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Addendum to the Initial Study/ Mitigated Negative Declaration (PRJ18-015) Round Barn Village Project City of Santa Rosa, Sonoma County, California

Prepared for:
City of Santa Rosa
Planning Division
100 Santa Rosa Avenue, Room 3
Santa Rosa, CA 95404
707.543.4698

Contact: Gary Broad, Contract Planner

Prepared by:
FirstCarbon Solutions
1350 Treat Boulevard, Suite 380
Walnut Creek, CA 94597
925.357.2562

Contact: Jason Brandman, Project Director

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SECTION 1: INTRODUCTION

This Addendum, checklist, and attached supporting documents, including a Traffic Analysis and assessment of post-fire conditions at the site (post-fire assessment memo), have been prepared to determine whether and to what extent the Round Barn Village General Plan Amendment and Rezone Mitigated Negative Declaration (MND) prepared for the City of Santa Rosa remains sufficient to address the potential impacts of the proposed Round Barn Village Project (project), or whether additional documentation is required under the California Environmental Quality Act (CEQA) (Pub. Resources Code, Section 21000, et seq.).

As will be discussed in greater detail in Section 2.2, the City of Santa Rosa adopted the MND for the Round Barn Village General Plan Amendment and Rezone. City Ventures is now proposing development of 237 new townhomes on the same Round Barn project site (Development Project or Project).

The purpose of this Addendum to the Round Barn Village IS/MND is to update the environmental analysis contained in the IS/MND and evaluate potential differences between the environmental effects identified as part of the General Plan Addendum (GPA) and Rezone, and the potential environmental effects resulting from the Development Project. As part of this evaluation, the Addendum considers changes in the circumstances under which the Project would be developed, examines whether the Project would result in any new significant effects, and determines whether all feasible mitigation measures have been identified. This Addendum, together with the IS/MND, will be used by staff as well as the Planning Commission when considering approval of the Project.

1.1 - Basis for Environmental Analysis

CEQA Guidelines Section 15164 provides that the lead agency or a responsible agency shall prepare an addendum to a previously certified Environmental Impact Report or Negative Declaration (ND) if some changes or additions are necessary, but none of the conditions described in CEQA Guidelines Section 15162 call for preparation of a subsequent EIR or ND.

An addendum need not be circulated for public review but can be included in or attached to the adopted ND (CEQA Guidelines Section 15164, subd. (c)). The decision-making body shall consider the addendum prior to making a decision on the project (CEQA Guidelines Section 15164, subd. (d)). An agency must also include a brief explanation of the decision not to prepare a subsequent EIR or subsequent ND pursuant to Section 15162 (CEQA Guidelines Section 15164, subd. (e)).

Consequently, once an ND has been adopted for a project, no subsequent EIR or subsequent ND is required under CEQA unless, based on substantial evidence:

1) Substantial changes are proposed in the project, which will require major revisions of the previous EIR or ND due to the involvement of new significant environmental effects or a substantial increase in the severity of previously identified significant effects;[1]

[1] CEQA Guidelines Section 15382 defines "significant effect on the environment" as ". . . a substantial, or potentially substantial"

2) Substantial changes occur with respect to the circumstances under which the project is undertaken, which will require major revisions of the previous EIR or ND due to the involvement of new significant environmental effects or a substantial increase in the severity of previously identified significant effects; or
3) New information of substantial importance, which was not known and could not have been known with the exercise of reasonable diligence at the time the previous EIR was certified as complete or the ND was adopted, shows any of the following:
   a. The project will have one or more significant effects not discussed in the previous EIR or negative declaration;
   b. Significant effects previously examined will be substantially more severe than shown in the previous EIR or negative declaration;
   c. Mitigation measures or alternatives previously found not to be feasible would in fact be feasible and would substantially reduce one or more significant effects of the project, but the project proponents decline to adopt the mitigation measure or alternative; or
   d. Mitigation measures or alternatives which are considerably different from those analyzed in the previous EIR [or ND] would substantially reduce one or more significant effects on the environment, but the project proponents decline to adopt the mitigation measure or alternative (CEQA Guidelines, Section 15162, subd. (a); see also Pub. Resources Code, Section 21166).

If changes to a project or its circumstances occur or new information becomes available after adoption of a negative declaration, the lead agency shall prepare a subsequent MND if required under subdivision (a). Otherwise, the lead agency shall determine whether to prepare a subsequent negative declaration, an addendum, or no further documentation. (CEQA Guidelines, section 15162(b)).

As discussed in Section 3, the proposed project does not trigger any of the conditions identified in Section 15162 for the preparation of a subsequent EIR. Although the October 2017 Tubbs Fire altered the physical conditions of the project site, it did not materially alter any conclusions or mitigation in the MND. Furthermore, the project-level traffic analysis confirmed that the proposed residential uses are within the trip budget established by the MND.

adverse change in any of the physical conditions within the area affected by the project, including land, air, water, minerals, flora, fauna, ambient noise, and objects of historic or aesthetic significance . . .” (see also Public Resources Code, Section 21068).

SECTION 2: PROJECT DESCRIPTION

2.1 - Location and Setting

The project site is located east of Highway 101 in the Fountaingrove neighborhood in the northern part of the City of Santa Rosa, Sonoma County, California (Exhibit 1). The 18.26-acre project site is south and east of Round Barn Boulevard and north of the Fountaingrove Center office complex and Fountaingrove Parkway (Exhibit 2).

2.1.1 - Environmental Setting

The project site burned during the Tubbs Fire in October 2017. Prior to the fire, the project site was characterized by rolling and steep topography, dense trees, and significant vegetation. A small segment of the Nagasawa Creek is located near the northwest perimeter of the site. A significant portion of the site is also paved as a surface parking lot, which was historically used as overflow parking for the adjacent office complex but is currently fenced off and abandoned. There is also a pedestrian pathway that encircles most of the project site. The fire burned most of the vegetation; however, some of the trees along Nagasawa Creek were minimally impacted while others were burned to the point that removal will be required.

The surrounding area also burned during the Tubbs Fire in October 2017. Prior to the fire, this area was characterized by variety of commercial and residential uses, including office complexes, senior care facilities and hospitality uses, open space, and single-family homes. Vehicular access is taken from Round Barn Boulevard.

2.1.2 - General Plan and Zoning

The project site is designated “Medium Low Density Residential (18.26 acres)” and “Open Space” (21.92 acres) by the General Plan and zoned Single-Family Residential (R-1) (18.26 acres), and Open Space Conservation (OSC) (21.92 acres).

2.2 - Project Background

2.2.1 - 2017 Round Barn Village IS/MND

The 2017 IS/MND identified potential environmental impacts from implementation of the Round Barn Village Project GPA and Rezone. While the GPA and rezone did not result in direct or primary environmental effects, the 2017 IS/MND took into consideration that there were indirect or secondary effects that may result from future allowable development on the project site (237 residential units). As such, these potential effects were considered and mitigated in the 2017 IS/MND. A summary of the development project’s consistency with the 2017 IS/MND findings is provided below in Section 3.1.

While the 2017 IS/MND used the word “programmatic” to describe some of the analysis, it did so because the transportation analysis was programmatic in nature based on a trip generation budget, but the other impact analysis was at a project level. The transportation analysis compared potential trip generation from buildout under the previous land use and zoning designations (Business Park/PD72-001—Highway/Tourist/Office Commercial) to that of buildout under the current land use

and zoning designations (Medium Low Density Residential/Single-Family Residential (R-1)). Previously allowable land uses included hotel and office uses, as accounted for in the City General Plan. Table 23 of the 2017 IS/MND shows both the previously entitled (hotel and office) generation and proposed (and now current) residential development trip generation for comparison. In summary, the previously entitled use would have generated approximately 3,868 daily trips, including 464 trips during the AM peak period and 442 trips during the PM peak period. Future residential development, resulting from the GPA and Rezone, would generate approximately 1,560 daily trips, including 120 trips during the AM peak hour and 148 trips during the PM peak hour. Thus, the 2017 IS/MND determined that future residential development would generate approximately 2,308 fewer daily trips, 344 fewer net trips during the AM peak hour, and 294 fewer net new trips during the PM peak hour as compared to the previously entitled land uses.

As indicated in the 2017 IS/MND Transportation section, future residential development proposed on the project site under the new land use and zoning designations would be required to submit a project-specific traffic impact study as part of project entitlements and approval (refer to General Plan Policy T-D-3), as applicable. The project-specific traffic impact study would evaluate consistency of the future development with existing and future traffic conditions in relation to level of service impacts and goals. This analysis would ensure that future development would not conflict with applicable plans, ordinances, or policies establishing measures of effectiveness for circulation system performance.

That project level analysis is included herein and the project-related effects on all other topical areas listed in the transportation checklist (incompatible uses, hazardous design, non-vehicular mobility, etc.) were analyzed and determined to result in either no impacts or less than significant impacts. This analysis is in Section 3.

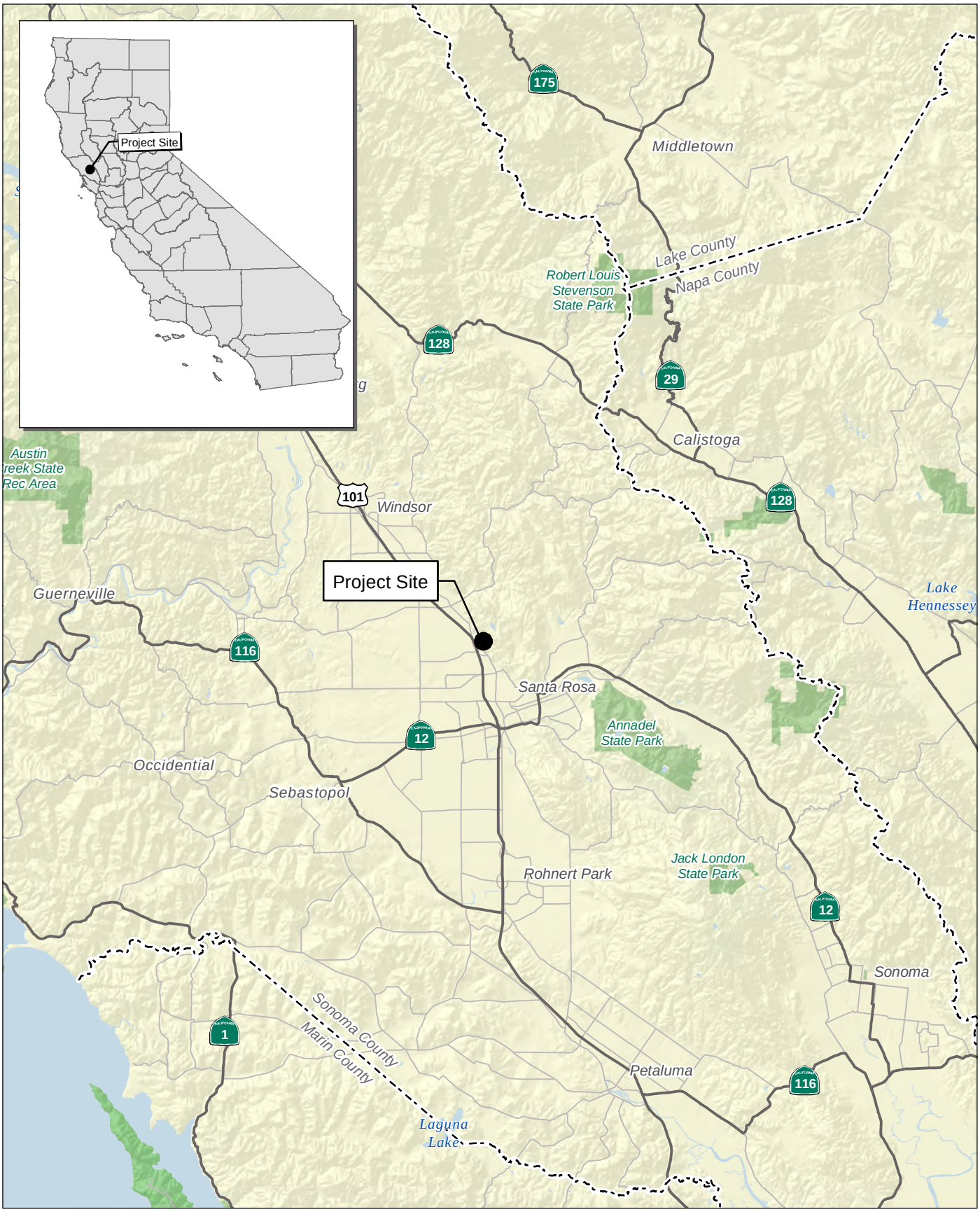
A project-level traffic study has now been completed (see Appendix A). As detailed in the traffic study, implementation of the development project would not result in any new or more severe impacts than were already identified in the IS/MND.

2.3 - Project Characteristics

2.3.1 - Project Summary

The project applicant (City Ventures) is proposing to develop 237 townhome dwelling units consistent with the current designation and zoning for the site; refer to Exhibit 3. The dwelling units are identical to those previously evaluated in the IS/MND in terms of number of units, product type, density, layout and location.

The 2017 IS/MND included a conceptual site plan (see Exhibit 3). Consistent with that plan, the proposed project includes townhomes clustered into buildings of 4 to 8 townhomes per building with a total of 45 new residential buildings on the project site. The total development area of the proposed project is 18.26 acres (see Exhibit 3). The remainder of the 40-acre project site includes landscaping and native open space area. The proposed project avoids grading and development within the Oak woodlands and ridgelines along the southern boundary of the project. Additionally, the project avoids impacts to the portion for Nagasawa Creek that runs along the northwestern portion of the project site (there are no new outfalls into the creek, no alterations or changes riparian area, and no grading within the creek setback area). The development area of the 237-unit residential development project is consistent with land use designations and the developable area evaluated in the 2017 IS/MND.



Source: Census 2000 Data, The CaSIL.

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Exhibit 1
Regional Location Map

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Source: Bing Imagery

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1,000 500 0 1,000 Feet

Exhibit 2
Local Vicinity Map
Aerial Base

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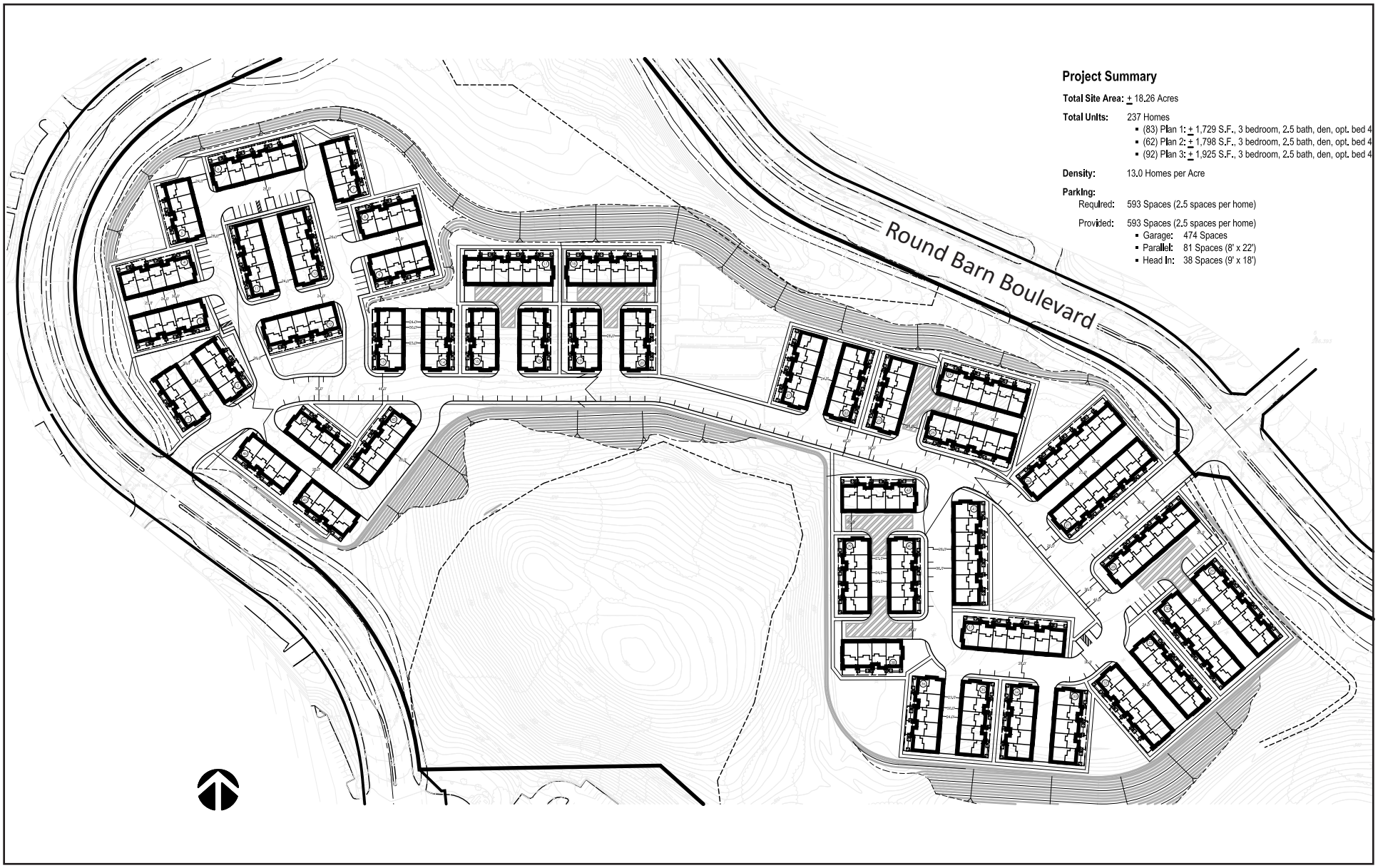

Source: WHA Architects, Planners, Designers, February 2018.

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Exhibit 3
Conceptual Site Plan

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The proposed project consists of 237 new for-sale townhomes in three floor plans ranging from 1,725 square feet to 1,925 square feet. All floor plans depict three stories with 3 to 4 bedrooms (including an optional bedroom on the ground floor) and have standard two-car side-by-side garage. The townhomes are designed with front doors facing onto landscape paseos and open space areas with garage access from the back of the home off an alley. The architectural design of the homes includes a modern farmhouse aesthetic with steep pitch accent roofs, a combination of front and side facing gables, dark board and batt vertical or horizontal lap fire resistant cementitious wood-like siding and lighter color stucco is used to create architectural relief and interest to the buildings. Each home has a front yard patio that provides private open space and second-story balconies are also provided on most homes within the project.

The proposed project includes two points of access including use of the one existing driveway on the east segment of Round Barn Boulevard (currently a large surface parking lot) and one on the west segment of Round Barn Boulevard (near Round Barn Circle). The project would utilize existing driveway locations along Round Barn Boulevard with exiting left-turn lanes that provide adequate site distance for the posted travel speed (25 miles per hour). In addition, as part of the project, the applicant will design and install a traffic signal at the intersection of Fountaingrove Parkway/Round Barn Boulevard West. This intersection is currently stop-controlled and, as shown in the traffic study, the intersection meets the signal warrants under the existing traffic scenario. The project includes sidewalks throughout the interior of the project site providing pedestrian connections throughout the project. Additionally, the existing pedestrian trail encircling the project site will be maintained by the applicant.

2.4 - Discretionary Approvals

The proposed project requires the following discretionary approvals from the City of Santa Rosa:

- Planning Commission approval of the Addendum to the 2017 IS/MND
- Planning Commission approval of the Tentative Map
- Planning Commission approval of the Minor Conditional Use Permit
- Planning Commission approval of the Hillside Development Permit
- Design Review Board approval of Final Design Review

The following responsible and trustee agencies may also use the IS/MND:

- San Francisco Bay Regional Water Quality Control Board (RWQCB)
- Bay Area Air Quality Management District (BAAQMD

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SECTION 3: CEQA ANALYSIS

3.1 - Initial Study/Environmental Checklist

The purpose of the discussion is to evaluate the categories in terms of any changed condition (e.g., changed circumstances, project changes, or new information of substantial importance) that may result in a changed environmental result (e.g., a new significant impact or substantial increase in the severity of a previously identified significant effect) (CEQA Guidelines Section 15162).

Pursuant to Public Resources Code Section 21166, and CEQA Guidelines Sections 15162 and 15164, subd. (b) FirstCarbon Solutions (FCS) has reviewed the checklist categories provided in Appendix G of the CEQA Guidelines, and has determined that no substantial changes in the project, substantial changes in circumstance, or new information of substantial importance would occur with the proposed project. That said, in response to identification of an actual number of units being proposed as part of the Development Project, a project level traffic study has been prepared and is the primary subject of this document. The traffic study determines that the project related and cumulative impacts are consistent with what was analyzed in the IS/MND and no new significant environmental effects or substantial increase in the severity of previously indented significant effects will occur and no major revision to the IS/MND is necessary. Additionally, a summary of the development project's consistency with the IS/MND findings is provided below.

Aesthetics. The IS/MND prepared for the GPA/Rezone determined that the project would have less-than-significant impacts on scenic vistas, would not cause significant damage to scenic resources, or produce significant additional light and glare because the project site previously supported development and is within an urbanized area of Santa Rosa. The IS/MND analyzed potential impacts with the assumed maximum development of 237 new multi-family homes. The development project is consistent with the residential uses contemplated in the IS/MND in terms of product and location. The Tubbs Fire eliminated all of the vegetation on-site. Because the 2017 IS/MND considered development of the site to be consistent with the General Plan and within the urbanized area of Santa Rosa, implementation of the development project does not introduce substantial changes or new information beyond what was considered in the aesthetic analysis of the IS/MND. The conclusions contained in the IS/MND remain valid and no further analysis is required.

Agriculture and Forestry Resources. The IS/MND prepared for the GPA/Rezone determined that the project would have no impact to agriculture and forestry resources because the project site previously supported development, is within an urbanized area of Santa Rosa, and there are no forestry or agricultural resources on-site. Implementation of the proposed development plan does not change the IS/MND findings of no impact. The conclusions contained in the IS/MND remain valid and no further analysis is required.

Air Quality. The IS/MND prepared for the GPA/Rezone determined that the project would have less-than-significant air quality impacts with standard dust abatement and off-road construction equipment diesel engine performance standard mitigation measures incorporated. The IS/MND analysis included detailed analysis of short-term construction and permanent air quality impacts that

could result from build out of 237 new townhomes on the project site. There are no changes in the air quality regulatory environment since the certification of the IS/MND and the development project is consistent with the development pattern anticipated in the IS/MND. Moreover, the IS/MND used a construction schedule that began in 2018 and extended through 2020. Pushing back the construction schedule reduces emissions because the construction fleet gets cleaner over time as newer equipment replaces older equipment. Therefore, implementation of the development project does not introduce substantial changes or new information beyond what was considered in the air quality analysis of the IS/MND. The conclusions contained in the IS/MND remain valid and no further analysis is required. All Mitigation Measures (AIR-1 and AIR-2) shall be required for the development project.

Biological Resources. The IS/MND prepared for the GPA/Rezone determined that the project would have less-than-significant biology impacts with mitigation measures incorporated. The IS/MND analysis included detailed analysis of biota impacts, including field surveys and review and analysis of the California Department of Fish and Wildlife (CDFW), California Natural Diversity Database (CNDDB) and California Native Plant Society (CNPS) data bases. The project site contained 13.66 of mixed oak woodland, including numerous native oak, madrone, and California bay. The Tubbs Fire burned vegetation on a portion of the project site (including trees) and, thus, eliminated any potential habitat for special status species in those areas. The areas affected include a small area in the western portion of the project site near where the existing access road and gate from Round Barn Boulevard are located, as well as a small area along Nagasawa Creek, and a small area between the on-site parking lot and Fountain Grove Parkway.

The IS/MND assumed the development of 237 new townhomes on a portion of the project site, with the remainder of the site to remain as open space. The development project is consistent with the level of development and site disturbance anticipated in the IS/MND (including product type and location of the development and open space within the project site). There are no changes in the biota regulatory environment since the certification of the 2017 IS/MND. Therefore, implementation of the development project does not introduce substantial changes or new information beyond what was considered in the biological resources analysis of the IS/MND. The conclusions contained in the IS/MND remain valid and no further analysis is required. All Mitigation Measures (BIO-1 and BIO-2) shall be required for the development project.

Cultural Resources. The IS/MND prepared for the GPA/Rezone determined that the project would have less-than-significant cultural resources impacts with mitigation measures incorporated. The IS/MND analysis included detailed analysis of cultural resource impacts, including a pedestrian survey, and review and analysis of records and information provided by the California Native American Heritage Commission, Northwest Information Center, National Register of Historic Places, California Register of Historic Resources, California Historical Landmarks, and the California Points of Historic Interest List. The IS/MND assumed development of 237 new townhomes on a portion of the project site, with the remainder of the site to remain as open space. The development project is consistent with the level of development and disturbance footprint anticipated in the IS/MND, and there are no changes in the cultural resources regulatory environment since the certification of the 2017 IS/MND. Therefore, implementation of the development project does not introduce substantial changes or new information beyond what was considered in the cultural resources

analysis of the IS/MND. The conclusions contained in the IS/MND remain valid and no further analysis is required. All Mitigation Measures (CUL-1, CUL-2 and CUL-3shall be required for the development project.

Geology and Soils. The IS/MND prepared for the GPA/Rezone determined that the project would have less-than-significant geology and soils impacts with mitigation measures in the form of compliance with California Building Standards Code standards being incorporated. The IS/MND analysis included evaluation of the project's proximity to Alquist-Priolo Fault and the Rodgers Creek Fault. The IS/MND accurately determined the project site is not located in the Alquist-Priolo study zone, but is very proximate to the Hayward Rogers Creek Fault and therefore, subject to 'very strong' seismic shaking. The IS/MND assumed development of 237 new townhomes on a portion of the project site with the remainder of the site to remain in open space. A site specific geotechnical report has been prepared for the project site and has concluded that there are two fault traces that occur within the project site. Consistent with the IS/MND, as a condition of approval, the project would be required to incorporate the applicable recommendations of the geotechnical report, including applicable setbacks from fault traces. The development project is consistent with the level of development and disturbance footprint anticipated in the IS/MND and there are no changes in the geology and soils regulatory environment since the certification of the 2017 IS/MND. Therefore, implementation of the development project does not introduce substantial changes or new information beyond what was considered in the geology and soils analysis of the IS/MND. The conclusions contained in the IS/MND remain valid and no further analysis is required. All Mitigation Measures (GEO-1) shall be required for the development project.

Greenhouse Gas Emissions. The IS/MND prepared for the GPA/Rezone determined that the project would have less-than-significant greenhouse gas (GHG) impacts. The IS/MND analysis included detailed analysis of short-term construction and permanent GHG impacts that could result from build out of 237 new townhomes on the project site. The IS/MND evaluated consistency with the City of Santa Rosa Climate Action Plan and found that it was consistent with all applicable measures, which would be applied via standard conditions of approval. There are no changes in the regulatory environment since the certification of the 2017 IS/MND, and the development project is consistent with the development pattern anticipated in the IS/MND. Therefore, implementation of the development project does not introduce substantial changes or new information beyond what was considered in the greenhouse analysis of the IS/MND. The conclusions contained in the IS/MND remain valid and no further analysis is required.

Hazards. The IS/MND prepared for the GPA/Rezone determined that the project would have less-than-significant hazard and hazardous materials impacts with mitigation measures incorporated. The IS/MND evaluated potential impacts upon use, storage and transport of hazardous materials, proximity to airports and exposure to people or structures for wildfire that could result from development of up to 237 new townhomes on the project site.

The Hazard IS/MND topic analysis was discussed during the Planning Commission and the City Council hearings to consider the GPA and Rezone. The IS/MND concludes that the project is mapped by Calfire and the US Forest Service as having 'low' fire potential. While these statements regarding the Calfire and US Forest Service maps are true, it was further clarified by City staff and by FCS at the

Planning Commission and City Council hearings that the project site is in the City's Wildland Urban Interface Zone (WUI Zone). The development project is subject to all applicable building and fire codes for new construction in the WUI Zone. The project sponsor also provided written correspondence to the City Council on February 1, 2018, outlining the project's commitment to building a new townhome community that meets and exceeds Building and Fire Code requirements and a list of measures that will be included as part of the project:

- All electric townhomes, no natural gas lines or gas meters will be constructed within the community
- NFPA Fire sprinklers and fire alarms systems will be installed in all homes
- Non-combustible, Class A roofing materials
- Fire-rated doors
- Fire-rated windows
- Weather-striping all exterior doors (including garages)
- Venting enhancements, boxed in eaves and overhangs to prevent ember intrusion
- Gutter screens and guards to reduce buildup of nettles and debris accumulation
- Fire-rated exterior materials, including decking and all building trim (no combustible wood)
- Landscape design, planting and maintenance plans in compliance with Defensible Space
- Practices prepared in collaboration with SRFD
- Vegetation Fuel Management Plan to be prepared in collaboration with SRFD

While there are no changes in the regulatory environment since the certification of the 2017 IS/MND; there were significant change to the project site and surrounding land uses as a result of the Tubbs Fire in October 2017. A supplemental memorandum (post-fire assessment memo) was prepared by FCS on October 26, 2017 (Appendix B), to document post-fire conditions on the project site. As stated in the memorandum, the changes to the on-site vegetation and the surrounding buildings and structures did not change the analysis nor require changes to the IS/MND.

Much of the grass areas of the project site exhibit evidence of fire activity, with the most prominently burned areas located on the northern half of the project site. The significant areas of larger vegetation (trees) surrounding the riparian area of Nagasawa Creek on the northeast side, and located along Fountaingrove Parkway on the southeast side appear to be only minimally impacted; however, it appears that understory vegetation burn may have occurred throughout these areas. Understory burn may have also significantly damaged the trunks of larger trees to the extent that removal would be required.

Significant large tree loss resulting from fire activity appears to have occurred primarily in a small area in the western portion of the project site near where the existing access road and gate from

Round Barn Boulevard are located, as well as a small area along Nagasawa Creek, and a small area between the on-site parking lot and Fountain Grove Parkway. No buildings are located on the project site; therefore, no structural burn debris would require removal. Considering the level of destruction that occurred elsewhere as a result of the wildfires, the Round Barn Village project site appears to have survived in relatively good shape in terms of remaining vegetation.

Areas surrounding the project site were also affected by the fire in varying degrees. The majority of the Hilton Hotel to the southwest was destroyed. Other immediately adjacent buildings, including the closest sensitive receptors considered in the IS/MND, are still present.

As anticipated in the IS/MND and further discussed at the prior Planning Commission and City Council meetings, the development project will be subject to compliance with the most current City of Santa Rosa building and fire code standards review. Implementation of the development project does not introduce substantial changes or new information beyond what was considered in the hazards analysis of the IS/MND. The conclusions contained in the IS/MND remain valid and no further analysis is required.

Hydrology and Water Quality. The IS/MND prepared for the GPA/Rezone determined that the project would have less-than-significant hydrology and water quality impacts. The IS/MND analysis considered potential impacts upon site drainage, groundwater, and run off that could occur from the maximum development pattern of 237 new homes upon the project site. The proposed project would involve the same amount of disturbance in the same locations as contemplated in the IS/MND and, thus, would result in the same amount of impervious surface and result in similar impacts. There are no changes in the regulatory environment since the certification of the 2017 IS/MND and the development project is consistent with the development pattern anticipated in the IS/MND. Therefore, implementation of the development project does not introduce substantial changes or new information beyond what was considered in the hydrology and water quality analysis of the IS/MND. The conclusions contained in the IS/MND remain valid and no further analysis is required.

Land Use. The IS/MND prepared for the GPA/Rezone determined that the project would have less than significant land use impacts. The IS/MND further determined that the future development of the project site with residential uses would further the land use policy objectives; specifically, Policy LUL-F Maintain a diversity of neighborhoods and varied housing stock to satisfy a wide range of needs. The proposed project would develop the same number, type, density and location of residential uses analyzed in the 2017 IS/MND. The development project does not change or introduce new land use impacts. The conclusions contained in the IS/MND remain valid and no further analysis is required.

