0
Turn Type	Prot			Prot		Perm	Prot		Perm	Prot		
Protected Phases	5	2		1	6		7	4		3	8	
Permitted Phases						6			4			
Actuated Green, G (s)	3.7	26.0		9.4	31.9	31.9	12.4	58.1	58.1	7.5	53.2	
Effective Green, g (s)	3.7	27.3		9.6	33.2	33.2	12.4	59.4	59.4	7.7	54.7	
Actuated g/C Ratio	0.03	0.23		0.08	0.28	0.28	0.10	0.49	0.49	0.06	0.46	
Clearance Time (s)	4.0	5.3		4.2	5.3	5.3	4.0	5.3	5.3	4.2	5.5	
Vehicle Extension (s)	1.5	2.0		1.5	2.0	2.0	1.5	2.0	2.0	1.5	2.0	
Lane Grp Cap (vph)	55	784		142	979	438	183	1752	784	220	1595	
v/s Ratio Prot	0.02	0.13		c0.06	c0.21		c0.11	c0.40		0.03	0.09	
v/s Ratio Perm						0.05			0.08			
v/c Ratio	0.49	0.57		0.71	0.77	0.19	1.08	0.80	0.16	0.48	0.19	
Uniform Delay, d1	57.2	41.1		53.8	39.9	33.1	53.8	25.3	16.6	54.2	19.5	
Progression Factor	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	2.5	3.0		13.1	5.9	0.9	90.1	2.4	0.0	0.6	0.0	
Delay (s)	59.7	44.1		66.9	45.8	34.0	143.9	27.7	16.6	54.8	19.5	
Level of Service	E	D		E	D	C	F	C	B	D	B	
Approach Delay (s)		44.9			44.6			39.4			28.5	
Approach LOS		D			D			D			C	

Intersection Summary			
HCM Average Control Delay	40.5	HCM Level of Service	D
HCM Volume to Capacity ratio	0.79		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	76.5%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0	4.0	4.0	4.0					4.0	4.0	4.0
Lane Util. Factor		0.95	1.00	0.97	0.95					0.95	0.91	0.95
Frt		1.00	0.85	1.00	1.00					1.00	0.89	0.85
Flt Protected		1.00	1.00	0.95	1.00					0.95	0.99	1.00
Satd. Flow (prot)		3539	1583	3433	3539					1681	1490	1504
Flt Permitted		1.00	1.00	0.95	1.00					0.95	0.99	1.00
Satd. Flow (perm)		3539	1583	3433	3539					1681	1490	1504
Volume (vph)	0	946	309	106	287	0	0	0	0	29	1	48
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	0	1051	343	118	319	0	0	0	0	32	1	53
RTOR Reduction (vph)	0	0	206	0	0	0	0	0	0	0	13	22
Lane Group Flow (vph)	0	1051	137	118	319	0	0	0	0	26	14	11
Turn Type			Perm	Prot						Perm		Perm
Protected Phases		4		3	8						6	
Permitted Phases			4							6		6
Actuated Green, G (s)		29.1	29.1	6.3	39.4					25.2	25.2	25.2
Effective Green, g (s)		29.1	29.1	6.3	39.4					25.2	25.2	25.2
Actuated g/C Ratio		0.40	0.40	0.09	0.54					0.35	0.35	0.35
Clearance Time (s)		4.0	4.0	4.0	4.0					4.0	4.0	4.0
Vehicle Extension (s)		3.0	3.0	3.0	3.0					3.0	3.0	3.0
Lane Grp Cap (vph)		1419	635	298	1921					583	517	522
v/s Ratio Prot		c0.30		c0.03	0.09							
v/s Ratio Perm			0.09							c0.02	0.01	0.01
v/c Ratio		0.74	0.22	0.40	0.17					0.04	0.03	0.02
Uniform Delay, d1		18.5	14.3	31.4	8.3					15.7	15.6	15.6
Progression Factor		1.00	1.00	1.00	1.00					1.00	1.00	1.00
Incremental Delay, d2		2.1	0.2	0.9	0.0					0.1	0.1	0.1
Delay (s)		20.7	14.4	32.2	8.4					15.9	15.7	15.7
Level of Service		C	B	C	A					B	B	B
Approach Delay (s)		19.1			14.8			0.0			15.7	
Approach LOS		B			B			A			B	

Intersection Summary			
HCM Average Control Delay	18.0	HCM Level of Service	B
HCM Volume to Capacity ratio	0.42		
Actuated Cycle Length (s)	72.6	Sum of lost time (s)	12.0
Intersection Capacity Utilization	56.9%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0			4.0	4.0	4.0
Lane Util. Factor	0.95			0.95	0.97	1.00
Frt	1.00			1.00	1.00	0.85
Flt Protected	1.00			1.00	0.95	1.00
Satd. Flow (prot)	3539			3539	3433	1583
Flt Permitted	1.00			1.00	0.95	1.00
Satd. Flow (perm)	3539			3539	3433	1583
Volume (vph)	976	0	0	211	180	376
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	1061	0	0	229	196	409
RTOR Reduction (vph)	0	0	0	0	0	28
Lane Group Flow (vph)	1061	0	0	229	196	381
Turn Type						Perm
Protected Phases	4			8	2	
Permitted Phases						2
Actuated Green, G (s)	31.0			31.0	43.3	43.3
Effective Green, g (s)	31.0			31.0	43.3	43.3
Actuated g/C Ratio	0.38			0.38	0.53	0.53
Clearance Time (s)	4.0			4.0	4.0	4.0
Vehicle Extension (s)	3.0			3.0	3.0	3.0
Lane Grp Cap (vph)	1333			1333	1806	833
v/s Ratio Prot	c0.30			0.06	0.06	
v/s Ratio Perm						c0.24
v/c Ratio	0.80			0.17	0.11	0.46
Uniform Delay, d1	22.8			17.1	9.8	12.2
Progression Factor	1.00			1.00	1.00	1.00
Incremental Delay, d2	3.4			0.1	0.1	1.8
Delay (s)	26.2			17.2	9.9	14.0
Level of Service	C			B	A	B
Approach Delay (s)	26.2			17.2	12.7	
Approach LOS	C			B	B	

Intersection Summary			
HCM Average Control Delay	20.8	HCM Level of Service	C
HCM Volume to Capacity ratio	0.60		
Actuated Cycle Length (s)	82.3	Sum of lost time (s)	8.0
Intersection Capacity Utilization	56.9%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Volume (veh/h)	0	0	0	3	14	16	585	771	3	0	208	31
Peak Hour Factor	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85
Hourly flow rate (vph)	0	0	0	4	16	19	688	907	4	0	245	36
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	2120	2550	263	2530	2566	455	281			911		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	2120	2550	263	2530	2566	455	281			911		
tC, single (s)	7.5	6.5	6.9	7.5	6.5	6.9	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	0	100	100	55	0	97	46			100		
cM capacity (veh/h)	0	12	736	8	12	552	1278			744		

Direction, Lane #	WB 1	NB 1	NB 2	NB 3	SB 1	SB 2
Volume Total	39	688	605	306	0	281
Volume Left	4	688	0	0	0	0
Volume Right	19	0	0	4	0	36
cSH	21	1278	1700	1700	1700	1700
Volume to Capacity	1.87	0.54	0.36	0.18	0.00	0.17
Queue Length 95th (ft)	128	84	0	0	0	0
Control Delay (s)	802.0	11.1	0.0	0.0	0.0	0.0
Lane LOS	F	B				
Approach Delay (s)	802.0	4.8			0.0	
Approach LOS	F					

Intersection Summary				
Average Delay	20.2			
Intersection Capacity Utilization	58.6%	ICU Level of Service	B	
Analysis Period (min)	15			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	0.95		1.00	0.95	
Frt	1.00	0.96		1.00	0.95		1.00	0.96		1.00	0.98	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1770	3397		1770	3367		1770	3386		1770	3467	
Flt Permitted	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (perm)	1770	3397		1770	3367		1770	3386		1770	3467	
Volume (vph)	73	384	140	202	384	184	125	370	150	196	367	58
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	76	400	146	210	400	192	130	385	156	204	382	60
RTOR Reduction (vph)	0	37	0	0	50	0	0	42	0	0	12	0
Lane Group Flow (vph)	76	509	0	210	542	0	130	499	0	204	430	0
Turn Type	Prot			Prot			Prot			Prot		
Protected Phases	5	2		1	6		7	4		3	8	
Permitted Phases												
Actuated Green, G (s)	7.1	35.9		15.0	43.7		10.9	17.3		13.5	19.0	
Effective Green, g (s)	7.3	37.0		15.0	44.7		11.9	18.3		13.7	20.1	
Actuated g/C Ratio	0.07	0.37		0.15	0.45		0.12	0.18		0.14	0.20	
Clearance Time (s)	4.2	5.1		4.0	5.0		5.0	5.0		4.2	5.1	
Vehicle Extension (s)	1.5	2.0		1.5	2.0		1.5	2.0		1.5	2.0	
Lane Grp Cap (vph)	129	1257		266	1505		211	620		242	697	
v/s Ratio Prot	0.04	c0.15		c0.12	0.16		0.07	c0.15		c0.12	0.12	
v/s Ratio Perm												
v/c Ratio	0.59	0.40		0.79	0.36		0.62	0.80		0.84	0.62	
Uniform Delay, d1	44.9	23.3		41.0	18.2		41.9	39.1		42.1	36.4	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	4.4	1.0		13.3	0.7		3.7	10.6		21.7	4.1	
Delay (s)	49.3	24.3		54.3	18.9		45.6	49.8		63.8	40.5	
Level of Service	D	C		D	B		D	D		E	D	
Approach Delay (s)		27.4			28.2			49.0			47.9	
Approach LOS		C			C			D			D	

Intersection Summary			
HCM Average Control Delay	37.7	HCM Level of Service	D
HCM Volume to Capacity ratio	0.63		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	16.0
Intersection Capacity Utilization	66.8%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.94	
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1770	3539	1583	1770	3539	1583	1770	3539	1583	1770	3337	
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (perm)	1770	3539	1583	1770	3539	1583	1770	3539	1583	1770	3337	
Volume (vph)	287	765	100	72	588	199	118	353	112	294	367	225
Peak-hour factor, PHF	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Adj. Flow (vph)	315	841	110	79	646	219	130	388	123	323	403	247
RTOR Reduction (vph)	0	0	61	0	0	117	0	0	79	0	76	0
Lane Group Flow (vph)	315	841	49	79	646	102	130	388	44	323	574	0
Turn Type	Prot		Perm	Prot		Perm	Prot		Perm	Prot		
Protected Phases	5	2		1	6		7	4		3	8	
Permitted Phases			2			6			4			
Actuated Green, G (s)	25.6	54.7	54.7	8.3	37.4	37.4	12.7	18.6	18.6	24.1	30.0	
Effective Green, g (s)	25.6	55.7	55.7	8.3	38.4	38.4	12.7	19.9	19.9	24.1	31.3	
Actuated g/C Ratio	0.21	0.45	0.45	0.07	0.31	0.31	0.10	0.16	0.16	0.19	0.25	
Clearance Time (s)	4.0	5.0	5.0	4.0	5.0	5.0	4.0	5.3	5.3	4.0	5.3	
Vehicle Extension (s)	1.5	2.0	2.0	1.5	2.0	2.0	1.5	2.0	2.0	1.5	2.0	
Lane Grp Cap (vph)	365	1590	711	118	1096	490	181	568	254	344	842	
v/s Ratio Prot	c0.18	0.24		0.04	c0.18		0.07	0.11		c0.18	c0.17	
v/s Ratio Perm			0.03			0.06			0.03			
v/c Ratio	0.86	0.53	0.07	0.67	0.59	0.21	0.72	0.68	0.17	0.94	0.68	
Uniform Delay, d1	47.5	24.7	19.4	56.5	36.1	31.6	53.9	49.1	44.9	49.2	41.9	
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	18.0	1.3	0.2	10.6	2.3	1.0	10.7	2.7	0.1	32.3	1.8	
Delay (s)	65.5	25.9	19.6	67.1	38.5	32.6	64.7	51.8	45.1	81.5	43.7	
Level of Service	E	C	B	E	D	C	E	D	D	F	D	
Approach Delay (s)		35.2			39.5			53.1			56.3	
Approach LOS		D			D			D			E	

Intersection Summary			
HCM Average Control Delay	44.6	HCM Level of Service	D
HCM Volume to Capacity ratio	0.74		
Actuated Cycle Length (s)	124.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	71.5%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0			4.0	4.0	4.0	4.0	
Lane Util. Factor	1.00	0.95		1.00	0.95			1.00	1.00	1.00	1.00	
Frt	1.00	0.99		1.00	0.98			1.00	0.85	1.00	0.87	
Flt Protected	0.95	1.00		0.95	1.00			0.97	1.00	0.95	1.00	
Satd. Flow (prot)	1770	3516		1770	3451			1799	1583	1770	1621	
Flt Permitted	0.95	1.00		0.95	1.00			0.80	1.00	0.73	1.00	
Satd. Flow (perm)	1770	3516		1770	3451			1491	1583	1356	1621	
Volume (vph)	95	1091	49	52	867	172	30	12	15	82	8	48
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	100	1148	52	55	913	181	32	13	16	86	8	51
RTOR Reduction (vph)	0	2	0	0	9	0	0	0	13	0	43	0
Lane Group Flow (vph)	100	1198	0	55	1086	0	0	45	3	86	16	0
Turn Type	Prot			Prot			Perm		Perm	Perm		
Protected Phases	5	2		1	6			4			8	
Permitted Phases							4		4	8		
Actuated Green, G (s)	10.8	85.5		6.8	81.5			19.7	19.7	19.7	19.7	
Effective Green, g (s)	10.8	86.5		6.8	82.5			19.7	19.7	19.7	19.7	
Actuated g/C Ratio	0.09	0.69		0.05	0.66			0.16	0.16	0.16	0.16	
Clearance Time (s)	4.0	5.0		4.0	5.0			4.0	4.0	4.0	4.0	
Vehicle Extension (s)	1.5	1.5		1.5	2.0			2.5	2.5	2.5	2.5	
Lane Grp Cap (vph)	153	2433		96	2278			235	249	214	255	
v/s Ratio Prot	c0.06	c0.34		0.03	0.31						0.01	
v/s Ratio Perm								0.03	0.00	c0.06		
v/c Ratio	0.65	0.49		0.57	0.48			0.19	0.01	0.40	0.06	
Uniform Delay, d1	55.3	9.0		57.7	10.5			45.7	44.4	47.4	44.8	
Progression Factor	1.00	1.00		1.00	1.00			1.00	1.00	1.00	1.00	
Incremental Delay, d2	7.4	0.7		5.0	0.7			0.3	0.0	0.9	0.1	
Delay (s)	62.7	9.7		62.7	11.3			46.0	44.4	48.3	44.9	
Level of Service	E	A		E	B			D	D	D	D	
Approach Delay (s)		13.8			13.7			45.6			46.9	
Approach LOS		B			B			D			D	