Mineral Resources. The IS/MND prepared for the GPA/Rezone determined that the project would have less than significant impacts to mineral resources. The project site is in a Mineral Resource Zone as identified by the California Geological Survey; however, there are no mineral resource recovery sites on or in the vicinity of the project site. Implementation of the proposed development plan does not change the IS/MND findings upon mineral resources. The conclusions contained in the IS/MND remain valid and no further analysis is required.

Noise. The IS/MND prepared for the GPA/Rezone determined that the project would have less-than-significant noise impacts with mitigation measures. The IS/MND analysis included detailed analysis of short-term construction and permanent noise impacts, including on-site noise measurements, that could result from build out of 237 new townhomes on the project site. There are no changes in the regulatory noise environment since the certification of the 2017 IS/MND and the development project is consistent with the development pattern anticipated in the IS/MND. Therefore, implementation of the development project does not introduce substantial changes or new information beyond what was considered in the noise analysis of the IS/MND. The conclusions contained in the IS/MND remain valid and no further analysis is required. All Mitigation Measures (NOI-1) apply to the implementation of the development project.

Population and Housing. The IS/MND prepared for the GPA/Rezone determined that the project would have a less than significant impact to population and housing. The IS/MND further determined that the future development of the project site with the residential uses, which is what is proposed under the development plan, would further the City's Housing Action Plan objectives to eliminate the City's housing shortage. The development project does not change or introduce new population and housing impacts. The conclusions contained in the IS/MND remain valid and no further analysis is required.

Public Services. The IS/MND prepared for the GPA/Rezone determined that the project would result in less than significant public service impacts. The IS/MND analyzed the potential for development of up to 237 new homes on the project site. The IS/MND found that the project site was located within an area served by adequate levels of fire, police, schools, and parks such that new or expanded facilities would not be required. The October 2017 Tubbs Fire resulted in the temporary closure of Fire Station No. 5 to address fire damage.

Fire emergency response service would still be provided by Fire Station No. 3, which is located 2 miles from the project site and closer than Fire Station No. 5, and thus provides for adequate fire response times. The development project is consistent with the development pattern anticipated in the IS/MND. The development project does not change or introduce new public service impacts. The conclusions contained in the IS/MND remain valid and no further analysis is required.

Recreation. The IS/MND prepared for the GPA/Rezone determined that the project would result in less than significant recreation impacts. The IS/MND analyzed the potential for development of up to 237 new homes on the project site. The development project is consistent with the development pattern anticipated in the IS/MND. The development project does not change or introduce new recreation impacts. The conclusions contained in the IS/MND remain valid and no further analysis is required.

Transportation/Traffic. The IS/MND prepared for the GPA/Rezone included a programmatic traffic analysis to compare the previous office designation build out against residential rezone buildout. A project-specific traffic study was prepared for the development project (refer to Appendix A).

The IS/MND provided project level analysis for all CEQA topical areas, with the exception of transportation, for which a programmatic analysis, based on total trip budget, was provided. The analysis compared potential trip generation from buildout under the previous land use and zoning

designations (Business Park/PD72-001—Highway/Tourist/Office Commercial) to that of buildout under the current land use and zoning designations (Medium Low Density Residential/Single-Family Residential (R-1)). Previously allowable land uses included hotel and office uses, as accounted for in the City General Plan. Table 23 of the IS/MND shows both the previously entitled (hotel and office) baseline and proposed (and now current) residential development trip generation for comparison. In summary, the previously entitled baseline use would have generated approximately 3,868 daily trips, including 464 trips during the AM peak period and 442 trips during the PM peak period. Future residential development, resulting from the GPA and Rezone, would generate approximately 1,560 daily trips, including 120 trips during the AM peak hour and 148 trips during the PM peak hour. Thus, the IS/MND determined that future residential development would generate approximately 2,308 fewer daily trips, 344 fewer net trips during the AM peak hour, and 294 fewer net new trips during the PM peak hour. As such, as part of the project approval and IS/MND certification, the City determined the Round Barn Village Project GPA and Rezone would not result in potentially significant impacts to the transportation system at a programmatic level.

As indicated in the IS/MND Transportation section, future residential development proposed on the project site under the new land use and zoning designations would be required to submit a project-specific traffic impact study as part of project entitlements and approval (refer to General Plan Policy T-D-3), as applicable. The project-specific traffic impact study would evaluate consistency of the future development with existing and future traffic conditions in relation to level of service impacts and goals. This analysis would ensure that future development would not conflict with applicable plans, ordinances, or policies establishing measures of effectiveness for circulation system performance. Project-related effects on all other topical areas listed in the transportation checklist (incompatible uses, hazardous design, non-vehicular mobility, etc.) were determined to result in either no impacts or less than significant impacts.

Tribal Cultural Resources. The IS/MND prepared for the GPA/Rezone determined that the project would result in less than significant tribal cultural resource impacts. The IS/MND included correspondence with the Native American Heritage Commission to review its sacred lands file. The NAHC responded that no sacred sites were listed as present in the project area. Additionally, a letter from Lytton Rancheria was received indicating that further tribal consultation has not been requested. No specific tribal consultation mitigation measures were included in the IS/MND; however, Mitigation Measures CUL-2 and CUL-3 require on-site monitoring by a licensed professional during initial site grading to assure any potential subsurface findings are documented and reported properly. Both mitigation measures are required.

Utilities and Service Systems. The IS/MND prepared for the GPA/Rezone determined that the project would have less-than-significant utility and service system impacts. The IS/MND analysis considered potential impacts upon wastewater treatment, stormwater drainage, water supply, and landfill service needs that could occur from the maximum development pattern of 237 new homes upon the project site. There are no changes in the regulatory environment since the certification of the 2017 IS/MND, and the development project is consistent with the development pattern anticipated in the IS/MND. The 2017 Tubbs Fire did not affect the availability of the water supply to the project vicinity. Therefore, implementation of the development project does not introduce substantial changes or new information beyond what was considered in the utility and service

systems analysis of the IS/MND. The conclusions contained in the IS/MND remain valid and no further analysis is required.

3.2 - Transportation Analysis

Consistent with the requirements identified in the IS/MND for future on-site development, a traffic impact study (Appendix A) has been prepared for the 237-unit residential development proposed on the project site. The study analyzes consistency with applicable plans, ordinances, and policies that establish performance measures for the circulation system. The following is a summary of the study's analysis and conclusions.

3.2.1 - Traffic Impact Study Summary

Consistent with the 2017 IS/MND, the traffic impact study assumed 237 new residential units. The study also assumed traffic patterns and vehicular volumes from May 2017, which reflect pre-fire roadway conditions and more accurate future roadway conditions. The study included an analysis of the distribution of project-related trips on five study intersections, listed below (see Appendix A, Tables 2 through 7a). The analysis considered the project's impact on level of service (LOS) standards and increases in delay at each intersection under six planning scenarios (see Appendix A, pages 1 and 2).

Study Intersections

1. Fountaingrove Parkway/Mendocino Avenue
2. Fountaingrove Parkway/Round Barn Boulevard West
3. Fountaingrove Parkway/Round Barn Boulevard East
4. Cleveland Avenue/Industrial Drive
5. US 101 NB Ramp/Mendocino Avenue

Planning Scenarios

1. Existing Conditions
2. Existing Plus Project Conditions
3. Short-Term Cumulative Conditions
4. Short-Term Cumulative Plus Project Conditions
5. Cumulative (2040) No Project Conditions
6. Cumulative (2040) Plus Project Conditions

The City has adopted LOS standards in its General Plan. As discussed in the study, the City considers an impact significant if a project would substantially induce additional travel that requires additional capacity in congested areas. The City uses LOS as a qualitative measure to describe travel conditions, defined as letter designations A through F. The General Plan specifies that the City will maintain a LOS D or better along major corridors. In addition, the City would also consider an impact to a study intersection as significant if the intersection already operates at an unacceptable LOS (E or F) and a project would generate trips that causes the existing average delay to increase by more than 5 seconds and increase in the intersection's maximum volume-to-capacity (V/C) ratio of greater than 2 percent. The City further specifies that the delay and V/C ratio should be determined by comparing

intersection operations with and without the project's traffic, for both the existing baseline and projected future conditions.

The project is expected to generate approximately 109 new trips during the AM peak hour and 128 new trips during the PM peak hour (Table 1).

Table 1: Project Trip Generation

Land Use (ITE Code)	Size	A.M. Peak Hour				P.M. Peak Hour				Daily	
		Rate	In	Out	Total	Rate	In	Out	Total	Rate	Trips
Multifamily Housing—Low Rise (220)	237 DU	EqA	25	84	109	EqB	81	47	128	DqC	1,751
Totals		—	**25**	**84**	**109**	—	**91**	**47**	**128**	—	**1,751**

Notes:
EqA: Ln(T) = 0.95Ln(X)-0.51
EqB: Ln(T) = 0.89Ln(X)-0.02
EqC: T = 7.56(X)-40.86
T: Trips; X: Number of Dwelling Units
Source: Trip Generation Manual, 10th Edition, ITE, 2017: AMG, March 2018.

Currently, one of the five study intersections operate at unacceptable LOS E or worse. Under Existing Plus Project Conditions, which includes the signalization and increasing storage for eastbound left-turn lane at the Fountaingrove Parkway/Round Barn Blvd West intersection, the intersection would operate at acceptable LOS. For the remaining intersection, which would operate at unacceptable LOS, the project would not result in more than 5 seconds of increased average delay and an increase of greater than 2 percent in the intersection's maximum volume-to-capacity (V/C) ratio and, therefore, would not have a significant impact.

Under the Short-Term Cumulative Project study conditions, one of the five study intersections is expected to operate at unacceptable LOS E or worse (Fountaingrove Parkway and Round Barn Boulevard LOS F). Under the Short-Term Cumulative Plus Project Conditions, the intersection would operate at acceptable LOS B and all other study intersections continue to operate at acceptable LOS and therefore would not have a significant impact.

Under 2040 Plus Project Conditions, the four study intersections that would operate at LOS D or better under 2040 No Project Conditions are expected to continue operating acceptably. The one study intersection that would operate at LOS E or worse under 2040 No Project Conditions would continue operating unacceptably under the 2040 Plus Project Conditions. The proposed project does not result in a significant impact at this intersection due to the limited increase to the average delay and the V/C ratio.

Implementation of the proposed project, including construction of the traffic signal at the intersection of Fountaingrove Parkway/Round Barn Boulevard West, would not result in any additional significant impacts.

3.3 - Findings

This Addendum analyzes all CEQA topical areas and finds that the potential environmental impacts associated with the proposed project are consistent with the impacts analyzed in the 2017 IS/MND. The project-specific transportation study conclusions are consistent with the findings of the 2017 IS/MND and no new impacts will occur, and no additional mitigation measures are required. Consistent with the 2017 IS/MND, the project would not cause a substantial delay along major corridors or increase the existing average delay at an intersection. With the completion of the project-level traffic study, the City has considered the impacts of residential uses and mitigated potential impacts to a level below significance within the IS/MND. The project would not cause new significant environmental effects or substantial increases in the severity of significant effects beyond those previously identified as part of the City's environmental review process. None of the circumstances under CEQA Guidelines Section 15162 are triggered; therefore, no additional analysis is required.

This addendum and attached documents constitute substantial evidence supporting the conclusion that preparation of a supplemental or subsequent EIR or ND is not required prior to approval of the necessary permits for the proposed project by responsible and trustee agencies, and provides the required documentation under CEQA.

The City of Santa Rosa Planning Commission may rely upon this Addendum, together with the IS/MND and fire memorandum, and take action on the project application for the Round Barn Village Project. The impacts of the proposed project will not be more significant than the impacts previously analyzed in the IS/MND and none of the conditions described in Section 15162 has occurred (CEQA Guidelines Section 15164).

Appendix A:
Traffic Impact Study

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Redefining Mobility.

7/23/2018

Gary Broad
Contract Planner
City of Santa Rosa
100 Santa Rosa Avenue
Santa Rosa, CA 95404

Subject: Revision to Traffic Impact Study for the Round Barn Village Development Project

Dear Gary:

AMG prepared the Traffic Impact Study (TIS), dated July 9, 2018 (TIS-1), for the Round Barn Village Development project. The report was then revised and updated for submittal on July 23, 2018 (TIS-2). The purpose of this memo is to clarify a revision in the level of service (LOS) analysis between the two reports.

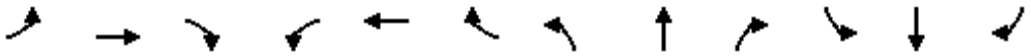
The TIS-1 concluded that the project would result in a significant impact at the intersection of Cleveland/Industrial due to a more than 5 second increase in delay and a V/C increase of over 2%. As included in the TIS-1 report, the northbound right-turn movement showed an "incremental delay" of 338.9 seconds, which resulted in an average delay of 266.9 seconds for the northbound approach and LOS F for the intersection. However, based on further review and knowledge of the study area, this amount of delay was doubtful. Upon consultation with TrafficWare, the developer of Synchro software, which was used for modeling the intersection and determining the LOS, it was determined that the model was assuming no right-turn-on-red (RTOR) at this intersection when using the HCM 2010 methodology. Unless the RTOR volumes are input manually, the software assumed no RTOR and thereby significantly increased the delay at the intersection for the northbound right turn movement. AMG compared between the HCM 2000 and HCM 2010 results for all the study intersections under all study scenarios without touching HCM 2010 RTOR defaults. The comparison results show that the intersection of Cleveland/Industrial and the intersection of Fountaingrove Pkwy/Mendocino Ave are the only two intersections that were significantly affected by this conservative default setting for RTOR (meaning HCM 2000 results are significantly better than HCM 2010 results). Based on consultation with TrafficWare, the Synchro model was adjusted to account for the RTOR traffic at these two intersections and the results of the updated LOS analysis are presented in TIS-2.

Please feel free to contact me with any questions.

Sincerely,

Joy Bhattacharya

Joy Bhattacharya, Vice President
Advanced Mobility Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	22	247	148	220	175	475	119	116	369	517	508	45
Future Volume (vph)	22	247	148	220	175	475	119	116	369	517	508	45
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		3.6	3.0		3.0	3.0	3.0	3.6		3.0	3.6	
Lane Util. Factor		1.00	1.00		1.00	1.00	1.00	0.95		1.00	0.95	
Frpb, ped/bikes		1.00	0.99		1.00	0.99	1.00	1.00		1.00	1.00	
Flpb, ped/bikes		1.00	1.00		1.00	1.00	1.00	1.00		1.00	1.00	
Frt		1.00	0.85		1.00	0.85	1.00	0.89		1.00	0.99	
Flt Protected		1.00	1.00		0.97	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)		1855	1564		1812	1574	1770	3135		1770	3489	
Flt Permitted		1.00	1.00		0.97	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (perm)		1855	1564		1812	1574	1770	3135		1770	3489	
Peak-hour factor, PHF	0.89	0.89	0.89	0.93	0.93	0.93	0.94	0.94	0.94	0.96	0.96	0.96
Adj. Flow (vph)	25	278	166	237	188	511	127	123	393	539	529	47
RTOR Reduction (vph)	0	0	58	0	0	204	0	358	0	0	4	0
Lane Group Flow (vph)	0	303	108	0	425	307	127	158	0	539	572	0
Confl. Peds. (#/hr)			5									1
Confl. Bikes (#/hr)			1			1						1
Turn Type	Split	NA	pm+ov	Split	NA	pm+ov	Prot	NA		Prot	NA	
Protected Phases	2	2	3	6	6	7	3	8		7	4	
Permitted Phases			2			6						
Actuated Green, G (s)		27.0	41.2		35.7	77.8	14.2	11.7		42.1	39.6	
Effective Green, g (s)		27.0	41.2		35.7	77.8	14.2	11.7		42.1	39.6	
Actuated g/C Ratio		0.21	0.32		0.28	0.60	0.11	0.09		0.32	0.31	
Clearance Time (s)		3.6	3.0		3.0	3.0	3.0	3.6		3.0	3.6	
Vehicle Extension (s)		3.0	2.0		3.0	2.0	2.0	2.0		2.0	2.0	
Lane Grp Cap (vph)		386	496		498	944	193	282		574	1065	
v/s Ratio Prot		c0.16	0.02		c0.23	0.11	c0.07	0.05		c0.30	0.16	
v/s Ratio Perm			0.05			0.09						
v/c Ratio		0.78	0.22		0.85	0.32	0.66	0.56		0.94	0.54	
Uniform Delay, d1		48.6	32.4		44.5	12.9	55.4	56.5		42.6	37.4	
Progression Factor		1.00	1.00		1.00	1.00	1.00	1.00		1.00	1.00	
Incremental Delay, d2		10.1	0.1		13.3	0.1	6.0	1.5		23.0	0.3	
Delay (s)		58.7	32.5		57.8	13.0	61.5	58.1		65.5	37.7	
Level of Service		E	C		E	B	E	E		E	D	
Approach Delay (s)		49.4			33.3			58.7			51.1	
Approach LOS		D			C			E			D	

Intersection Summary			
HCM 2000 Control Delay	47.2	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.85		
Actuated Cycle Length (s)	129.7	Sum of lost time (s)	13.2
Intersection Capacity Utilization	94.6%	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												
Traffic Volume (veh/h)	22	247	148	220	175	475	119	116	369	517	508	45
Future Volume (veh/h)	22	247	148	220	175	475	119	116	369	517	508	45
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		0.99	1.00		1.00	1.00		0.98
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1900	1863	1863	1900	1863	1863	1863	1863	1900	1863	1863	1900
Adj Flow Rate, veh/h	25	278	166	237	188	511	127	123	393	539	529	47
Adj No. of Lanes	0	1	1	0	1	1	1	2	0	1	2	0
Peak Hour Factor	0.89	0.89	0.89	0.93	0.93	0.93	0.94	0.94	0.94	0.96	0.96	0.96
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	29	322	428	252	200	891	152	256	229	562	1250	111
Arrive On Green	0.19	0.19	0.19	0.25	0.25	0.25	0.09	0.14	0.14	0.32	0.38	0.38
Sat Flow, veh/h	153	1702	1550	1011	802	1563	1774	1770	1583	1774	3282	291
Grp Volume(v), veh/h	303	0	166	425	0	511	127	123	393	539	284	292
Grp Sat Flow(s),veh/h/ln	1855	0	1550	1812	0	1563	1774	1770	1583	1774	1770	1804
Q Serve(g_s), s	21.9	0.0	12.0	31.8	0.0	0.0	9.7	8.8	20.0	41.2	16.4	16.5
Cycle Q Clear(g_c), s	21.9	0.0	12.0	31.8	0.0	0.0	9.7	8.8	20.0	41.2	16.4	16.5
Prop In Lane	0.08		1.00	0.56		1.00	1.00		1.00	1.00		0.16
Lane Grp Cap(c), veh/h	351	0	428	452	0	891	152	256	229	562	674	687
V/C Ratio(X)	0.86	0.00	0.39	0.94	0.00	0.57	0.84	0.48	1.71	0.96	0.42	0.42
Avail Cap(c_a), veh/h	443	0	506	459	0	898	450	256	229	642	674	687
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	54.3	0.0	40.7	50.8	0.0	19.2	62.2	54.3	59.0	46.3	31.5	31.6
Incr Delay (d2), s/veh	13.5	0.0	0.6	27.6	0.0	0.9	4.6	0.5	338.9	23.2	0.2	0.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	12.5	0.0	5.2	19.4	0.0	12.6	5.0	4.3	30.3	23.8	8.0	8.2
LnGrp Delay(d),s/veh	67.7	0.0	41.3	78.4	0.0	20.1	66.8	54.8	398.0	69.5	31.7	31.7
LnGrp LOS	E		D	E		C	E	D	F	E	C	C
Approach Vol, veh/h		469			936			643			1115	
Approach Delay, s/veh		58.4			46.6			266.9			50.0	
Approach LOS		E			D			F			D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2	3	4		6	7	8
Phs Duration (G+Y+Rc), s		29.7	14.8	56.2		37.4	47.4	23.6
Change Period (Y+Rc), s		3.6	3.0	3.6		3.0	3.6	* 3.6
Max Green Setting (Gmax), s		33.0	35.0	50.0		35.0	50.0	* 20
Max Q Clear Time (g_c+I1), s		23.9	11.7	18.5		33.8	43.2	22.0
Green Ext Time (p_c), s		1.6	0.2	2.4		0.6	0.6	0.0

Intersection Summary	
HCM 2010 Ctrl Delay	94.3
HCM 2010 LOS	F

Notes

Traffic Impact Study for Round Barn Development

Prepared for:
City of Santa Rosa

Prepared by:
Advanced Mobility Group

July 23, 2018

Sign-Off Sheet

This document entitled Traffic Impact Study for Round Barn Development was prepared by Advanced Mobility Group (AMG) for the account of City Ventures (Client).

Prepared by _____

(Signature)

Joanna Liu, PE

Reviewed by _____

(Signature)

Joy Bhattacharya, PE, PTOE

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1.0 INTRODUCTION AND SUMMARY

1.1 INTRODUCTION

This report presents the results of a traffic impact analysis for the proposed Round Barn Development (herein referred to as "Project") located in the Fountaingrove neighborhood on Round Barn Boulevard.

Earlier this year, the City Council approved a General Plan Amendment & Rezone that changed the land use designation from business park/office to medium low density and open space. The Project consists of 237 new, for-sale townhomes that will occupy a portion of the 40-acreProject site. Additionally, as part of the project, the applicant will install a new traffic signal at the intersection of Round Barn Boulevard and Fountain Grove Parkway.

The purpose of this traffic study is to evaluate the effect of the proposed Project on the existing roadway network. The report includes the results of a traffic operations analysis, as well as an assessment of site access; adequacy of Project-provided parking; transit, bicycle, and pedestrian access.

2.0 STUDY SCOPE AND APPROACH

2.1 STUDY SCOPE

AMG evaluated traffic conditions at five (5) study intersections during a.m. and p.m. peak hours for a typical weekday. The peak periods observed were between 7:00-9:00 a.m. and 4:00-6:00 p.m. The study intersections are as follows:

1. Fountaingrove Parkway / Mendocino Avenue
2. Fountaingrove Parkway / Round Barn Boulevard West
3. Fountaingrove Parkway / Round Barn Boulevard East
4. Cleveland Avenue / Industrial Drive
5. US 101 NB Ramp / Mendocino Avenue

Included in Appendix A, **Figure 1** illustrates the study intersections and proposed Project vicinity. **Figure 2** shows the Project site plan. **Figure 3** illustrates the existing lane geometry and traffic controls for the study intersections.

This study addresses the following six (6) traffic scenarios:

- *Existing Conditions* – This scenario evaluates current intersection conditions based on field surveys and existing vehicle, bicycle, and pedestrian counts.
- *Existing Plus Project Conditions* – This scenario is identical to the Existing Conditions, but with the addition of proposed Project traffic.
- *Short-Term Cumulative Conditions* - This scenario evaluates current intersection conditions with the addition of approved project. Short-Term Cumulative Conditions reflect the

addition of traffic associated with the known projects that may be constructed and/or become operational in the study area in the next couple of years (by 2020). Relevant projects used in Short-Term Cumulative Conditions were selected based on the expected impact to the proposed project. A list of pending developments and associated traffic information was provided by the City. See Section 4 for a list of the projects included in the Short-Term Cumulative Conditions.

- *Short-Term Cumulative Plus Project Conditions* - This scenario is identical to the Short-Term Cumulative Conditions, but with the addition of proposed Project traffic.
- *Cumulative (2040) No Project Conditions* – This scenario evaluates Cumulative 2040 conditions based on volume growths from the Sonoma County Countywide Travel Demand Model. The proposed Project traffic was subtracted to get the No Project Conditions.
- *Cumulative (2040) Plus Project Conditions* – This scenario is identical to the Cumulative No Project Conditions, but with the addition of proposed Project traffic.

2.2 LEVEL OF SERVICE ANALYSIS METHODOLOGY

LOS analysis is conducted to determine if the proposed Project substantially induces additional travel requiring additional capacity in congested areas. LOS is a qualitative measure describing operational conditions within a traffic stream. There are six levels of service defined for each type of facility (i.e., roadway or intersection) that is analyzed. LOS has letter designations ranging from A to F, with LOS A representing free flow traffic with little or no delay and LOS F representing jammed conditions with excessive delay and long back-ups. Procedures for analyzing each type of facility are based on the *Highway Capacity Manual 2010 (HCM 2010)*. The LOS for each study intersection was determined in the software package, Synchro 10.

2.3 LEVEL OF SERVICE (LOS) STANDARDS AND THRESHOLDS

The City of Santa Rosa has established LOS standards, as presented in the *Santa Rosa General Plan 2035:*

- The City will maintain a LOS D or better along all major corridors (TD-1)

Although the above standard does not indicate criteria for intersection operations, evaluation of individual intersections, instead of along the corridor, is typically more conservative.

Impact to a study intersection is also considered significant if:

- If the intersection currently operates or is projected to operate below LOS D, the project's impact is considered significant and cumulatively considerable if it causes the average delay to increase by more than five seconds and an increase in the intersection's maximum volume-to-capacity (V/C) ratio of greater than two percent (2%). The delay and V/C ratio will be determined by comparing intersection operations with and without the project's traffic for both the existing baseline and projected future conditions.

Per the above, this study applied an operating standard of LOS D for signalized intersection operations to be considered acceptable. The Project would have a significant impact if an intersection operating acceptably without the Project degrades to unacceptable operations

(i.e., LOS E or F) with the addition of Project traffic. For intersections with unacceptable operations without consideration of the Project (i.e., LOS E or F under a "no Project" scenario), a significant impact would result if the addition of Project traffic causes an increase to intersection delay of more than five seconds and an increase of the intersection's maximum V/C ratio of greater than two percent (2%).

2.4 SURROUNDING ROADWAY NETWORK

Round Barn Boulevard is a four-lane local roadway (25 MPH posted speed limit) that runs in a loop (East/West), connecting to Fountaingrove Parkway, between US 101 and Bicentennial Way.

2.5 TRANSIT SERVICE

The proposed Project site is served by Santa Rosa's CityBus. CityBus provides fixed route service to and from residential neighborhoods and downtown transit hubs.

Route 10 of the bus service services multiple locations on Round Barn Boulevard and operates Monday through Friday from 6:15 a.m. to 8:15 p.m. with approximately one-half-hour headways.

2.6 BICYCLE FACILITIES

Bicycle facilities are comprised of Class I pathways, Class II bicycle lanes, and Class III bicycle routes. Along Round Barn Boulevard, there is an existing Class 1 path that runs along the inside of the loop made by the roadway. There are existing Class I and Class II bicycle routes that parallel Fountaingrove Parkway and Class II bicycle lanes on Mendocino Avenue.

2.7 PEDESTRIAN FACILITIES

Generally, the Project site is well served by pedestrian facilities. There are continuous pedestrian facilities along Round Barn Boulevard and Fountaingrove Parkway.

There is also a pedestrian pathway that encircles most of the Project site. The pathway has historically been popular and well-used by nearby residents and employees.

2.8 EXISTING TRAFFIC VOLUMES

In October 2017, the deadly Tubbs fire destroyed over 1,500 homes and numerous commercial properties in the Fountaingrove area. As a result, existing roadway conditions and vehicular volumes no longer represent the historic and pre-fire conditions. However, it is assumed that traffic patterns and vehicular volumes will return to pre-fire levels once clean-up and restoration efforts are complete. For this reason, pre-fire traffic volumes from May 2017 were used for this study.

The project collected weekday vehicle, pedestrian, and bicycle volumes at all study intersections during a.m. (7:00 a.m. – 9:00 a.m.) and p.m. (4:00 p.m. – 6:00 p.m.) peak periods on May 10, 2017. Existing peak hour turning movements can be found in Appendix A, **Figure 4.** The detailed traffic counts are included in Appendix B.

2.9 INTERSECTION OPERATING CONDITIONS – EXISTING CONDITIONS

Table 1 summarizes peak hour LOS at the study intersections under Existing Conditions. As shown, under Existing Conditions, Intersections 1, 3, 4 and 5 operate at LOS D or better during both peak hours. Intersection 2 operates at LOS F during both peak hours. LOS worksheets are provided in Appendix C.

Intersection 2 currently operates with Two-Way Stop Control (TWSC). Under Existing Conditions, the peak hour signal warrant is met, as shown in Appendix I.

Table 1: Peak Hour Intersection LOS - Existing Conditions

ID	Intersection	Traffic Control	AM Peak			PM Peak		
			Avg. Delay (sec)	V/C	LOS	Avg. Delay (sec)	V/C	LOS
1	Fountaingrove Pkwy & Mendocino Ave	Signal	40.5	0.98	D	47.0	1.00	D
2	Fountaingrove Pkwy & Round Barn Blvd West	TWSC	178.2	0.47	**F**	50.3	0.59	**F**
3	Fountaingrove Pkwy & Round Barn Blvd East	Signal	5.8	0.68	A	7.2	0.49	A
4	Cleveland Ave & Industrial Dr	Signal	35.2	0.88	D	35.7	0.92	D
5	US 101 NB Ramp & Mendocino Ave	Signal	27.9	0.90	C	30.2	0.82	C

Notes: Delay is presented in seconds per vehicle; LOS = Level of Service
Bold indicates unacceptable LOS

3.0 EXISTING PLUS PROJECT CONDITIONS

This scenario is identical to Existing Conditions, but with the addition of proposed Project traffic.

3.1 TRIP GENERATION

The Institute of Transportation Engineers (ITE) has compiled the results of trip generation research from over 4,250 individual land use studies throughout the United States and Canada. The 10th edition of the *Trip Generation Manual* contains trip generation rates for over 140 different land use codes. Trip generation rates for the proposed Project are based on data published in this reference. ITE Land Use Code 220 (Multifamily Housing – Low Rise, three levels or less) was used for the trip generation calculation.

The proposed Project's estimated new trips are shown in **Table 2**. It is expected that the Project would generate approximately 109 vehicle trips on a typical weekday during the a.m. peak hour, with 25 inbound trips and 84 outbound trips. Additionally, it is expected to generate approximately 128 p.m. peak hour trips, including 81 inbound trips and 47 outbound trips during the p.m. peak hour.

Table 2: Project Trip Generation

Land Use (ITE Code)	Size	A.M. Peak Hour				P.M. Peak Hour				Daily	
		Rate	In	Out	Total	Rate	In	Out	Total	Rate	Trips
Multifamily Housing – Low Rise (220)	237 DU	EqA	25	84	109	EqB	81	47	128	EqC	1751
Totals			**25**	**84**	**109**		**81**	**47**	**128**		**1,751**

Source: Trip Generation Manual, 10th Edition, Institute of Transportation Engineers (ITE), 2017; AMG, March 2018
Notes:
EqA: Ln(T) = 0.95Ln(X)-0.51
EqB: Ln(T)=0.89Ln(X)-0.02
EqC: T=7.56(X)-40.86
T: Trips; X: Number of Dwelling Units

3.2 TRIP DISTRIBUTION AND ASSIGNMENT

AMG developed the proposed Project's trip distribution based on knowledge of the study area and input from City staff. The trip distribution is assumed to be as follows:

- 35 percent to/from South on US 101
- 15 percent to/from North on US 101
- 25 percent to/from South on Mendocino Avenue
- 10 percent to/from East on Fountaingrove
- 5 percent to/from West on Industrial Drive
- 5 percent to/from West on Hopper Avenue
- 5 percent to/from South on Cleveland Avenue

In Appendix A, **Figure 5** shows the Project trips distributed to the area roadway network. **Figure 6** shows the turning movement volumes resulting from Project trip assignment. **Figure 7** shows the turning movement volumes under Existing plus Project Conditions.

3.3 INTERSECTION OPERATING CONDITIONS – EXISTING PLUS PROJECT CONDITIONS

Tables 3 and **4** summarizes peak hour levels of service and V/C at the study intersections under the Existing Plus Project Conditions. LOS worksheets are provided in Appendix D.

Under the Existing plus Project study conditions, Intersections 1, 3, 4 and 5 would continue to operate at an acceptable LOS of D or better. With a signal installed by the proposed project at Intersection 2, the intersection would operate at acceptable LOS.