Intersection Summary			
HCM Average Control Delay	16.3	HCM Level of Service	B
HCM Volume to Capacity ratio	0.50		
Actuated Cycle Length (s)	125.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	56.3%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0	4.0	4.0	4.0					4.0	4.0	4.0
Lane Util. Factor		0.91	0.91	1.00	0.95					0.95	0.95	1.00
Frt		0.99	0.85	1.00	1.00					1.00	1.00	0.85
Flt Protected		1.00	1.00	0.95	1.00					0.95	0.95	1.00
Satd. Flow (prot)		3351	1441	1770	3539					1681	1681	1583
Flt Permitted		1.00	1.00	0.95	1.00					0.95	0.95	1.00
Satd. Flow (perm)		3351	1441	1770	3539					1681	1681	1583
Volume (vph)	0	633	494	131	783	0	0	0	0	204	0	356
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	0	666	520	138	824	0	0	0	0	215	0	375
RTOR Reduction (vph)	0	6	321	0	0	0	0	0	0	0	0	112
Lane Group Flow (vph)	0	716	143	138	824	0	0	0	0	108	107	263
Turn Type			Perm	Prot						Perm		Perm
Protected Phases		4		3	8						6	
Permitted Phases			4							6		6
Actuated Green, G (s)		23.6	23.6	9.4	37.0					31.5	31.5	31.5
Effective Green, g (s)		23.6	23.6	9.4	37.0					31.5	31.5	31.5
Actuated g/C Ratio		0.31	0.31	0.12	0.48					0.41	0.41	0.41
Clearance Time (s)		4.0	4.0	4.0	4.0					4.0	4.0	4.0
Vehicle Extension (s)		3.0	3.0	3.0	3.0					3.0	3.0	3.0
Lane Grp Cap (vph)		1034	445	217	1712					692	692	652
v/s Ratio Prot		c0.21		c0.08	0.23							
v/s Ratio Perm			0.10							0.06	0.06	c0.17
v/c Ratio		0.69	0.32	0.64	0.48					0.16	0.15	0.40
Uniform Delay, d1		23.3	20.3	31.9	13.3					14.1	14.1	15.9
Progression Factor		1.00	1.00	1.00	1.00					1.00	1.00	1.00
Incremental Delay, d2		2.0	0.4	6.0	0.2					0.5	0.5	1.8
Delay (s)		25.3	20.7	37.9	13.5					14.6	14.6	17.7
Level of Service		C	C	D	B					B	B	B
Approach Delay (s)		23.5			17.0			0.0			16.6	
Approach LOS		C			B			A			B	

Intersection Summary			
HCM Average Control Delay	19.7	HCM Level of Service	B
HCM Volume to Capacity ratio	0.54		
Actuated Cycle Length (s)	76.5	Sum of lost time (s)	12.0
Intersection Capacity Utilization	51.5%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0		4.0	4.0
Lane Util. Factor	1.00	0.95	0.95		0.97	1.00
Frt	1.00	1.00	0.97		1.00	0.85
Flt Protected	0.95	1.00	1.00		0.95	1.00
Satd. Flow (prot)	1770	3539	3421		3433	1583
Flt Permitted	0.95	1.00	1.00		0.95	1.00
Satd. Flow (perm)	1770	3539	3421		3433	1583
Volume (vph)	252	620	539	154	139	379
Peak-hour factor, PHF	0.91	0.91	0.91	0.91	0.91	0.91
Adj. Flow (vph)	277	681	592	169	153	416
RTOR Reduction (vph)	0	0	27	0	0	264
Lane Group Flow (vph)	277	681	734	0	153	152
Turn Type	Prot					Perm
Protected Phases	7	4	8		6	
Permitted Phases						6
Actuated Green, G (s)	17.8	45.0	23.2		30.6	30.6
Effective Green, g (s)	17.8	45.0	23.2		30.6	30.6
Actuated g/C Ratio	0.21	0.54	0.28		0.37	0.37
Clearance Time (s)	4.0	4.0	4.0		4.0	4.0
Vehicle Extension (s)	3.0	3.0	3.0		3.0	3.0
Lane Grp Cap (vph)	377	1905	949		1257	579
v/s Ratio Prot	c0.16	0.19	c0.21		0.04	
v/s Ratio Perm						c0.10
v/c Ratio	0.73	0.36	0.77		0.12	0.26
Uniform Delay, d1	30.7	11.0	27.8		17.6	18.6
Progression Factor	1.00	1.00	1.00		1.00	1.00
Incremental Delay, d2	7.3	0.1	4.0		0.2	1.1
Delay (s)	38.0	11.2	31.7		17.8	19.7
Level of Service	D	B	C		B	B
Approach Delay (s)		18.9	31.7		19.2	
Approach LOS		B	C		B	

Intersection Summary			
HCM Average Control Delay	23.2	HCM Level of Service	C
HCM Volume to Capacity ratio	0.55		
Actuated Cycle Length (s)	83.6	Sum of lost time (s)	12.0
Intersection Capacity Utilization	50.0%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	0.95		1.00	0.95	
Frt	1.00	0.96		1.00	0.94		1.00	0.96		1.00	0.99	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1770	3410		1770	3334		1770	3381		1770	3494	
Flt Permitted	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (perm)	1770	3410		1770	3334		1770	3381		1770	3494	
Volume (vph)	86	742	238	295	419	263	148	441	187	389	788	74
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	93	807	259	321	455	286	161	479	203	423	857	80
RTOR Reduction (vph)	0	31	0	0	88	0	0	47	0	0	6	0
Lane Group Flow (vph)	93	1035	0	321	653	0	161	635	0	423	931	0
Turn Type	Prot			Prot			Prot			Prot		
Protected Phases	5	2		1	6		7	4		3	8	
Permitted Phases												
Actuated Green, G (s)	8.0	35.9		15.0	42.8		12.1	15.9		14.9	17.8	
Effective Green, g (s)	8.2	37.0		15.0	43.8		13.1	16.9		15.1	18.9	
Actuated g/C Ratio	0.08	0.37		0.15	0.44		0.13	0.17		0.15	0.19	
Clearance Time (s)	4.2	5.1		4.0	5.0		5.0	5.0		4.2	5.1	
Vehicle Extension (s)	1.5	2.0		1.5	2.0		1.5	2.0		1.5	2.0	
Lane Grp Cap (vph)	145	1262		266	1460		232	571		267	660	
v/s Ratio Prot	0.05	c0.30		c0.18	0.20		0.09	0.19		c0.24	c0.27	
v/s Ratio Perm												
v/c Ratio	0.64	0.82		1.21	0.45		0.69	1.11		1.58	1.41	
Uniform Delay, d1	44.5	28.5		42.5	19.6		41.5	41.5		42.5	40.5	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	7.1	6.1		122.9	1.0		7.1	72.6		280.1	193.4	
Delay (s)	51.5	34.5		165.4	20.6		48.6	114.1		322.5	233.9	
Level of Service	D	C		F	C		D	F		F	F	
Approach Delay (s)		35.9			64.4			101.6			261.5	
Approach LOS		D			E			F			F	

Intersection Summary			
HCM Average Control Delay	124.6	HCM Level of Service	F
HCM Volume to Capacity ratio	1.12		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	97.5%	ICU Level of Service	F
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0		4.0	4.0	4.0	4.0	4.0	
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95		1.00	0.95	1.00	1.00	0.95	
Frt	1.00	1.00	0.85	1.00	0.96		1.00	1.00	0.85	1.00	0.97	
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1770	3539	1583	1770	3398		1770	3539	1583	1770	3446	
Flt Permitted	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00	0.34	1.00	
Satd. Flow (perm)	1770	3539	1583	1770	3398		1770	3539	1583	625	3446	
Volume (vph)	350	584	422	248	441	160	435	816	307	244	1015	217
Peak-hour factor, PHF	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Adj. Flow (vph)	361	602	435	256	455	165	448	841	316	252	1046	224
RTOR Reduction (vph)	0	0	223	0	37	0	0	0	155	0	18	0
Lane Group Flow (vph)	361	602	212	256	583	0	448	841	161	252	1252	0
Turn Type	Prot		Perm	Prot			Prot		Perm	Perm		
Protected Phases	7	4		3	8		5	2			6	
Permitted Phases			4						2	6		
Actuated Green, G (s)	21.0	21.1	21.1	15.9	16.0		14.0	51.0	51.0	33.0	33.0	
Effective Green, g (s)	21.0	21.1	21.1	15.9	16.0		14.0	51.0	51.0	33.0	33.0	
Actuated g/C Ratio	0.21	0.21	0.21	0.16	0.16		0.14	0.51	0.51	0.33	0.33	
Clearance Time (s)	4.0	4.0	4.0	4.0	4.0		4.0	4.0	4.0	4.0	4.0	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	372	747	334	281	544		248	1805	807	206	1137	
v/s Ratio Prot	c0.20	0.17		0.14	c0.17		c0.25	0.24			0.36	
v/s Ratio Perm			0.13						0.10	c0.40		
v/c Ratio	0.97	0.81	0.63	0.91	1.07		1.81	0.47	0.20	1.22	1.10	
Uniform Delay, d1	39.2	37.5	35.9	41.4	42.0		43.0	15.7	13.4	33.5	33.5	
Progression Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	38.7	6.3	3.9	31.4	59.2		378.5	0.9	0.6	135.9	58.8	
Delay (s)	77.9	43.8	39.8	72.8	101.2		421.5	16.6	13.9	169.4	92.3	
Level of Service	E	D	D	E	F		F	B	B	F	F	
Approach Delay (s)		51.4			92.9			129.1			105.1	
Approach LOS		D			F			F			F	

Intersection Summary			
HCM Average Control Delay	96.3	HCM Level of Service	F
HCM Volume to Capacity ratio	1.23		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	16.0
Intersection Capacity Utilization	109.1%	ICU Level of Service	H
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0		4.0	4.0			4.0	
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	1.00			1.00	
Frt	1.00	0.99		1.00	0.99		1.00	0.90			0.96	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00			0.98	
Satd. Flow (prot)	1770	3487		1770	3504		1770	1668			1739	
Flt Permitted	0.95	1.00		0.95	1.00		0.64	1.00			0.83	
Satd. Flow (perm)	1770	3487		1770	3504		1186	1668			1478	
Volume (vph)	60	815	89	45	733	52	111	22	51	77	31	52
Peak-hour factor, PHF	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85
Adj. Flow (vph)	71	959	105	53	862	61	131	26	60	91	36	61
RTOR Reduction (vph)	0	9	0	0	5	0	0	36	0	0	15	0
Lane Group Flow (vph)	71	1055	0	53	918	0	131	50	0	0	173	0
Turn Type	Prot			Prot			Perm			Perm		
Protected Phases	7	4		3	8			2			6	
Permitted Phases							2			6		
Actuated Green, G (s)	7.1	30.8		5.0	28.7		31.1	31.1			31.1	
Effective Green, g (s)	7.1	30.8		5.0	28.7		31.1	31.1			31.1	
Actuated g/C Ratio	0.09	0.39		0.06	0.36		0.39	0.39			0.39	
Clearance Time (s)	4.0	4.0		4.0	4.0		4.0	4.0			4.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0			3.0	
Lane Grp Cap (vph)	159	1361		112	1275		467	657			583	
v/s Ratio Prot	c0.04	c0.30		0.03	0.26			0.03				
v/s Ratio Perm							0.11				c0.12	
v/c Ratio	0.45	0.78		0.47	0.72		0.28	0.08			0.30	
Uniform Delay, d1	34.0	21.0		35.7	21.6		16.3	14.9			16.4	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00			1.00	
Incremental Delay, d2	2.0	2.8		3.1	2.0		1.5	0.2			1.3	
Delay (s)	36.0	23.9		38.8	23.6		17.8	15.1			17.7	
Level of Service	D	C		D	C		B	B			B	
Approach Delay (s)		24.6			24.4			16.7			17.7	
Approach LOS		C			C			B			B	

Intersection Summary			
HCM Average Control Delay	23.4	HCM Level of Service	C
HCM Volume to Capacity ratio	0.51		
Actuated Cycle Length (s)	78.9	Sum of lost time (s)	8.0
Intersection Capacity Utilization	54.4%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0		4.0	4.0	4.0	4.0	4.0	
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	1.00	1.00	1.00	1.00	
Frt	1.00	0.95		1.00	0.99		1.00	1.00	0.85	1.00	0.93	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1770	3373		1770	3512		1770	1863	1583	1770	1734	
Flt Permitted	0.95	1.00		0.95	1.00		0.42	1.00	1.00	0.64	1.00	
Satd. Flow (perm)	1770	3373		1770	3512		789	1863	1583	1184	1734	
Volume (vph)	209	497	226	195	390	21	274	149	267	16	172	147
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	227	540	246	212	424	23	298	162	290	17	187	160
RTOR Reduction (vph)	0	56	0	0	4	0	0	0	172	0	28	0
Lane Group Flow (vph)	227	730	0	212	443	0	298	162	118	17	319	0
Turn Type	Prot			Prot			Perm		Perm	Perm		
Protected Phases	7	4		3	8			2			6	
Permitted Phases							2		2	6		
Actuated Green, G (s)	14.3	23.6		15.0	24.3		34.6	34.6	34.6	34.6	34.6	
Effective Green, g (s)	14.3	23.6		15.0	24.3		34.6	34.6	34.6	34.6	34.6	
Actuated g/C Ratio	0.17	0.28		0.18	0.29		0.41	0.41	0.41	0.41	0.41	
Clearance Time (s)	4.0	4.0		4.0	4.0		4.0	4.0	4.0	4.0	4.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	297	934		312	1002		320	757	643	481	704	
v/s Ratio Prot	c0.13	c0.22		0.12	0.13			0.09			0.18	
v/s Ratio Perm							c0.38		0.07	0.01		
v/c Ratio	0.76	0.78		0.68	0.44		0.93	0.21	0.18	0.04	0.45	
Uniform Delay, d1	33.8	28.4		32.9	24.9		24.2	16.5	16.2	15.2	18.4	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	11.1	4.3		5.8	0.3		35.5	0.6	0.6	0.1	2.1	
Delay (s)	44.9	32.7		38.6	25.2		59.7	17.1	16.9	15.4	20.5	
Level of Service	D	C		D	C		E	B	B	B	C	
Approach Delay (s)		35.5			29.5			33.9			20.3	
Approach LOS		D			C			C			C	

Intersection Summary			
HCM Average Control Delay	31.7	HCM Level of Service	C
HCM Volume to Capacity ratio	0.84		
Actuated Cycle Length (s)	85.2	Sum of lost time (s)	12.0
Intersection Capacity Utilization	78.3%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	1.00	0.95		1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	0.94		1.00	0.99		1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1770	3329		1770	1843		1770	1863	1583	1770	1863	1583
Flt Permitted	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	1770	3329		1770	1843		1770	1863	1583	1770	1863	1583
Volume (vph)	21	444	291	48	338	26	212	117	52	46	385	41
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	22	467	306	51	356	27	223	123	55	48	405	43
RTOR Reduction (vph)	0	111	0	0	3	0	0	0	0	0	0	26
Lane Group Flow (vph)	22	662	0	51	380	0	223	123	55	48	405	17
Turn Type	Prot			Prot			Prot		Free	Prot		Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases									Free			6
Actuated Green, G (s)	2.1	21.8		3.7	23.4		15.3	47.2	92.4	3.7	35.6	35.6
Effective Green, g (s)	2.1	21.8		3.7	23.4		15.3	47.2	92.4	3.7	35.6	35.6
Actuated g/C Ratio	0.02	0.24		0.04	0.25		0.17	0.51	1.00	0.04	0.39	0.39
Clearance Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	4.0
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	3.0
Lane Grp Cap (vph)	40	785		71	467		293	952	1583	71	718	610
v/s Ratio Prot	0.01	0.20		c0.03	c0.21		c0.13	0.07		0.03	c0.22	
v/s Ratio Perm									c0.03			0.01
v/c Ratio	0.55	0.84		0.72	0.81		0.76	0.13	0.03	0.68	0.56	0.03
Uniform Delay, d1	44.7	33.7		43.8	32.5		36.8	11.8	0.0	43.8	22.3	17.6
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	15.3	8.2		29.1	10.4		11.1	0.3	0.0	22.5	3.2	0.1
Delay (s)	60.0	41.9		73.0	42.9		47.9	12.1	0.0	66.3	25.5	17.7
Level of Service	E	D		E	D		D	B	A	E	C	B
Approach Delay (s)		42.4			46.4			30.3			28.8	
Approach LOS		D			D			C			C	

Intersection Summary			
HCM Average Control Delay	37.8	HCM Level of Service	D
HCM Volume to Capacity ratio	0.66		
Actuated Cycle Length (s)	92.4	Sum of lost time (s)	12.0
Intersection Capacity Utilization	70.3%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0		4.0	4.0	4.0	4.0	4.0	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00		1.00	0.95	1.00	1.00	0.95	
Frt	1.00	1.00	0.85	1.00	0.98		1.00	1.00	0.85	1.00	0.99	
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1770	1863	1583	1770	1828		1770	3539	1583	1770	3496	
Flt Permitted	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00	0.95	1.00	
Satd. Flow (perm)	1770	1863	1583	1770	1828		1770	3539	1583	1770	3496	
Volume (vph)	155	212	213	128	181	25	183	1168	163	174	1460	129
Peak-hour factor, PHF	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Adj. Flow (vph)	165	226	227	136	193	27	195	1243	173	185	1553	137
RTOR Reduction (vph)	0	0	157	0	4	0	0	0	84	0	6	0
Lane Group Flow (vph)	165	226	70	136	216	0	195	1243	89	185	1684	0
Turn Type	Prot		Perm	Prot			Prot		Perm	Prot		
Protected Phases	5	2		1	6		7	4		3	8	
Permitted Phases			2						4			
Actuated Green, G (s)	13.5	31.8	31.8	11.9	30.2		14.8	30.6	30.6	14.4	30.2	
Effective Green, g (s)	13.5	32.8	32.8	11.9	31.2		14.8	31.6	31.6	14.4	31.2	
Actuated g/C Ratio	0.13	0.31	0.31	0.11	0.29		0.14	0.30	0.30	0.13	0.29	
Clearance Time (s)	4.0	5.0	5.0	4.0	5.0		4.0	5.0	5.0	4.0	5.0	
Vehicle Extension (s)	1.5	2.0	2.0	1.5	2.0		1.5	2.0	2.0	1.5	2.0	
Lane Grp Cap (vph)	224	573	487	197	535		246	1048	469	239	1022	
v/s Ratio Prot	c0.09	c0.12		0.08	0.12		c0.11	0.35		0.10	c0.48	
v/s Ratio Perm			0.04						0.06			
v/c Ratio	0.74	0.39	0.14	0.69	0.40		0.79	1.19	0.19	0.77	1.65	
Uniform Delay, d1	44.9	29.1	26.8	45.6	30.3		44.5	37.5	28.0	44.6	37.8	
Progression Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	10.3	2.0	0.6	8.1	2.3		15.0	93.5	0.9	13.2	296.0	
Delay (s)	55.2	31.2	27.4	53.7	32.5		59.4	131.1	28.9	57.8	333.8	
Level of Service	E	C	C	D	C		E	F	C	E	F	
Approach Delay (s)		36.2			40.6			111.4			306.6	
Approach LOS		D			D			F			F	

Intersection Summary			
HCM Average Control Delay	177.4	HCM Level of Service	F
HCM Volume to Capacity ratio	0.91		
Actuated Cycle Length (s)	106.7	Sum of lost time (s)	12.0
Intersection Capacity Utilization	87.6%	ICU Level of Service	E
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	0.90		1.00	0.93		1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1770	1684		1770	1723		1770	1863	1583	1770	1863	1583
Flt Permitted	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	1770	1684		1770	1723		1770	1863	1583	1770	1863	1583
Volume (vph)	76	101	179	200	126	126	149	520	174	108	550	57
Peak-hour factor, PHF	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Adj. Flow (vph)	84	111	197	220	138	138	164	571	191	119	604	63
RTOR Reduction (vph)	0	66	0	0	37	0	0	0	119	0	0	39
Lane Group Flow (vph)	84	242	0	220	239	0	164	571	72	119	604	24
Turn Type	Prot			Prot			Prot		Perm	Prot		Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases									2			6
Actuated Green, G (s)	7.5	17.4		15.4	25.3		12.0	33.4	33.4	9.2	30.6	30.6
Effective Green, g (s)	7.5	17.4		15.4	25.3		12.0	33.4	33.4	9.2	30.6	30.6
Actuated g/C Ratio	0.08	0.19		0.17	0.28		0.13	0.37	0.37	0.10	0.33	0.33
Clearance Time (s)	4.0	4.0		4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	145	321		298	477		232	681	578	178	624	530
v/s Ratio Prot	0.05	c0.14		c0.12	0.14		c0.09	c0.31		0.07	c0.32	
v/s Ratio Perm									0.05			0.02
v/c Ratio	0.58	0.76		0.74	0.50		0.71	0.84	0.13	0.67	0.97	0.05
Uniform Delay, d1	40.4	35.0		36.1	27.8		38.0	26.5	19.3	39.6	29.9	20.5
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	5.5	9.7		9.2	0.8		9.4	11.8	0.4	9.1	29.0	0.2
Delay (s)	45.9	44.7		45.3	28.6		47.4	38.3	19.7	48.8	58.9	20.7
Level of Service	D	D		D	C		D	D	B	D	E	C
Approach Delay (s)		45.0			36.0			36.1			54.3	
Approach LOS		D			D			D			D	

Intersection Summary			
HCM Average Control Delay	42.9	HCM Level of Service	D
HCM Volume to Capacity ratio	0.87		
Actuated Cycle Length (s)	91.4	Sum of lost time (s)	20.0
Intersection Capacity Utilization	77.9%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Stop			Stop	
Volume (vph)	0	89	258	36	117	0	276	0	19	0	0	0
Peak Hour Factor	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89
Hourly flow rate (vph)	0	100	290	40	131	0	310	0	21	0	0	0

Direction, Lane #	EB 1	WB 1	NB 1
Volume Total (vph)	390	172	331
Volume Left (vph)	0	40	310
Volume Right (vph)	290	0	21
Hadj (s)	-0.41	0.08	0.18
Departure Headway (s)	4.7	5.5	5.5
Degree Utilization, x	0.51	0.26	0.50
Capacity (veh/h)	723	607	616
Control Delay (s)	12.7	10.5	13.9
Approach Delay (s)	12.7	10.5	13.9
Approach LOS	B	B	B

Intersection Summary				
Delay	12.7			
HCM Level of Service	B			
Intersection Capacity Utilization	55.2%	ICU Level of Service	B	
Analysis Period (min)	15			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0		4.0	4.0	
Lane Util. Factor	1.00	0.95		1.00	0.95	1.00	1.00	1.00		1.00	1.00	
Frt	1.00	0.99		1.00	1.00	0.85	1.00	0.94		1.00	0.94	
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1770	3507		1770	3539	1583	1770	1748		1770	1743	
Flt Permitted	0.95	1.00		0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (perm)	1770	3507		1770	3539	1583	1770	1748		1770	1743	
Volume (vph)	94	1390	89	39	891	39	48	72	50	86	144	109
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	102	1511	97	42	968	42	52	78	54	93	157	118
RTOR Reduction (vph)	0	4	0	0	0	23	0	19	0	0	20	0
Lane Group Flow (vph)	102	1604	0	42	968	19	52	113	0	93	255	0
Turn Type	Prot			Prot		Perm	Prot			Prot		
Protected Phases	5	2		1	6		7	4		3	8	
Permitted Phases						6						
Actuated Green, G (s)	10.9	55.0		7.2	51.3	51.3	6.7	34.5		10.3	38.1	
Effective Green, g (s)	10.9	56.0		7.2	52.3	52.3	6.7	35.5		10.3	39.1	
Actuated g/C Ratio	0.09	0.45		0.06	0.42	0.42	0.05	0.28		0.08	0.31	
Clearance Time (s)	4.0	5.0		4.0	5.0	5.0	4.0	5.0		4.0	5.0	
Vehicle Extension (s)	1.5	2.0		1.5	2.0	2.0	1.5	3.0		1.5	3.0	
Lane Grp Cap (vph)	154	1571		102	1481	662	95	496		146	545	
v/s Ratio Prot	0.06	c0.46		0.02	c0.27		0.03	0.06		c0.05	c0.15	
v/s Ratio Perm						0.01						
v/c Ratio	0.66	1.02		0.41	0.65	0.03	0.55	0.23		0.64	0.47	
Uniform Delay, d1	55.3	34.5		56.9	29.1	21.4	57.7	34.3		55.5	34.6	
Progression Factor	1.00	1.00		1.27	1.53	2.21	1.00	1.00		1.00	1.00	
Incremental Delay, d2	8.0	28.2		0.9	2.0	0.1	3.4	1.1		6.5	2.9	
Delay (s)	63.3	62.7		73.4	46.5	47.4	61.1	35.3		62.1	37.4	
Level of Service	E	E		E	D	D	E	D		E	D	
Approach Delay (s)		62.7			47.6			42.6			43.7	
Approach LOS		E			D			D			D	

Intersection Summary			
HCM Average Control Delay	54.7	HCM Level of Service	D
HCM Volume to Capacity ratio	0.77		
Actuated Cycle Length (s)	125.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	75.5%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	
Lane Util. Factor	0.97	0.95	1.00	0.97	0.95	1.00	0.97	0.95	1.00	0.97	0.95	
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.99	
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	3433	3539	1583	3433	3539	1583	3433	3539	1583	3433	3491	
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (perm)	3433	3539	1583	3433	3539	1583	3433	3539	1583	3433	3491	
Volume (vph)	165	954	371	581	550	166	218	462	403	224	1036	104
Peak-hour factor, PHF	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Adj. Flow (vph)	181	1048	408	638	604	182	240	508	443	246	1138	114
RTOR Reduction (vph)	0	0	216	0	0	108	0	0	171	0	6	0
Lane Group Flow (vph)	181	1048	192	638	604	74	240	508	272	246	1246	0
Turn Type	Prot		Perm	Prot		Perm	Prot		Perm	Prot		
Protected Phases	5	2		1	6		7	4		3	8	
Permitted Phases			2			6			4			
Actuated Green, G (s)	9.9	46.5	46.5	13.0	49.6	49.6	12.5	35.2	35.2	12.3	35.0	
Effective Green, g (s)	9.9	47.5	47.5	13.0	50.6	50.6	12.5	36.2	36.2	12.3	36.0	
Actuated g/C Ratio	0.08	0.38	0.38	0.10	0.40	0.40	0.10	0.29	0.29	0.10	0.29	
Clearance Time (s)	4.0	5.0	5.0	4.0	5.0	5.0	4.0	5.0	5.0	4.0	5.0	
Vehicle Extension (s)	1.5	2.0	2.0	1.5	2.0	2.0	1.5	2.0	2.0	1.5	2.0	
Lane Grp Cap (vph)	272	1345	602	357	1433	641	343	1025	458	338	1005	
v/s Ratio Prot	0.05	c0.30		c0.19	0.17		0.07	0.14		0.07	c0.36	
v/s Ratio Perm			0.12			0.05			c0.17			
v/c Ratio	0.67	0.78	0.32	1.79	0.42	0.11	0.70	0.50	0.59	0.73	1.24	
Uniform Delay, d1	55.9	34.1	27.3	56.0	26.7	23.2	54.4	36.8	38.1	54.7	44.5	
Progression Factor	0.85	0.61	1.13	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	1.7	1.6	0.5	365.3	0.9	0.4	5.0	0.1	1.4	6.5	116.6	
Delay (s)	49.4	22.4	31.3	421.3	27.6	23.6	59.4	37.0	39.5	61.2	161.1	
Level of Service	D	C	C	F	C	C	E	D	D	E	F	
Approach Delay (s)		27.6			203.5			42.4			144.7	
Approach LOS		C			F			D			F	