Table 3: Peak Hour Intersection LOS - Existing Plus Project Conditions

ID	Intersection	Traffic Control	Existing Conditions				Existing plus Project Conditions					
			AM Peak		PM Peak		AM Peak			PM Peak		
			Avg. Delay (sec)	LOS	Avg. Delay (sec)	LOS	Avg. Delay (sec)	LOS	Del. Diff	Avg. Delay (sec)	LOS	Del. Diff
1	Fountaingrove Pkwy & Mendocino Ave	Signal	40.5	D	47.0	D	43.0	D	2.5	49.4	D	2.4
2	Fountaingrove Pkwy & Round Barn Blvd West	TWSC	178.2	**F**	50.3	**F**	NA	NA	NA	NA	NA	NA
		Signal	NA	NA	NA	NA	10.4	B		10.0	B	
3	Fountaingrove Pkwy & Round Barn Blvd East	Signal	5.8	A	7.2	A	7.3	A	1.5	8.2	A	1.0
4	Cleveland Ave & Industrial Dr	Signal	35.2	D	35.7	D	36.8	D	1.6	38.0	D	2.3
5	US 101 NB Ramp & Mendocino Ave	Signal	27.9	C	30.2	C	28.5	C	0.6	30.5	C	0.3

Source: AMG, 2018.
Notes: Delay is presented in seconds per vehicle; LOS = Level of Service.
Bold indicates unacceptable LOS.

Table 4: Peak Hour Intersection V/C - Existing Plus Project Conditions

ID	Intersection	Traffic Control	Existing Conditions		Existing plus Project Conditions			
			AM Peak	PM Peak	AM Peak		PM Peak	
			V/C	V/C	V/C	V/C Increase	V/C	V/C Increase
1	Fountaingrove Pkwy & Mendocino Ave	Signal	0.98	1.00	0.99	1.0%	1.06	6.0%
2	Fountaingrove Pkwy & Round Barn Blvd West	TWSC	0.47	0.59	NA	NA	NA	NA
		Signal	NA	NA	0.69		0.61	
3	Fountaingrove Pkwy & Round Barn Blvd East	Signal	0.68	0.49	0.71	4.4%	0.51	4.1%
4	Cleveland Ave & Industrial Dr	Signal	0.88	0.92	0.89	1.1%	0.94	2.2%
5	US 101 NB Ramp & Mendocino Ave	Signal	0.90	0.82	0.91	1.1%	0.82	0.0%

Source: AMG, 2018

4.0 EXISTING PLUS APPROVED PROJECTS CONDITIONS (SHORT-TERM CUMULATIVE)

This scenario evaluates current intersection conditions with the addition of approved and pending project traffic identified by the City. Short-Term Cumulative Conditions reflect the addition of traffic associated with the known projects that may be constructed and/or become operational in the study area in the next couple of years (by 2020). Projects were selected based on proximity to the Project site and anticipated impacts to the Project's study area using the City's list of pending developments provided by the City of Santa Rosa. The following approved/reasonably foreseeable projects were incorporated into this scenario:

- Terrazzo at Fountaingrove
- The Arbors
- El Pollo Loco
- Skyfarm Unit 3
- Canyon Oaks
- Fir Ridge Workforce Housing
- Fountaingrove Inn Condo
- Solstice Sonoma
- Residence Inn
- Emerald Isle

Trip distribution assumptions for these reasonably forseeable projects were based on available information and the Project trip distribution. The projected traffic resulting from these projects were added to the volumes used in the existing conditions scenario to establish traffic volumes for the Short-Term Cumulative Conditions. The resulting analysis is provided in **Table 5**.

Table 5: Peak Hour Intersection LOS - Existing Plus Approved Project (Short-Term Cumulative) Conditions

ID	Intersection	Traffic Control	AM Peak			PM Peak		
			Avg. Delay (sec)	V/C	LOS	Avg. Delay (sec)	V/C	LOS
1	Fountaingrove Pkwy & Mendocino Ave	Signal	42.3	0.97	D	50.9	1.05	D
2	Fountaingrove Pkwy & Round Barn Blvd West	TWSC	338.1	0.75	**F**	82.5	0.62	**F**
3	Fountaingrove Pkwy & Round Barn Blvd East	Signal	6.3	0.70	A	7.6	0.51	A
4	Cleveland Ave & Industrial Dr	Signal	38.7	0.90	D	41.3	0.94	D
5	US 101 NB Ramp & Mendocino Ave	Signal	29.1	0.92	C	31.4	0.87	C

Source: AMG, 2018
Bold indicates unacceptable LOS

Under the Short-Term Cumulative Conditions, Intersections 1, 3, 4 and 5 would continue to operate at an acceptable LOS D or better. With TWSC, Intersection 2 would continue to operate at LOS F. LOS worksheets are provided in Appendix E. See **Figure 8** for Short-Term Cumulative Conditions in Appendix A**.**

5.0 SHORT-TERM CUMULATIVE PLUS PROJECT CONDITIONS

Table 6: Peak Hour Intersection LOS – Short-Term Cumulative Plus Project Conditions

ID	Intersection	Traffic Control	Short-Term Cumulative Conditions				Short-Term Cumulative plus Project Conditions					
			AM Peak		PM Peak		AM Peak			PM Peak		
			Avg. Delay (sec)	LOS	Avg. Delay (sec)	LOS	Avg. Delay (sec)	LOS	Del. Diff	Avg. Delay (sec)	LOS	Del. Diff
1	Fountaingrove Pkwy & Mendocino Ave	Signal	42.3	D	50.9	D	45.4	D	3.1	53.9	D	3.0
2	Fountaingrove Pkwy & Round Barn Blvd West	TWSC	338.1	**F**	82.5	**F**	NA	NA	NA	NA	NA	NA
		Signal	NA	NA	NA	NA	11.3	B		11.3	B	
3	Fountaingrove Pkwy & Round Barn Blvd East	Signal	6.3	A	7.6	A	7.7	A	1.4	8.6	A	1.0
4	Cleveland Ave & Industrial Dr	Signal	38.7	D	41.3	D	40.6	D	1.9	43.6	D	2.3
5	US 101 NB Ramp & Mendocino Ave	Signal	29.1	C	31.4	C	29.7	C	0.6	31.5	C	0.1

Source: AMG, 2018
Notes: Delay is presented in seconds per vehicle; LOS = Level of Service
Bold indicates unacceptable LOS

Table 7: Peak Hour Intersection V/C- Short-Term Cumulative Plus Project Conditions

ID	Intersection	Traffic Control	Short-Term Cumulative Conditions		Short-Term Cumulative plus Project Conditions			
			AM Peak	PM Peak	AM Peak		PM Peak	
			V/C	V/C	V/C	V/C Increase	V/C	V/C Increase
1	Fountaingrove Pkwy & Mendocino Ave	Signal	0.97	1.05	1.00	3.1%	1.11	5.7%
2	Fountaingrove Pkwy & Round Barn Blvd West	TWSC	0.75	0.62	NA	NA	NA	NA
		Signal	NA	NA	0.73		0.63	
3	Fountaingrove Pkwy & Round Barn Blvd East	Signal	0.70	0.51	0.73	4.3%	0.53	3.9%
4	Cleveland Ave & Industrial Dr	Signal	0.90	0.94	0.93	3.3%	0.97	3.2%
5	US 101 NB Ramp & Mendocino Ave	Signal	0.92	0.87	0.92	0.0%	0.87	0.0%

Source: AMG, 2018

This scenario is identical to the Short-Term Cumulative Conditions, but with the addition of proposed Project traffic.

This scenario included the addition of Project and Short-Term Cumulative traffic at the study intersections. The resulting analysis is provided in **Tables 6** and **7**. LOS worksheets are provided in Appendix F. See **Figure 9** for Short-Term Cumulative Plus Project Conditions in Appendix A**.**

Under the Short-Term Cumulative Plus Project study conditions, Intersections 1, 3, 4 and 5 would continue to operate at an acceptable LOS of D or better. With a signal installed by the proposed project at Intersection 2, the intersection would improve from LOS F to LOS B.

6.0 2040 NO PROJECT CONDITIONS

6.1 2040 TRAFFIC FORECASTS

The 2040 traffic forecasts were determined by adding volume growth from the Sonoma County Countywide Travel Demand Model to the existing conditions. The proposed Project traffic was subtracted to get the No Project Conditions. **Figure 10** in Appendix A shows the resulting 2040 No Project turning movement volumes.

6.2 INTERSECTION OPERATING CONDITIONS – 2040 NO PROJECT CONDITIONS

Table 8 shows the intersection peak hour levels of service at the study intersections under the 2040 No Project Conditions. LOS worksheets are provided in Appendix G.

As shown, under 2040 No Project Conditions, Intersections 2, 3, 4 and 5 are expected to operate at LOS D or better during both peak hours. Intersection 1 is expected to operate at LOS D and LOS E during the a.m. and p.m. peak hour, respectively.

Table 8: Peak Hour Intersection LOS – 2040 No Project Conditions

ID	Intersection	Traffic Control	AM Peak			PM Peak		
			Avg. Delay (sec)	V/C	LOS	Avg. Delay (sec)	V/C	LOS
1	Fountaingrove Pkwy & Mendocino Ave	Signal	53.2	1.05	D	66.2	1.04	**E**
2	Fountaingrove Pkwy & Round Barn Blvd West	Signal	24.2	0.92	C	23.9	0.90	C
3	Fountaingrove Pkwy & Round Barn Blvd East	Signal	20.5	0.87	C	39.9	0.94	D
4	Cleveland Ave & Industrial Dr	Signal	42.2	0.90	D	45.2	0.90	D
5	US 101 NB Ramp & Mendocino Ave	Signal	46.9	1.01	D	42.1	0.94	D

Source: AMG, 2018
Notes: Delay is presented in seconds per vehicle; LOS = Level of Service
Bold indicates unacceptable LOS

7.0 2040 PLUS PROJECT CONDITIONS

This scenario is identical to the 2040 No Project Conditions, but with the addition of traffic from the proposed Project. **Figure 11** in Appendix A shows the resulting intersection volumes under the 2040 Plus Project Conditions.

7.1 INTERSECTION OPERATING CONDITIONS – 2040 PLUS PROJECT CONDITIONS

Table 9 and **10** shows intersection peak hour levels of service at the study intersections under the 2040 Plus Project Conditions. LOS worksheets are provided in Appendix H.

Under the 2040 Plus Project study conditions, Intersections 2, 3, 4 and 5 would continue to operate at LOS D or better during both peak hours. Intersection 1 would continue to operate at LOS D and LOS E during the a.m. and p.m. peak hour, respectively. With the addition of the Project trips, Intersection 1 would experience less than five seconds of increased average delay during both peak hours, which is acceptable under the City's Threshold.

Table 9: Peak Hour Intersection LOS - 2040 Plus Project Conditions

ID	Intersection	Traffic Control	Cumulative Conditions				Cumulative plus Project Conditions					
			AM Peak		PM Peak		AM Peak			PM Peak		
			Avg. Delay (sec)	LOS	Avg. Delay (sec)	LOS	Avg. Delay (sec)	LOS	Del. Diff	Avg. Delay (sec)	LOS	Del. Diff
1	Fountaingrove Pkwy & Mendocino Ave	Signal	53.2	D	66.2	**E**	54.8	D	1.6	70.4	**E**	4.2
2	Fountaingrove Pkwy & Round Barn Blvd West	Signal	24.2	C	23.9	C	28.8	C	4.6	28.4	C	4.5
3	Fountaingrove Pkwy & Round Barn Blvd East	Signal	20.5	C	39.9	D	27.4	C	6.9	49.4	D	9.5
4	Cleveland Ave & Industrial Dr	Signal	42.2	D	45.2	D	44.5	D	2.3	47.6	D	2.4
5	US 101 NB Ramp & Mendocino Ave	Signal	46.9	D	42.1	D	47.8	D	0.9	43.2	D	1.1

Source: AMG, 2018
Notes: Delay is presented in seconds per vehicle; LOS = Level of Service
Bold indicates unacceptable LOS

Table 10: Peak Hour Intersection LOS - 2040 Plus Project Conditions

ID	Intersection	Traffic Control	Cumulative Conditions		Cumulative plus Project Conditions			
			AM Peak	PM Peak	AM Peak		PM Peak	
			V/C	V/C	V/C	V/C Increase	V/C	V/C Increase
1	Fountaingrove Pkwy & Mendocino Ave	Signal	1.05	1.04	1.07	1.9%	1.08	3.8%
2	Fountaingrove Pkwy & Round Barn Blvd West	Signal	0.92	0.90	0.94	2.2%	0.96	6.7%
3	Fountaingrove Pkwy & Round Barn Blvd East	Signal	0.87	0.94	0.90	3.4%	0.96	2.1%
4	Cleveland Ave & Industrial Dr	Signal	0.90	0.90	0.91	1.1%	0.90	0.0%
5	US 101 NB Ramp & Mendocino Ave	Signal	1.01	0.94	1.01	0.0%	0.95	1.1%

Source: AMG, 2018

8.0 SITE CIRCULATION

The proposed Project does not alter or modify existing roadways or roadway frontages within the Project's vicinity. The Project will utilize existing driveway locations along Round Barn Boulevard with existing left-turn lanes that provide adequate sight distance for the posted travel speed.

9.0 PROJECT PARKING

As proposed, the Project site provides 593 on-site parking spaces, including 474 garage parking spaces and 119 on-street parking spaces. The project complies with the City-required parking spaces based of 2.5 spaces per home (237 units X 2.5 spaces per unit = 593 required spaces).

10.0 COLLISION HISTORY

AMG collected intersection collision historical data from the Statewide Integrated Traffic Records System (SWITRS) database for each study intersection between 2014 and 2016. **Table 11** summarizes the number of accidents occurred each year. The collision rates were also calculated based on the estimated daily entering volumes as five times of the total of a.m. and p.m. peak hour volumes.

Table 11: Intersection Collision Rates

ID	Intersection	Number of Collisions				Estimated Daily Entering Volumes	Collision Rate (/Million Entering Vehicles)	Statewide Average Rate (/Million Entering Vehicles)
		2014	2015	2016	3-year Total			
1	Fountaingrove Pkwy & Mendocino Ave	4	9	11	24	42,080	0.52	0.43
2	Fountaingrove Pkwy & Round Barn Blvd West	1	0	1	2	16,905	0.11	0.14
3	Fountaingrove Pkwy & Round Barn Blvd East	1	1	2	4	21,320	0.17	0.27
4	Cleveland Ave & Industrial Dr	3	3	5	11	25,510	0.39	0.43
5	US 101 NB Ramp & Mendocino Ave	1	1	0	2	30,560	0.06	0.27

Source: SWITRS Database; 2014 Collision Data on California State Highways, Caltrans; AMG, 2018

The statewide average collision rate for the type of intersection that each study intersection belongs to is also listed. As shown, the intersection of Fountaingrove Pkwy and Mendocino Ave has higher collision rate than the statewide average.

For the collisions that occurred at the intersection of Fountaingrove Pkwy and Mendocino Ave between 2014 and 2016, the main reasons were unsafe speed and improper turning, which could be improved through police enforcement. The proposed Project would only add approximately 2 and 3 percent of the existing trips to this intersection, during the a.m. and p.m. peak hours, respectively. Also, there is no obvious correlation between the traffic volumes and the number of collisions. The number of collisions at any intersection depends on the intersection configuration, geometry and signal timing, and is not directly proportional to the traffic volumes. In fact, with other circumstances remaining the same, if the traffic volume at the intersection increases, the collision rate decreases. There are no recommended physical intersection changes to decrease the collision rates at this intersection because the main reasons for issues at this intersection are behavioral (unsafe speed and improper turning). Thus, the proposed Project is not expected to result in any significant collision impact to this intersection.

11.0 QUEUING ANALYSIS

AMG also evaluated the queuing conditions for the northbound left-turn lane at the intersection of Fountaingrove Pkwy and Bound Barn Blvd East. As shown in **Table 12** below, the 95th percentile queue for the northbound left-turn movement would be accommodated by the existing storage length under all study scenarios except for the Cumulative and Cumulative plus Project Conditions. It is suggested that the City continue to monitor the left-turn queuing as the traffic volume increases over years and extend the storage lane up to Altruria Drive in the future, if needed. Since the northbound left-turn queue is expected to be accommodated by the

existing storage lane under Short-Term Cumulative plus Project Conditions, such potential storage lane extension is not expected to be required in the near future.

Table 12: Queuing Analysis – Fountaingrove Pkwy & Round Barn Blvd East NBL

Existing Storage Length (ft)		165	
95th Percentile Queue (ft)		AM	PM
	Existing	133	38
	Existing plus Project	149	63
	Short-Term Cumulative	142	43
	Short-Term Cumulative plus Project	161	68
	Cumulative No Project	**490**	162
	Cumulative plus Project	**516**	**210**

Source: AMG, 2018

Bold indicates 95th Percentile Queue exceeding the existing storage length.

12.0 CONCLUSIONS AND RECOMMENDATIONS

AMG has reached the following conclusions regarding the proposed development located along Round Barn Boulevard in Santa Rosa, CA:

- The proposed Project is expected to generate approximately 109 new trips during the a.m. peak hour and 128 new trips during the p.m. peak hour.
- Currently, one of the five study intersections operate at unacceptable LOS E or worse.
- Under Existing Plus Project Conditions, other than the intersection of Fountaingrove Pkwy and Round Barn Blvd West, all study intersections are expected to operate at the similar LOS with under Existing Conditions, with minimal change in delay. With signal installed, the intersection of Fountaingrove Pkwy and Round Barn Blvd West would operate at LOS B during both peak periods. The proposed Project would not result in any significant impact to any study intersection under this scenario.
- Under Short-Term Cumulative Conditions, one of the five study intersections would operate at unacceptable LOS E or worse.
- Under Short-Term Cumulative Plus Project Conditions, all study intersections that would operate at LOS D or better under Short-Term Cumulative Conditions are expected to continue operating acceptably. With signal installed, the intersection of Fountaingrove Pkwy and Round Barn Blvd West would operate at LOS B during both peak periods. The proposed project does not result in a significant impact to any study intersection under this scenario .
- Under 2040 No Project Conditions, one of the five study intersections would operate at unacceptable LOS E.

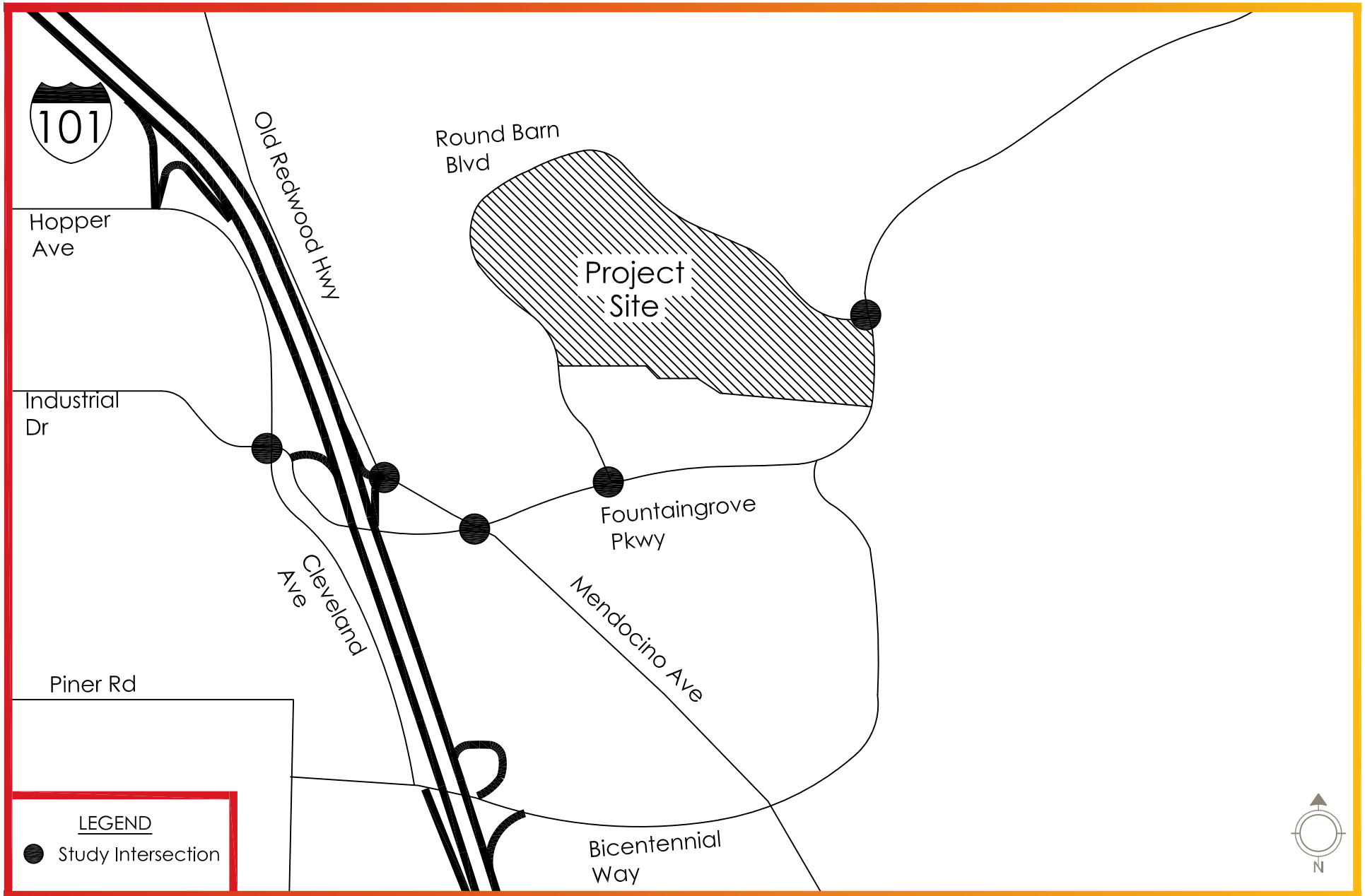
- Under 2040 Plus Project Conditions, all study intersections that would operate at LOS D or better under 2040 No Project Conditions are expected to continue to operate acceptably. The study intersection that would operate at LOS E or worse under 2040 No Project Conditions would continue to operate unacceptably under the 2040 Plus Project Conditions; however, the proposed project does not result in a significant impact due to the limited increase to the average delay.

- The Project would include 593 on-site parking spaces, which meets the City parking requirement.

- The intersection of Fountaingrove Pkwy and Mendocino Avenue has higher collision rate than the statewide average. Driver behavior is the reason for collisions at this intersection (not physical design of intersection) and so it is expected that the police enforcement would improve the safety at this intersection. The proposed Project is not expected to result in any significant collision impact to this intersection.

- At the intersection of Fountaingrove pkwy and Round Barn Blvd East, the 95th percentile queue for the northbound left-turn movement would be accommodated by the existing storage length under all study scenarios except for the 2040 No Project and 2040 plus Project Conditions. It is suggested that the City continue to monitor the left-turn queuing as the traffic volume increases over years and extend the storage lane up to Altruria Drive in the future, if needed.

Appendix A REPORT FIGURES



City of Santa Rosa
Traffic Impact Study for The Round Barn Development

Vicinity Map Figure 1

Extensive sidewalk/trail network within neighborhood to connect with existing trails

Typical alley section:
30' garage to garage
24' curb to curb
23' clear to sky

Buildings oriented to maximize views

Entry paseos connect to pedestrian paths

Semi-private front patios on all homes

Central Rec. Area
- ± 31,000 S.F.
- Central to community
- Community amenities (i.e. pool and restroom)
- Interconnected with pedestrian paths

Project Summary

Total Site Area: ± 18.26 Acres

Total Units: 237 Homes
- (83) Plan 1: ± 1,729 S.F., 3 bedroom, 2.5 bath, den, opt. bed 4
- (62) Plan 2: ± 1,798 S.F., 3 bedroom, 2.5 bath, den, opt. bed 4
- (92) Plan 3: ± 1,925 S.F., 3 bedroom, 2.5 bath, den, opt. bed 4

Density: 13.0 Homes per Acre

Parking:

Required: 593 Spaces (2.5 spaces per home)

Provided: 593 Spaces (2.5 spaces per home)
- Garage: 474 Spaces
- Parallel: 81 Spaces (8' x 22')
- Head In: 38 Spaces (9' x 18')

East Entry

West Entry

Variety of architectural orientations to the main spine street

Front doors on entry open space

Front doors flank the entry for a grand statement

typical
3-Story Townhome
- ± 1,729 - 1,925 S.F.
- 3 - 4 bedrooms
- 2 car side-by-side garage

Multiple unique pocket green spaces scattered throughout the neighborhood and connected with sidewalks

Home side-on to hillside (toe of slope)

Notes:

1. Site plan is for conceptual purposes only.
2. Site plan must be reviewed by planning, building, and fire departments for code compliance.
3. Base information per civil engineer.
4. Civil engineer to verify all setbacks and grading information
5. Building Footprints might change due to the final design elevation style.
6. Open space area is subject to change due to the balcony design of the elevation.
7. Building setbacks are measured from property lines to building foundation lines.

ARCHITECTURAL SITE PLAN

ROUND BARN VILLAGE

SANTA ROSA, CA

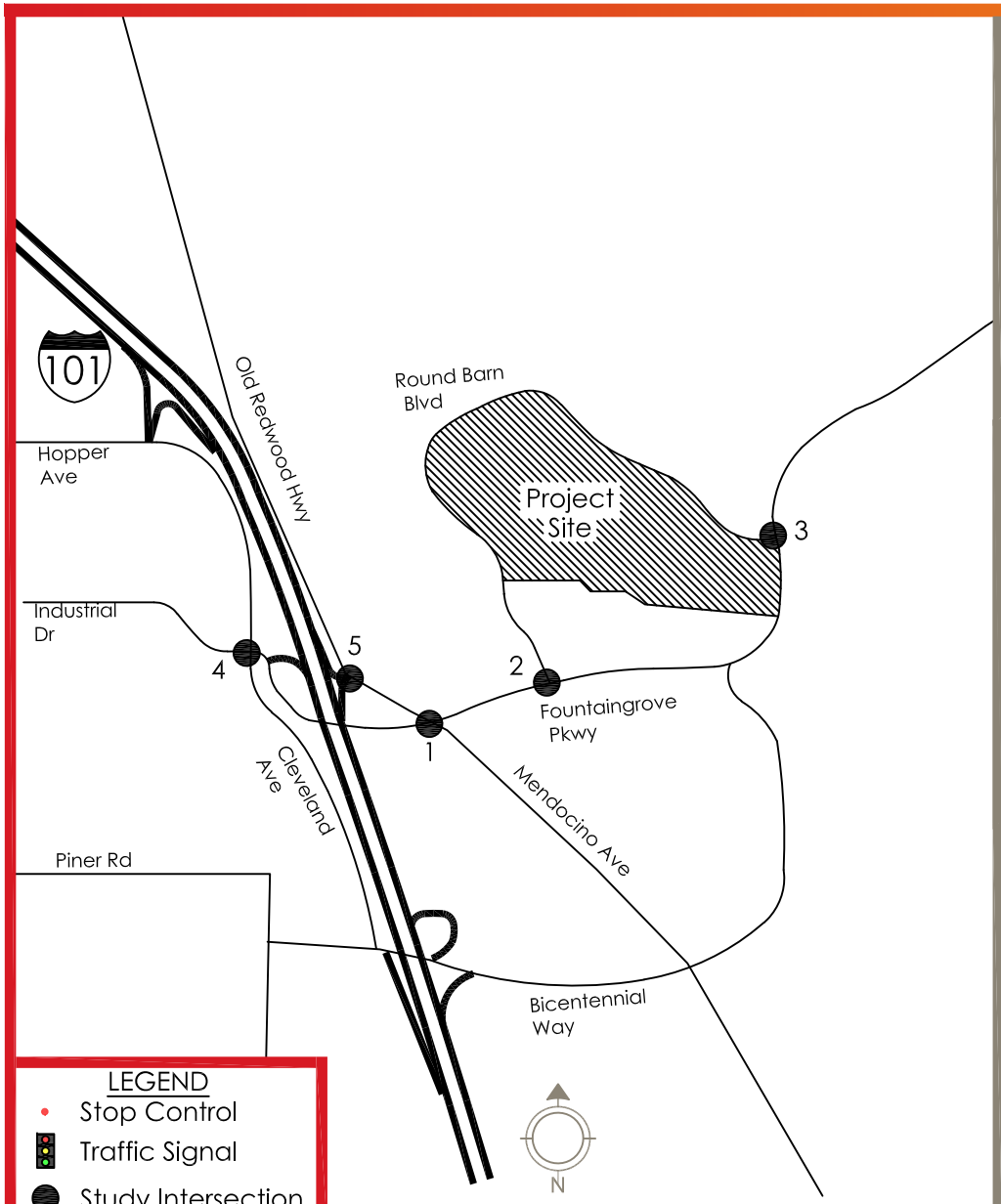
Figure 2

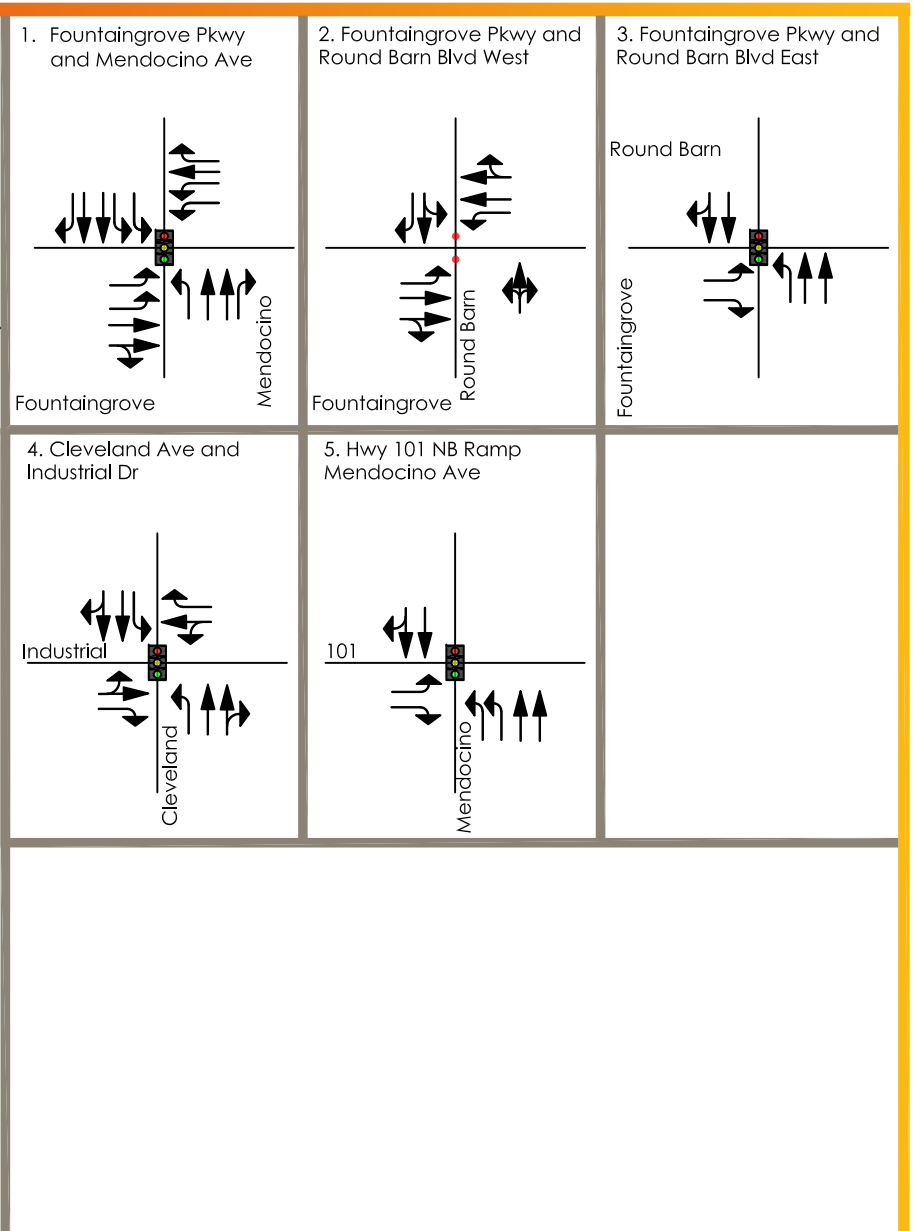
0 30 60 120

CONCEPTUAL DESIGN

City Ventures

ARCHITECTS . PLANNERS . DESIGNERS
WHA.
ORANGE COUNTY . LOS ANGELES . BAY AREA

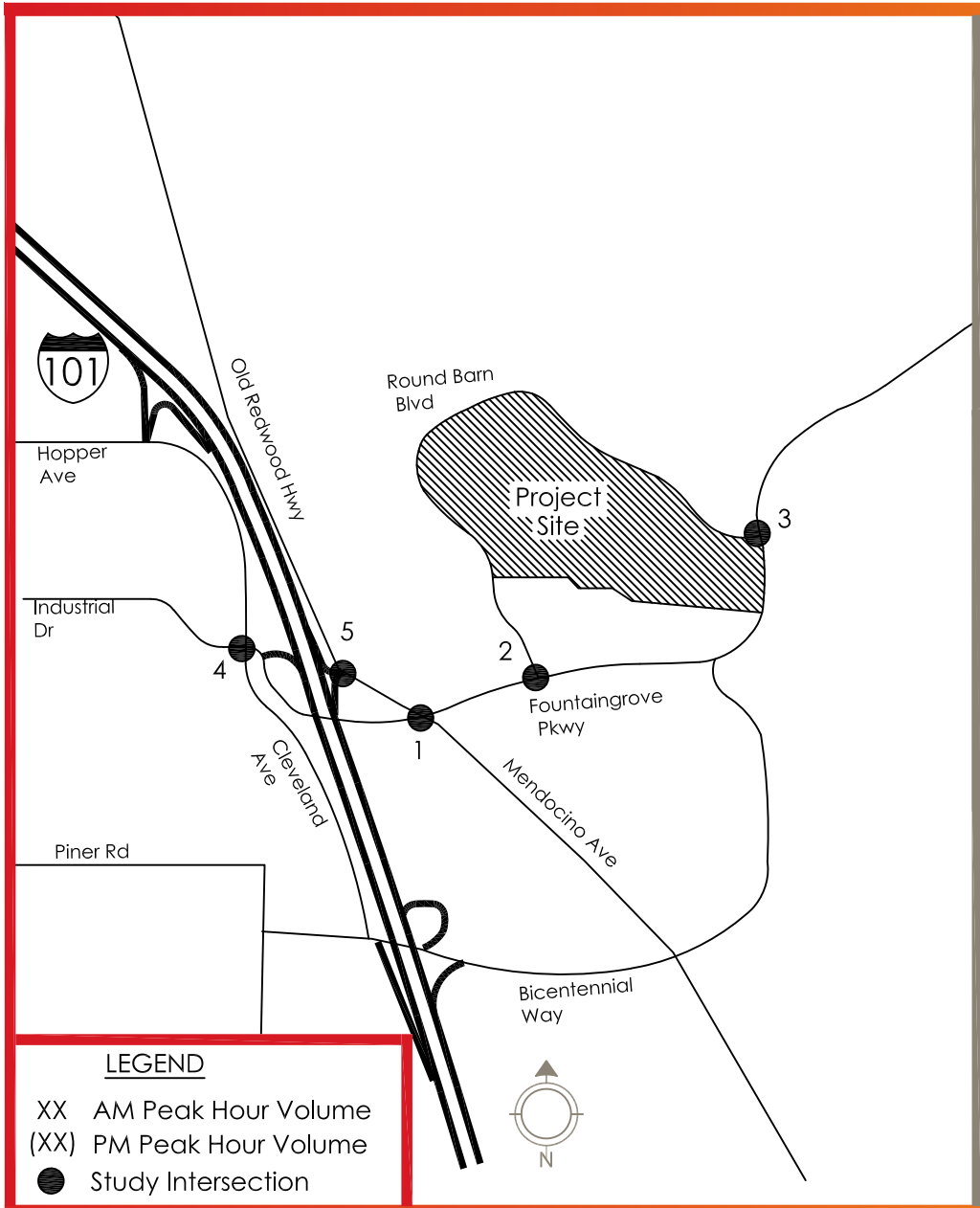


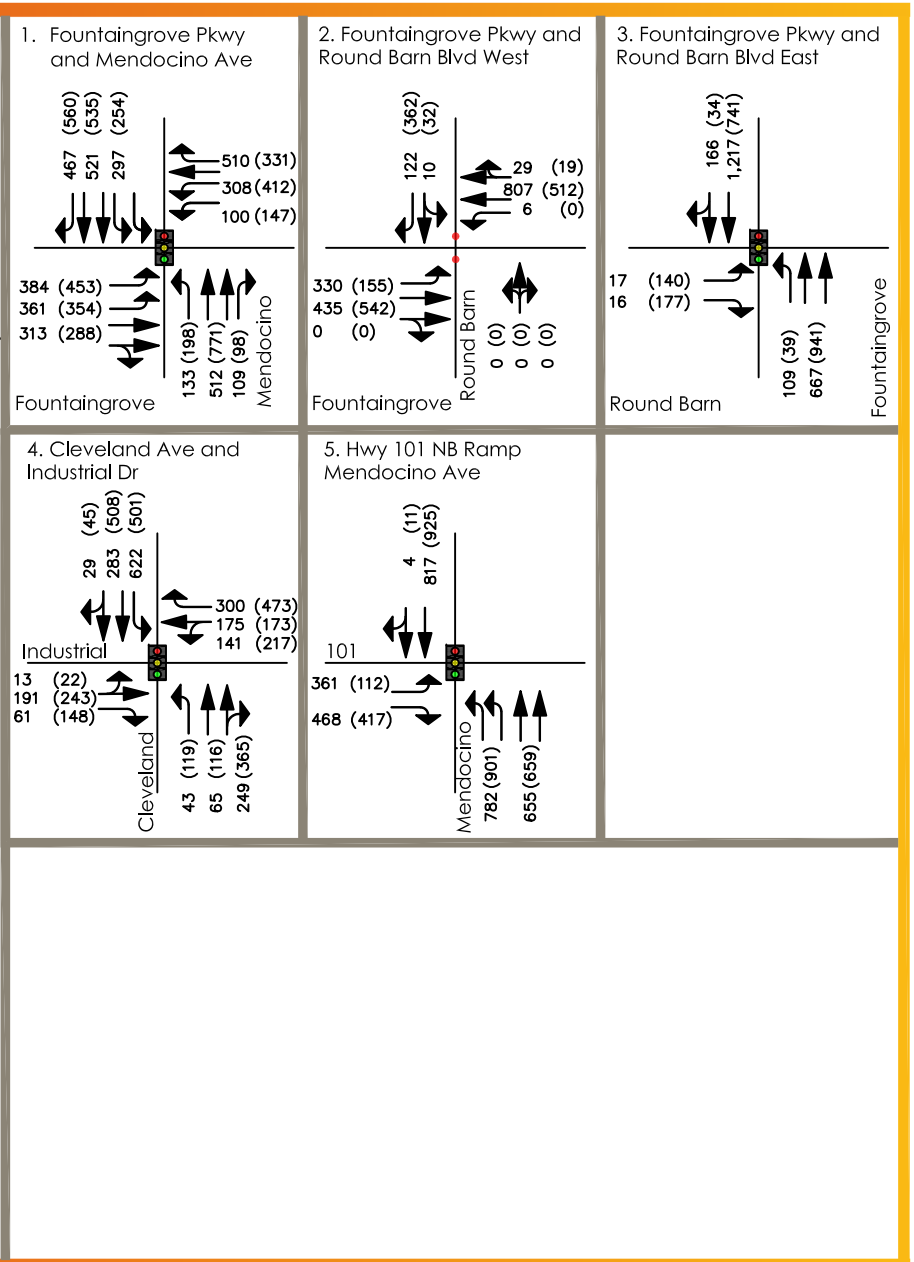


City of Santa Rosa
Traffic Impact Study for The Round Barn Development

Existing Lane Geometry and Traffic Controls Figure 3

AMG ADVANCED MOBILITY GROUP

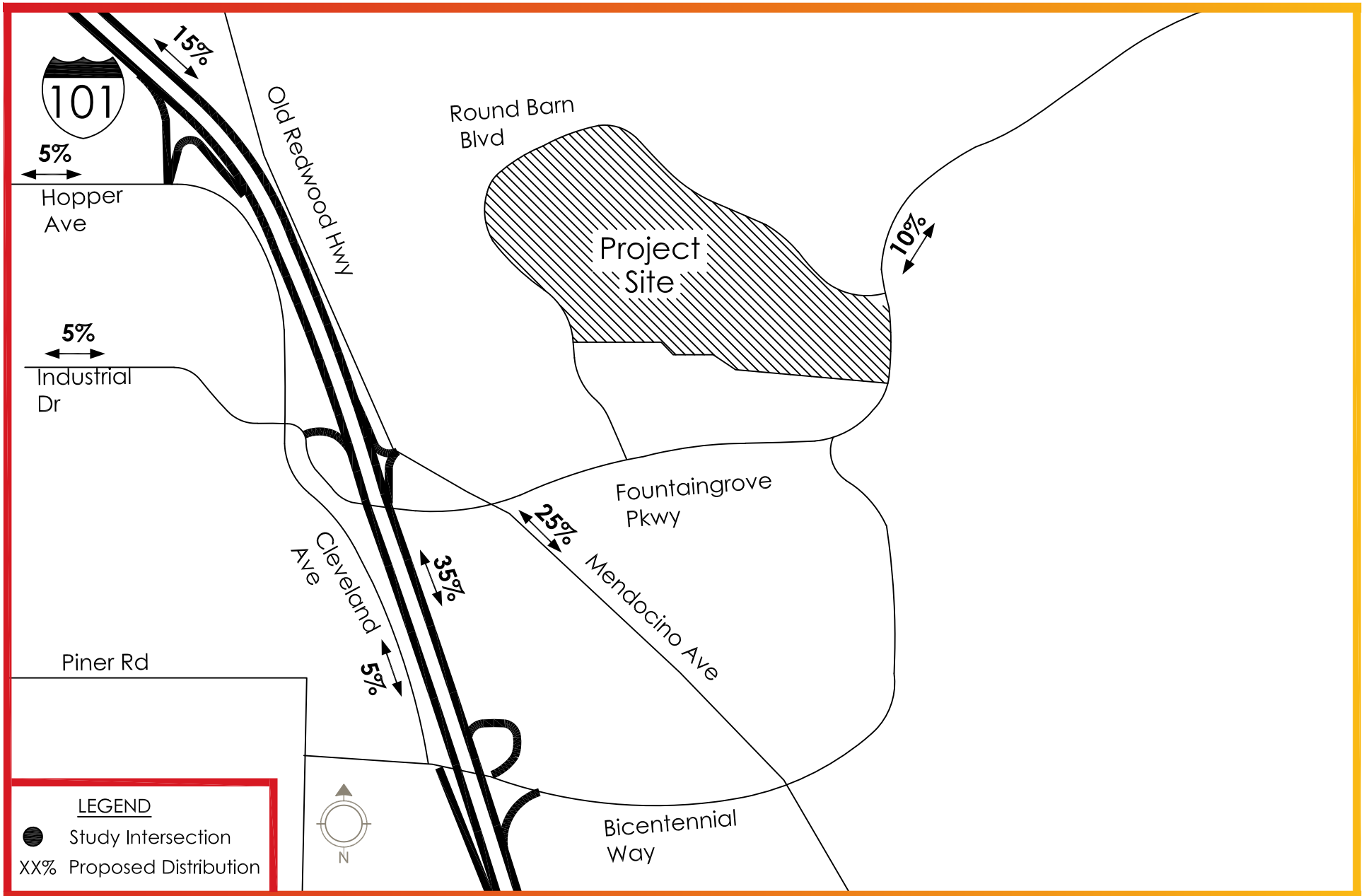




City of Santa Rosa
Traffic Impact Study for The Round Barn Development

Existing Turning Movement Volumes Figure 4

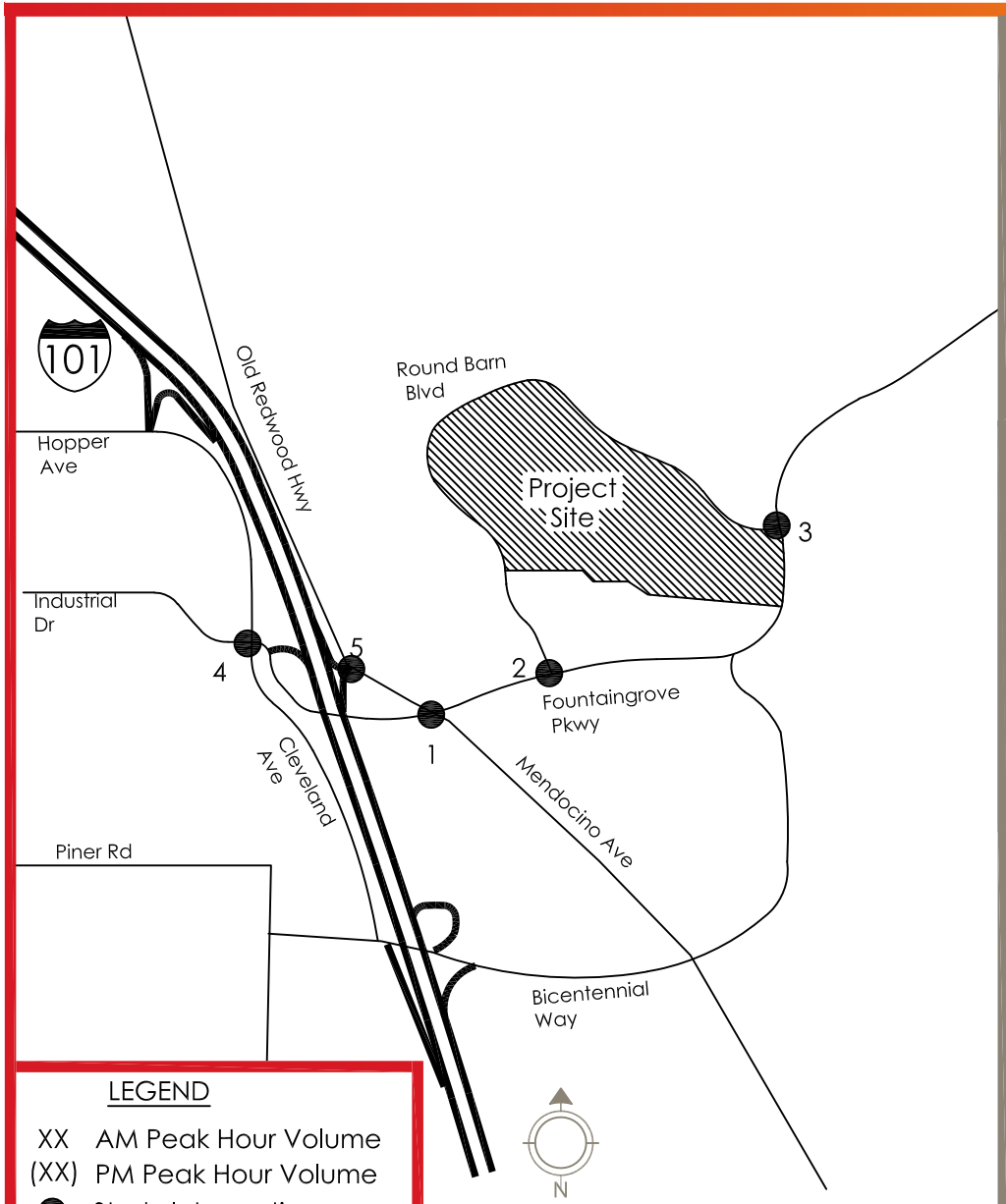
AMG ADVANCED MOBILITY GROUP

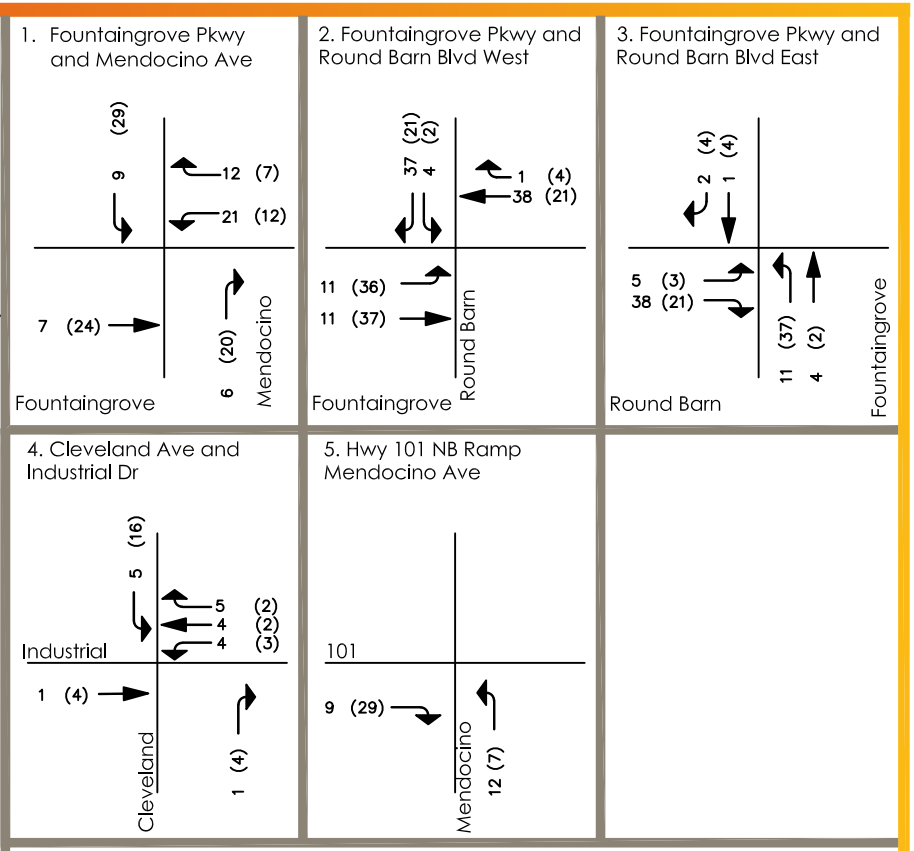


City of Santa Rosa
Traffic Impact Study for The Round Barn Development

Proposed Project Trip Distribution Figure 5

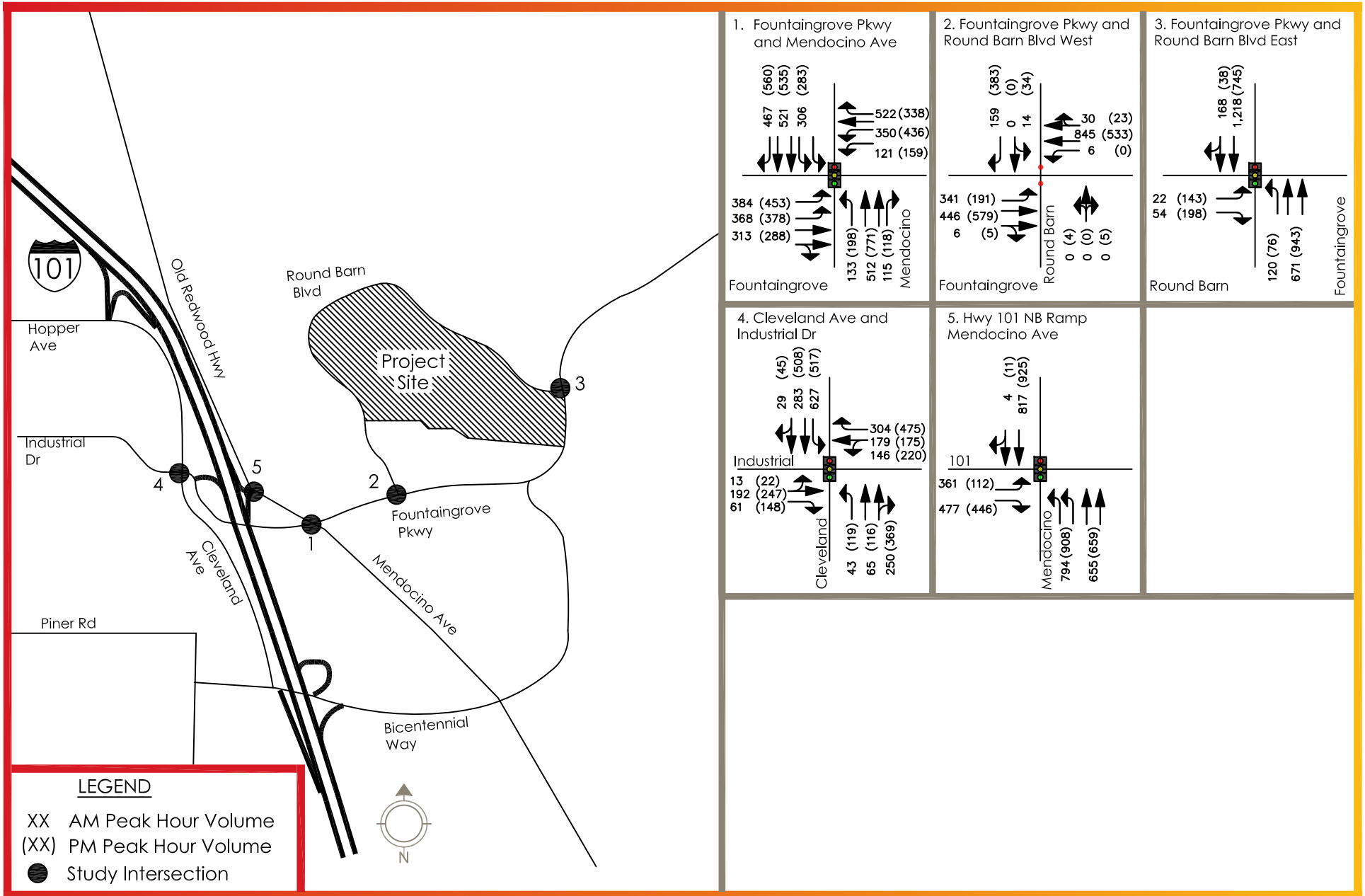
AMG ADVANCED MOBILITY GROUP





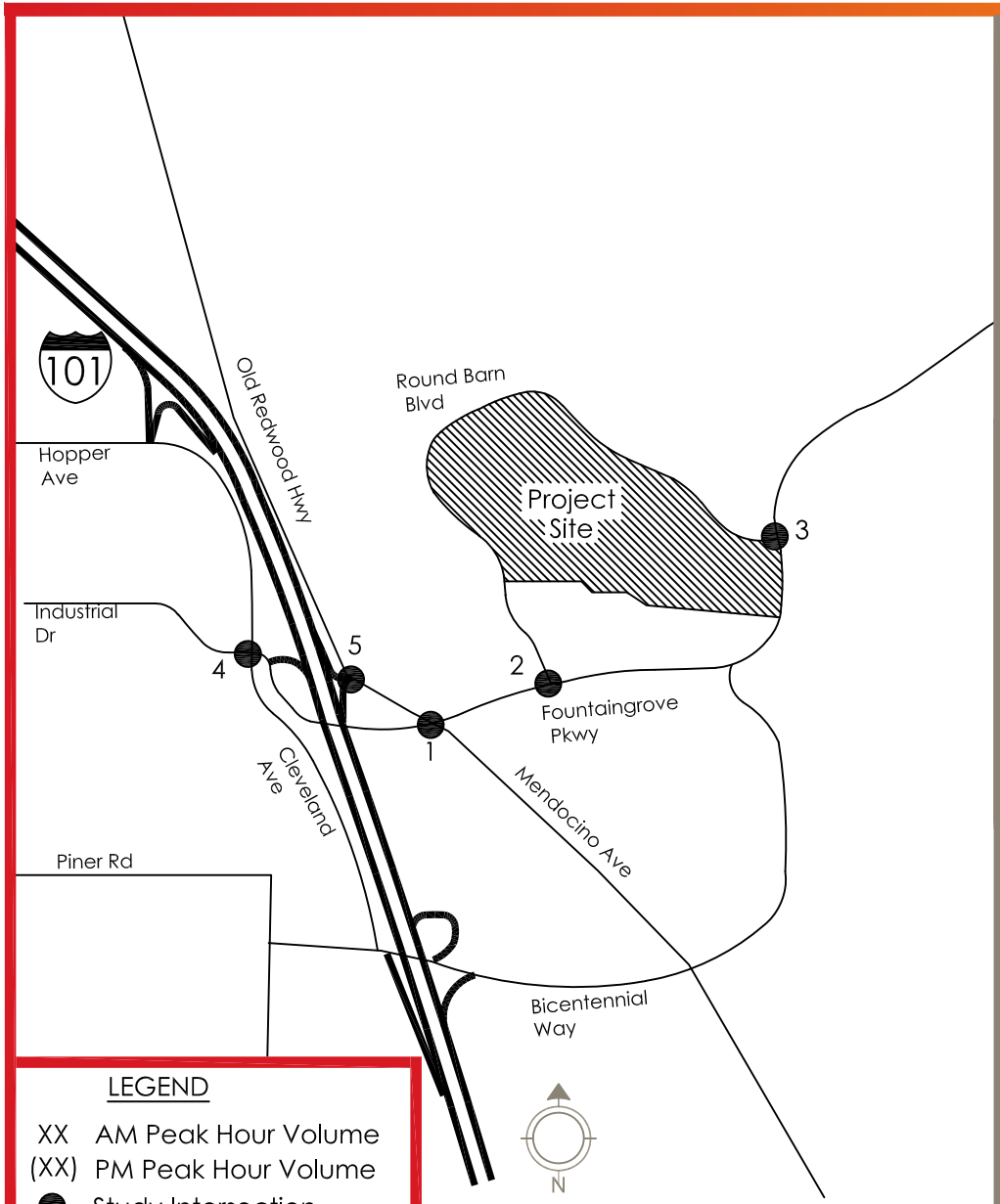
City of Santa Rosa
Traffic Impact Study for The Round Barn Development

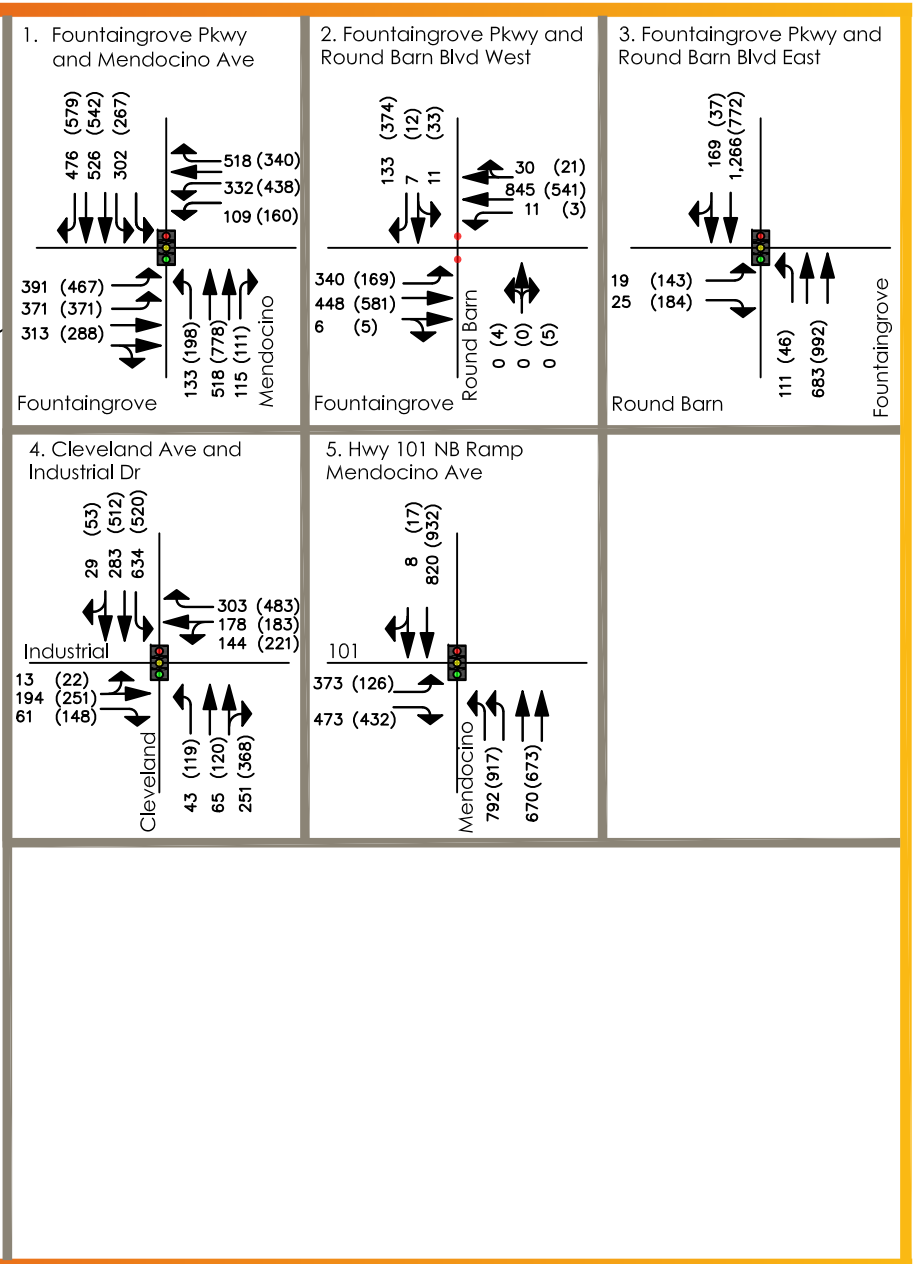
Project Only Trips Figure 6



City of Santa Rosa
Traffic Impact Study for The Round Barn Development

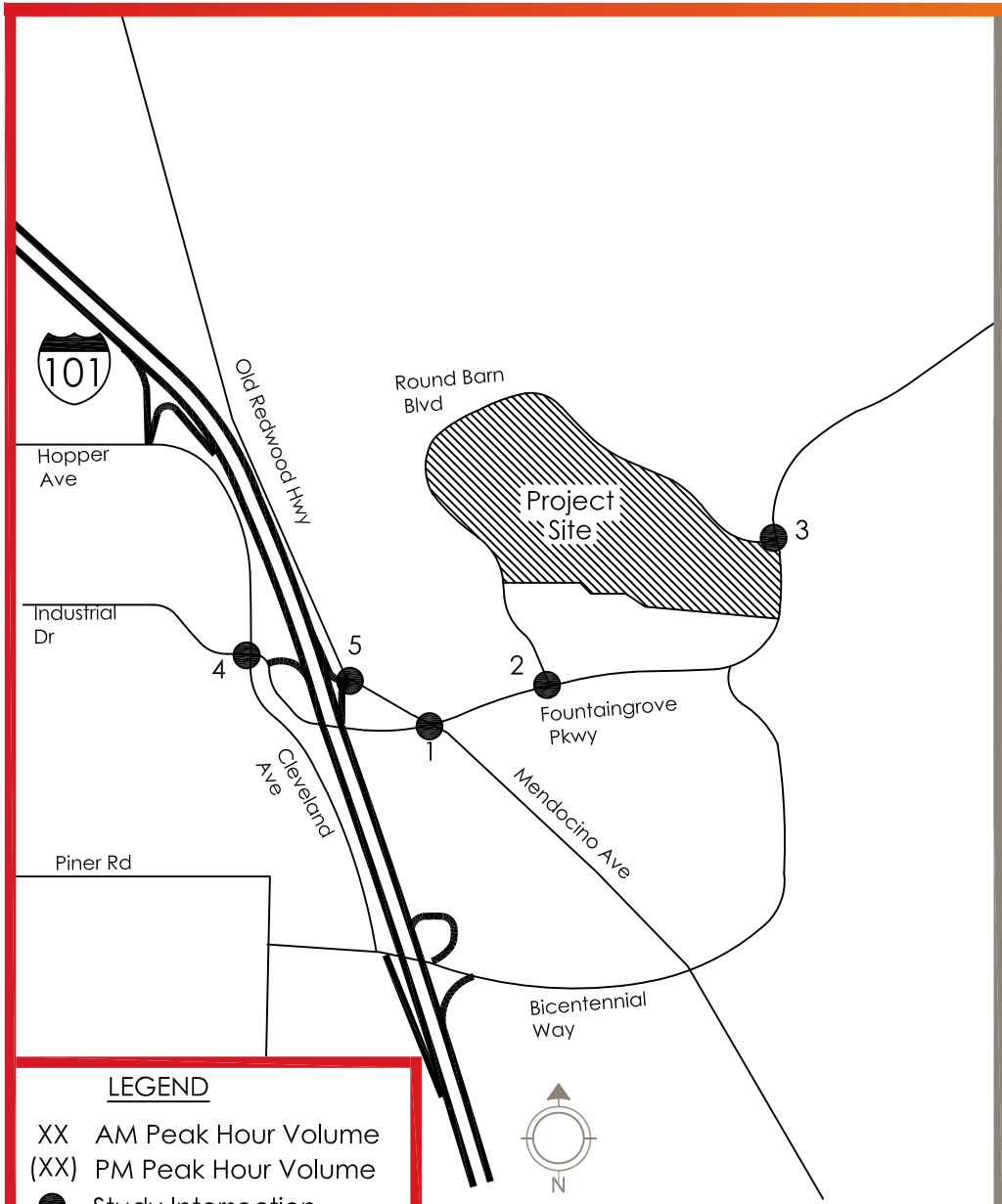
Existing Plus Project Turning Movement Volumes Figure 7