Intersection Summary			
HCM Average Control Delay	104.7	HCM Level of Service	F
HCM Volume to Capacity ratio	1.01		
Actuated Cycle Length (s)	125.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	94.4%	ICU Level of Service	F
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.97	
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1770	3539	1583	1770	3539	1583	1770	3539	1583	1770	3446	
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (perm)	1770	3539	1583	1770	3539	1583	1770	3539	1583	1770	3446	
Volume (vph)	267	1263	112	98	999	203	112	542	106	354	966	205
Peak-hour factor, PHF	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Adj. Flow (vph)	272	1289	114	100	1019	207	114	553	108	361	986	209
RTOR Reduction (vph)	0	0	50	0	0	75	0	0	43	0	12	0
Lane Group Flow (vph)	272	1289	64	100	1019	132	114	553	65	361	1183	0
Turn Type	Prot		Perm	Prot		Perm	Prot		Perm	Prot		
Protected Phases	5	2		1	6		7	4		3	8	
Permitted Phases			2			6			4			
Actuated Green, G (s)	21.7	42.0	42.0	10.7	31.0	31.0	11.6	30.0	30.0	23.0	41.4	
Effective Green, g (s)	21.7	43.0	43.0	10.7	32.0	32.0	11.6	31.3	31.3	23.0	42.7	
Actuated g/C Ratio	0.17	0.35	0.35	0.09	0.26	0.26	0.09	0.25	0.25	0.19	0.34	
Clearance Time (s)	4.0	5.0	5.0	4.0	5.0	5.0	4.0	5.3	5.3	4.0	5.3	
Vehicle Extension (s)	1.5	2.0	2.0	1.5	2.0	2.0	1.5	2.0	2.0	1.5	2.0	
Lane Grp Cap (vph)	310	1227	549	153	913	409	166	893	400	328	1187	
v/s Ratio Prot	c0.15	c0.36		0.06	0.29		0.06	0.16		c0.20	c0.34	
v/s Ratio Perm			0.04			0.08			0.04			
v/c Ratio	0.88	1.05	0.12	0.65	1.12	0.32	0.69	0.62	0.16	1.10	1.00	
Uniform Delay, d1	49.9	40.5	27.6	54.9	46.0	37.2	54.4	41.1	36.1	50.5	40.6	
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	22.6	40.1	0.4	7.4	67.0	2.1	9.0	0.9	0.1	79.5	25.0	
Delay (s)	72.4	80.6	28.0	62.3	113.0	39.3	63.5	42.0	36.2	130.0	65.6	
Level of Service	E	F	C	E	F	D	E	D	D	F	E	
Approach Delay (s)		75.7			97.7			44.3			80.5	
Approach LOS		E			F			D			F	

Intersection Summary			
HCM Average Control Delay	78.0	HCM Level of Service	E
HCM Volume to Capacity ratio	1.03		
Actuated Cycle Length (s)	124.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	95.2%	ICU Level of Service	F
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0			4.0	4.0	4.0	4.0	
Lane Util. Factor	1.00	0.95		1.00	0.95			1.00	1.00	1.00	1.00	
Frt	1.00	1.00		1.00	0.99			1.00	0.85	1.00	0.86	
Flt Protected	0.95	1.00		0.95	1.00			0.97	1.00	0.95	1.00	
Satd. Flow (prot)	1770	3529		1770	3488			1799	1583	1770	1606	
Flt Permitted	0.95	1.00		0.95	1.00			0.83	1.00	0.73	1.00	
Satd. Flow (perm)	1770	3529		1770	3488			1552	1583	1369	1606	
Volume (vph)	51	2447	49	85	1281	136	22	9	14	135	3	32
Peak-hour factor, PHF	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Adj. Flow (vph)	55	2631	53	91	1377	146	24	10	15	145	3	34
RTOR Reduction (vph)	0	1	0	0	4	0	0	0	12	0	28	0
Lane Group Flow (vph)	55	2683	0	91	1519	0	0	34	3	145	9	0
Turn Type	Prot			Prot			Perm		Perm	Perm		
Protected Phases	5	2		1	6			4			8	
Permitted Phases							4		4	8		
Actuated Green, G (s)	6.8	79.7		10.1	83.0			22.2	22.2	22.2	22.2	
Effective Green, g (s)	6.8	80.7		10.1	84.0			22.2	22.2	22.2	22.2	
Actuated g/C Ratio	0.05	0.65		0.08	0.67			0.18	0.18	0.18	0.18	
Clearance Time (s)	4.0	5.0		4.0	5.0			4.0	4.0	4.0	4.0	
Vehicle Extension (s)	1.5	1.5		1.5	2.0			2.5	2.5	2.5	2.5	
Lane Grp Cap (vph)	96	2278		143	2344			276	281	243	285	
v/s Ratio Prot	0.03	c0.76		c0.05	c0.44						0.01	
v/s Ratio Perm								0.02	0.00	c0.11		
v/c Ratio	0.57	1.18		0.64	0.65			0.12	0.01	0.60	0.03	
Uniform Delay, d1	57.7	22.1		55.7	11.9			43.2	42.3	47.3	42.5	
Progression Factor	1.00	1.00		1.00	1.00			1.00	1.00	1.00	1.00	
Incremental Delay, d2	5.0	85.0		6.6	1.4			0.1	0.0	3.3	0.0	
Delay (s)	62.7	107.1		62.3	13.3			43.4	42.4	50.6	42.5	
Level of Service	E	F		E	B			D	D	D	D	
Approach Delay (s)		106.2			16.1			43.1			48.9	
Approach LOS		F			B			D			D	

Intersection Summary			
HCM Average Control Delay	71.5	HCM Level of Service	E
HCM Volume to Capacity ratio	1.05		
Actuated Cycle Length (s)	125.0	Sum of lost time (s)	16.0
Intersection Capacity Utilization	91.4%	ICU Level of Service	F
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0	4.0	4.0	4.0					4.0	4.0	4.0
Lane Util. Factor		0.91	0.91	1.00	0.95					0.95	0.95	1.00
Frt		0.95	0.85	1.00	1.00					1.00	1.00	0.85
Flt Protected		1.00	1.00	0.95	1.00					0.95	1.00	1.00
Satd. Flow (prot)		3207	1441	1770	3539					1681	1770	1583
Flt Permitted		1.00	1.00	0.95	1.00					0.95	1.00	1.00
Satd. Flow (perm)		3207	1441	1770	3539					1681	1770	1583
Volume (vph)	0	1199	1500	348	1296	0	0	0	0	98	212	323
Peak-hour factor, PHF	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Adj. Flow (vph)	0	1318	1648	382	1424	0	0	0	0	108	233	355
RTOR Reduction (vph)	0	52	52	0	0	0	0	0	0	0	0	72
Lane Group Flow (vph)	0	2007	855	382	1424	0	0	0	0	108	233	283
Turn Type			Perm	Prot						Perm		Perm
Protected Phases		4		3	8						6	
Permitted Phases			4							6		6
Actuated Green, G (s)		55.0	55.0	16.0	75.0					17.0	17.0	17.0
Effective Green, g (s)		55.0	55.0	16.0	75.0					17.0	17.0	17.0
Actuated g/C Ratio		0.55	0.55	0.16	0.75					0.17	0.17	0.17
Clearance Time (s)		4.0	4.0	4.0	4.0					4.0	4.0	4.0
Vehicle Extension (s)		3.0	3.0	3.0	3.0					3.0	3.0	3.0
Lane Grp Cap (vph)		1764	793	283	2654					286	301	269
v/s Ratio Prot		c0.63		c0.22	0.40						0.13	
v/s Ratio Perm			0.59							0.06		c0.18
v/c Ratio		1.14	1.08	1.35	0.54					0.38	0.77	1.05
Uniform Delay, d1		22.5	22.5	42.0	5.2					36.8	39.7	41.5
Progression Factor		1.00	1.00	1.00	1.00					1.00	1.00	1.00
Incremental Delay, d2		69.6	55.3	179.0	0.2					3.8	17.5	69.0
Delay (s)		92.1	77.8	221.0	5.4					40.6	57.1	110.5
Level of Service		F	E	F	A					D	E	F
Approach Delay (s)		87.7			51.0			0.0			81.8	
Approach LOS		F			D			A			F	

Intersection Summary			
HCM Average Control Delay	74.8	HCM Level of Service	E
HCM Volume to Capacity ratio	1.16		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	88.6%	ICU Level of Service	E
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0		4.0	4.0
Lane Util. Factor	1.00	0.95	0.95		0.97	1.00
Frt	1.00	1.00	0.97		1.00	0.85
Flt Protected	0.95	1.00	1.00		0.95	1.00
Satd. Flow (prot)	1770	3539	3416		3433	1583
Flt Permitted	0.95	1.00	1.00		0.95	1.00
Satd. Flow (perm)	1770	3539	3416		3433	1583
Volume (vph)	582	720	969	293	157	674
Peak-hour factor, PHF	0.87	0.87	0.87	0.87	0.87	0.87
Adj. Flow (vph)	669	828	1114	337	180	775
RTOR Reduction (vph)	0	0	29	0	0	310
Lane Group Flow (vph)	669	828	1422	0	180	465
Turn Type	Prot					Perm
Protected Phases	7	4	8		6	
Permitted Phases						6
Actuated Green, G (s)	23.0	66.0	39.0		26.0	26.0
Effective Green, g (s)	23.0	66.0	39.0		26.0	26.0
Actuated g/C Ratio	0.23	0.66	0.39		0.26	0.26
Clearance Time (s)	4.0	4.0	4.0		4.0	4.0
Vehicle Extension (s)	3.0	3.0	3.0		3.0	3.0
Lane Grp Cap (vph)	407	2336	1332		893	412
v/s Ratio Prot	c0.38	0.23	c0.42		0.05	
v/s Ratio Perm						c0.29
v/c Ratio	1.64	0.35	1.07		0.20	1.13
Uniform Delay, d1	38.5	7.5	30.5		28.9	37.0
Progression Factor	1.00	1.00	1.00		1.00	1.00
Incremental Delay, d2	300.6	0.1	45.0		0.5	84.2
Delay (s)	339.1	7.6	75.5		29.4	121.2
Level of Service	F	A	E		C	F
Approach Delay (s)		155.8	75.5		103.9	
Approach LOS		F	E		F	

Intersection Summary			
HCM Average Control Delay	113.2	HCM Level of Service	F
HCM Volume to Capacity ratio	1.24		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	84.5%	ICU Level of Service	E
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Volume (veh/h)	194	0	159	0	0	0	129	523	0	0	557	111
Peak Hour Factor	0.78	0.78	0.78	0.78	0.78	0.78	0.78	0.78	0.78	0.78	0.78	0.78
Hourly flow rate (vph)	249	0	204	0	0	0	165	671	0	0	714	142
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (ft)								954			667	
pX, platoon unblocked												
vC, conflicting volume	1787	1787	785	1919	1858	671	856			671		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	1787	1787	785	1919	1858	671	856			671		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	0	100	48	100	100	100	79			100		
cM capacity (veh/h)	53	64	393	21	58	457	784			920		

Direction, Lane #	EB 1	NB 1	SB 1	SB 2
Volume Total	453	836	0	856
Volume Left	249	165	0	0
Volume Right	204	0	0	142
cSH	87	784	1700	1700
Volume to Capacity	5.22	0.21	0.00	0.50
Queue Length 95th (ft)	Err	20	0	0
Control Delay (s)	Err	5.2	0.0	0.0
Lane LOS	F	A		
Approach Delay (s)	Err	5.2	0.0	
Approach LOS	F			

Intersection Summary				
Average Delay	2111.8			
Intersection Capacity Utilization	101.2%	ICU Level of Service	G	
Analysis Period (min)	15			

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Sign Control	Stop		Stop			Stop
Volume (vph)	304	132	59	263	132	132
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	330	143	64	286	143	143

Direction, Lane #	WB 1	NB 1	SB 1
Volume Total (vph)	474	350	287
Volume Left (vph)	330	0	143
Volume Right (vph)	143	286	0
Hadj (s)	-0.01	-0.46	0.13
Departure Headway (s)	5.7	5.4	6.1
Degree Utilization, x	0.74	0.53	0.49
Capacity (veh/h)	604	618	554
Control Delay (s)	23.3	14.4	14.7
Approach Delay (s)	23.3	14.4	14.7
Approach LOS	C	B	B