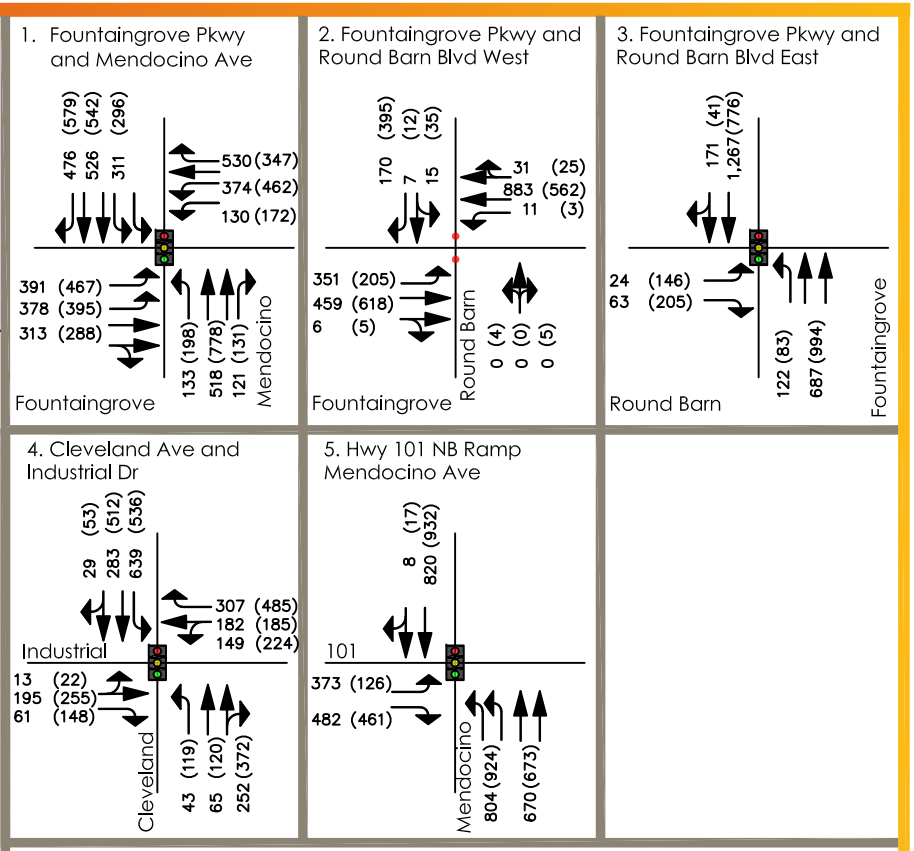




City of Santa Rosa
Traffic Impact Study for The Round Barn Development

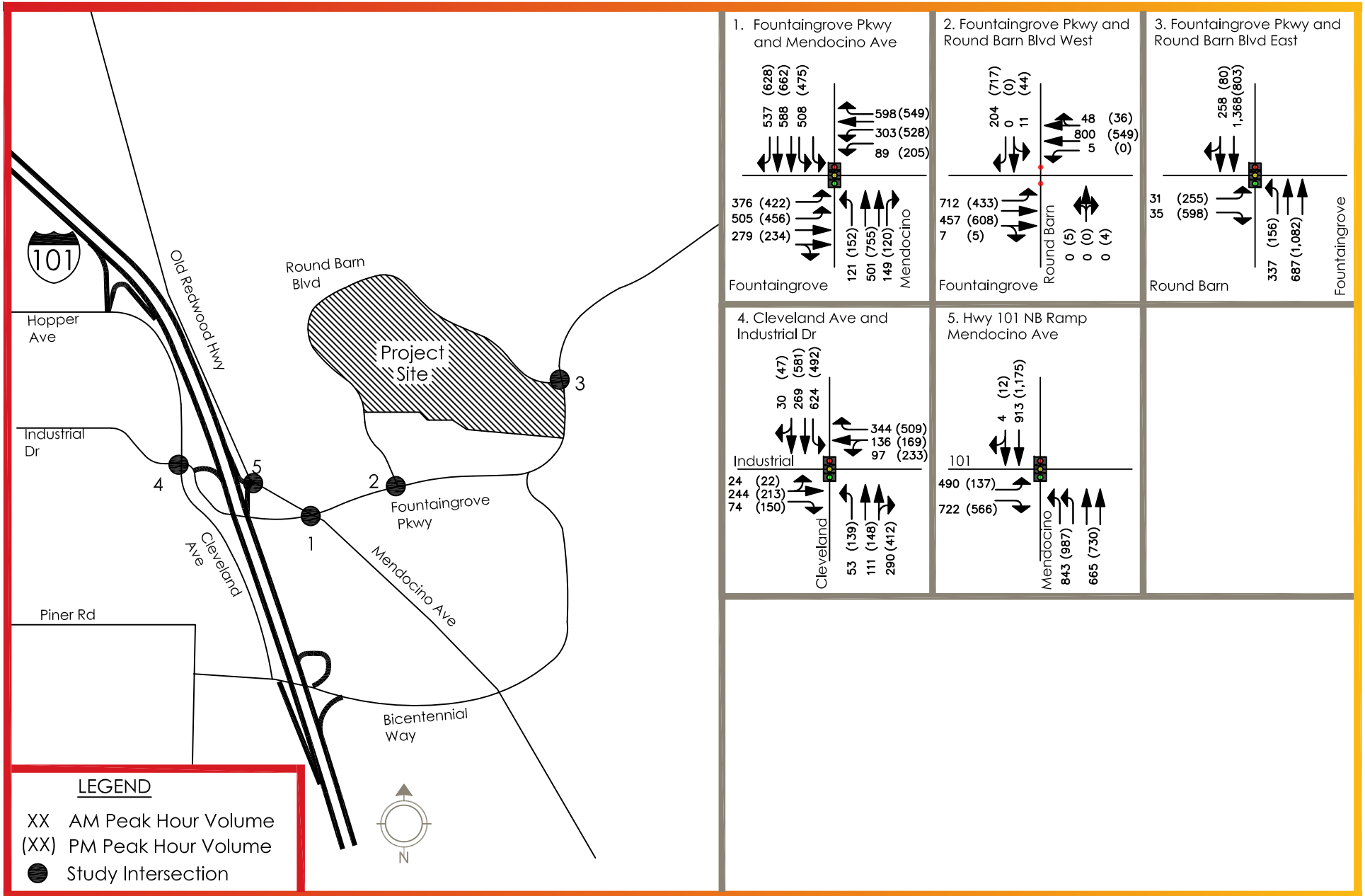
Short-Term Cumulative No Project Turning Movement Volumes Figure 8





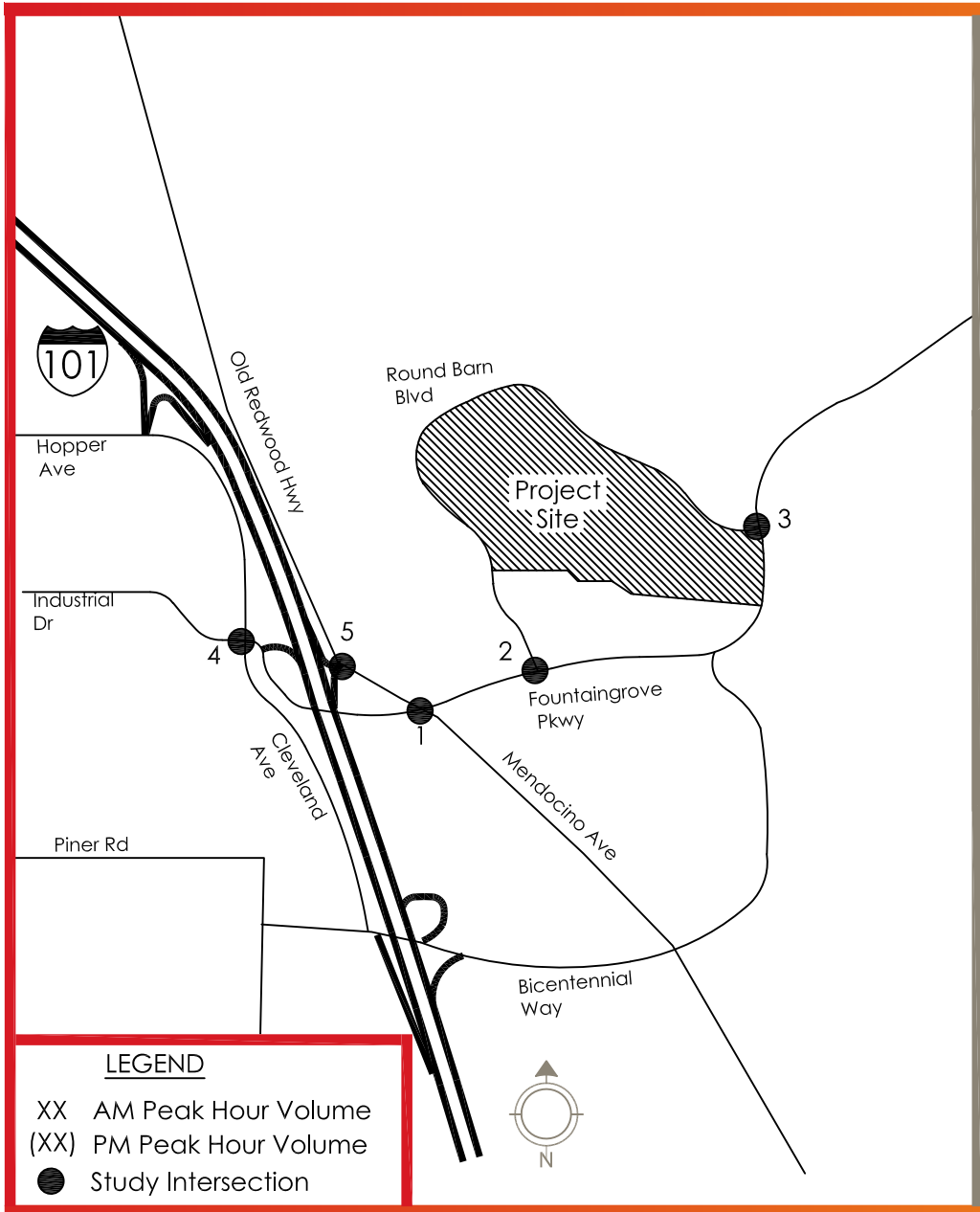
City of Santa Rosa
Traffic Impact Study for The Round Barn Development

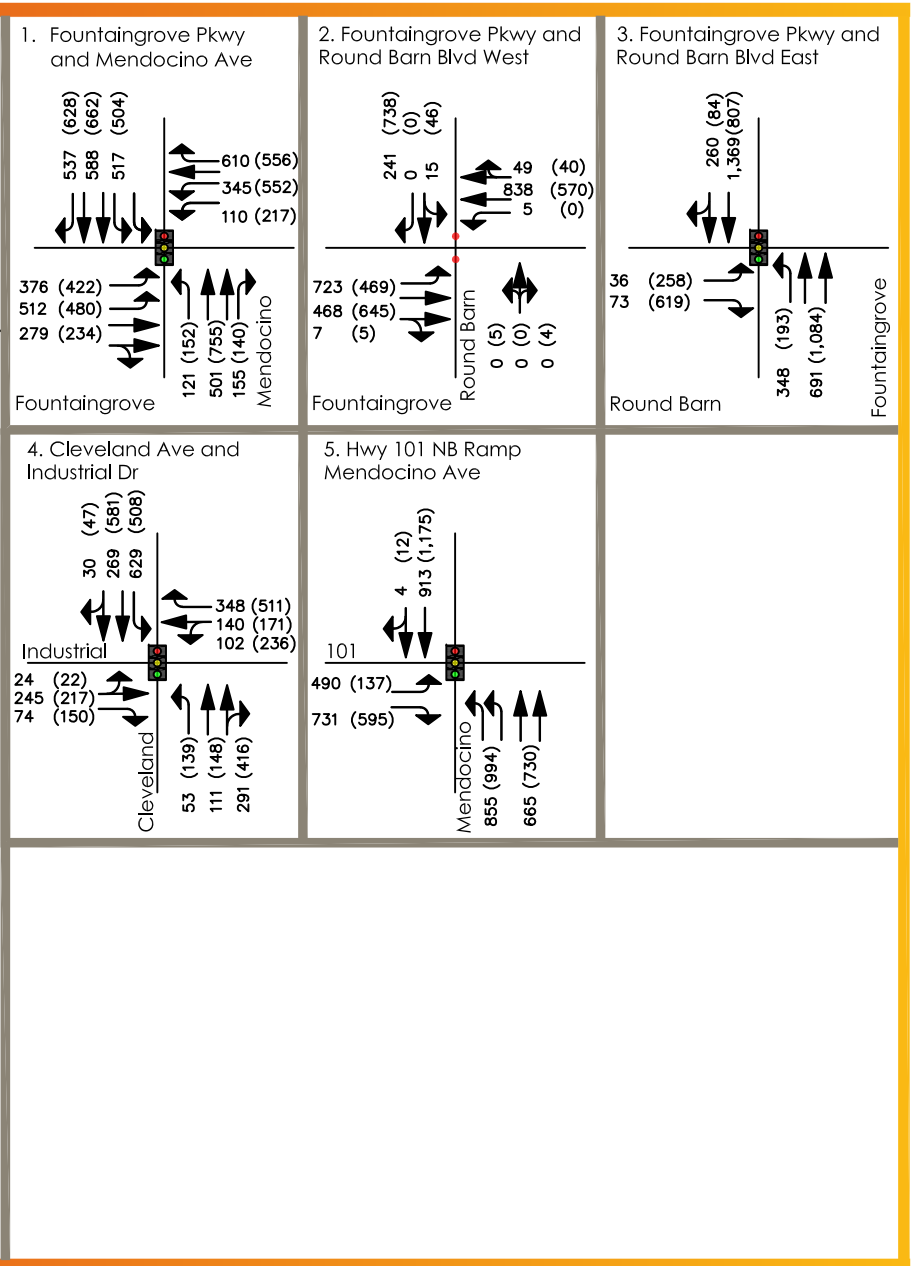
Short-Term Cumulative Plus Project Turning Movement Volumes Figure 9



City of Santa Rosa
Traffic Impact Study for The Round Barn Development

2040 (No Project) Turning Movement Volumes Figure 10





City of Santa Rosa
Traffic Impact Study for The Round Barn Development

2040 Plus Project Turning Movement Volumes Figure 11

AMG ADVANCED MOBILITY GROUP

Appendix B INTERSECTION TURNING MOVEMENT COUNTS

National Data and Surveying Services

City of Santa Rosa
All Vehicles & Uturns On Unshifted
Peds & Bikes On Bank 1
Nothing On Bank 2

(323) 782-0090
info@ndsdata.com

File Name : 17-7405-001 Mendocino Ave & Fountaingrove Pkwy
Date : 5/10/2017

Unshifted Count = All Vehicles & Uturns

	Mendocino Ave Southbound					Fountaingrove Pkwy Westbound					Mendocino Ave Northbound					Fountaingrove Pkwy Eastbound						
START TIME	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	Total	Uturns Total
7:00	37	61	52	0	150	14	49	68	0	131	12	84	20	0	116	47	56	43	0	146	543	0
7:15	50	82	63	0	195	7	45	89	0	141	13	126	16	0	155	52	61	75	0	188	679	0
7:30	72	106	64	0	242	18	51	82	0	151	20	129	9	0	158	58	102	70	0	230	781	0
7:45	53	117	82	0	252	31	76	128	2	237	25	147	21	0	193	64	72	100	0	236	918	2
Total	212	366	261	0	839	70	221	367	2	660	70	486	66	0	622	221	291	288	0	800	2921	2
8:00	76	127	90	0	293	30	73	132	0	235	38	121	21	0	180	97	98	92	0	287	995	0
8:15	69	136	116	0	321	32	74	138	0	244	22	144	29	0	195	100	94	83	0	277	1037	0
8:30	73	109	118	0	300	20	85	144	0	249	31	115	28	0	174	103	79	55	0	237	960	0
8:45	79	149	143	0	371	18	76	96	0	190	42	132	31	0	205	84	90	83	0	257	1023	0
Total	297	521	467	0	1285	100	308	510	0	918	133	512	109	0	754	384	361	313	0	1058	4015	0
16:00	47	112	138	0	297	44	112	69	0	225	33	159	29	0	221	101	87	63	0	251	994	0
16:15	53	125	127	0	305	29	91	70	1	191	56	174	26	0	256	100	89	77	0	266	1018	1
16:30	49	139	115	0	303	44	105	79	0	228	43	173	23	0	239	117	91	74	0	282	1052	0
16:45	68	152	130	0	350	31	85	81	0	197	45	188	27	0	260	108	93	69	0	270	1077	0
Total	217	528	510	0	1255	148	393	299	1	841	177	694	105	0	976	426	360	283	0	1069	4141	1
17:00	60	138	149	0	347	41	115	86	0	242	43	189	18	0	250	122	101	71	0	294	1133	0
17:15	65	128	134	0	327	32	105	86	1	224	52	217	26	0	295	98	88	73	0	259	1105	1
17:30	61	117	147	0	325	42	107	78	0	227	58	177	27	0	262	125	72	75	0	272	1086	0
17:45	68	136	147	0	351	22	99	61	0	182	45	147	21	0	213	87	81	58	0	226	972	0
Total	254	519	577	0	1350	137	426	311	1	875	198	730	92	0	1020	432	342	277	0	1051	4296	1
Grand Total	980	1934	1815	0	4729	455	1348	1487	4	3294	578	2422	372	0	3372	1463	1354	1161	0	3978	15373	4
Apprch %	20.7%	40.9%	38.4%	0.0%		13.8%	40.9%	45.1%	0.1%		17.1%	71.8%	11.0%	0.0%		36.8%	34.0%	29.2%	0.0%			
Total %	6.4%	12.6%	11.8%	0.0%	30.8%	3.0%	8.8%	9.7%	0.0%	21.4%	3.8%	15.8%	2.4%	0.0%	21.9%	9.5%	8.8%	7.6%	0.0%	25.9%	100.0%	

AM PEAK HOUR	Mendocino Ave Southbound					Fountaingrove Pkwy Westbound					Mendocino Ave Northbound					Fountaingrove Pkwy Eastbound					
START TIME	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	Total
Peak Hour Analysis From 08:00 to 09:00																					
Peak Hour For Entire Intersection Begins at 08:00																					
8:00	76	127	90	0	293	30	73	132	0	235	38	121	21	0	180	97	98	92	0	287	995
8:15	69	136	116	0	321	32	74	138	0	244	22	144	29	0	195	100	94	83	0	277	1037
8:30	73	109	118	0	300	20	85	144	0	249	31	115	28	0	174	103	79	55	0	237	960
8:45	79	149	143	0	371	18	76	96	0	190	42	132	31	0	205	84	90	83	0	257	1023
Total Volume	297	521	467	0	1285	100	308	510	0	918	133	512	109	0	754	384	361	313	0	1058	4015
% App Total	23.1%	40.5%	36.3%	0.0%		10.9%	33.6%	55.6%	0.0%		17.6%	67.9%	14.5%	0.0%		36.3%	34.1%	29.6%	0.0%		
PHF	.940	.874	.816	.000	.866	.781	.906	.885	.000	.922	.792	.889	.879	.000	.920	.932	.921	.851	.000	.922	.968

PM PEAK HOUR	Mendocino Ave Southbound					Fountaingrove Pkwy Westbound					Mendocino Ave Northbound					Fountaingrove Pkwy Eastbound					
START TIME	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	Total
Peak Hour Analysis From 16:45 to 17:45																					
Peak Hour For Entire Intersection Begins at 16:45																					
16:45	68	152	130	0	350	31	85	81	0	197	45	188	27	0	260	108	93	69	0	270	1077
17:00	60	138	149	0	347	41	115	86	0	242	43	189	18	0	250	122	101	71	0	294	1133
17:15	65	128	134	0	327	32	105	86	1	224	52	217	26	0	295	98	88	73	0	259	1105
17:30	61	117	147	0	325	42	107	78	0	227	58	177	27	0	262	125	72	75	0	272	1086
Total Volume	254	535	560	0	1349	146	412	331	1	890	198	771	98	0	1067	453	354	288	0	1095	4401
% App Total	18.8%	39.7%	41.5%	0.0%		16.4%	46.3%	37.2%	0.1%		18.6%	72.3%	9.2%	0.0%		41.4%	32.3%	26.3%	0.0%		
PHF	.934	.880	.940	.000	.964	.869	.896	.962	.250	.919	.853	.888	.907	.000	.904	.906	.876	.960	.000	.931	.971

National Data and Surveying Services

City of Santa Rosa
All Vehicles & Uturns On Unshifted
Peds & Bikes On Bank 1
Nothing On Bank 2

(323) 782-0090
info@ndsdata.com

File Name : 17-7405-001 Mendocino Ave & Fountaingrove Pkwy
Date : 5/10/2017

Bank 1 Count = Peds & Bikes

	Mendocino Ave Southbound					Fountaingrove Pkwy Westbound					Mendocino Ave Northbound					Fountaingrove Pkwy Eastbound						
START TIME	LEFT	THRU	RIGHT	PEDS	APP.TOTAL	LEFT	THRU	RIGHT	PEDS	APP.TOTAL	LEFT	THRU	RIGHT	PEDS	APP.TOTAL	LEFT	THRU	RIGHT	PEDS	APP.TOTAL	Total	Peds Total
7:00	0	1	0	0	1	0	0	0	1	0	0	1	0	1	1	0	0	0	0	0	2	2
7:15	0	1	0	0	1	0	0	0	1	0	0	3	0	0	3	0	1	0	0	1	5	1
7:30	0	2	1	0	3	0	0	1	0	1	0	3	0	0	3	0	0	0	0	0	7	0
7:45	0	0	0	0	0	0	0	0	0	0	0	2	2	0	4	0	0	0	0	0	4	0
Total	0	4	1	0	5	0	0	1	2	1	0	9	2	1	11	0	1	0	0	1	18	3
8:00	1	1	0	0	2	0	0	0	2	0	0	0	0	2	0	0	0	0	0	0	2	4
8:15	0	1	0	0	1	0	0	0	0	0	0	6	1	1	7	0	0	0	0	0	8	1
8:30	0	1	0	0	1	0	0	16	2	16	0	0	0	1	0	0	1	0	0	1	18	3
8:45	0	1	0	0	1	0	0	14	0	14	0	0	0	2	0	0	0	0	0	0	15	2
Total	1	4	0	0	5	0	0	30	4	30	0	6	1	6	7	0	1	0	0	1	43	10
16:00	0	2	0	0	2	0	0	0	1	0	0	0	0	2	0	0	0	0	0	0	2	3
16:15	0	4	0	0	4	0	0	0	0	0	0	0	1	1	1	1	1	0	0	2	7	1
16:30	0	2	0	0	2	0	0	0	3	0	0	0	0	6	0	0	0	0	0	0	2	9
16:45	0	2	0	0	2	1	0	0	0	1	0	0	0	1	0	0	0	0	0	0	3	1
Total	0	10	0	0	10	1	0	0	4	1	0	0	1	10	1	1	1	0	0	2	14	14
17:00	0	2	0	0	2	0	0	0	2	0	0	1	0	2	1	0	0	0	0	0	3	4
17:15	0	3	0	0	3	0	0	1	2	1	0	2	0	3	2	0	0	0	0	0	6	5
17:30	0	0	0	0	0	1	1	0	0	2	1	0	0	1	1	0	0	0	0	0	3	1
17:45	0	1	0	0	1	0	2	0	0	2	0	1	0	5	1	0	0	0	0	0	4	5
Total	0	6	0	0	6	1	3	1	4	5	1	4	0	11	5	0	0	0	0	0	16	15
Grand Total	1	24	1	0	26	2	3	32	14	37	1	19	4	28	24	1	3	0	0	4	91	42
Apprch %	3.8%	92.3%	3.8%			5.4%	8.1%	86.5%			4.2%	79.2%	16.7%			25.0%	75.0%	0.0%				
Total %	1.1%	26.4%	1.1%		28.6%	2.2%	3.3%	35.2%		40.7%	1.1%	20.9%	4.4%		26.4%	1.1%	3.3%	0.0%		4.4%	100.0%	

AM PEAK HOUR	Mendocino Ave Southbound					Fountaingrove Pkwy Westbound					Mendocino Ave Northbound					Fountaingrove Pkwy Eastbound					
START TIME	LEFT	THRU	RIGHT	PEDS	APP.TOTAL	LEFT	THRU	RIGHT	PEDS	APP.TOTAL	LEFT	THRU	RIGHT	PEDS	APP.TOTAL	LEFT	THRU	RIGHT	PEDS	APP.TOTAL	Total
Peak Hour Analysis From 08:00 to 09:00																					
Peak Hour For Entire Intersection Begins at 08:00																					
8:00	1	1	0	0	2	0	0	0	2	0	0	0	0	2	0	0	0	0	0	0	2
8:15	0	1	0	0	1	0	0	0	0	0	0	6	1	1	7	0	0	0	0	0	8
8:30	0	1	0	0	1	0	0	16	2	16	0	0	0	1	0	0	1	0	0	1	18
8:45	0	1	0	0	1	0	0	14	0	14	0	0	0	2	0	0	0	0	0	0	15
Total Volume	1	4	0	0	5	0	0	30	4	30	0	6	1	6	7	0	1	0	0	1	43
% App Total	20.0%	80.0%	0.0%			0.0%	0.0%	100.0%			0.0%	85.7%	14.3%			0.0%	100.0%	0.0%			
PHF	.250	1.000	.000		.625	.000	.000	.469		.469	.000	.250	.250		.250	.000	.250	.000		.250	.597

PM PEAK HOUR	Mendocino Ave Southbound					Fountaingrove Pkwy Westbound					Mendocino Ave Northbound					Fountaingrove Pkwy Eastbound					
START TIME	LEFT	THRU	RIGHT	PEDS	APP.TOTAL	LEFT	THRU	RIGHT	PEDS	APP.TOTAL	LEFT	THRU	RIGHT	PEDS	APP.TOTAL	LEFT	THRU	RIGHT	PEDS	APP.TOTAL	Total
Peak Hour Analysis From 16:45 to 17:45																					
Peak Hour For Entire Intersection Begins at 16:45																					
16:45	0	2	0	0	2	1	0	0	0	1	0	0	0	1	0	0	0	0	0	0	3
17:00	0	2	0	0	2	0	0	0	2	0	0	1	0	2	1	0	0	0	0	0	3
17:15	0	3	0	0	3	0	0	1	2	1	0	2	0	3	2	0	0	0	0	0	6
17:30	0	0	0	0	0	1	1	0	0	2	1	0	0	1	1	0	0	0	0	0	3
Total Volume	0	7	0	0	7	2	1	1	4	4	1	3	0	7	4	0	0	0	0	0	15
% App Total	0.0%	100.0%	0.0%			50.0%	25.0%	25.0%			25.0%	75.0%	0.0%			0.0%	0.0%	0.0%			
PHF	.000	.583	.000		.583	.500	.250	.250		.500	.250	.375	.000		.500	.000	.000	.000		.000	.625

National Data and Surveying Services

City of Santa Rosa
All Vehicles & Uturns On Unshifted
Peds & Bikes On Bank 1
Nothing On Bank 2

(323) 782-0090
info@ndsdata.com

File Name : 17-7405-002 Round Barn Blvd West & Fountaingrove Pkwy
Date : 5/10/2017

Unshifted Count = All Vehicles & Uturns

	Round Barn Blvd West Southbound					Fountaingrove Pkwy Westbound					Round Barn Blvd West Northbound					Fountaingrove Pkwy Eastbound						
START TIME	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	Total	Uturns Total
7:00	2	0	16	0	18	0	111	0	0	111	0	0	0	0	0	33	79	3	2	117	246	2
7:15	8	0	6	0	14	1	138	1	0	140	2	0	0	0	2	33	91	3	1	128	284	1
7:30	2	0	23	0	25	0	131	1	0	132	0	0	1	0	1	39	127	1	1	168	326	1
7:45	3	0	18	0	21	0	212	4	0	216	2	0	0	0	2	53	106	0	1	160	399	1
Total	15	0	63	0	78	1	592	6	0	599	4	0	1	0	5	158	403	7	5	573	1255	5
8:00	1	0	33	0	34	2	206	8	0	216	0	0	0	0	0	69	122	1	0	192	442	0
8:15	3	0	30	0	33	0	226	4	1	231	0	0	0	0	0	80	111	3	0	194	458	1
8:30	3	0	31	0	34	0	212	9	2	223	0	0	0	0	0	88	96	0	0	184	441	2
8:45	3	0	28	0	31	0	163	8	1	172	0	0	0	0	0	91	106	2	2	201	404	3
Total	10	0	122	0	132	2	807	29	4	842	0	0	0	0	0	328	435	6	2	771	1745	6
16:00	9	0	76	0	85	0	136	3	2	141	0	0	0	0	0	51	110	1	0	162	388	2
16:15	7	0	63	0	70	0	135	1	0	136	1	0	0	0	1	37	127	1	0	165	372	0
16:30	7	0	77	0	84	0	131	1	0	132	2	0	0	0	2	35	123	0	3	161	379	3
16:45	9	0	76	0	85	0	119	4	0	123	3	0	2	0	5	48	143	1	1	193	406	1
Total	32	0	292	0	324	0	521	9	2	532	6	0	2	0	8	171	503	3	4	681	1545	6
17:00	9	0	104	0	113	0	133	7	0	140	0	0	0	0	0	34	137	0	0	171	424	0
17:15	4	0	80	0	84	0	141	4	0	145	0	0	3	0	3	32	148	4	2	186	418	2
17:30	10	0	102	0	112	0	119	4	0	123	1	0	0	0	1	34	114	0	4	152	388	4
17:45	5	0	61	0	66	0	123	2	0	125	0	0	0	0	0	30	143	0	3	176	367	3
Total	28	0	347	0	375	0	516	17	0	533	1	0	3	0	4	130	542	4	9	685	1597	9
Grand Total	85	0	824	0	909	3	2436	61	6	2506	11	0	6	0	17	787	1883	20	20	2710	6142	26
Apprch %	9.4%	0.0%	90.6%	0.0%		0.1%	97.2%	2.4%	0.2%		64.7%	0.0%	35.3%	0.0%		29.0%	69.5%	0.7%	0.7%			
Total %	1.4%	0.0%	13.4%	0.0%	14.8%	0.0%	39.7%	1.0%	0.1%	40.8%	0.2%	0.0%	0.1%	0.0%	0.3%	12.8%	30.7%	0.3%	0.3%	44.1%	100.0%	