Intersection Summary			
Delay	18.3		
HCM Level of Service	C		
Intersection Capacity Utilization	68.5%	ICU Level of Service	C
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0			4.0		4.0	4.0		4.0	4.0	
Lane Util. Factor		1.00			1.00		1.00	1.00		1.00	1.00	
Frt		0.95			0.96		1.00	0.99		1.00	0.99	
Flt Protected		0.99			0.98		0.95	1.00		0.95	1.00	
Satd. Flow (prot)		1749			1766		1770	1840		1770	1842	
Flt Permitted		0.85			0.80		0.26	1.00		0.62	1.00	
Satd. Flow (perm)		1510			1437		492	1840		1154	1842	
Volume (vph)	120	150	147	74	82	55	51	188	17	68	473	39
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	130	163	160	80	89	60	55	204	18	74	514	42
RTOR Reduction (vph)	0	49	0	0	32	0	0	8	0	0	7	0
Lane Group Flow (vph)	0	404	0	0	197	0	55	214	0	74	549	0
Turn Type	Perm			Perm			Perm			Perm		
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)		16.0			16.0		16.0	16.0		16.0	16.0	
Effective Green, g (s)		16.0			16.0		16.0	16.0		16.0	16.0	
Actuated g/C Ratio		0.40			0.40		0.40	0.40		0.40	0.40	
Clearance Time (s)		4.0			4.0		4.0	4.0		4.0	4.0	
Lane Grp Cap (vph)		604			575		197	736		462	737	
v/s Ratio Prot								0.12			c0.30	
v/s Ratio Perm		c0.27			0.14		0.11			0.06		
v/c Ratio		0.67			0.34		0.28	0.29		0.16	0.74	
Uniform Delay, d1		9.8			8.3		8.1	8.1		7.7	10.3	
Progression Factor		1.00			1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2		5.8			1.6		3.5	1.0		0.7	6.7	
Delay (s)		15.6			10.0		11.6	9.1		8.4	17.0	
Level of Service		B			A		B	A		A	B	
Approach Delay (s)		15.6			10.0			9.6			16.0	
Approach LOS		B			A			A			B	

Intersection Summary			
HCM Average Control Delay	13.9	HCM Level of Service	B
HCM Volume to Capacity ratio	0.71		
Actuated Cycle Length (s)	40.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	69.5%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	0.85	1.00	1.00	1.00	0.85
Flt Protected	0.95	1.00	0.95	1.00	1.00	1.00
Satd. Flow (prot)	1770	1583	1770	1863	1863	1583
Flt Permitted	0.95	1.00	0.58	1.00	1.00	1.00
Satd. Flow (perm)	1770	1583	1075	1863	1863	1583
Volume (vph)	361	226	422	273	254	491
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	392	246	459	297	276	534
RTOR Reduction (vph)	0	148	0	0	0	320
Lane Group Flow (vph)	392	98	459	297	276	214
Turn Type		Perm	Perm			Perm
Protected Phases	4			2	6	
Permitted Phases		4	2			6
Actuated Green, G (s)	16.0	16.0	16.0	16.0	16.0	16.0
Effective Green, g (s)	16.0	16.0	16.0	16.0	16.0	16.0
Actuated g/C Ratio	0.40	0.40	0.40	0.40	0.40	0.40
Clearance Time (s)	4.0	4.0	4.0	4.0	4.0	4.0
Lane Grp Cap (vph)	708	633	430	745	745	633
v/s Ratio Prot	c0.22			0.16	0.15	
v/s Ratio Perm		0.06	c0.43			0.13
v/c Ratio	0.55	0.16	1.07	0.40	0.37	0.34
Uniform Delay, d1	9.2	7.7	12.0	8.6	8.5	8.3
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	3.1	0.5	62.5	1.6	1.4	1.4
Delay (s)	12.4	8.2	74.5	10.2	9.9	9.8
Level of Service	B	A	E	B	A	A
Approach Delay (s)	10.8			49.2	9.8	
Approach LOS	B			D	A	

Intersection Summary			
HCM Average Control Delay	23.6	HCM Level of Service	C
HCM Volume to Capacity ratio	0.81		
Actuated Cycle Length (s)	40.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	66.7%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Volume (veh/h)	35	336	447	7	7	45
Peak Hour Factor	0.72	0.72	0.72	0.72	0.72	0.72
Hourly flow rate (vph)	49	467	621	10	10	62
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type					None	
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	631				1190	626
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	631				1190	626
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	95				95	87
cM capacity (veh/h)	952				197	484

Direction, Lane #	EB 1	WB 1	SB 1
Volume Total	515	631	72
Volume Left	49	0	10
Volume Right	0	10	62
cSH	952	1700	405
Volume to Capacity	0.05	0.37	0.18
Queue Length 95th (ft)	4	0	16
Control Delay (s)	1.4	0.0	15.8
Lane LOS	A		C
Approach Delay (s)	1.4	0.0	15.8
Approach LOS			C

Intersection Summary			
Average Delay	1.5		
Intersection Capacity Utilization	56.8%	ICU Level of Service	B
Analysis Period (min)	15		

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Volume (veh/h)	17	8	5	342	385	15
Peak Hour Factor	0.70	0.70	0.70	0.70	0.70	0.70
Hourly flow rate (vph)	24	11	7	489	550	21
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None					
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	1064	561	571			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1064	561	571			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	90	98	99			
cM capacity (veh/h)	245	527	1001			

Direction, Lane #	EB 1	NB 1	SB 1
Volume Total	36	496	571
Volume Left	24	7	0
Volume Right	11	0	21
cSH	296	1001	1700
Volume to Capacity	0.12	0.01	0.34
Queue Length 95th (ft)	10	1	0
Control Delay (s)	18.8	0.2	0.0
Lane LOS	C	A	
Approach Delay (s)	18.8	0.2	0.0
Approach LOS	C		

Intersection Summary			
Average Delay	0.7		
Intersection Capacity Utilization	32.0%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	0.97	0.95	1.00	0.97	0.95	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1770	3539	1583	1770	3539	1583	3433	3539	1583	3433	3539	1583
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	1770	3539	1583	1770	3539	1583	3433	3539	1583	3433	3539	1583
Volume (vph)	363	1551	919	295	700	147	162	363	74	440	1282	535
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	378	1616	957	307	729	153	169	378	77	458	1335	557
RTOR Reduction (vph)	0	0	201	0	0	101	0	0	58	0	0	188
Lane Group Flow (vph)	378	1616	756	307	729	52	169	378	19	458	1335	369
Turn Type	Prot		Perm	Prot		Perm	Prot		Perm	Prot		Perm
Protected Phases	5	2		1	6		7	4		3	8	
Permitted Phases			2			6			4			8
Actuated Green, G (s)	21.0	41.6	41.6	21.7	42.5	42.5	10.1	30.8	30.8	16.3	36.8	36.8
Effective Green, g (s)	21.2	43.3	43.3	22.1	44.2	44.2	10.3	32.1	32.1	16.5	38.3	38.3
Actuated g/C Ratio	0.16	0.33	0.33	0.17	0.34	0.34	0.08	0.25	0.25	0.13	0.29	0.29
Clearance Time (s)	4.2	5.7	5.7	4.4	5.7	5.7	4.2	5.3	5.3	4.2	5.5	5.5
Vehicle Extension (s)	1.5	2.0	2.0	1.5	2.0	2.0	1.5	2.0	2.0	1.5	2.0	2.0
Lane Grp Cap (vph)	289	1179	527	301	1203	538	272	874	391	436	1043	466
v/s Ratio Prot	0.21	0.46		c0.17	0.21		0.05	0.11		c0.13	c0.38	
v/s Ratio Perm			c0.48			0.03			0.01			0.23
v/c Ratio	1.31	1.37	1.43	1.02	0.61	0.10	0.62	0.43	0.05	1.05	1.28	0.79
Uniform Delay, d1	54.4	43.4	43.4	54.0	35.7	29.3	58.0	41.3	37.3	56.8	45.9	42.2
Progression Factor	1.00	1.00	1.00	0.74	1.00	2.15	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	161.3	172.3	205.9	53.9	2.0	0.3	3.2	1.6	0.2	57.0	133.4	12.9
Delay (s)	215.7	215.6	249.2	93.7	37.6	63.4	61.1	42.8	37.5	113.7	179.3	55.0
Level of Service	F	F	F	F	D	E	E	D	D	F	F	E
Approach Delay (s)		226.5			55.4			47.1			137.1	
Approach LOS		F			E			D			F	

Intersection Summary			
HCM Average Control Delay	152.6	HCM Level of Service	F
HCM Volume to Capacity ratio	1.24		
Actuated Cycle Length (s)	130.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	118.7%	ICU Level of Service	H
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	1.00	0.95	0.95	1.00	0.97	0.91
Frt	1.00	1.00	1.00	0.85	1.00	0.85
Flt Protected	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (prot)	1770	3539	3539	1583	3433	1441
Flt Permitted	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (perm)	1770	3539	3539	1583	3433	1441
Volume (vph)	207	1891	901	656	1220	334
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	218	1991	948	691	1284	352
RTOR Reduction (vph)	0	0	0	289	0	155
Lane Group Flow (vph)	218	1991	948	402	1284	197
Turn Type	Prot			Perm		Perm
Protected Phases	5	2	6		4	
Permitted Phases				6		4
Actuated Green, G (s)	7.0	83.0	72.0	72.0	35.0	35.0
Effective Green, g (s)	7.0	85.0	74.0	74.0	37.0	37.0
Actuated g/C Ratio	0.05	0.65	0.57	0.57	0.28	0.28
Clearance Time (s)	4.0	6.0	6.0	6.0	6.0	6.0
Vehicle Extension (s)	1.5	2.0	2.0	2.0	2.0	2.0
Lane Grp Cap (vph)	95	2314	2015	901	977	410
v/s Ratio Prot	c0.12	c0.56	0.27		c0.37	
v/s Ratio Perm				0.25		0.14
v/c Ratio	2.29	0.86	0.47	0.45	1.31	0.48
Uniform Delay, d1	61.5	17.8	16.5	16.2	46.5	38.6
Progression Factor	0.68	2.13	1.43	8.85	1.00	1.00
Incremental Delay, d2	585.6	0.4	0.5	1.0	148.7	0.3
Delay (s)	627.5	38.4	24.1	144.1	195.2	38.9
Level of Service	F	D	C	F	F	D
Approach Delay (s)		96.5	74.7		161.6	
Approach LOS		F	E		F	

Intersection Summary			
HCM Average Control Delay	109.4	HCM Level of Service	F
HCM Volume to Capacity ratio	1.07		
Actuated Cycle Length (s)	130.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	97.2%	ICU Level of Service	F
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0	4.0		4.0			4.0	4.0
Lane Util. Factor	1.00	0.95		1.00	0.95	1.00		1.00			1.00	1.00
Frt	1.00	1.00		1.00	1.00	0.85		0.86			1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00	1.00		1.00			0.95	1.00
Satd. Flow (prot)	1770	3539		1770	3539	1583		1611			1770	1583
Flt Permitted	0.95	1.00		0.95	1.00	1.00		1.00			0.76	1.00
Satd. Flow (perm)	1770	3539		1770	3539	1583		1611			1410	1583
Volume (vph)	74	2747	0	12	1367	65	0	0	1	293	0	378
Peak-hour factor, PHF	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89
Adj. Flow (vph)	83	3087	0	13	1536	73	0	0	1	329	0	425
RTOR Reduction (vph)	0	0	0	0	0	16	0	1	0	0	0	126
Lane Group Flow (vph)	83	3087	0	13	1536	57	0	0	0	0	329	299
Turn Type	Prot			Prot		Perm	Perm			Perm		Perm
Protected Phases	5	2		1	6			4			8	
Permitted Phases						6	4			8		8
Actuated Green, G (s)	9.8	87.5		2.5	80.2	80.2		25.0			25.0	25.0
Effective Green, g (s)	9.8	89.5		2.5	82.2	82.2		26.0			26.0	26.0
Actuated g/C Ratio	0.08	0.69		0.02	0.63	0.63		0.20			0.20	0.20
Clearance Time (s)	4.0	6.0		4.0	6.0	6.0		5.0			5.0	5.0
Vehicle Extension (s)	1.5	2.0		1.5	2.0	2.0		4.0			4.0	4.0
Lane Grp Cap (vph)	133	2436		34	2238	1001		322			282	317
v/s Ratio Prot	c0.05	c0.87		0.01	0.43			0.00				
v/s Ratio Perm						0.04					c0.23	0.19
v/c Ratio	0.62	1.27		0.38	0.69	0.06		0.00			1.17	0.94
Uniform Delay, d1	58.3	20.2		63.0	15.5	9.1		41.6			52.0	51.3
Progression Factor	0.94	1.26		0.99	1.56	1.42		1.00			1.00	1.00
Incremental Delay, d2	0.6	120.6		2.0	1.3	0.1		0.0			106.5	38.2
Delay (s)	55.4	146.0		64.1	25.6	13.0		41.6			158.5	89.5
Level of Service	E	F		E	C	B		D			F	F
Approach Delay (s)		143.6			25.3			41.6			119.6	
Approach LOS		F			C			D			F	

Intersection Summary			
HCM Average Control Delay	105.7	HCM Level of Service	F
HCM Volume to Capacity ratio	1.24		
Actuated Cycle Length (s)	130.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	105.5%	ICU Level of Service	G
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	0.97	0.95	1.00	0.97	0.95	1.00	0.97	0.95	1.00	0.97	0.95	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	3433	3539	1583	3433	3539	1583	3433	3539	1583	3433	3539	1583
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	3433	3539	1583	3433	3539	1583	3433	3539	1583	3433	3539	1583
Volume (vph)	256	1354	1561	188	382	71	525	276	150	215	741	305
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	269	1425	1643	198	402	75	553	291	158	226	780	321
RTOR Reduction (vph)	0	0	158	0	0	44	0	0	113	0	0	129
Lane Group Flow (vph)	269	1425	1485	198	402	31	553	291	45	226	780	192
Turn Type	Prot		Perm	Prot		Perm	Prot		Perm	Prot		Perm
Protected Phases	5	2		1	6		7	4		3	8	
Permitted Phases			2			6			4			8
Actuated Green, G (s)	14.0	53.9	53.9	11.1	51.0	51.0	16.0	35.0	35.0	9.0	29.0	29.0
Effective Green, g (s)	14.0	55.9	55.9	11.1	53.0	53.0	16.0	37.0	37.0	10.0	31.0	31.0
Actuated g/C Ratio	0.11	0.43	0.43	0.09	0.41	0.41	0.12	0.28	0.28	0.08	0.24	0.24
Clearance Time (s)	4.0	6.0	6.0	4.0	6.0	6.0	4.0	6.0	6.0	5.0	6.0	6.0
Vehicle Extension (s)	1.5	2.0	2.0	1.5	2.0	2.0	1.5	2.0	2.0	2.0	2.0	2.0
Lane Grp Cap (vph)	370	1522	681	293	1443	645	423	1007	451	264	844	377
v/s Ratio Prot	0.08	0.40		c0.06	0.11		c0.16	0.08		0.07	c0.22	
v/s Ratio Perm			c0.94			0.02			0.03			0.12
v/c Ratio	0.73	0.94	2.18	0.68	0.28	0.05	1.31	0.29	0.10	0.86	0.92	0.51
Uniform Delay, d1	56.2	35.4	37.0	57.7	25.7	23.3	57.0	36.2	34.2	59.3	48.4	42.9
Progression Factor	1.09	1.14	1.19	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	0.6	1.5	531.4	4.8	0.5	0.1	154.5	0.7	0.4	22.1	17.3	4.8
Delay (s)	61.8	41.9	575.5	62.5	26.2	23.4	211.5	37.0	34.7	81.4	65.6	47.7
Level of Service	E	D	F	E	C	C	F	D	C	F	E	D
Approach Delay (s)		306.2			36.5			132.9			64.0	
Approach LOS		F			D			F			E	

Intersection Summary			
HCM Average Control Delay	199.4	HCM Level of Service	F
HCM Volume to Capacity ratio	1.57		
Actuated Cycle Length (s)	130.0	Sum of lost time (s)	16.0
Intersection Capacity Utilization	132.5%	ICU Level of Service	H
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0	4.0	4.0	4.0						4.0	
Lane Util. Factor		0.95	1.00	1.00	0.95						0.95	
Frt		1.00	0.85	1.00	1.00						0.91	
Flt Protected		1.00	1.00	0.95	1.00						1.00	
Satd. Flow (prot)		3539	1583	1770	3539						3234	
Flt Permitted		1.00	1.00	0.57	1.00						1.00	
Satd. Flow (perm)		3539	1583	1067	3539						3234	
Volume (vph)	0	275	1282	6	474	0	0	0	0	3	117	159
Peak-hour factor, PHF	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Adj. Flow (vph)	0	293	1364	6	504	0	0	0	0	3	124	169
RTOR Reduction (vph)	0	0	96	0	0	0	0	0	0	0	142	0
Lane Group Flow (vph)	0	293	1268	6	504	0	0	0	0	0	154	0
Turn Type			Perm	Perm						Perm		
Protected Phases		4			8						6	
Permitted Phases			4	8						6		
Actuated Green, G (s)		76.0	76.0	76.0	76.0						16.0	
Effective Green, g (s)		76.0	76.0	76.0	76.0						16.0	
Actuated g/C Ratio		0.76	0.76	0.76	0.76						0.16	
Clearance Time (s)		4.0	4.0	4.0	4.0						4.0	
Vehicle Extension (s)		3.0	3.0	3.0	3.0						3.0	
Lane Grp Cap (vph)		2690	1203	811	2690						517	
v/s Ratio Prot		0.08			0.14							
v/s Ratio Perm			c0.80	0.01							0.05	
v/c Ratio		0.11	1.05	0.01	0.19						0.30	
Uniform Delay, d1		3.1	12.0	2.9	3.4						37.0	
Progression Factor		1.00	1.00	1.00	1.00						1.00	
Incremental Delay, d2		0.0	41.4	0.0	0.0						1.5	
Delay (s)		3.2	53.4	2.9	3.4						38.5	
Level of Service		A	D	A	A						D	
Approach Delay (s)		44.5			3.4			0.0			38.5	
Approach LOS		D			A			A			D	

Intersection Summary			
HCM Average Control Delay	35.3	HCM Level of Service	D
HCM Volume to Capacity ratio	0.92		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	101.2%	ICU Level of Service	G
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Sign Control	Stop			Stop	Stop	
Volume (vph)	277	0	479	1	0	0
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	308	0	532	1	0	0

Direction, Lane #	EB 1	EB 2	NB 1	NB 2
Volume Total (vph)	154	154	355	179
Volume Left (vph)	154	154	355	177
Volume Right (vph)	0	0	0	0
Hadj (s)	0.53	0.53	0.53	0.53
Departure Headway (s)	6.5	6.5	6.0	6.0
Degree Utilization, x	0.28	0.28	0.59	0.30
Capacity (veh/h)	527	529	580	583
Control Delay (s)	10.8	10.8	16.1	10.3
Approach Delay (s)	10.8		14.1	
Approach LOS	B		B	

Intersection Summary			
Delay	12.9		
HCM Level of Service	B		
Intersection Capacity Utilization	101.2%	ICU Level of Service	G
Analysis Period (min)	15		

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Volume (veh/h)	7	66	578	16	136	1712
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91
Hourly flow rate (vph)	8	73	635	18	149	1881
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None					
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	1884	326			653	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1884	326			653	
tC, single (s)	6.8	6.9			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	85	89			84	
cM capacity (veh/h)	52	669			930	

Direction, Lane #	WB 1	WB 2	NB 1	NB 2	SB 1	SB 2	SB 3
Volume Total	8	73	423	229	149	941	941
Volume Left	8	0	0	0	149	0	0
Volume Right	0	73	0	18	0	0	0
cSH	52	669	1700	1700	930	1700	1700
Volume to Capacity	0.15	0.11	0.25	0.13	0.16	0.55	0.55
Queue Length 95th (ft)	12	9	0	0	14	0	0
Control Delay (s)	85.1	11.0	0.0	0.0	9.6	0.0	0.0
Lane LOS	F	B			A		
Approach Delay (s)	18.1		0.0		0.7		
Approach LOS	C						

Intersection Summary			
Average Delay	1.0		
Intersection Capacity Utilization	57.3%	ICU Level of Service	B
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	1.00	1.00		0.97	0.95	1.00	1.00	0.95	1.00	0.97	0.95	1.00
Frt	1.00	0.91		1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1770	1693		3433	3539	1583	1770	3539	1583	3433	3539	1583
Flt Permitted	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	1770	1693		3433	3539	1583	1770	3539	1583	3433	3539	1583
Volume (vph)	17	10	16	534	60	137	87	425	734	547	1226	3
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	18	11	17	580	65	149	95	462	798	595	1333	3
RTOR Reduction (vph)	0	16	0	0	0	117	0	0	398	0	0	1
Lane Group Flow (vph)	18	12	0	580	65	32	95	462	400	595	1333	2
Turn Type	Prot			Prot		Perm	Prot		Perm	Prot		Perm
Protected Phases	3	8		7	4		5	2		1	6	
Permitted Phases						4			2			6
Actuated Green, G (s)	3.0	5.4		18.8	20.2	20.2	8.0	34.6	34.6	20.6	47.2	47.2
Effective Green, g (s)	5.3	7.7		18.8	21.2	21.2	8.0	36.9	36.9	20.6	49.5	49.5
Actuated g/C Ratio	0.05	0.08		0.19	0.21	0.21	0.08	0.37	0.37	0.21	0.50	0.50
Clearance Time (s)	6.3	6.3		4.0	5.0	5.0	4.0	6.3	6.3	4.0	6.3	6.3
Vehicle Extension (s)	3.0	2.0		1.5	3.0	3.0	1.5	2.0	2.0	2.0	3.0	3.0
Lane Grp Cap (vph)	94	130		645	750	336	142	1306	584	707	1752	784
v/s Ratio Prot	0.01	0.01		c0.17	0.02		0.05	0.13		c0.17	c0.38	
v/s Ratio Perm						c0.02			0.25			0.00
v/c Ratio	0.19	0.09		0.90	0.09	0.09	0.67	0.35	0.68	0.84	0.76	0.00
Uniform Delay, d1	45.3	42.9		39.7	31.6	31.7	44.7	22.9	26.6	38.1	20.5	12.8
Progression Factor	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	1.0	0.1		15.0	0.1	0.1	8.9	0.8	6.4	8.6	3.2	0.0
Delay (s)	46.3	43.0		54.7	31.7	31.8	53.6	23.6	33.0	46.7	23.6	12.8
Level of Service	D	D		D	C	C	D	C	C	D	C	B
Approach Delay (s)		44.3			48.5			31.3			30.7	
Approach LOS		D			D			C			C	

Intersection Summary			
HCM Average Control Delay	34.5	HCM Level of Service	C
HCM Volume to Capacity ratio	0.71		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	75.2%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	
Lane Util. Factor	1.00	0.95		1.00	0.95	1.00	1.00	0.95	1.00	0.97	0.95	
Frt	1.00	0.97		1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.99	
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1770	3421		1770	3539	1583	1770	3539	1583	3433	3501	
Flt Permitted	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (perm)	1770	3421		1770	3539	1583	1770	3539	1583	3433	3501	
Volume (vph)	49	877	250	142	532	140	125	504	143	389	1031	79
Peak-hour factor, PHF	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Adj. Flow (vph)	52	933	266	151	566	149	133	536	152	414	1097	84
RTOR Reduction (vph)	0	21	0	0	0	84	0	0	108	0	4	0
Lane Group Flow (vph)	52	1178	0	151	566	65	133	536	44	414	1177	0
Turn Type	Prot			Prot		Perm	Prot		Perm	Prot		
Protected Phases	5	2		1	6		7	4		3	8	
Permitted Phases						6			4			
Actuated Green, G (s)	5.7	43.5		12.8	50.8	50.8	12.6	33.7	33.7	11.0	32.1	
Effective Green, g (s)	5.7	44.8		13.0	52.1	52.1	12.6	35.0	35.0	11.2	33.6	
Actuated g/C Ratio	0.05	0.37		0.11	0.43	0.43	0.10	0.29	0.29	0.09	0.28	
Clearance Time (s)	4.0	5.3		4.2	5.3	5.3	4.0	5.3	5.3	4.2	5.5	
Vehicle Extension (s)	1.5	2.0		1.5	2.0	2.0	1.5	2.0	2.0	1.5	2.0	
Lane Grp Cap (vph)	84	1277		192	1537	687	186	1032	462	320	980	
v/s Ratio Prot	0.03	c0.34		c0.09	0.16		0.08	0.15		c0.12	c0.34	
v/s Ratio Perm						0.04			0.03			
v/c Ratio	0.62	0.92		0.79	0.37	0.09	0.72	0.52	0.10	1.29	1.20	
Uniform Delay, d1	56.1	35.9		52.1	22.9	20.0	52.0	35.5	31.0	54.4	43.2	
Progression Factor	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	9.2	12.4		17.5	0.7	0.3	10.3	0.2	0.0	153.5	100.2	
Delay (s)	65.3	48.3		69.7	23.5	20.3	62.3	35.7	31.0	207.9	143.4	
Level of Service	E	D		E	C	C	E	D	C	F	F	
Approach Delay (s)		49.0			31.0			39.1			160.2	
Approach LOS		D			C			D			F	

Intersection Summary			
HCM Average Control Delay	82.9	HCM Level of Service	F
HCM Volume to Capacity ratio	1.02		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	16.0
Intersection Capacity Utilization	91.4%	ICU Level of Service	F
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0	4.0	4.0	4.0					4.0	4.0	4.0
Lane Util. Factor		0.95	1.00	0.97	0.95					0.95	0.91	0.95
Frt		1.00	0.85	1.00	1.00					1.00	0.86	0.85
Flt Protected		1.00	1.00	0.95	1.00					0.95	1.00	1.00
Satd. Flow (prot)		3539	1583	3433	3539					1681	1450	1504
Flt Permitted		1.00	1.00	0.95	1.00					0.95	1.00	1.00
Satd. Flow (perm)		3539	1583	3433	3539					1681	1450	1504
Volume (vph)	0	207	506	505	608	0	0	0	0	19	2	102
Peak-hour factor, PHF	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89
Adj. Flow (vph)	0	233	569	567	683	0	0	0	0	21	2	115
RTOR Reduction (vph)	0	0	346	0	0	0	0	0	0	0	37	42
Lane Group Flow (vph)	0	233	223	567	683	0	0	0	0	21	19	19
Turn Type			Perm	Prot						Perm		Perm
Protected Phases		4		3	8						6	
Permitted Phases			4							6		6
Actuated Green, G (s)		14.2	14.2	15.2	33.4					18.9	18.9	18.9
Effective Green, g (s)		14.2	14.2	15.2	33.4					18.9	18.9	18.9
Actuated g/C Ratio		0.24	0.24	0.25	0.55					0.31	0.31	0.31
Clearance Time (s)		4.0	4.0	4.0	4.0					4.0	4.0	4.0
Vehicle Extension (s)		3.0	3.0	3.0	3.0					3.0	3.0	3.0
Lane Grp Cap (vph)		833	373	865	1960					527	454	471
v/s Ratio Prot		0.07		c0.17	0.19						c0.01	
v/s Ratio Perm			c0.14							0.01		0.01
v/c Ratio		0.28	0.60	0.66	0.35					0.04	0.04	0.04
Uniform Delay, d1		18.9	20.5	20.2	7.4					14.4	14.4	14.4
Progression Factor		1.00	1.00	1.00	1.00					1.00	1.00	1.00
Incremental Delay, d2		0.2	2.6	1.8	0.1					0.1	0.2	0.2
Delay (s)		19.0	23.1	22.0	7.5					14.5	14.6	14.6
Level of Service		B	C	C	A					B	B	B
Approach Delay (s)		21.9			14.1			0.0			14.6	
Approach LOS		C			B			A			B	