AM PEAK HOUR	Round Barn Blvd West Southbound					Fountaingrove Pkwy Westbound					Round Barn Blvd West Northbound					Fountaingrove Pkwy Eastbound					
START TIME	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	Total
Peak Hour Analysis From 08:00 to 09:00																					
Peak Hour For Entire Intersection Begins at 08:00																					
8:00	1	0	33	0	34	2	206	8	0	216	0	0	0	0	0	69	122	1	0	192	442
8:15	3	0	30	0	33	0	226	4	1	231	0	0	0	0	0	80	111	3	0	194	458
8:30	3	0	31	0	34	0	212	9	2	223	0	0	0	0	0	88	96	0	0	184	441
8:45	3	0	28	0	31	0	163	8	1	172	0	0	0	0	0	91	106	2	2	201	404
Total Volume	10	0	122	0	132	2	807	29	4	842	0	0	0	0	0	328	435	6	2	771	1745
% App Total	7.6%	0.0%	92.4%	0.0%		0.2%	95.8%	3.4%	0.5%		0.0%	0.0%	0.0%	0.0%		42.5%	56.4%	0.8%	0.3%		
PHF	.833	.000	.924	.000	.971	.250	.893	.806	.500	.911	.000	.000	.000	.000	.000	.901	.891	.500	.250	.959	.953

PM PEAK HOUR	Round Barn Blvd West Southbound					Fountaingrove Pkwy Westbound					Round Barn Blvd West Northbound					Fountaingrove Pkwy Eastbound					
START TIME	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	Total
Peak Hour Analysis From 16:45 to 17:45																					
Peak Hour For Entire Intersection Begins at 16:45																					
16:45	9	0	76	0	85	0	119	4	0	123	3	0	2	0	5	48	143	1	1	193	406
17:00	9	0	104	0	113	0	133	7	0	140	0	0	0	0	0	34	137	0	0	171	424
17:15	4	0	80	0	84	0	141	4	0	145	0	0	3	0	3	32	148	4	2	186	418
17:30	10	0	102	0	112	0	119	4	0	123	1	0	0	0	1	34	114	0	4	152	388
Total Volume	32	0	362	0	394	0	512	19	0	531	4	0	5	0	9	148	542	5	7	702	1636
% App Total	8.1%	0.0%	91.9%	0.0%		0.0%	96.4%	3.6%	0.0%		44.4%	0.0%	55.6%	0.0%		21.1%	77.2%	0.7%	1.0%		
PHF	.800	.000	.870	.000	.872	.000	.908	.679	.000	.916	.333	.000	.417	.000	.450	.771	.916	.313	.438	.909	.965

National Data and Surveying Services

City of Santa Rosa
All Vehicles & Uturns On Unshifted
Peds & Bikes On Bank 1
Nothing On Bank 2

(323) 782-0090
info@ndsdata.com

File Name : 17-7405-002 Round Barn Blvd West & Fountaingrove Pkwy
Date : 5/10/2017

Bank 1 Count = Peds & Bikes

	Round Barn Blvd West Southbound					Fountaingrove Pkwy Westbound					Round Barn Blvd West Northbound					Fountaingrove Pkwy Eastbound						
START TIME	LEFT	THRU	RIGHT	PEDS	APP.TOTAL	LEFT	THRU	RIGHT	PEDS	APP.TOTAL	LEFT	THRU	RIGHT	PEDS	APP.TOTAL	LEFT	THRU	RIGHT	PEDS	APP.TOTAL	Total	Peds Total
7:00	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	1
7:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	1	0
7:30	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	0	0	1	0	1	1
7:45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	0	2	2	0
Total	0	0	0	0	0	0	1	0	0	1	0	0	0	1	0	1	2	0	1	3	4	2
8:00	0	0	0	1	0	0	0	0	0	0	0	0	0	1	0	0	6	0	0	6	6	2
8:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	1	1	1
8:30	0	0	15	0	15	0	0	0	1	0	0	0	0	1	0	0	0	0	0	0	15	2
8:45	0	0	12	0	12	0	1	0	0	1	0	0	0	1	0	0	0	0	0	0	13	1
Total	0	0	27	1	27	0	1	0	1	1	0	0	0	3	0	0	7	0	1	7	35	6
16:00	0	0	0	1	0	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	1	1
16:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
16:30	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2
16:45	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	1	0
Total	0	0	0	3	0	0	1	0	0	1	1	0	0	0	1	0	0	0	0	0	2	3
17:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
17:15	0	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0
17:30	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	0	0	1	0	1	1
17:45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	1	0	1	0	1	0	0	1	0	0	0	0	0	0	0	0	1	0	2	1
Grand Total	0	0	28	4	28	0	4	0	1	4	1	0	0	4	1	1	9	0	3	10	43	12
Apprch %	0.0%	0.0%	100.0%			0.0%	100.0%	0.0%			100.0%	0.0%	0.0%			10.0%	90.0%	0.0%				
Total %	0.0%	0.0%	65.1%		65.1%	0.0%	9.3%	0.0%		9.3%	2.3%	0.0%	0.0%		2.3%	2.3%	20.9%	0.0%		23.3%	100.0%	

AM PEAK HOUR	Round Barn Blvd West Southbound					Fountaingrove Pkwy Westbound					Round Barn Blvd West Northbound					Fountaingrove Pkwy Eastbound					
START TIME	LEFT	THRU	RIGHT	PEDS	APP.TOTAL	LEFT	THRU	RIGHT	PEDS	APP.TOTAL	LEFT	THRU	RIGHT	PEDS	APP.TOTAL	LEFT	THRU	RIGHT	PEDS	APP.TOTAL	Total
Peak Hour Analysis From 08:00 to 09:00																					
Peak Hour For Entire Intersection Begins at 08:00																					
8:00	0	0	0	1	0	0	0	0	0	0	0	0	0	1	0	0	6	0	0	6	6
8:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	1	1
8:30	0	0	15	0	15	0	0	0	1	0	0	0	0	1	0	0	0	0	0	0	15
8:45	0	0	12	0	12	0	1	0	0	1	0	0	0	1	0	0	0	0	0	0	13
Total Volume	0	0	27	1	27	0	1	0	1	1	0	0	0	3	0	0	7	0	1	7	35
% App Total	0.0%	0.0%	100.0%			0.0%	100.0%	0.0%			0.0%	0.0%	0.0%			0.0%	100.0%	0.0%			
PHF	.000	.000	.450		.450	.000	.250	.000		.250	.000	.000	.000		.000	.000	.292	.000		.292	.583

PM PEAK HOUR	Round Barn Blvd West Southbound					Fountaingrove Pkwy Westbound					Round Barn Blvd West Northbound					Fountaingrove Pkwy Eastbound					
START TIME	LEFT	THRU	RIGHT	PEDS	APP.TOTAL	LEFT	THRU	RIGHT	PEDS	APP.TOTAL	LEFT	THRU	RIGHT	PEDS	APP.TOTAL	LEFT	THRU	RIGHT	PEDS	APP.TOTAL	Total
Peak Hour Analysis From 16:45 to 17:45																					
Peak Hour For Entire Intersection Begins at 16:45																					
16:45	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	1
17:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
17:15	0	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
17:30	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	0	0	1	0	1
Total Volume	0	0	1	0	1	0	1	0	0	1	1	0	0	0	1	0	0	0	1	0	3
% App Total	0.0%	0.0%	100.0%			0.0%	100.0%	0.0%			100.0%	0.0%	0.0%			0.0%	0.0%	0.0%			
PHF	.000	.000	.250		.250	.000	.250	.000		.250	.250	.000	.000		.250	.000	.000	.000		.000	.750

National Data and Surveying Services

City of Santa Rosa
All Vehicles & Uturns On Unshifted
Bikes & Peds On Bank 1
Nothing On Bank 2

(323) 782-0090
info@ndsdata.com

File Name : 17-7405-003 Fountaingrove Pkwy & Round Barn Blvd East
Date : 5/16/2017

Unshifted Count = All Vehicles & Uturns

	Fountaingrove Pkwy Southbound					Round Barn Blvd East Westbound					Fountaingrove Pkwy Northbound					Round Barn Blvd East Eastbound						
START TIME	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	Total	Uturns Total
7:00	0	123	13	0	136	0	0	0	0	0	23	93	0	0	116	3	0	5	0	8	260	0
7:15	0	141	12	0	153	0	0	0	0	0	22	131	0	0	153	3	0	6	0	9	315	0
7:30	0	201	20	0	221	0	0	0	0	0	25	168	0	0	193	4	0	5	0	9	423	0
7:45	0	307	32	0	339	0	0	0	0	0	25	213	0	0	238	4	0	2	0	6	583	0
Total	0	772	77	0	849	0	0	0	0	0	95	605	0	0	700	14	0	18	0	32	1581	0
8:00	0	299	49	0	348	0	0	0	0	0	27	182	0	0	209	5	0	6	0	11	568	0
8:15	0	332	42	0	374	0	0	0	0	0	31	147	0	0	178	4	0	5	0	9	561	0
8:30	0	279	43	0	322	0	0	0	0	0	26	125	0	0	151	4	0	3	0	7	480	0
8:45	0	226	25	0	251	0	0	0	0	0	30	166	0	0	196	4	0	10	0	14	461	0
Total	0	1136	159	0	1295	0	0	0	0	0	114	620	0	0	734	17	0	24	0	41	2070	0
16:00	0	164	8	0	172	0	0	0	0	0	9	218	0	0	227	19	0	19	0	38	437	0
16:15	0	183	8	0	191	0	0	0	0	0	6	220	0	0	226	23	0	19	0	42	459	0
16:30	0	189	8	0	197	0	0	0	0	0	5	221	0	1	227	18	0	17	0	35	459	1
16:45	0	185	10	0	195	0	0	0	0	0	11	213	0	0	224	26	0	33	0	59	478	0
Total	0	721	34	0	755	0	0	0	0	0	31	872	0	1	904	86	0	88	0	174	1833	1
17:00	0	200	9	0	209	0	0	0	0	0	8	249	0	1	258	37	0	62	0	99	566	1
17:15	0	191	9	0	200	0	0	0	0	0	10	226	0	1	237	40	0	35	0	75	512	1
17:30	0	165	6	0	171	0	0	0	0	0	8	253	0	0	261	37	0	47	0	84	516	0
17:45	0	187	7	0	194	0	0	0	0	0	5	178	0	0	183	18	0	19	0	37	414	0
Total	0	743	31	0	774	0	0	0	0	0	31	906	0	2	939	132	0	163	0	295	2008	2
Grand Total	0	3372	301	0	3673	0	0	0	0	0	271	3003	0	3	3277	249	0	293	0	542	7492	3
Apprch %	0.0%	91.8%	8.2%	0.0%		0.0%	0.0%	0.0%	0.0%		8.3%	91.6%	0.0%	0.1%		45.9%	0.0%	54.1%	0.0%			
Total %	0.0%	45.0%	4.0%	0.0%	49.0%	0.0%	0.0%	0.0%	0.0%	0.0%	3.6%	40.1%	0.0%	0.0%	43.7%	3.3%	0.0%	3.9%	0.0%	7.2%	100.0%	

AM PEAK HOUR	Fountaingrove Pkwy Southbound					Round Barn Blvd East Westbound					Fountaingrove Pkwy Northbound					Round Barn Blvd East Eastbound					
START TIME	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	Total
Peak Hour Analysis From 07:45 to 08:45																					
Peak Hour For Entire Intersection Begins at 07:45																					
7:45	0	307	32	0	339	0	0	0	0	0	25	213	0	0	238	4	0	2	0	6	583
8:00	0	299	49	0	348	0	0	0	0	0	27	182	0	0	209	5	0	6	0	11	568
8:15	0	332	42	0	374	0	0	0	0	0	31	147	0	0	178	4	0	5	0	9	561
8:30	0	279	43	0	322	0	0	0	0	0	26	125	0	0	151	4	0	3	0	7	480
Total Volume	0	1217	166	0	1383	0	0	0	0	0	109	667	0	0	776	17	0	16	0	33	2192
% App Total	0.0%	88.0%	12.0%	0.0%		0.0%	0.0%	0.0%	0.0%		14.0%	86.0%	0.0%	0.0%		51.5%	0.0%	48.5%	0.0%		
PHF	.000	.916	.847	.000	.924	.000	.000	.000	.000	.000	.879	.783	.000	.000	.815	.850	.000	.667	.000	.750	.940

PM PEAK HOUR	Fountaingrove Pkwy Southbound					Round Barn Blvd East Westbound					Fountaingrove Pkwy Northbound					Round Barn Blvd East Eastbound					
START TIME	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	Total
Peak Hour Analysis From 16:45 to 17:45																					
Peak Hour For Entire Intersection Begins at 16:45																					
16:45	0	185	10	0	195	0	0	0	0	0	11	213	0	0	224	26	0	33	0	59	478
17:00	0	200	9	0	209	0	0	0	0	0	8	249	0	1	258	37	0	62	0	99	566
17:15	0	191	9	0	200	0	0	0	0	0	10	226	0	1	237	40	0	35	0	75	512
17:30	0	165	6	0	171	0	0	0	0	0	8	253	0	0	261	37	0	47	0	84	516
Total Volume	0	741	34	0	775	0	0	0	0	0	37	941	0	2	980	140	0	177	0	317	2072
% App Total	0.0%	95.6%	4.4%	0.0%		0.0%	0.0%	0.0%	0.0%		3.8%	96.0%	0.0%	0.2%		44.2%	0.0%	55.8%	0.0%		
PHF	.000	.926	.850	.000	.927	.000	.000	.000	.000	.000	.841	.930	.000	.500	.939	.875	.000	.714	.000	.801	.915

National Data and Surveying Services

City of Santa Rosa
All Vehicles & Uturns On Unshifted
Bikes & Peds On Bank 1
Nothing On Bank 2

(323) 782-0090
info@ndsdata.com

File Name : 17-7405-003 Fountaingrove Pkwy & Round Barn Blvd East
Date : 5/16/2017

Bank 1 Count = Bikes & Peds

	Fountaingrove Pkwy Southbound					Round Barn Blvd East Westbound					Fountaingrove Pkwy Northbound					Round Barn Blvd East Eastbound						
START TIME	LEFT	THRU	RIGHT	PEDS	APP.TOTAL	LEFT	THRU	RIGHT	PEDS	APP.TOTAL	LEFT	THRU	RIGHT	PEDS	APP.TOTAL	LEFT	THRU	RIGHT	PEDS	APP.TOTAL	Total	Peds Total
7:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	1	0
7:15	0	0	0	0	0	0	0	0	0	0	0	2	0	0	2	0	0	0	1	0	2	1
7:30	0	1	0	0	1	0	0	0	0	0	0	0	0	1	0	0	0	0	2	0	1	3
7:45	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	1	0	0	2	1	2	2
Total	0	1	0	0	1	0	0	0	0	0	0	3	0	1	3	2	0	0	5	2	6	6
8:00	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0	2	0	0	4
8:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:30	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	1	0
8:45	0	1	0	0	1	0	0	0	0	0	0	2	0	0	2	0	0	0	0	0	3	0
Total	0	1	0	0	1	0	0	0	0	0	0	3	0	2	3	0	0	0	2	0	4	4
16:00	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	1
16:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	1	0
16:30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
16:45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	0	0	3
Total	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	0	0	3	1	1	4
17:00	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	1
17:15	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	1	0
17:30	0	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0
17:45	0	2	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	3	0
Total	0	3	1	0	4	0	0	0	0	0	0	1	0	0	1	0	0	1	1	1	6	1
Grand Total	0	5	1	0	6	0	0	0	0	0	0	7	0	4	7	3	0	1	11	4	17	15
Apprch %	0.0%	83.3%	16.7%			0.0%	0.0%	0.0%			0.0%	100.0%	0.0%			75.0%	0.0%	25.0%				
Total %	0.0%	29.4%	5.9%		35.3%	0.0%	0.0%	0.0%		0.0%	0.0%	41.2%	0.0%		41.2%	17.6%	0.0%	5.9%		23.5%	100.0%	

AM PEAK HOUR	Fountaingrove Pkwy Southbound					Round Barn Blvd East Westbound					Fountaingrove Pkwy Northbound					Round Barn Blvd East Eastbound					
START TIME	LEFT	THRU	RIGHT	PEDS	APP.TOTAL	LEFT	THRU	RIGHT	PEDS	APP.TOTAL	LEFT	THRU	RIGHT	PEDS	APP.TOTAL	LEFT	THRU	RIGHT	PEDS	APP.TOTAL	Total
Peak Hour Analysis From 07:45 to 08:45																					
Peak Hour For Entire Intersection Begins at 07:45																					
7:45	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	1	0	0	2	1	2
8:00	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0	2	0	0
8:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:30	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	1
Total Volume	0	0	0	0	0	0	0	0	0	0	0	2	0	2	2	1	0	0	4	1	3
% App Total	0.0%	0.0%	0.0%			0.0%	0.0%	0.0%			0.0%	100.0%	0.0%			100.0%	0.0%	0.0%			
PHF	.000	.000	.000		.000	.000	.000	.000		.000	.000	.500	.000		.500	.250	.000	.000		.250	.375

PM PEAK HOUR	Fountaingrove Pkwy Southbound					Round Barn Blvd East Westbound					Fountaingrove Pkwy Northbound					Round Barn Blvd East Eastbound					
START TIME	LEFT	THRU	RIGHT	PEDS	APP.TOTAL	LEFT	THRU	RIGHT	PEDS	APP.TOTAL	LEFT	THRU	RIGHT	PEDS	APP.TOTAL	LEFT	THRU	RIGHT	PEDS	APP.TOTAL	Total
Peak Hour Analysis From 16:45 to 17:45																					
Peak Hour For Entire Intersection Begins at 16:45																					
16:45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	0	0
17:00	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1
17:15	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	1
17:30	0	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
Total Volume	0	1	1	0	2	0	0	0	0	0	0	1	0	0	1	0	0	0	4	0	3
% App Total	0.0%	50.0%	50.0%			0.0%	0.0%	0.0%			0.0%	100.0%	0.0%			0.0%	0.0%	0.0%			
PHF	.000	.250	.250		.500	.000	.000	.000		.000	.000	.250	.000		.250	.000	.000	.000		.000	.750

National Data and Surveying Services

City of Santa Rosa
All Vehicles & Uturns On Unshifted
Peds & Bikes On Bank 1
Nothing On Bank 2

(323) 782-0090
info@ndsdata.com

File Name : 17-7405-004 Cleveland Ave & Industrial Dr
Date : 5/10/2017

Unshifted Count = All Vehicles & Uturns

	Cleveland Ave Southbound					Industrial Dr Westbound					Cleveland Ave Northbound					Industrial Dr Eastbound						
START TIME	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	Total	Uturns Total
7:00	102	30	6	0	138	9	30	46	0	85	4	6	24	1	35	4	17	6	0	27	285	1
7:15	141	28	3	0	172	14	17	53	0	84	5	13	33	0	51	4	26	8	0	38	345	0
7:30	154	41	2	0	197	12	29	53	0	94	6	4	42	0	52	3	25	9	0	37	380	0
7:45	148	78	6	0	232	27	34	67	0	128	6	14	65	0	85	2	36	10	0	48	493	0
Total	545	177	17	0	739	62	110	219	0	391	21	37	164	1	223	13	104	33	0	150	1503	1
8:00	173	51	2	0	226	28	44	75	0	147	9	12	58	0	79	2	47	13	0	62	514	0
8:15	178	67	5	0	250	42	35	64	0	141	8	16	61	0	85	3	41	12	0	56	532	0
8:30	135	75	8	0	218	33	41	89	0	163	15	21	55	0	91	4	40	22	0	66	538	0
8:45	136	90	14	0	240	38	55	72	0	165	11	16	75	0	102	4	63	14	0	81	588	0
Total	622	283	29	0	934	141	175	300	0	616	43	65	249	0	357	13	191	61	0	265	2172	0
16:00	119	114	16	0	249	46	49	82	0	177	19	29	87	1	136	6	58	45	0	109	671	1
16:15	111	115	7	0	233	67	59	106	0	232	33	22	85	0	140	5	60	33	0	98	703	0
16:30	117	130	11	0	258	43	51	111	0	205	30	34	95	0	159	10	63	43	0	116	738	0
16:45	137	126	11	0	274	51	41	112	0	204	21	22	85	0	128	6	72	30	0	108	714	0
Total	484	485	45	0	1014	207	200	411	0	818	103	107	352	1	563	27	253	151	0	431	2826	1
17:00	135	121	16	0	272	59	38	125	0	222	36	29	88	0	153	1	43	34	0	78	725	0
17:15	112	131	7	0	250	64	43	125	0	232	32	31	97	0	160	5	65	41	0	111	753	0
17:30	124	135	9	0	268	53	44	147	0	244	25	32	86	0	143	4	44	26	0	74	729	0
17:45	126	117	8	0	251	53	51	127	0	231	29	26	56	1	112	5	50	31	0	86	680	1
Total	497	504	40	0	1041	229	176	524	0	929	122	118	327	1	568	15	202	132	0	349	2887	1
Grand Total	2148	1449	131	0	3728	639	661	1454	0	2754	289	327	1092	3	1711	68	750	377	0	1195	9388	3
Apprch %	57.6%	38.9%	3.5%	0.0%		23.2%	24.0%	52.8%	0.0%		16.9%	19.1%	63.8%	0.2%		5.7%	62.8%	31.5%	0.0%			
Total %	22.9%	15.4%	1.4%	0.0%	39.7%	6.8%	7.0%	15.5%	0.0%	29.3%	3.1%	3.5%	11.6%	0.0%	18.2%	0.7%	8.0%	4.0%	0.0%	12.7%	100.0%	

AM PEAK HOUR	Cleveland Ave Southbound					Industrial Dr Westbound					Cleveland Ave Northbound					Industrial Dr Eastbound					
START TIME	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	Total
Peak Hour Analysis From 08:00 to 09:00																					
Peak Hour For Entire Intersection Begins at 08:00																					
8:00	173	51	2	0	226	28	44	75	0	147	9	12	58	0	79	2	47	13	0	62	514
8:15	178	67	5	0	250	42	35	64	0	141	8	16	61	0	85	3	41	12	0	56	532
8:30	135	75	8	0	218	33	41	89	0	163	15	21	55	0	91	4	40	22	0	66	538
8:45	136	90	14	0	240	38	55	72	0	165	11	16	75	0	102	4	63	14	0	81	588
Total Volume	622	283	29	0	934	141	175	300	0	616	43	65	249	0	357	13	191	61	0	265	2172
% App Total	66.6%	30.3%	3.1%	0.0%		22.9%	28.4%	48.7%	0.0%		12.0%	18.2%	69.7%	0.0%		4.9%	72.1%	23.0%	0.0%		
PHF	.874	.786	.518	.000	.934	.839	.795	.843	.000	.933	.717	.774	.830	.000	.875	.813	.758	.693	.000	.818	.923

PM PEAK HOUR	Cleveland Ave Southbound					Industrial Dr Westbound					Cleveland Ave Northbound					Industrial Dr Eastbound					
START TIME	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	Total
Peak Hour Analysis From 16:30 to 17:30																					
Peak Hour For Entire Intersection Begins at 16:30																					
16:30	117	130	11	0	258	43	51	111	0	205	30	34	95	0	159	10	63	43	0	116	738
16:45	137	126	11	0	274	51	41	112	0	204	21	22	85	0	128	6	72	30	0	108	714
17:00	135	121	16	0	272	59	38	125	0	222	36	29	88	0	153	1	43	34	0	78	725
17:15	112	131	7	0	250	64	43	125	0	232	32	31	97	0	160	5	65	41	0	111	753
Total Volume	501	508	45	0	1054	217	173	473	0	863	119	116	365	0	600	22	243	148	0	413	2930
% App Total	47.5%	48.2%	4.3%	0.0%		25.1%	20.0%	54.8%	0.0%		19.8%	19.3%	60.8%	0.0%		5.3%	58.8%	35.8%	0.0%		
PHF	.914	.969	.703	.000	.962	.848	.848	.946	.000	.930	.826	.853	.941	.000	.938	.550	.844	.860	.000	.890	.973

National Data and Surveying Services

City of Santa Rosa
All Vehicles & Uturns On Unshifted
Peds & Bikes On Bank 1
Nothing On Bank 2

(323) 782-0090
info@ndsdata.com

File Name : 17-7405-004 Cleveland Ave & Industrial Dr
Date : 5/10/2017

Bank 1 Count = Peds & Bikes

	Cleveland Ave Southbound					Industrial Dr Westbound					Cleveland Ave Northbound					Industrial Dr Eastbound						
START TIME	LEFT	THRU	RIGHT	PEDS	APP.TOTAL	LEFT	THRU	RIGHT	PEDS	APP.TOTAL	LEFT	THRU	RIGHT	PEDS	APP.TOTAL	LEFT	THRU	RIGHT	PEDS	APP.TOTAL	Total	Peds Total
7:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:15	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	0	1	1	1	2
7:30	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	1	0
7:45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	1	0	0	1	0	0	0	1	0	0	1	0	1	1	2	2
8:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:30	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	1	0	0	1	1	2
8:45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	3	1	1	3
Total	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	2	0	3	2	2	5
16:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
16:15	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	3	0	1	3	3	3
16:30	0	0	0	0	0	1	0	0	0	1	0	0	0	1	0	0	0	0	0	0	1	1
16:45	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	1	0	0	2
Total	0	0	0	0	0	1	0	0	0	1	0	0	0	4	0	0	3	0	2	3	4	6
17:00	0	1	0	0	1	0	0	0	0	0	0	0	0	3	0	0	1	0	0	1	2	3
17:15	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	1	0
17:30	0	0	0	0	0	1	1	0	0	2	0	0	0	2	0	0	0	0	0	0	2	2
17:45	0	0	0	0	0	0	1	0	0	1	0	1	0	2	1	0	0	0	1	0	2	3
Total	0	1	0	0	1	1	3	0	0	4	0	1	0	7	1	0	1	0	1	1	7	8
Grand Total	0	1	0	0	1	2	4	0	0	6	0	1	0	14	1	0	7	0	7	7	15	21
Apprch %	0.0%	100.0%	0.0%			33.3%	66.7%	0.0%			0.0%	100.0%	0.0%			0.0%	100.0%	0.0%				
Total %	0.0%	6.7%	0.0%		6.7%	13.3%	26.7%	0.0%		40.0%	0.0%	6.7%	0.0%		6.7%	0.0%	46.7%	0.0%		46.7%	100.0%	

AM PEAK HOUR	Cleveland Ave Southbound					Industrial Dr Westbound					Cleveland Ave Northbound					Industrial Dr Eastbound					
START TIME	LEFT	THRU	RIGHT	PEDS	APP.TOTAL	LEFT	THRU	RIGHT	PEDS	APP.TOTAL	LEFT	THRU	RIGHT	PEDS	APP.TOTAL	LEFT	THRU	RIGHT	PEDS	APP.TOTAL	Total
Peak Hour Analysis From 08:00 to 09:00																					
Peak Hour For Entire Intersection Begins at 08:00																					
8:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:30	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	1	0	0	1	1
8:45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	3	1	1
Total Volume	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	2	0	3	2	2
% App Total	0.0%	0.0%	0.0%			0.0%	0.0%	0.0%			0.0%	0.0%	0.0%			0.0%	100.0%	0.0%			
PHF	.000	.000	.000		.000	.000	.000	.000		.000	.000	.000	.000		.000	.000	.500	.000		.500	.500

PM PEAK HOUR	Cleveland Ave Southbound					Industrial Dr Westbound					Cleveland Ave Northbound					Industrial Dr Eastbound					
START TIME	LEFT	THRU	RIGHT	PEDS	APP.TOTAL	LEFT	THRU	RIGHT	PEDS	APP.TOTAL	LEFT	THRU	RIGHT	PEDS	APP.TOTAL	LEFT	THRU	RIGHT	PEDS	APP.TOTAL	Total
Peak Hour Analysis From 16:30 to 17:30																					
Peak Hour For Entire Intersection Begins at 16:30																					
16:30	0	0	0	0	0	1	0	0	0	1	0	0	0	1	0	0	0	0	0	0	1
16:45	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	1	0	0
17:00	0	1	0	0	1	0	0	0	0	0	0	0	0	3	0	0	1	0	0	1	2
17:15	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	1
Total Volume	0	1	0	0	1	1	1	0	0	2	0	0	0	5	0	0	1	0	1	1	4
% App Total	0.0%	100.0%	0.0%			50.0%	50.0%	0.0%			0.0%	0.0%	0.0%			0.0%	100.0%	0.0%			
PHF	.000	.250	.000		.250	.250	.250	.000		.500	.000	.000	.000		.000	.000	.250	.000		.250	.500

National Data and Surveying Services

City of Santa Rosa
All Vehicles & Uturns On Unshifted
Peds & Bikes On Bank 1
Nothing On Bank 2

(323) 782-0090
info@ndsdata.com

File Name : 17-7405-005 Mendocino Ave & US 101 NB Ramp
Date : 5/10/2017

Unshifted Count = All Vehicles & Uturns

	Mendocino Ave Southbound					US 101 NB Ramp Westbound					Mendocino Ave Northbound					US 101 NB Ramp Eastbound						
START TIME	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	Total	Uturns Total
7:00	0	65	1	0	66	0	0	0	0	0	127	76	0	0	203	28	0	76	0	104	373	0
7:15	0	113	1	0	114	0	0	0	0	0	166	95	0	0	261	48	0	85	1	134	509	1
7:30	0	156	0	0	156	0	0	0	0	0	157	113	0	0	270	33	0	85	1	119	545	1
7:45	0	160	1	0	161	0	0	0	0	0	189	148	0	0	337	65	0	105	0	170	668	0
Total	0	494	3	0	497	0	0	0	0	0	639	432	0	0	1071	174	0	351	2	527	2095	2
8:00	0	182	1	0	183	0	0	0	0	0	191	167	0	0	358	70	0	110	0	180	721	0
8:15	0	200	1	0	201	0	0	0	0	0	197	194	0	0	391	103	0	114	0	217	809	0
8:30	0	204	2	0	206	0	0	0	0	0	188	171	0	0	359	99	0	113	0	212	777	0
8:45	0	231	0	0	231	0	0	0	0	0	206	123	0	0	329	89	0	131	0	220	780	0
Total	0	817	4	0	821	0	0	0	0	0	782	655	0	0	1437	361	0	468	0	829	3087	0
16:00	0	211	2	0	213	0	0	0	0	0	178	146	0	0	324	51	0	104	0	155	692	0
16:15	0	190	2	0	192	0	0	0	0	0	232	122	0	0	354	33	0	94	0	127	673	0
16:30	0	229	1	0	230	0	0	0	0	0	190	164	0	0	354	35	0	102	0	137	721	0
16:45	0	219	1	0	220	0	0	0	0	0	236	147	0	0	383	19	0	105	0	124	727	0
Total	0	849	6	0	855	0	0	0	0	0	836	579	0	0	1415	138	0	405	0	543	2813	0
17:00	0	269	3	0	272	0	0	0	0	0	227	162	0	0	389	25	0	103	0	128	789	0
17:15	0	211	5	0	216	0	0	0	0	0	247	169	0	0	416	30	0	99	0	129	761	0
17:30	0	226	2	0	228	0	0	0	0	0	191	181	0	0	372	38	0	110	0	148	748	0
17:45	0	230	3	0	233	0	0	0	0	0	177	134	0	0	311	21	0	114	0	135	679	0
Total	0	936	13	0	949	0	0	0	0	0	842	646	0	0	1488	114	0	426	0	540	2977	0
Grand Total	0	3096	26	0	3122	0	0	0	0	0	3099	2312	0	0	5411	787	0	1650	2	2439	10972	2
Apprch %	0.0%	99.2%	0.8%	0.0%		0.0%	0.0%	0.0%	0.0%		57.3%	42.7%	0.0%	0.0%		32.3%	0.0%	67.7%	0.1%			
Total %	0.0%	28.2%	0.2%	0.0%	28.5%	0.0%	0.0%	0.0%	0.0%	0.0%	28.2%	21.1%	0.0%	0.0%	49.3%	7.2%	0.0%	15.0%	0.0%	22.2%	100.0%	