Intersection Summary			
HCM Average Control Delay	17.0	HCM Level of Service	B
HCM Volume to Capacity ratio	0.40		
Actuated Cycle Length (s)	60.3	Sum of lost time (s)	12.0
Intersection Capacity Utilization	59.1%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0			4.0	4.0	4.0
Lane Util. Factor	0.95			0.95	0.97	1.00
Frt	1.00			1.00	1.00	0.85
Flt Protected	1.00			1.00	0.95	1.00
Satd. Flow (prot)	3539			3539	3433	1583
Flt Permitted	1.00			1.00	0.95	1.00
Satd. Flow (perm)	3539			3539	3433	1583
Volume (vph)	226	0	0	724	392	145
Peak-hour factor, PHF	0.89	0.89	0.89	0.89	0.89	0.89
Adj. Flow (vph)	254	0	0	813	440	163
RTOR Reduction (vph)	0	0	0	0	0	69
Lane Group Flow (vph)	254	0	0	813	440	94
Turn Type						Perm
Protected Phases	4			8	2	
Permitted Phases						2
Actuated Green, G (s)	21.8			21.8	40.2	40.2
Effective Green, g (s)	21.8			21.8	40.2	40.2
Actuated g/C Ratio	0.31			0.31	0.57	0.57
Clearance Time (s)	4.0			4.0	4.0	4.0
Vehicle Extension (s)	3.0			3.0	3.0	3.0
Lane Grp Cap (vph)	1102			1102	1972	909
v/s Ratio Prot	0.07			c0.23	c0.13	
v/s Ratio Perm						0.06
v/c Ratio	0.23			0.74	0.22	0.10
Uniform Delay, d1	17.9			21.5	7.3	6.7
Progression Factor	1.00			1.00	1.00	1.00
Incremental Delay, d2	0.1			2.6	0.3	0.2
Delay (s)	18.0			24.2	7.5	7.0
Level of Service	B			C	A	A
Approach Delay (s)	18.0			24.2	7.4	
Approach LOS	B			C	A	

Intersection Summary			
HCM Average Control Delay	17.2	HCM Level of Service	B
HCM Volume to Capacity ratio	0.40		
Actuated Cycle Length (s)	70.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	59.1%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Volume (veh/h)	0	0	0	2	2	3	88	280	6	17	731	31
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Hourly flow rate (vph)	0	0	0	2	2	3	97	308	7	19	803	34
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	1209	1365	820	1345	1379	157	837			314		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	1209	1365	820	1345	1379	157	837			314		
tC, single (s)	7.5	6.5	6.9	7.5	6.5	6.9	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	100	100	100	98	98	100	88			98		
cM capacity (veh/h)	122	126	318	99	124	860	793			1243		

Direction, Lane #	WB 1	NB 1	NB 2	NB 3	SB 1	SB 2
Volume Total	8	97	205	109	19	837
Volume Left	2	97	0	0	19	0
Volume Right	3	0	0	7	0	34
cSH	175	793	1700	1700	1243	1700
Volume to Capacity	0.04	0.12	0.12	0.06	0.02	0.49
Queue Length 95th (ft)	3	10	0	0	1	0
Control Delay (s)	26.5	10.2	0.0	0.0	7.9	0.0
Lane LOS	D	B			A	
Approach Delay (s)	26.5	2.4			0.2	
Approach LOS	D					

Intersection Summary				
Average Delay	1.0			
Intersection Capacity Utilization	58.6%	ICU Level of Service	B	
Analysis Period (min)	15			

APPENDIX F - FREEWAY LOS RESULTS

FREEWAY ANALYSIS									
			Existing			Existing + Project			
Freeway Segment	Peak Hour	Lanes	Volume	LOS	V/C	Volume	LOS	V/C	ΔV/C
I-215 NB, s/o 60	AM	3+AUX+HOV	7066	D	0.79	7627	D	0.85	0.06
	PM		6636	C	0.74	7186	D	0.80	0.06
I-215 SB, s/o 60	AM	3+AUX	5894	D	0.79	6237	D	0.83	0.05
	PM		5921	D	0.79	6795	D	0.91	0.12
I-215 NB, b/w 60 & Central	AM	3+HOV	7455	E	0.99	**8016**	**F(0)**	**1.07**	**0.07**
	PM		6625	D	0.88	7175	E	0.96	0.07
I-215 SB, b/w 60 & Central	AM	6	3602	A	0.30	3945	A	0.33	0.03
	PM		7212	C	0.60	8086	C	0.67	0.07
I-215 NB, b/w Central & MLK	AM	3+AUX+HOV	8356	D	0.93	8917	E	0.99	0.06
	PM		6949	D	0.77	7499	D	0.83	0.06
I-215 SB, b/w Central & MLK	AM	4+HOV	4702	B	0.49	5045	B	0.53	0.04
	PM		8403	D	0.88	9277	E	0.98	0.09
I-215 NB, b/w MLK & University	AM	3+HOV	7132	E	0.95	**7674**	**F(0)**	**1.02**	**0.07**
	PM		5919	D	0.79	6396	D	0.85	0.06
I-215 SB, b/w MLK & University	AM	4+HOV	5779	C	0.61	6085	C	0.64	0.03
	PM		10667	F(0)	1.12	**11397**	**F(0)**	**1.20**	**0.08**
I-215 NB, b/w University & 3rd	AM	3+AUX+HOV	7874	D	0.87	7976	D	0.89	0.01
	PM		6133	C	0.68	6660	C	0.74	0.06
I-215 SB, b/w University & 3rd	AM	3+HOV	4063	C	0.54	4210	C	0.56	0.02
	PM		6020	D	0.80	6277	D	0.84	0.03
I-215 NB, b/w 3rd & Spruce	AM	4+AUX+HOV	7980	C	0.73	8095	C	0.74	0.01
	PM		5794	B	0.53	6372	C	0.58	0.05
I-215 SB, b/w 3rd & Spruce	AM	3+HOV	4633	C	0.62	4764	C	0.64	0.02
	PM		6386	D	0.85	6462	D	0.86	0.01
I-215 NB, n/o 91/60	AM	4	6008	C	0.75	6090	C	0.76	0.01
	PM		5073	C	0.63	5457	C	0.68	0.05
I-215 SB, n/o 91/60	AM	4	5598	C	0.70	5729	C	0.72	0.02
	PM		5235	C	0.65	5311	C	0.66	0.01
60 EB, e/o 215	AM	3+HOV	4633	C	0.62	4666	C	0.62	0.00
	PM		6586	D	0.88	6781	D	0.90	0.03
60 WB, e/o 215	AM	4+AUX+HOV	7384	C	0.67	7384	C	0.67	0.00
	PM		6541	C	0.59	6541	C	0.59	0.00
60 EB, w/o 91/215	AM	3+HOV	5598	C	0.75	5631	C	0.75	0.00
	PM		5235	C	0.70	5430	C	0.72	0.03
60 WB, w/o 91/215	AM	4	6008	C	0.75	6008	C	0.75	0.00
	PM		5073	C	0.63	5073	C	0.63	0.00
91 EB, w/o 215/60	AM	3+AUX	5186	C	0.69	5219	C	0.70	0.00
	PM		4229	C	0.56	4424	C	0.59	0.03
91 WB, w/o 215/60	AM	4+AUX	6683	C	0.70	6683	C	0.70	0.00
	PM		6210	C	0.65	6210	C	0.65	0.00

FREEWAY ANALYSIS									
			Cumulative No Project			Cumulative + Project			
Freeway Segment	Peak Hour	Lanes	Volume	LOS	V/C	Volume	LOS	V/C	ΔV/C
I-215 NB, s/o 60	AM	3+AUX+HOV	8200	D	0.91	8761	E	0.98	0.06
	PM		7701	D	0.86	8251	D	0.91	0.05
I-215 SB, s/o 60	AM	3+AUX	6840	D	0.91	7183	E	0.94	0.03
	PM		6871	D	0.92	**7745**	**F(0)**	**1.02**	**0.10**
I-215 NB, b/w 60 & Central	AM	3+HOV	8652	F(0)	1.15	**9213**	**F(0)**	**1.23**	**0.08**
	PM		7688	F(0)	1.03	**8238**	**F(0)**	**1.09**	**0.06**
I-215 SB, b/w 60 & Central	AM	6	4180	A	0.35	4523	B	0.36	0.02
	PM		8370	C	0.70	9244	C	0.76	0.06
I-215 NB, b/w Central & MLK	AM	3+AUX+HOV	9697	F(0)	1.08	**10258**	**F(0)**	**1.14**	**0.06**
	PM		8064	D	0.90	8614	E	0.95	0.05
I-215 SB, b/w Central & MLK	AM	4+HOV	5457	C	0.57	5800	C	0.59	0.02
	PM		9752	F(0)	1.03	**10626**	**F(0)**	**1.10**	**0.08**
I-215 NB, b/w MLK & University	AM	3+HOV	8277	F(0)	1.10	**8819**	**F(0)**	**1.17**	**0.06**
	PM		6869	D	0.92	7346	E	0.97	0.05
I-215 SB, b/w MLK & University	AM	4+HOV	6707	C	0.71	7013	C	0.73	0.02
	PM		12379	F(1)	1.30	**13109**	**F(2)**	**1.37**	**0.07**
I-215 NB, b/w University & 3rd	AM	3+AUX+HOV	9138	F(0)	1.02	**9240**	**F(0)**	**1.02**	**0.01**
	PM		7117	D	0.79	7644	D	0.84	0.05
I-215 SB, b/w University & 3rd	AM	3+HOV	4715	C	0.63	4862	C	0.64	0.01
	PM		6986	E	0.93	7243	E	0.97	0.04
I-215 NB, b/w 3rd & Spruce	AM	4+AUX+HOV	9261	D	0.84	9376	D	0.85	0.01
	PM		6724	C	0.61	7302	C	0.65	0.04
I-215 SB, b/w 3rd & Spruce	AM	3+HOV	5377	C	0.72	5508	C	0.72	0.00
	PM		7411	E	0.99	7487	E	1.00	0.01
I-215 NB, n/o 91/60	AM	4	6972	D	0.87	7054	D	0.88	0.01
	PM		5887	C	0.74	6271	C	0.76	0.03
I-215 SB, n/o 91/60	AM	4	6496	D	0.81	6627	D	0.81	0.00
	PM		6075	C	0.76	6151	C	0.76	0.00
60 EB, e/o 215	AM	3+HOV	5377	C	0.72	5410	C	0.72	0.01
	PM		7643	F(0)	1.02	**7838**	**F(0)**	**1.05**	**0.03**
60 WB, e/o 215	AM	4+AUX+HOV	8569	D	0.78	8569	D	0.78	0.00
	PM		7591	C	0.69	7591	C	0.69	0.00
60 EB, w/o 91/215	AM	3+HOV	6496	D	0.87	6529	D	0.87	0.01
	PM		6075	D	0.81	6270	D	0.84	0.03
60 WB, w/o 91/215	AM	4	6972	D	0.87	6972	D	0.87	0.00
	PM		5887	C	0.74	5887	C	0.74	0.00
91 EB, w/o 215/60	AM	3+AUX	6018	D	0.80	6051	D	0.81	0.00
	PM		4908	C	0.65	5103	C	0.68	0.03
91 WB, w/o 215/60	AM	4+AUX	7756	D	0.82	7756	D	0.82	0.00
	PM		7207	C	0.76	7207	C	0.76	0.00

APPENDIX 4.16

Greenhouse Gas Emissions Calculations

University of California, Riverside
LRDP Greenhouse Gas Emissions

Table 1
Summary of Annual GHG Emissions

			Scope 1 Emissions		Scope 2 Emissions	Scope 3 Emissions			Total
Land Use	**Gross Building Square Feet (ksf)**	**Population**	**Natural Gas ($MTCO_2e$/yr)**	**Campus Fleet ($MTCO_2e$/yr)**	**Electricity ($MTCO_2e$/yr)**	**Commuting ($MTCO_2e$/yr)**	**Water ($MTCO_2e$/yr)**	**Amortized Construction ($MTCO_2e$/yr)**	**Emissions ($MTCO_2e$/yr)**
UCR, 2008	6,350 ksf	23,829	21,810.36	1,118.47	75,511.09	65,228.02	3,235.16	0	166,903.11
UCR, 2020	14,864 ksf	41,393	42,340.67	3,118.81	150,120.86	89,967.03	6,596.41	1,105.74	293,249.51

University of California, Riverside
LRDP Greenhouse Gas Emissions

Table 2
Natural Gas Greenhouse Gas Emissions

Scenario Year	Units[1]	Title 24 (2008) Adjustment[2]	Natural Gas Consumption Factor (Btu/unit/yr)	Annual Consumption Factor (MMBtu/yr)	CO_2 Emission Factor[3] GWP = 1 (kg/MMBtu)	CH_4 Emission Factor[3] GWP = 21 (kg/MMBtu)	N_2O Emission Factor[3] GWP = 310 (kg/MMBtu)	Annual CO_2e Emissions ($MTCO_2e$/yr)	Per Unit Emissions ($MTCO_2e$/yr)
UCR, 2008									
Gross Bldg Sq Footage	6,350 ksf	n/a	64,569.53	410,000.00	53.06	0.005	0.0001	21,810.36	3.43
Enrollment	23,829	n/a	17,205.93	410,000.00	53.06	0.005	0.0001	21,810.36	0.92
UCR, 2020 (Business as Usual)									
Gross Bldg Sq Footage	14,864 ksf	-9.4%	61,092.86	908,076.46	53.06	0.005	0.0001	48,306.04	3.25
Enrollment	41,393	-9.4%	16,519.64	683,797.62	53.06	0.005	0.0001	36,375.30	0.88
Average				795,937.04	53.06	0.005	0.0001	42,340.67	

Sources:

1. University of California, Riverside, Physical Plant Department, (2009). Annual natural gas consumption for 2008 are based on actual consumption data. Annual natural gas consumption for 2020 is linearly projected from the 2008 value. Projections are calculated separately based on gross building square footage and enrollment. The average of these two projections are used in the analysis (which assumes square footage and enrollment contribute equally to emissions). Enrollment includes students, faculty and academic staff, nonacademic staff, and other individuals.

2. California Energy Commission, *Impact Analysis: 2008 Update to the California Energy Energy Efficiency Standards*, (2007) 4. The CEC estimated total natural gas savings of 9.4% from nonresidential newly constructed buildings from the Title 24 (2008) standard relative to the 2005 standard. The 9.4% savings was applied to the estimated new square footage for the 2020 case.

3. California Air Resources Board, *Local Government Operations Protocol for the Quantification and Reporting of Greenhouse Gas Emissions Inventories*, Version 1.0, (2008) 170, 172.

Where:

Btu	British thermal unit	kg	Kilograms
CH_4	Methane	MMBtu	Million British thermal unit
CO_2	Carbon dioxide	MT	Metric ton
CO_2e	Carbon dioxide equivalent	n/a	Not applicable
gsf	Gross square feet	N_2O	Nitrous oxide
GWP	Global warming potential	yr	Year

University of California, Riverside
LRDP Greenhouse Gas Emissions

Table 3
Fleet Greenhouse Gas Emissions

Scenario Year	Staff Enrollment	Number of Fleet Vehicles[1]	Daily Vehicle Miles Traveled[1]	Annual CO_2 Emissions[2] (Tons CO_2/yr)	CO_2 to CO_2e Ratio[3]	Annual CO_2e Emissions ($MTCO_2e$/yr)	Per Unit Emissions ($MTCO_2e$/yr)
UCR, 2008	4,897	331	6,281	1,171.26	0.950	1,118.47	0.228
UCR, 2020 (Business as Usual)	13,679	925	17,546	3,266.00	0.950	3,118.81	0.228

Sources:

1. University of California, Riverside, Physical Plant Department, (2009). Fleet vehicles and mileage for 2020 are linearly projected from the 2008 values. Projections are calculated based on staff enrollment. Fleet vehicles and mileage do not include electric vehicles. The URBEMIS2007 model was run using factors that would resut in a VMT as close as possible to the values listed above. Due to model rounding, it is not possible to run URBEMIS2007 with a VMT that precisely matches the values listed above.
2. Estimated CO_2 emissions from URBEMIS2007 Environmental Management Software and/or EMFAC2007 mobile source emissions factor model.
3. U.S. Environmental Protection Agency, Office of Transportation and Air Quality, *Emission Facts - Greenhouse Gas Emissions from a Typical Passenger Vehicle* (EPA420-F-05-004), (2005) 4. Passenger vehicle CO_2 emissions are assumed to be 95% of GHG emissions on a CO_2 equivalent basis.

Where:

CO_2	Carbon dioxide
CO_2e	Carbon dioxide equivalent
MT	Metric ton
yr	Year

University of California, Riverside
LRDP Greenhouse Gas Emissions

Table 4
Electricity Greenhouse Gas Emissions

Scenario Year	Units[1]	Title 24 (2008) Adjustment[2]	Electricity Consumption Factor (kWh/unit/yr)	Annual Consumption Factor (MWh/yr)	CO_2 Emission Factor[3] GWP = 1 (lbs/MWh)	CH_4 Emission Factor[3] GWP = 21 (lbs/MWh)	N_2O Emission Factor[3] GWP = 310 (lbs/MWh)	Annual CO_2e Emissions ($MTCO_2e$/yr)	Per Unit Emissions ($MTCO_2e$/yr)
UCR, 2008									
Renewable Electricity Credit				27.01	-	-	-	-	-
Gross Bldg Sq Footage	6,350 ksf	n/a	19,602.21	124,468.99	1,333.45	0.029	0.011	75,511.09	11.89
Enrollment	23,829	n/a	5,223.42	124,468.99	1,333.45	0.029	0.011	75,511.09	3.17
UCR, 2020 (Business as Usual)									
Gross Bldg Sq Footage	14,864 ksf	-4.9%	19,052.02	283,186.79	1,333.45	0.029	0.011	171,799.77	11.56
Enrollment	41,393	-4.9%	5,114.82	211,717.76	1,333.45	0.029	0.011	128,441.94	3.10
Average				247,452.27	1,333.45	0.029	0.011	150,120.86	

Sources:

1. University of California, Riverside, Physical Plant Department, (2009). Annual electricity consumption for 2020 are linearly projected from the 2008 value. Projections are calculated separately based on gross building square footage and enrollment. The average of these two projections are used in the analysis (which assumes square footage and enrollment contribute equally to emissions). Enrollment includes students, faculty and academic staff, nonacademic staff, and other individuals.
2. California Energy Commission, *Impact Analysis: 2008 Update to the California Energy Energy Efficiency Standards*, (2007) 4. The CEC estimated total electricity savings of 4.9% from nonresidential newly constructed buildings from the Title 24 (2008) standard relative to the 2005 standard. The 4.9% savings was applied to the estimated new square footage for the 2020 case.
3. California Air Resources Board, *Local Government Operations Protocol for the Quantification and Reporting of Greenhouse Gas Emissions Inventories*, Version 1.0, (2008) 174. The CO_2 emissions factor is for Riverside Public Utilities in 2005.

Where:

CH_4	Methane	lbs	Pounds
CO_2	Carbon dioxide	MWh	Megawatt-hour
CO_2e	Carbon dioxide equivalent	MT	Metric ton
GWP	Global warming potential	n/a	Not applicable
kWh	Kilowatt-hour	N_2O	Nitrous oxide
ksf	Thousand square feet	yr	Year

University of California, Riverside
LRDP Greenhouse Gas Emissions

Table 5
Water Greenhouse Gas Emissions

Scenario Year	Units[1]	Total Water Purchases[1] (MG/yr)	Irrigation Water Use[1] (MG/yr)	Electricity Consumption Factor[2] (kWh/MG)	Annual Consumption Factor[2] (MWh/yr)	CO_2 Emission Factor[3] GWP = 1 (lbs/MWh)	CH_4 Emission Factor[3] GWP = 21 (lbs/MWh)	N_2O Emission Factor[3] GWP = 310 (lbs/MWh)	Annual CO_2e Emissions ($MTCO_2e$/yr)	Per Unit Emissions ($MTCO_2e$/yr)
UCR, 2008										
Gross Bldg Sq Footage	6,350 ksf	583.47	240.12	12,700.00	7,410.13	958.49	0.029	0.011	3,235.16	0.51
Enrollment	23,829	583.47	240.12	12,700.00	7,410.13	958.49	0.029	0.011	3,235.16	0.14
UCR, 2020 (Business as Usual)										
Gross Bldg Sq Footage	14,864 ksf	1,365.83	562.10	12,700.00	17,346.08	958.49	0.029	0.011	7,573.07	0.51
Enrollment	41,393	1,013.54	417.12	12,700.00	12,872.02	958.49	0.029	0.011	5,619.75	0.14
Average		1,189.69	489.61	12,700.00	15,109.05	958.49	0.029	0.011	6,596.41	

Sources:

1. University of California, Riverside, Physical Plant Department, (2009). Total water purchases and irrigation water use for 2020 are linearly projected from the 2008 value. Projections are calculated separately based on gross building square footage and enrollment. The average of these two projections are used in the analysis (which assumes square footage and enrollment contribute equally to emissions). Enrollment includes students, faculty and academic staff, nonacademic staff, and other individuals.
2. California Energy Commission, *California's Water-Energy Relationship*, CEC-700-2005-011-SF, (2005) 11.
3. California Air Resources Board, *Local Government Operations Protocol for the Quantification and Reporting of Greenhouse Gas Emissions Inventories*, Version 1.0, (2008) 174.
   The CO_2, CH_4, and N_2O emissions factors are based on the CEC California grid average electricity emission factors.

Where:

CH_4	Methane	lbs	Pounds
CO_2	Carbon dioxide	MWh	Megawatt-hour
CO_2e	Carbon dioxide equivalent	MT	Metric ton
GWP	Global warming potential	n/a	Not applicable
kWh	Kilowatt-hour	N_2O	Nitrous oxide
ksf	Thousand square feet	yr	Year

University of California, Riverside
LRDP Greenhouse Gas Emissions

Table 6
Commuting Greenhouse Gas Emissions

Scenario Year	Student Enrollment	Annual CO_2 Emissions[1] (Tons CO_2/yr)	CO_2 to CO_2e Ratio[2]	Annual CO_2e Emissions ($MTCO_2e$/yr)	Per Unit Emissions ($MTCO_2e$/yr)
UCR, 2008	20,746	68,306.49	0.950	65,228.02	3.14
UCR, 2020 (Business as Usual)	25,000	94,213.06	0.950	89,967.03	3.60

Sources:

1. Estimated CO_2 emissions from URBEMIS2007 Environmental Management Software and/or EMFAC2007 mobile source emissions factor model.
2. U.S. Environmental Protection Agency, Office of Transportation and Air Quality, *Emission Facts - Greenhouse Gas Emissions from a Typical Passenger Vehicle* (EPA420-F-05-004), (2005) 4. Passenger vehicle CO_2 emissions are assumed to be 95% of GHG emissions on a CO_2 equivalent basis.

Where:

CO_2	Carbon dioxide
CO_2e	Carbon dioxide equivalent
MT	Metric ton
yr	Year

University of California, Riverside
LRDP Greenhouse Gas Emissions

Table 7
Construction GHG Emission Factors

Equipment Type	CO_2 Emission Factor[1] (kg/gal)	CH_4 Emission Factor[2,3] (kg/gal)	N_2O Emission Factor[2,3] (kg/gal)	CO_2 to CO_2E Ratio (GWP CH_4 = 21) (GWP N_2O = 310)
Off-Road	10.15	0.0014	0.0001	0.994
On-Road	10.15	0.0005	0.0003	0.990
Vendor	10.15	0.0005	0.0003	0.990
Autos[4]	n/a	n/a	n/a	0.950

Sources:

1. California Climate Action Registry, *General Reporting Protocol: Reporting Entity-Wide Greenhouse Gas Emissions Version 3.0*, (2008) 94.
2. California Climate Action Registry, *General Reporting Protocol: Reporting Entity-Wide Greenhouse as Emissions Version 3.0*, (2008) 95-96.
3. California Energy Commission, *Diesel Use in California, Remarks by Commissioner James D. Boyd, (*2002). It was assumed that heavy duty on-road trucks have a fuel economy of 6 miles per gallon based on this data source.
4. U.S. Environmental Protection Agency, Office of Transportation and Air Quality, *Emission Facts - Greenhouse Gas Emissions from a Typical Passenger Vehicle (EPA420-F-05-004)*, (2005) 4. Passenger vehicle CO_2 emissions are assumed to be 95% of GHG emissions on a CO_2 equivalent basis.

University of California, Riverside
LRDP Greenhouse Gas Emissions

Table 8
Construction GHG Emissions

Construction Year	Equipment Type	Annual CO_2 Emissions[1] (Tons CO_2/yr)	Annual CO_2 Emissions (MT CO_2/yr)	CO_2 to CO_2e Ratio	Annual CO_2e Emissions (MT CO_2e/yr)
2012	Off-Road	1,239.83	1,124.75	0.994	1,131.45
2012	On-Road	-	-	0.990	-
2012	Vendor	496.69	450.59	0.990	455.17
2012	Worker/Autos	1,969.45	1,786.65	0.950	1,880.69
Total 2012		**3,705.97**	**3,362.00**		**3,467.30**
2013	Off-Road	377.83	342.76	0.994	344.80
2013	On-Road	-	-	0.990	-
2013	Vendor	740.81	672.05	0.990	678.88
2013	Worker/Autos	2,880.23	2,612.90	0.950	2,750.42
Total 2013		**3,998.87**	**3,627.71**		**3,774.10**
2014	Off-Road	357.27	324.11	0.994	326.04
2014	On-Road	24.19	21.94	0.990	22.17
2014	Vendor	740.84	672.08	0.990	678.90
2014	Worker/Autos	2,926.62	2,654.98	0.950	2,794.72
Total 2014		**4,048.92**	**3,673.12**		**3,821.83**
2015	Off-Road	1,239.82	1,124.75	0.994	1,131.44
2015	On-Road	-	-	0.990	-
2015	Vendor	496.75	450.64	0.990	455.22
2015	Worker/Autos	1,968.87	1,786.13	0.950	1,880.14
Total 2015		**3,705.44**	**3,361.52**		**3,466.79**
2016	Off-Road	370.61	336.21	0.994	338.21
2016	On-Road	-	-	0.990	-
2016	Vendor	740.89	672.12	0.990	678.95
2016	Worker/Autos	2,879.08	2,611.86	0.950	2,749.32
Total 2016		**3,990.58**	**3,620.19**		**3,766.49**

University of California, Riverside
LRDP Greenhouse Gas Emissions

Table 8
Construction GHG Emissions (continued)

Construction Year	Equipment Type	Annual CO_2 Emissions[1] (Tons CO_2/yr)	Annual CO_2 Emissions (MT CO_2/yr)	CO_2 to CO_2e Ratio	Annual CO_2e Emissions (MT CO_2e/yr)
2017	Off-Road	354.18	321.31	0.994	323.22
2017	On-Road	24.19	21.94	0.990	22.17
2017	Vendor	738.08	669.57	0.990	676.37
2017	Worker/Autos	2,914.36	2,643.86	0.950	2,783.01
Total 2017		**4,030.81**	**3,656.69**		**3,804.77**
2018	Off-Road	1,236.22	1,121.48	0.994	1,128.15
2018	On-Road	-	-	0.990	-
2018	Vendor	496.81	450.70	0.990	455.28
2018	Worker/Autos	1,968.20	1,785.52	0.950	1,879.50
Total 2018		**3,701.23**	**3,357.70**		**3,462.92**
2019	Off-Road	377.83	342.76	0.994	344.80
2019	On-Road	-	-	0.990	-
2019	Vendor	740.98	672.21	0.990	679.03
2019	Worker/Autos	2,878.84	2,611.64	0.950	2,749.09
Total 2019		**3,997.65**	**3,626.61**		**3,772.93**
2020	Off-Road	358.40	325.13	0.994	327.07
2020	On-Road	24.19	21.94	0.990	22.17
2020	Vendor	743.86	674.82	0.990	681.67
2020	Worker/Autos	2,936.41	2,663.87	0.950	2,804.07
Total 2020		**4,062.86**	**3,685.76**		**3,834.98**
Total		**35,242.33**	**31,971.30**		**33,172.12**

Sources:

1. Estimated CO_2 emissions from URBEMIS2007.
   Worker and vendor trip emissions during the building construction phase were adjusted due to a calculation error present in URBEMIS2007. The trips are based on the amount of building square footage and the number of residential units under construction. URBEMIS2007 does not adjust the trips to account for the fact that only a portion of the total building square footage and residential units would be constructed in a given year. Therefore, the worker and vendor trip emissions during the building construction phase were divided by the number of building construction years during each phase.

Where:

CH_4	Methane
CO_2	Carbon dioxide
CO_2e	Carbon dioxide equivalent
gal	Gallons
GWP	Global warming potential
kg	Kilograms
MT	Metric ton
N_2O	Nitrous oxide
yr	Year