AM PEAK HOUR	Mendocino Ave Southbound					US 101 NB Ramp Westbound					Mendocino Ave Northbound					US 101 NB Ramp Eastbound					
START TIME	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	Total
Peak Hour Analysis From 08:00 to 09:00																					
Peak Hour For Entire Intersection Begins at 08:00																					
8:00	0	182	1	0	183	0	0	0	0	0	191	167	0	0	358	70	0	110	0	180	721
8:15	0	200	1	0	201	0	0	0	0	0	197	194	0	0	391	103	0	114	0	217	809
8:30	0	204	2	0	206	0	0	0	0	0	188	171	0	0	359	99	0	113	0	212	777
8:45	0	231	0	0	231	0	0	0	0	0	206	123	0	0	329	89	0	131	0	220	780
Total Volume	0	817	4	0	821	0	0	0	0	0	782	655	0	0	1437	361	0	468	0	829	3087
% App Total	0.0%	99.5%	0.5%	0.0%		0.0%	0.0%	0.0%	0.0%		54.4%	45.6%	0.0%	0.0%		43.5%	0.0%	56.5%	0.0%		
PHF	.000	.884	.500	.000	.889	.000	.000	.000	.000	.000	.949	.844	.000	.000	.919	.876	.000	.893	.000	.942	.954

PM PEAK HOUR	Mendocino Ave Southbound					US 101 NB Ramp Westbound					Mendocino Ave Northbound					US 101 NB Ramp Eastbound					
START TIME	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	Total
Peak Hour Analysis From 16:45 to 17:45																					
Peak Hour For Entire Intersection Begins at 16:45																					
16:45	0	219	1	0	220	0	0	0	0	0	236	147	0	0	383	19	0	105	0	124	727
17:00	0	269	3	0	272	0	0	0	0	0	227	162	0	0	389	25	0	103	0	128	789
17:15	0	211	5	0	216	0	0	0	0	0	247	169	0	0	416	30	0	99	0	129	761
17:30	0	226	2	0	228	0	0	0	0	0	191	181	0	0	372	38	0	110	0	148	748
Total Volume	0	925	11	0	936	0	0	0	0	0	901	659	0	0	1560	112	0	417	0	529	3025
% App Total	0.0%	98.8%	1.2%	0.0%		0.0%	0.0%	0.0%	0.0%		57.8%	42.2%	0.0%	0.0%		21.2%	0.0%	78.8%	0.0%		
PHF	.000	.860	.550	.000	.860	.000	.000	.000	.000	.000	.912	.910	.000	.000	.938	.737	.000	.948	.000	.894	.958

National Data and Surveying Services

City of Santa Rosa
All Vehicles & Uturns On Unshifted
Peds & Bikes On Bank 1
Nothing On Bank 2

(323) 782-0090
info@ndsdata.com

File Name : 17-7405-005 Mendocino Ave & US 101 NB Ramp
Date : 5/10/2017

Bank 1 Count = Peds & Bikes

	Mendocino Ave Southbound					US 101 NB Ramp Westbound					Mendocino Ave Northbound					US 101 NB Ramp Eastbound						
START TIME	LEFT	THRU	RIGHT	PEDS	APP.TOTAL	LEFT	THRU	RIGHT	PEDS	APP.TOTAL	LEFT	THRU	RIGHT	PEDS	APP.TOTAL	LEFT	THRU	RIGHT	PEDS	APP.TOTAL	Total	Peds Total
7:00	0	1	0	0	1	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	2	0
7:15	0	0	0	0	0	0	0	0	0	0	0	3	0	0	3	0	0	0	0	0	3	0
7:30	0	3	0	0	3	0	0	0	0	0	0	4	0	0	4	0	0	0	0	0	7	0
7:45	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	1	0
Total	0	4	0	0	4	0	0	0	0	0	0	9	0	0	9	0	0	0	0	0	13	0
8:00	0	2	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0
8:15	0	1	0	0	1	0	0	0	0	0	0	6	0	0	6	0	0	0	0	0	7	0
8:30	0	1	0	0	1	0	0	0	0	0	0	16	0	0	16	0	0	0	0	0	17	0
8:45	0	1	0	0	1	0	0	0	0	0	0	13	0	0	13	0	0	0	0	0	14	0
Total	0	5	0	0	5	0	0	0	0	0	0	35	0	0	35	0	0	0	0	0	40	0
16:00	0	2	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0
16:15	0	3	0	0	3	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	4	0
16:30	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0
16:45	0	2	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0
Total	0	8	0	0	8	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	9	0
17:00	0	2	0	0	2	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	3	0
17:15	0	3	0	0	3	0	0	0	0	0	0	2	0	0	2	0	0	0	0	0	5	0
17:30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
17:45	0	1	0	0	1	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	2	0
Total	0	6	0	0	6	0	0	0	0	0	0	4	0	0	4	0	0	0	0	0	10	0
Grand Total	0	23	0	0	23	0	0	0	0	0	0	49	0	0	49	0	0	0	0	0	72	0
Apprch %	0.0%	100.0%	0.0%			0.0%	0.0%	0.0%	0.0%		0.0%	100.0%	0.0%			0.0%	0.0%	0.0%				
Total %	0.0%	31.9%	0.0%		31.9%	0.0%	0.0%	0.0%		0.0%	0.0%	68.1%	0.0%		68.1%	0.0%	0.0%	0.0%		0.0%	100.0%	

AM PEAK HOUR	Mendocino Ave Southbound					US 101 NB Ramp Westbound					Mendocino Ave Northbound					US 101 NB Ramp Eastbound					
START TIME	LEFT	THRU	RIGHT	PEDS	APP.TOTAL	LEFT	THRU	RIGHT	PEDS	APP.TOTAL	LEFT	THRU	RIGHT	PEDS	APP.TOTAL	LEFT	THRU	RIGHT	PEDS	APP.TOTAL	Total
Peak Hour Analysis From 08:00 to 09:00																					
Peak Hour For Entire Intersection Begins at 08:00																					
8:00	0	2	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2
8:15	0	1	0	0	1	0	0	0	0	0	0	6	0	0	6	0	0	0	0	0	7
8:30	0	1	0	0	1	0	0	0	0	0	0	16	0	0	16	0	0	0	0	0	17
8:45	0	1	0	0	1	0	0	0	0	0	0	13	0	0	13	0	0	0	0	0	14
Total Volume	0	5	0	0	5	0	0	0	0	0	0	35	0	0	35	0	0	0	0	0	40
% App Total	0.0%	100.0%	0.0%			0.0%	0.0%	0.0%			0.0%	100.0%	0.0%			0.0%	0.0%	0.0%			
PHF	.000	.625	.000		.625	.000	.000	.000		.000	.000	.547	.000		.547	.000	.000	.000		.000	.588

PM PEAK HOUR	Mendocino Ave Southbound					US 101 NB Ramp Westbound					Mendocino Ave Northbound					US 101 NB Ramp Eastbound					
START TIME	LEFT	THRU	RIGHT	PEDS	APP.TOTAL	LEFT	THRU	RIGHT	PEDS	APP.TOTAL	LEFT	THRU	RIGHT	PEDS	APP.TOTAL	LEFT	THRU	RIGHT	PEDS	APP.TOTAL	Total
Peak Hour Analysis From 16:45 to 17:45																					
Peak Hour For Entire Intersection Begins at 16:45																					
16:45	0	2	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2
17:00	0	2	0	0	2	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	3
17:15	0	3	0	0	3	0	0	0	0	0	0	2	0	0	2	0	0	0	0	0	5
17:30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Volume	0	7	0	0	7	0	0	0	0	0	0	3	0	0	3	0	0	0	0	0	10
% App Total	0.0%	100.0%	0.0%			0.0%	0.0%	0.0%			0.0%	100.0%	0.0%			0.0%	0.0%	0.0%			
PHF	.000	.583	.000		.583	.000	.000	.000		.000	.000	.375	.000		.375	.000	.000	.000		.000	.500

Appendix C LEVEL OF SERVICE WORKSHEETS: EXISTING CONDITIONS

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	384	361	313	100	308	510	133	512	109	297	521	467
Future Volume (veh/h)	384	361	313	100	308	510	133	512	109	297	521	467
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1900	1863	1863	1863	1863	1863	1900	1863	1863	1863
Adj Flow Rate, veh/h	417	392	157	109	335	327	145	557	0	341	599	0
Adj No. of Lanes	2	2	0	2	1	1	1	2	0	2	2	1
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.87	0.87	0.87
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	469	687	271	287	421	358	172	1071	0	396	1135	508
Arrive On Green	0.14	0.28	0.28	0.08	0.23	0.23	0.10	0.30	0.00	0.12	0.32	0.00
Sat Flow, veh/h	3442	2465	973	3442	1863	1583	1774	3632	0	3442	3539	1583
Grp Volume(v), veh/h	417	280	269	109	335	327	145	557	0	341	599	0
Grp Sat Flow(s),veh/h/ln	1721	1770	1669	1721	1863	1583	1774	1770	0	1721	1770	1583
Q Serve(g_s), s	10.7	12.1	12.4	2.7	15.2	18.0	7.2	11.7	0.0	8.7	12.4	0.0
Cycle Q Clear(g_c), s	10.7	12.1	12.4	2.7	15.2	18.0	7.2	11.7	0.0	8.7	12.4	0.0
Prop In Lane	1.00		0.58	1.00		1.00	1.00		0.00	1.00		1.00
Lane Grp Cap(c), veh/h	469	493	465	287	421	358	172	1071	0	396	1135	508
V/C Ratio(X)	0.89	0.57	0.58	0.38	0.80	0.91	0.84	0.52	0.00	0.86	0.53	0.00
Avail Cap(c_a), veh/h	469	493	465	327	431	366	172	1071	0	396	1135	508
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	38.0	27.7	27.8	38.8	32.7	33.8	39.7	25.8	0.0	38.9	24.9	0.0
Incr Delay (d2), s/veh	18.0	1.0	1.2	0.3	9.0	25.8	28.1	1.8	0.0	16.6	1.8	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	6.2	6.0	5.8	1.3	8.9	10.4	4.9	5.9	0.0	5.0	6.4	0.0
LnGrp Delay(d),s/veh	56.0	28.6	29.0	39.1	41.7	59.7	67.8	27.6	0.0	55.5	26.6	0.0
LnGrp LOS	E	C	C	D	D	E	E	C		E	C	
Approach Vol, veh/h		966			771			702			940	
Approach Delay, s/veh		40.5			49.0			35.9			37.1	
Approach LOS		D			D			D			D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	12.3	29.3	15.0	33.0	17.0	24.5	16.6	31.4
Change Period (Y+Rc), s	4.8	4.3	6.3	4.3	4.8	4.3	6.3	4.3
Max Green Setting (Gmax), s	8.5	24.4	8.7	28.7	12.2	20.7	10.3	27.1
Max Q Clear Time (g_c+I1), s	4.7	14.4	9.2	14.4	12.7	20.0	10.7	13.7
Green Ext Time (p_c), s	0.1	1.7	0.0	2.4	0.0	0.2	0.0	2.2

Intersection Summary	
HCM 2010 Ctrl Delay	40.5
HCM 2010 LOS	D

Intersection	
Int Delay, s/veh	4.5

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	330	435	6	6	807	29	0	0	0	10	0	122
Future Vol, veh/h	330	435	6	6	807	29	0	0	0	10	0	122
Conflicting Peds, #/hr	1	0	3	3	0	1	1	0	1	1	0	1
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	205	-	-	155	-	-	-	-	-	-	-	0
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	96	96	96	91	91	91	25	25	25	97	97	97
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	344	453	6	7	887	32	0	0	0	10	0	126

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	920	0	0	462	0	0	1606	2081	234	1834	2068	462
Stage 1	-	-	-	-	-	-	1147	1147	-	918	918	-
Stage 2	-	-	-	-	-	-	459	934	-	916	1150	-
Critical Hdwy	4.14	-	-	4.14	-	-	7.54	6.54	6.94	7.54	6.54	6.94
Critical Hdwy Stg 1	-	-	-	-	-	-	6.54	5.54	-	6.54	5.54	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.54	5.54	-	6.54	5.54	-
Follow-up Hdwy	2.22	-	-	2.22	-	-	3.52	4.02	3.32	3.52	4.02	3.32
Pot Cap-1 Maneuver	738	-	-	1095	-	-	70	53	768	47	54	547
Stage 1	-	-	-	-	-	-	212	272	-	292	349	-
Stage 2	-	-	-	-	-	-	551	343	-	293	271	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	737	-	-	1092	-	-	34	28	765	30	29	546
Mov Cap-2 Maneuver	-	-	-	-	-	-	34	28	-	30	29	-
Stage 1	-	-	-	-	-	-	113	144	-	156	347	-
Stage 2	-	-	-	-	-	-	421	341	-	156	144	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	6	0.1	0	26.1
HCM LOS			A	D

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	-	737	-	-	1092	-	-	30	546
HCM Lane V/C Ratio	-	0.466	-	-	0.006	-	-	0.344	0.23
HCM Control Delay (s)	0	14.1	-	-	8.3	-	-	178.2	13.6
HCM Lane LOS	A	B	-	-	A	-	-	F	B
HCM 95th %tile Q(veh)	-	2.5	-	-	0	-	-	1.1	0.9

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	17	16	109	667	1217	166
Future Volume (veh/h)	17	16	109	667	1217	166
Number	5	12	3	8	4	14
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00	1.00			1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1863	1863	1863	1900
Adj Flow Rate, veh/h	23	21	135	823	1323	180
Adj No. of Lanes	1	1	1	2	2	0
Peak Hour Factor	0.75	0.75	0.81	0.81	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	85	76	174	2791	1940	262
Arrive On Green	0.05	0.05	0.10	0.79	0.62	0.62
Sat Flow, veh/h	1774	1583	1774	3632	3226	423
Grp Volume(v), veh/h	23	21	135	823	743	760
Grp Sat Flow(s),veh/h/ln	1774	1583	1774	1770	1770	1786
Q Serve(g_s), s	0.5	0.5	3.1	2.7	11.6	11.9
Cycle Q Clear(g_c), s	0.5	0.5	3.1	2.7	11.6	11.9
Prop In Lane	1.00	1.00	1.00			0.24
Lane Grp Cap(c), veh/h	85	76	174	2791	1096	1106
V/C Ratio(X)	0.27	0.28	0.78	0.29	0.68	0.69
Avail Cap(c_a), veh/h	1074	958	320	3999	1554	1569
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	19.4	19.4	18.5	1.2	5.3	5.3
Incr Delay (d2), s/veh	1.7	2.0	7.2	0.1	0.7	0.8
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.3	0.3	1.9	1.3	5.8	5.9
LnGrp Delay(d),s/veh	21.1	21.3	25.8	1.3	6.0	6.1
LnGrp LOS	C	C	C	A	A	A
Approach Vol, veh/h	44			958	1503	
Approach Delay, s/veh	21.2			4.7	6.0	
Approach LOS	C			A	A	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2	3	4				8
Phs Duration (G+Y+Rc), s		5.0	7.1	30.0				37.1
Change Period (Y+Rc), s		3.0	3.0	3.9				3.9
Max Green Setting (Gmax), s		25.5	7.6	37.0				47.6
Max Q Clear Time (g_c+I1), s		2.5	5.1	13.9				4.7
Green Ext Time (p_c), s		0.1	0.1	12.2				7.0

Intersection Summary	
HCM 2010 Ctrl Delay	5.8
HCM 2010 LOS	A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	13	191	61	141	175	300	43	65	249	622	283	29
Future Volume (veh/h)	13	191	61	141	175	300	43	65	249	622	283	29
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1900	1863	1863	1900	1863	1863	1863	1863	1900	1863	1863	1900
Adj Flow Rate, veh/h	16	233	31	152	188	204	49	74	92	669	304	27
Adj No. of Lanes	0	1	1	0	1	1	1	2	0	1	2	0
Peak Hour Factor	0.82	0.82	0.82	0.93	0.93	0.93	0.88	0.88	0.88	0.93	0.93	0.93
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	20	289	317	181	224	979	65	143	128	703	1467	129
Arrive On Green	0.17	0.17	0.17	0.22	0.22	0.22	0.04	0.08	0.08	0.40	0.45	0.45
Sat Flow, veh/h	119	1737	1555	815	1007	1583	1774	1770	1583	1774	3290	290
Grp Volume(v), veh/h	249	0	31	340	0	204	49	74	92	669	163	168
Grp Sat Flow(s),veh/h/ln	1857	0	1555	1822	0	1583	1774	1770	1583	1774	1770	1810
Q Serve(g_s), s	13.2	0.0	1.7	18.3	0.0	0.0	2.8	4.1	5.8	37.4	5.7	5.8
Cycle Q Clear(g_c), s	13.2	0.0	1.7	18.3	0.0	0.0	2.8	4.1	5.8	37.4	5.7	5.8
Prop In Lane	0.06		1.00	0.45		1.00	1.00		1.00	1.00		0.16
Lane Grp Cap(c), veh/h	309	0	317	404	0	979	65	143	128	703	789	807
V/C Ratio(X)	0.81	0.00	0.10	0.84	0.00	0.21	0.75	0.52	0.72	0.95	0.21	0.21
Avail Cap(c_a), veh/h	598	0	559	623	0	1168	606	346	309	1126	864	884
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	41.1	0.0	33.2	38.1	0.0	8.6	48.9	45.2	45.9	30.0	17.3	17.3
Incr Delay (d2), s/veh	4.9	0.0	0.1	6.2	0.0	0.1	6.4	1.1	2.9	9.1	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	7.2	0.0	0.7	9.9	0.0	2.5	1.5	2.1	2.6	20.0	2.8	2.9
LnGrp Delay(d),s/veh	46.0	0.0	33.3	44.3	0.0	8.7	55.2	46.3	48.8	39.0	17.4	17.4
LnGrp LOS	D		C	D		A	E	D	D	D	B	B
Approach Vol, veh/h		280			544			215			1000	
Approach Delay, s/veh		44.6			31.0			49.4			31.9	
Approach LOS		D			C			D			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2	3	4		6	7	8
Phs Duration (G+Y+Rc), s		20.6	6.8	49.2		25.7	44.2	11.9
Change Period (Y+Rc), s		3.6	3.0	3.6		3.0	3.6	* 3.6
Max Green Setting (Gmax), s		33.0	35.0	50.0		35.0	65.0	* 20
Max Q Clear Time (g_c+I1), s		15.2	4.8	7.8		20.3	39.4	7.8
Green Ext Time (p_c), s		1.4	0.1	1.3		2.4	1.1	0.4

Intersection Summary	
HCM 2010 Ctrl Delay	35.2
HCM 2010 LOS	D

Notes

* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.
User approved changes to right turn type.

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	361	468	782	655	817	4
Future Volume (veh/h)	361	468	782	655	817	4
Number	7	14	5	2	6	16
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00	1.00			0.97
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1863	1863	1863	1900
Adj Flow Rate, veh/h	384	498	850	712	918	4
Adj No. of Lanes	1	1	2	2	2	0
Peak Hour Factor	0.94	0.94	0.92	0.92	0.89	0.89
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	444	828	939	2216	1052	5
Arrive On Green	0.25	0.25	0.27	0.63	0.29	0.29
Sat Flow, veh/h	1774	1583	3442	3632	3706	16
Grp Volume(v), veh/h	384	498	850	712	450	472
Grp Sat Flow(s),veh/h/ln	1774	1583	1721	1770	1770	1859
Q Serve(g_s), s	15.0	15.9	17.3	6.8	17.5	17.5
Cycle Q Clear(g_c), s	15.0	15.9	17.3	6.8	17.5	17.5
Prop In Lane	1.00	1.00	1.00			0.01
Lane Grp Cap(c), veh/h	444	828	939	2216	515	542
V/C Ratio(X)	0.87	0.60	0.91	0.32	0.87	0.87
Avail Cap(c_a), veh/h	452	835	972	2315	548	576
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	26.1	12.1	25.5	6.4	24.5	24.5
Incr Delay (d2), s/veh	15.8	1.2	11.6	0.1	13.8	13.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	9.3	15.0	9.7	3.3	10.5	10.9
LnGrp Delay(d),s/veh	41.9	13.3	37.1	6.4	38.3	37.7
LnGrp LOS	D	B	D	A	D	D
Approach Vol, veh/h	882			1562	922	
Approach Delay, s/veh	25.7			23.1	38.0	
Approach LOS	C			C	D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4	5	6		
Phs Duration (G+Y+Rc), s		50.0		22.7	24.3	25.6		
Change Period (Y+Rc), s		4.5		4.5	4.5	4.5		
Max Green Setting (Gmax), s		47.5		18.5	20.5	22.5		
Max Q Clear Time (g_c+I1), s		8.8		17.9	19.3	19.5		
Green Ext Time (p_c), s		5.8		0.3	0.5	1.6		

Intersection Summary	
HCM 2010 Ctrl Delay	27.9
HCM 2010 LOS	C

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	453	354	288	147	412	331	198	771	98	254	535	560
Future Volume (veh/h)	453	354	288	147	412	331	198	771	98	254	535	560
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		0.99	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1900	1863	1863	1863	1863	1863	1900	1863	1863	1863
Adj Flow Rate, veh/h	487	381	135	160	448	135	220	857	0	265	557	0
Adj No. of Lanes	2	2	0	2	1	1	1	2	0	2	2	1
Peak Hour Factor	0.93	0.93	0.93	0.92	0.92	0.92	0.90	0.90	0.90	0.96	0.96	0.96
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	505	772	270	300	449	377	240	999	0	382	912	408
Arrive On Green	0.15	0.30	0.30	0.09	0.24	0.24	0.14	0.28	0.00	0.11	0.26	0.00
Sat Flow, veh/h	3442	2569	898	3442	1863	1563	1774	3632	0	3442	3539	1583
Grp Volume(v), veh/h	487	261	255	160	448	135	220	857	0	265	557	0
Grp Sat Flow(s),veh/h/ln	1721	1770	1697	1721	1863	1563	1774	1770	0	1721	1770	1583
Q Serve(g_s), s	12.7	10.9	11.1	4.0	21.6	6.5	11.0	20.6	0.0	6.7	12.5	0.0
Cycle Q Clear(g_c), s	12.7	10.9	11.1	4.0	21.6	6.5	11.0	20.6	0.0	6.7	12.5	0.0
Prop In Lane	1.00		0.53	1.00		1.00	1.00		0.00	1.00		1.00
Lane Grp Cap(c), veh/h	505	532	510	300	449	377	240	999	0	382	912	408
V/C Ratio(X)	0.96	0.49	0.50	0.53	1.00	0.36	0.91	0.86	0.00	0.69	0.61	0.00
Avail Cap(c_a), veh/h	505	532	510	329	449	377	240	999	0	382	912	408
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	38.2	25.8	25.9	39.3	34.1	28.4	38.4	30.6	0.0	38.5	29.4	0.0
Incr Delay (d2), s/veh	30.9	0.3	0.3	0.5	41.8	0.2	35.3	9.4	0.0	4.5	3.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	8.2	5.3	5.2	1.9	16.3	2.8	7.7	11.3	0.0	3.4	6.5	0.0
LnGrp Delay(d),s/veh	69.1	26.1	26.2	39.9	75.9	28.6	73.7	40.0	0.0	43.0	32.5	0.0
LnGrp LOS	E	C	C	D	E	C	E	D		D	C	
Approach Vol, veh/h		1003			743			1077			822	
Approach Delay, s/veh		47.0			59.5			46.9			35.9	
Approach LOS		D			E			D			D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	12.7	31.3	18.5	27.5	18.0	26.0	16.3	29.7
Change Period (Y+Rc), s	4.8	4.3	6.3	4.3	4.8	4.3	6.3	4.3
Max Green Setting (Gmax), s	8.6	26.3	12.2	23.2	13.2	21.7	10.0	25.4
Max Q Clear Time (g_c+I1), s	6.0	13.1	13.0	14.5	14.7	23.6	8.7	22.6
Green Ext Time (p_c), s	0.1	1.8	0.0	1.8	0.0	0.0	0.1	1.2

Intersection Summary	
HCM 2010 Ctrl Delay	47.0
HCM 2010 LOS	D

Intersection	
Int Delay, s/veh	6.3

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	155	542	5	0	512	19	4	0	5	32	0	362
Future Vol, veh/h	155	542	5	0	512	19	4	0	5	32	0	362
Conflicting Peds, #/hr	0	0	0	0	0	0	1	0	0	0	0	1
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	205	-	-	155	-	-	-	-	-	-	-	0
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	91	91	91	92	92	92	45	45	45	87	87	87
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	170	596	5	0	557	21	9	0	11	37	0	416

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	578	0	0	601	0	0	1219	1517	301	1206	1509	290
Stage 1	-	-	-	-	-	-	939	939	-	568	568	-
Stage 2	-	-	-	-	-	-	280	578	-	638	941	-
Critical Hdwy	4.14	-	-	4.14	-	-	7.54	6.54	6.94	7.54	6.54	6.94
Critical Hdwy Stg 1	-	-	-	-	-	-	6.54	5.54	-	6.54	5.54	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.54	5.54	-	6.54	5.54	-
Follow-up Hdwy	2.22	-	-	2.22	-	-	3.52	4.02	3.32	3.52	4.02	3.32
Pot Cap-1 Maneuver	992	-	-	972	-	-	136	118	695	139	119	707
Stage 1	-	-	-	-	-	-	284	341	-	475	505	-
Stage 2	-	-	-	-	-	-	703	499	-	431	340	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	992	-	-	972	-	-	48	98	695	119	99	706
Mov Cap-2 Maneuver	-	-	-	-	-	-	48	98	-	119	99	-
Stage 1	-	-	-	-	-	-	235	283	-	394	505	-
Stage 2	-	-	-	-	-	-	288	499	-	351	282	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	2.1	0	50.3	19.6
HCM LOS			F	C

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	99	992	-	-	972	-	-	119	706
HCM Lane V/C Ratio	0.202	0.172	-	-	-	-	-	0.309	0.589
HCM Control Delay (s)	50.3	9.4	-	-	0	-	-	48.2	17.1
HCM Lane LOS	F	A	-	-	A	-	-	E	C
HCM 95th %tile Q(veh)	0.7	0.6	-	-	0	-	-	1.2	3.9

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	140	177	39	941	741	34
Future Volume (veh/h)	140	177	39	941	741	34
Number	5	12	3	8	4	14
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00	1.00			0.97
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1863	1863	1863	1900
Adj Flow Rate, veh/h	175	221	41	1001	797	37
Adj No. of Lanes	1	1	1	2	2	0
Peak Hour Factor	0.80	0.80	0.94	0.94	0.93	0.93
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	393	351	85	1977	1428	66
Arrive On Green	0.22	0.22	0.05	0.56	0.42	0.42
Sat Flow, veh/h	1774	1583	1774	3632	3533	160
Grp Volume(v), veh/h	175	221	41	1001	410	424
Grp Sat Flow(s),veh/h/ln	1774	1583	1774	1770	1770	1830
Q Serve(g_s), s	2.7	4.0	0.7	5.5	5.5	5.5
Cycle Q Clear(g_c), s	2.7	4.0	0.7	5.5	5.5	5.5
Prop In Lane	1.00	1.00	1.00			0.09
Lane Grp Cap(c), veh/h	393	351	85	1977	735	760
V/C Ratio(X)	0.45	0.63	0.48	0.51	0.56	0.56
Avail Cap(c_a), veh/h	1470	1312	396	4185	1529	1580
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	10.6	11.1	14.6	4.3	7.0	7.0
Incr Delay (d2), s/veh	0.8	1.9	4.2	0.2	0.7	0.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.4	1.9	0.4	2.6	2.8	2.8
LnGrp Delay(d),s/veh	11.3	12.9	18.8	4.5	7.6	7.6
LnGrp LOS	B	B	B	A	A	A
Approach Vol, veh/h	396			1042	834	
Approach Delay, s/veh	12.2			5.0	7.6	
Approach LOS	B			A	A	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2	3	4				8
Phs Duration (G+Y+Rc), s		9.9	4.5	16.9				21.4
Change Period (Y+Rc), s		3.0	3.0	3.9				3.9
Max Green Setting (Gmax), s		26.0	7.0	27.1				37.1
Max Q Clear Time (g_c+I1), s		6.0	2.7	7.5				7.5
Green Ext Time (p_c), s		1.2	0.0	5.3				8.5

Intersection Summary	
HCM 2010 Ctrl Delay	7.2
HCM 2010 LOS	A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	22	243	148	217	173	473	119	116	365	501	508	45
Future Volume (veh/h)	22	243	148	217	173	473	119	116	365	501	508	45
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		0.99	1.00		1.00	1.00		0.98
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1900	1863	1863	1900	1863	1863	1863	1863	1900	1863	1863	1900
Adj Flow Rate, veh/h	25	273	100	233	186	290	127	123	12	522	529	43
Adj No. of Lanes	0	1	1	0	1	1	1	2	0	1	2	0
Peak Hour Factor	0.89	0.89	0.89	0.93	0.93	0.93	0.94	0.94	0.94	0.96	0.96	0.96
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	31	340	452	271	216	917	158	260	25	557	1028	83
Arrive On Green	0.20	0.20	0.20	0.27	0.27	0.27	0.09	0.08	0.08	0.31	0.31	0.31
Sat Flow, veh/h	156	1699	1551	1008	805	1563	1774	3262	314	1774	3309	268
Grp Volume(v), veh/h	298	0	100	419	0	290	127	66	69	522	282	290
Grp Sat Flow(s),veh/h/ln	1855	0	1551	1812	0	1563	1774	1770	1807	1774	1770	1808
Q Serve(g_s), s	15.4	0.0	4.9	22.1	0.0	0.0	7.0	3.6	3.7	28.7	13.1	13.2
Cycle Q Clear(g_c), s	15.4	0.0	4.9	22.1	0.0	0.0	7.0	3.6	3.7	28.7	13.1	13.2
Prop In Lane	0.08		1.00	0.56		1.00	1.00		0.17	1.00		0.15
Lane Grp Cap(c), veh/h	372	0	452	487	0	917	158	141	144	557	550	561
V/C Ratio(X)	0.80	0.00	0.22	0.86	0.00	0.32	0.80	0.47	0.48	0.94	0.51	0.52
Avail Cap(c_a), veh/h	610	0	651	632	0	1042	619	353	360	884	882	901
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	38.2	0.0	27.1	34.9	0.0	10.7	44.8	44.1	44.2	33.5	28.4	28.4
Incr Delay (d2), s/veh	4.1	0.0	0.2	9.4	0.0	0.2	3.6	0.9	0.9	9.0	0.3	0.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	8.3	0.0	2.1	12.3	0.0	4.2	3.6	1.8	1.9	15.5	6.5	6.6
LnGrp Delay(d),s/veh	42.3	0.0	27.3	44.3	0.0	10.9	48.4	45.0	45.1	42.5	28.6	28.7
LnGrp LOS	D		C	D		B	D	D	D	D	C	C
Approach Vol, veh/h		398			709			262			1094	
Approach Delay, s/veh		38.5			30.6			46.7			35.2	
Approach LOS		D			C			D			D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2	3	4		6	7	8
Phs Duration (G+Y+Rc), s		23.7	11.9	34.8		29.9	35.1	11.6
Change Period (Y+Rc), s		3.6	3.0	3.6		3.0	3.6	* 3.6
Max Green Setting (Gmax), s		33.0	35.0	50.0		35.0	50.0	* 20
Max Q Clear Time (g_c+I1), s		17.4	9.0	15.2		24.1	30.7	5.7
Green Ext Time (p_c), s		1.9	0.2	2.4		2.9	0.8	0.3

Intersection Summary	
HCM 2010 Ctrl Delay	35.7
HCM 2010 LOS	D

Notes

* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.
User approved changes to right turn type.

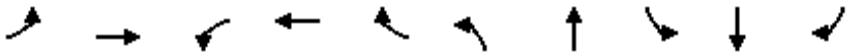
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	112	417	901	659	925	11
Future Volume (veh/h)	112	417	901	659	925	11
Number	7	14	5	2	6	16
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00	1.00			0.97
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1863	1863	1863	1900
Adj Flow Rate, veh/h	126	469	959	701	1076	13
Adj No. of Lanes	1	1	2	2	2	0
Peak Hour Factor	0.89	0.89	0.94	0.94	0.86	0.86
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	368	807	1041	2441	1202	15
Arrive On Green	0.21	0.21	0.30	0.69	0.34	0.34
Sat Flow, veh/h	1774	1583	3442	3632	3673	43
Grp Volume(v), veh/h	126	469	959	701	532	557
Grp Sat Flow(s),veh/h/ln	1774	1583	1721	1770	1770	1854
Q Serve(g_s), s	5.3	18.0	23.5	6.7	24.9	24.9
Cycle Q Clear(g_c), s	5.3	18.0	23.5	6.7	24.9	24.9
Prop In Lane	1.00	1.00	1.00			0.02
Lane Grp Cap(c), veh/h	368	807	1041	2441	594	623
V/C Ratio(X)	0.34	0.58	0.92	0.29	0.89	0.89
Avail Cap(c_a), veh/h	368	807	1083	2548	626	656
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	29.6	14.9	29.5	5.2	27.5	27.5
Incr Delay (d2), s/veh	0.6	1.1	12.3	0.1	15.0	14.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.6	17.2	13.0	3.2	14.6	15.2
LnGrp Delay(d),s/veh	30.1	16.0	41.8	5.3	42.5	42.0
LnGrp LOS	C	B	D	A	D	D
Approach Vol, veh/h	595			1660	1089	
Approach Delay, s/veh	19.0			26.4	42.2	
Approach LOS	B			C	D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4	5	6		
Phs Duration (G+Y+Rc), s		64.8		22.6	30.9	33.8		
Change Period (Y+Rc), s		4.5		4.5	4.5	4.5		
Max Green Setting (Gmax), s		62.9		18.1	27.5	30.9		
Max Q Clear Time (g_c+I1), s		8.7		20.0	25.5	26.9		
Green Ext Time (p_c), s		5.8		0.0	0.9	2.4		

Intersection Summary	
HCM 2010 Ctrl Delay	30.2
HCM 2010 LOS	C

1: Mendocino Ave & Mendocino O/C/Fountaingrove Pkwy

Timing Plan: AM Peak



Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	SBL	SBT	SBR
Lane Group Flow (vph)	417	732	109	335	554	145	675	341	599	537
v/c Ratio	0.89	0.64	0.35	0.80	0.98	0.85	0.64	0.87	0.53	0.72
Control Delay	61.7	21.5	41.7	48.5	51.4	80.8	29.1	62.1	26.9	14.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	61.7	21.5	41.7	48.5	51.4	80.8	29.1	62.1	26.9	14.7
Queue Length 50th (ft)	122	130	30	180	173	83	166	100	145	77
Queue Length 95th (ft)	#205	196	56	#309	#389	#188	226	#164	190	185
Internal Link Dist (ft)		1192		706			612		533	
Turn Bay Length (ft)	178		240			162		162		
Base Capacity (vph)	469	1145	326	431	576	172	1061	395	1139	746
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.89	0.64	0.33	0.78	0.96	0.84	0.64	0.86	0.53	0.72

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Lane Group	EBL	EBR	NBL	NBT	SBT
Lane Group Flow (vph)	23	21	135	823	1503
v/c Ratio	0.09	0.09	0.62	0.28	0.68
Control Delay	23.2	10.6	44.0	3.4	12.3
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	23.2	10.6	44.0	3.4	12.3
Queue Length 50th (ft)	8	0	51	27	167
Queue Length 95th (ft)	20	11	#133	114	#497
Internal Link Dist (ft)	331			457	260
Turn Bay Length (ft)			135		
Base Capacity (vph)	732	658	218	2956	2211
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.03	0.03	0.62	0.28	0.68

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Lane Group	EBT	EBR	WBT	WBR	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	249	74	340	323	49	357	669	335
v/c Ratio	0.77	0.18	0.83	0.28	0.45	0.73	0.88	0.22
Control Delay	72.1	11.6	70.0	1.2	81.3	25.3	52.5	25.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	72.1	11.6	70.0	1.2	81.3	25.3	52.5	25.4
Queue Length 50th (ft)	230	13	305	0	46	36	559	99
Queue Length 95th (ft)	310	35	#518	23	95	88	#931	154
Internal Link Dist (ft)	245		126			289		330
Turn Bay Length (ft)		80			225		215	
Base Capacity (vph)	457	719	475	1216	461	705	857	1559
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.54	0.10	0.72	0.27	0.11	0.51	0.78	0.21

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Lane Group	EBL	EBR	NBL	NBT	SBT
Lane Group Flow (vph)	384	498	850	712	922
v/c Ratio	0.90	0.54	0.90	0.32	0.87
Control Delay	53.2	11.9	40.8	6.7	35.5
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	53.2	11.9	40.8	6.7	35.5
Queue Length 50th (ft)	172	123	196	70	212
Queue Length 95th (ft)	#323	203	#302	96	#311
Internal Link Dist (ft)	75			533	381
Turn Bay Length (ft)			178		
Base Capacity (vph)	445	930	958	2288	1083
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.86	0.54	0.89	0.31	0.85

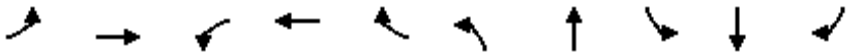
Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Queues

1: Mendocino Ave & Mendocino O/C/Fountaingrove Pkwy

Timing Plan: PM Peak



Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	SBL	SBT	SBR
Lane Group Flow (vph)	487	691	160	448	360	220	966	265	557	583
v/c Ratio	0.97	0.61	0.50	1.00	0.62	0.92	0.98	0.70	0.61	0.93
Control Delay	72.8	20.5	44.6	78.1	13.2	81.5	56.0	49.1	32.8	38.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	72.8	20.5	44.6	78.1	13.2	81.5	56.0	49.1	32.8	38.3
Queue Length 50th (ft)	143	116	45	255	40	125	282	76	146	162
Queue Length 95th (ft)	#242	176	76	#450	129	#259	#416	#123	202	#379
Internal Link Dist (ft)		1192		706			612		533	
Turn Bay Length (ft)	178		240			162		162		
Base Capacity (vph)	503	1127	328	449	584	239	990	381	912	629
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.97	0.61	0.49	1.00	0.62	0.92	0.98	0.70	0.61	0.93

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Lane Group	EBL	EBR	NBL	NBT	SBT
Lane Group Flow (vph)	175	221	41	1001	834
v/c Ratio	0.40	0.40	0.14	0.49	0.47
Control Delay	18.0	5.6	20.9	6.2	9.2
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	18.0	5.6	20.9	6.2	9.2
Queue Length 50th (ft)	26	0	7	55	43
Queue Length 95th (ft)	86	31	38	113	146
Internal Link Dist (ft)	331			457	260
Turn Bay Length (ft)			135		
Base Capacity (vph)	1184	1132	318	3096	2452
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.15	0.20	0.13	0.32	0.34

Intersection Summary

Lane Group	EBT	EBR	WBT	WBR	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	298	166	419	509	127	511	522	576
v/c Ratio	0.78	0.30	0.83	0.44	0.65	0.80	0.92	0.55
Control Delay	64.8	9.6	61.4	1.9	73.7	25.5	66.1	39.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	64.8	9.6	61.4	1.9	73.7	25.5	66.1	39.9
Queue Length 50th (ft)	241	24	343	0	106	53	415	210
Queue Length 95th (ft)	381	58	#642	29	189	124	#694	300
Internal Link Dist (ft)	245		126			289		330
Turn Bay Length (ft)		80			225		215	
Base Capacity (vph)	487	812	504	1329	493	825	915	1392
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.61	0.20	0.83	0.38	0.26	0.62	0.57	0.41

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Lane Group	EBL	EBR	NBL	NBT	SBT
Lane Group Flow (vph)	126	469	959	701	1089
v/c Ratio	0.51	0.59	0.82	0.25	0.81
Control Delay	40.5	16.5	32.5	3.4	29.3
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	40.5	16.5	32.5	3.4	29.3
Queue Length 50th (ft)	62	151	236	45	265
Queue Length 95th (ft)	113	233	#371	80	352
Internal Link Dist (ft)	75			533	381
Turn Bay Length (ft)			178		
Base Capacity (vph)	417	827	1230	2823	1422
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.30	0.57	0.78	0.25	0.77

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	330	435	6	6	807	29	0	0	0	10	0	122
Future Volume (veh/h)	330	435	6	6	807	29	0	0	0	10	0	122
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.97	1.00		0.99	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1900	1863	1863	1900	1900	1863	1900	1900	1863	1863
Adj Flow Rate, veh/h	344	453	6	7	887	32	0	0	0	10	0	126
Adj No. of Lanes	1	2	0	1	2	0	0	1	0	0	1	1
Peak Hour Factor	0.96	0.96	0.96	0.91	0.91	0.91	0.25	0.25	0.25	0.97	0.97	0.97
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	441	2245	30	17	1354	49	0	187	0	332	0	552
Arrive On Green	0.25	0.63	0.63	0.01	0.39	0.39	0.00	0.00	0.00	0.10	0.00	0.10
Sat Flow, veh/h	1774	3575	47	1774	3482	126	0	1863	0	1408	0	1580
Grp Volume(v), veh/h	344	224	235	7	451	468	0	0	0	10	0	126
Grp Sat Flow(s),veh/h/ln	1774	1770	1853	1774	1770	1838	0	1863	0	1408	0	1580
Q Serve(g_s), s	6.8	2.0	2.0	0.1	7.9	7.9	0.0	0.0	0.0	0.2	0.0	2.1
Cycle Q Clear(g_c), s	6.8	2.0	2.0	0.1	7.9	7.9	0.0	0.0	0.0	0.2	0.0	2.1
Prop In Lane	1.00		0.03	1.00		0.07	0.00		0.00	1.00		1.00
Lane Grp Cap(c), veh/h	441	1111	1164	17	688	715	0	187	0	332	0	552
V/C Ratio(X)	0.78	0.20	0.20	0.42	0.65	0.65	0.00	0.00	0.00	0.03	0.00	0.23
Avail Cap(c_a), veh/h	939	1756	1839	235	1054	1095	0	375	0	474	0	711
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	0.00	0.00	0.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	13.2	3.0	3.0	18.6	9.5	9.5	0.0	0.0	0.0	15.4	0.0	8.7
Incr Delay (d2), s/veh	3.0	0.1	0.1	16.0	1.1	1.0	0.0	0.0	0.0	0.0	0.0	0.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.6	1.0	1.1	0.1	4.0	4.1	0.0	0.0	0.0	0.1	0.0	1.0
LnGrp Delay(d),s/veh	16.3	3.1	3.1	34.6	10.5	10.5	0.0	0.0	0.0	15.4	0.0	8.9
LnGrp LOS	B	A	A	C	B	B				B		A
Approach Vol, veh/h		803			926			0			136	
Approach Delay, s/veh		8.7			10.7			0.0			9.4	
Approach LOS		A			B						A	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2	3	4		6	7	8
Phs Duration (G+Y+Rc), s		6.8	3.4	27.6		6.8	12.4	18.6
Change Period (Y+Rc), s		3.0	3.0	3.9		3.0	3.0	3.9
Max Green Setting (Gmax), s		7.6	5.0	37.5		7.6	20.0	22.5
Max Q Clear Time (g_c+I1), s		0.0	2.1	4.0		4.1	8.8	9.9
Green Ext Time (p_c), s		0.0	0.0	2.9		0.1	0.8	4.8

Intersection Summary	
HCM 2010 Ctrl Delay	9.8
HCM 2010 LOS	A

Notes

User approved changes to right turn type.

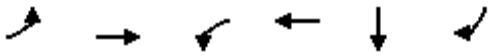
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	155	542	5	0	512	19	4	0	5	32	0	362
Future Volume (veh/h)	155	542	5	0	512	19	4	0	5	32	0	362
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		0.99	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1900	1863	1863	1900	1900	1863	1900	1900	1863	1863
Adj Flow Rate, veh/h	170	596	5	0	557	21	9	0	11	37	0	416
Adj No. of Lanes	1	2	0	1	2	0	0	1	0	0	1	1
Peak Hour Factor	0.91	0.91	0.91	0.92	0.92	0.92	0.45	0.45	0.45	0.87	0.87	0.87
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	225	1759	15	5	946	36	286	53	223	643	0	681
Arrive On Green	0.13	0.49	0.49	0.00	0.27	0.27	0.30	0.00	0.30	0.30	0.00	0.30
Sat Flow, veh/h	1774	3597	30	1774	3476	131	426	176	735	1407	0	1582
Grp Volume(v), veh/h	170	293	308	0	283	295	20	0	0	37	0	416
Grp Sat Flow(s),veh/h/ln	1774	1770	1857	1774	1770	1838	1337	0	0	1407	0	1582
Q Serve(g_s), s	3.1	3.4	3.4	0.0	4.6	4.6	0.0	0.0	0.0	0.3	0.0	6.8
Cycle Q Clear(g_c), s	3.1	3.4	3.4	0.0	4.6	4.6	0.3	0.0	0.0	0.6	0.0	6.8
Prop In Lane	1.00		0.02	1.00		0.07	0.45		0.55	1.00		1.00
Lane Grp Cap(c), veh/h	225	865	908	5	482	500	563	0	0	643	0	681
V/C Ratio(X)	0.76	0.34	0.34	0.00	0.59	0.59	0.04	0.00	0.00	0.06	0.00	0.61
Avail Cap(c_a), veh/h	640	1229	1290	267	857	890	1003	0	0	1144	0	1247
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	0.00	1.00	1.00	1.00	0.00	0.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	14.0	5.2	5.2	0.0	10.5	10.5	8.2	0.0	0.0	8.2	0.0	7.3
Incr Delay (d2), s/veh	5.1	0.2	0.2	0.0	1.1	1.1	0.0	0.0	0.0	0.0	0.0	0.9
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.8	1.7	1.8	0.0	2.4	2.4	0.1	0.0	0.0	0.2	0.0	3.1
LnGrp Delay(d),s/veh	19.2	5.4	5.4	0.0	11.6	11.6	8.2	0.0	0.0	8.3	0.0	8.2
LnGrp LOS	B	A	A		B	B	A			A		A
Approach Vol, veh/h		771			578			20			453	
Approach Delay, s/veh		8.5			11.6			8.2			8.2	
Approach LOS		A			B			A			A	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2	3	4		6	7	8
Phs Duration (G+Y+Rc), s		13.1	0.0	20.2		13.1	7.2	12.9
Change Period (Y+Rc), s		3.0	3.0	3.9		3.0	3.0	3.9
Max Green Setting (Gmax), s		22.0	5.0	23.1		22.0	12.0	16.1
Max Q Clear Time (g_c+I1), s		2.3	0.0	5.4		8.8	5.1	6.6
Green Ext Time (p_c), s		0.1	0.0	3.4		1.5	0.2	2.4

Intersection Summary	
HCM 2010 Ctrl Delay	9.4
HCM 2010 LOS	A

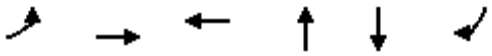
Notes

User approved changes to right turn type.



Lane Group	EBL	EBT	WBL	WBT	SBT	SBR
Lane Group Flow (vph)	344	459	7	919	10	126
v/c Ratio	0.64	0.17	0.04	0.66	0.05	0.17
Control Delay	22.5	2.9	25.3	16.2	23.2	6.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	22.5	2.9	25.3	16.2	23.2	6.1
Queue Length 50th (ft)	97	15	2	120	3	13
Queue Length 95th (ft)	175	48	13	202	15	37
Internal Link Dist (ft)		706		1600	472	
Turn Bay Length (ft)	205		155			
Base Capacity (vph)	803	2781	200	1800	251	946
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.43	0.17	0.04	0.51	0.04	0.13

Intersection Summary



Lane Group	EBL	EBT	WBT	NBT	SBT	SBR
Lane Group Flow (vph)	170	601	578	20	37	416
v/c Ratio	0.46	0.30	0.57	0.04	0.10	0.46
Control Delay	22.5	6.2	17.5	0.1	13.8	6.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	22.5	6.2	17.5	0.1	13.8	6.9
Queue Length 50th (ft)	38	34	64	0	7	44
Queue Length 95th (ft)	104	84	136	0	24	94
Internal Link Dist (ft)		706	1600	1	472	
Turn Bay Length (ft)	205					
Base Capacity (vph)	488	2128	1307	873	701	1004
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.35	0.28	0.44	0.02	0.05	0.41

Intersection Summary

Appendix D LEVEL OF SERVICE WORKSHEETS: EXISTING PLUS PROJECT CONDITIONS

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	384	368	313	121	350	522	133	512	115	306	521	467
Future Volume (veh/h)	384	368	313	121	350	522	133	512	115	306	521	467
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1900	1863	1863	1863	1863	1863	1900	1863	1863	1863
Adj Flow Rate, veh/h	417	400	156	132	380	339	145	557	0	352	599	0
Adj No. of Lanes	2	2	0	2	1	1	1	2	0	2	2	1
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.87	0.87	0.87
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	467	696	268	295	428	364	171	1066	0	394	1129	505
Arrive On Green	0.14	0.28	0.28	0.09	0.23	0.23	0.10	0.30	0.00	0.11	0.32	0.00
Sat Flow, veh/h	3442	2485	956	3442	1863	1583	1774	3632	0	3442	3539	1583
Grp Volume(v), veh/h	417	283	273	132	380	339	145	557	0	352	599	0
Grp Sat Flow(s),veh/h/ln	1721	1770	1672	1721	1863	1583	1774	1770	0	1721	1770	1583
Q Serve(g_s), s	10.7	12.3	12.6	3.3	17.8	18.9	7.2	11.7	0.0	9.1	12.5	0.0
Cycle Q Clear(g_c), s	10.7	12.3	12.6	3.3	17.8	18.9	7.2	11.7	0.0	9.1	12.5	0.0
Prop In Lane	1.00		0.57	1.00		1.00	1.00		0.00	1.00		1.00
Lane Grp Cap(c), veh/h	467	495	468	295	428	364	171	1066	0	394	1129	505
V/C Ratio(X)	0.89	0.57	0.58	0.45	0.89	0.93	0.85	0.52	0.00	0.89	0.53	0.00
Avail Cap(c_a), veh/h	467	495	468	325	428	364	171	1066	0	394	1129	505
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	38.3	27.8	27.9	39.1	33.5	33.9	40.0	26.1	0.0	39.3	25.1	0.0
Incr Delay (d2), s/veh	18.8	1.0	1.2	0.4	19.0	29.7	29.0	1.8	0.0	21.4	1.8	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	6.3	6.2	6.0	1.6	11.3	11.2	4.9	6.0	0.0	5.5	6.4	0.0
LnGrp Delay(d),s/veh	57.0	28.8	29.1	39.5	52.5	63.7	69.0	27.9	0.0	60.7	26.9	0.0
LnGrp LOS	E	C	C	D	D	E	E	C		E	C	
Approach Vol, veh/h		973			851			702			951	
Approach Delay, s/veh		41.0			54.9			36.4			39.4	
Approach LOS		D			D			D			D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	12.5	29.5	15.0	33.0	17.0	25.0	16.6	31.4
Change Period (Y+Rc), s	4.8	4.3	6.3	4.3	4.8	4.3	6.3	4.3
Max Green Setting (Gmax), s	8.5	24.4	8.7	28.7	12.2	20.7	10.3	27.1
Max Q Clear Time (g_c+I1), s	5.3	14.6	9.2	14.5	12.7	20.9	11.1	13.7
Green Ext Time (p_c), s	0.1	1.7	0.0	2.4	0.0	0.0	0.0	2.2

Intersection Summary	
HCM 2010 Ctrl Delay	43.0
HCM 2010 LOS	D

Intersection	
Int Delay, s/veh	6

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	341	446	6	6	845	30	0	0	0	14	0	159
Future Vol, veh/h	341	446	6	6	845	30	0	0	0	14	0	159
Conflicting Peds, #/hr	1	0	3	3	0	1	1	0	1	1	0	1
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	205	-	-	155	-	-	-	-	-	-	-	0
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	96	96	96	91	91	91	25	25	25	97	97	97
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	355	465	6	7	929	33	0	0	0	14	0	164

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	963	0	0	474	0	0	1661	2158	240	1905	2145	483
Stage 1	-	-	-	-	-	-	1181	1181	-	961	961	-
Stage 2	-	-	-	-	-	-	480	977	-	944	1184	-
Critical Hdwy	4.14	-	-	4.14	-	-	7.54	6.54	6.94	7.54	6.54	6.94
Critical Hdwy Stg 1	-	-	-	-	-	-	6.54	5.54	-	6.54	5.54	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.54	5.54	-	6.54	5.54	-
Follow-up Hdwy	2.22	-	-	2.22	-	-	3.52	4.02	3.32	3.52	4.02	3.32
Pot Cap-1 Maneuver	711	-	-	1084	-	-	64	47	761	42	48	530
Stage 1	-	-	-	-	-	-	202	262	-	275	333	-
Stage 2	-	-	-	-	-	-	536	327	-	282	261	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	710	-	-	1081	-	-	27	23	758	25	24	529
Mov Cap-2 Maneuver	-	-	-	-	-	-	27	23	-	25	24	-
Stage 1	-	-	-	-	-	-	101	131	-	138	331	-
Stage 2	-	-	-	-	-	-	367	325	-	141	130	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	6.5	0.1	0	35.4
HCM LOS			A	E

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	-	710	-	-	1081	-	-	25	529
HCM Lane V/C Ratio	-	0.5	-	-	0.006	-	-	0.577	0.31
HCM Control Delay (s)	0	15	-	-	8.4	-	-	269.4	14.8
HCM Lane LOS	A	C	-	-	A	-	-	F	B
HCM 95th %tile Q(veh)	-	2.8	-	-	0	-	-	1.8	1.3

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	22	54	120	671	1218	168
Future Volume (veh/h)	22	54	120	671	1218	168
Number	5	12	3	8	4	14
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00	1.00			1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1863	1863	1863	1900
Adj Flow Rate, veh/h	29	72	148	828	1324	183
Adj No. of Lanes	1	1	1	2	2	0
Peak Hour Factor	0.75	0.75	0.81	0.81	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	140	125	190	2727	1869	256
Arrive On Green	0.08	0.08	0.11	0.77	0.60	0.60
Sat Flow, veh/h	1774	1583	1774	3632	3219	429
Grp Volume(v), veh/h	29	72	148	828	745	762
Grp Sat Flow(s),veh/h/ln	1774	1583	1774	1770	1770	1785
Q Serve(g_s), s	0.7	2.0	3.7	3.2	13.4	13.7
Cycle Q Clear(g_c), s	0.7	2.0	3.7	3.2	13.4	13.7
Prop In Lane	1.00	1.00	1.00			0.24
Lane Grp Cap(c), veh/h	140	125	190	2727	1058	1067
V/C Ratio(X)	0.21	0.58	0.78	0.30	0.70	0.71
Avail Cap(c_a), veh/h	987	881	294	3677	1429	1442
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	19.8	20.4	19.9	1.6	6.4	6.5
Incr Delay (d2), s/veh	0.7	4.1	6.9	0.1	1.0	1.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.4	1.0	2.2	1.5	6.7	6.9
LnGrp Delay(d),s/veh	20.5	24.5	26.8	1.6	7.4	7.5
LnGrp LOS	C	C	C	A	A	A
Approach Vol, veh/h	101			976	1507	
Approach Delay, s/veh	23.3			5.5	7.5	
Approach LOS	C			A	A	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2	3	4				8
Phs Duration (G+Y+Rc), s		6.6	7.9	31.3				39.2
Change Period (Y+Rc), s		3.0	3.0	3.9				3.9
Max Green Setting (Gmax), s		25.5	7.6	37.0				47.6
Max Q Clear Time (g_c+I1), s		4.0	5.7	15.7				5.2
Green Ext Time (p_c), s		0.2	0.1	11.7				7.1

Intersection Summary	
HCM 2010 Ctrl Delay	7.3
HCM 2010 LOS	A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	13	192	61	146	179	304	43	65	250	627	283	29
Future Volume (veh/h)	13	192	61	146	179	304	43	65	250	627	283	29
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1900	1863	1863	1900	1863	1863	1863	1863	1900	1863	1863	1900
Adj Flow Rate, veh/h	16	234	31	157	192	207	49	74	91	674	304	27
Adj No. of Lanes	0	1	1	0	1	1	1	2	0	1	2	0
Peak Hour Factor	0.82	0.82	0.82	0.93	0.93	0.93	0.88	0.88	0.88	0.93	0.93	0.93
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	20	288	315	185	226	988	64	140	125	707	1471	130
Arrive On Green	0.17	0.17	0.17	0.23	0.23	0.23	0.04	0.08	0.08	0.40	0.45	0.45
Sat Flow, veh/h	119	1738	1555	820	1002	1583	1774	1770	1583	1774	3290	290
Grp Volume(v), veh/h	250	0	31	349	0	207	49	74	91	674	163	168
Grp Sat Flow(s),veh/h/ln	1857	0	1555	1822	0	1583	1774	1770	1583	1774	1770	1810
Q Serve(g_s), s	13.7	0.0	1.7	19.4	0.0	0.0	2.9	4.2	5.9	38.9	5.9	6.0
Cycle Q Clear(g_c), s	13.7	0.0	1.7	19.4	0.0	0.0	2.9	4.2	5.9	38.9	5.9	6.0
Prop In Lane	0.06		1.00	0.45		1.00	1.00		1.00	1.00		0.16
Lane Grp Cap(c), veh/h	308	0	315	411	0	988	64	140	125	707	791	810
V/C Ratio(X)	0.81	0.00	0.10	0.85	0.00	0.21	0.76	0.53	0.73	0.95	0.21	0.21
Avail Cap(c_a), veh/h	581	0	543	604	0	1156	588	335	300	1093	839	858
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	42.4	0.0	34.3	39.1	0.0	8.6	50.4	46.7	47.5	30.8	17.8	17.8
Incr Delay (d2), s/veh	5.1	0.0	0.1	7.5	0.0	0.1	6.9	1.1	3.0	10.3	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	7.5	0.0	0.7	10.6	0.0	2.6	1.5	2.1	2.7	20.9	2.9	3.0
LnGrp Delay(d),s/veh	47.5	0.0	34.4	46.6	0.0	8.7	57.3	47.8	50.4	41.1	17.8	17.8
LnGrp LOS	D		C	D		A	E	D	D	D	B	B
Approach Vol, veh/h		281			556			214			1005	
Approach Delay, s/veh		46.1			32.5			51.1			33.5	
Approach LOS		D			C			D			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2	3	4		6	7	8
Phs Duration (G+Y+Rc), s		21.1	6.8	50.8		26.8	45.6	12.0
Change Period (Y+Rc), s		3.6	3.0	3.6		3.0	3.6	* 3.6
Max Green Setting (Gmax), s		33.0	35.0	50.0		35.0	65.0	* 20
Max Q Clear Time (g_c+I1), s		15.7	4.9	8.0		21.4	40.9	7.9
Green Ext Time (p_c), s		1.4	0.1	1.3		2.4	1.1	0.4

Intersection Summary	
HCM 2010 Ctrl Delay	36.8
HCM 2010 LOS	D

Notes

* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.
User approved changes to right turn type.

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	361	477	794	655	817	4
Future Volume (veh/h)	361	477	794	655	817	4
Number	7	14	5	2	6	16
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00	1.00			0.97
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1863	1863	1863	1900
Adj Flow Rate, veh/h	384	507	863	712	918	4
Adj No. of Lanes	1	1	2	2	2	0
Peak Hour Factor	0.94	0.94	0.92	0.92	0.89	0.89
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	446	833	944	2214	1048	5
Arrive On Green	0.25	0.25	0.27	0.63	0.29	0.29
Sat Flow, veh/h	1774	1583	3442	3632	3706	16
Grp Volume(v), veh/h	384	507	863	712	450	472
Grp Sat Flow(s),veh/h/ln	1774	1583	1721	1770	1770	1859
Q Serve(g_s), s	15.2	16.4	17.8	6.9	17.7	17.7
Cycle Q Clear(g_c), s	15.2	16.4	17.8	6.9	17.7	17.7
Prop In Lane	1.00	1.00	1.00			0.01
Lane Grp Cap(c), veh/h	446	833	944	2214	513	539
V/C Ratio(X)	0.86	0.61	0.91	0.32	0.88	0.88
Avail Cap(c_a), veh/h	448	834	963	2294	543	571
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	26.2	12.1	25.7	6.4	24.8	24.8
Incr Delay (d2), s/veh	15.5	1.3	12.8	0.1	14.4	13.8
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	9.3	15.5	10.1	3.4	10.7	11.1
LnGrp Delay(d),s/veh	41.7	13.4	38.5	6.5	39.2	38.6
LnGrp LOS	D	B	D	A	D	D
Approach Vol, veh/h	891			1575	922	
Approach Delay, s/veh	25.6			24.0	38.9	
Approach LOS	C			C	D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4	5	6		
Phs Duration (G+Y+Rc), s		50.3		22.9	24.6	25.7		
Change Period (Y+Rc), s		4.5		4.5	4.5	4.5		
Max Green Setting (Gmax), s		47.5		18.5	20.5	22.5		
Max Q Clear Time (g_c+I1), s		8.9		18.4	19.8	19.7		
Green Ext Time (p_c), s		5.8		0.1	0.3	1.5		

Intersection Summary	
HCM 2010 Ctrl Delay	28.5
HCM 2010 LOS	C

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	453	378	288	159	436	338	198	771	118	283	535	560
Future Volume (veh/h)	453	378	288	159	436	338	198	771	118	283	535	560
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		0.99	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1900	1863	1863	1863	1863	1863	1900	1863	1863	1863
Adj Flow Rate, veh/h	487	406	147	173	474	142	220	857	0	295	557	0
Adj No. of Lanes	2	2	0	2	1	1	1	2	0	2	2	1
Peak Hour Factor	0.93	0.93	0.93	0.92	0.92	0.92	0.90	0.90	0.90	0.96	0.96	0.96
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	505	765	274	302	449	377	240	999	0	382	912	408
Arrive On Green	0.15	0.30	0.30	0.09	0.24	0.24	0.14	0.28	0.00	0.11	0.26	0.00
Sat Flow, veh/h	3442	2551	913	3442	1863	1563	1774	3632	0	3442	3539	1583
Grp Volume(v), veh/h	487	280	273	173	474	142	220	857	0	295	557	0
Grp Sat Flow(s),veh/h/ln	1721	1770	1694	1721	1863	1563	1774	1770	0	1721	1770	1583
Q Serve(g_s), s	12.7	11.8	12.1	4.3	21.7	6.8	11.0	20.6	0.0	7.5	12.5	0.0
Cycle Q Clear(g_c), s	12.7	11.8	12.1	4.3	21.7	6.8	11.0	20.6	0.0	7.5	12.5	0.0
Prop In Lane	1.00		0.54	1.00		1.00	1.00		0.00	1.00		1.00
Lane Grp Cap(c), veh/h	505	531	508	302	449	377	240	999	0	382	912	408
V/C Ratio(X)	0.96	0.53	0.54	0.57	1.06	0.38	0.91	0.86	0.00	0.77	0.61	0.00
Avail Cap(c_a), veh/h	505	531	508	329	449	377	240	999	0	382	912	408
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	38.2	26.2	26.3	39.4	34.2	28.5	38.4	30.6	0.0	38.9	29.4	0.0
Incr Delay (d2), s/veh	30.9	0.5	0.6	1.0	57.8	0.2	35.3	9.5	0.0	8.5	3.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	8.2	5.8	5.7	2.1	18.3	3.0	7.7	11.3	0.0	4.0	6.5	0.0
LnGrp Delay(d),s/veh	69.1	26.7	26.9	40.5	92.0	28.7	73.7	40.1	0.0	47.4	32.5	0.0
LnGrp LOS	E	C	C	D	F	C	E	D		D	C	
Approach Vol, veh/h		1040			789			1077			852	
Approach Delay, s/veh		46.6			69.3			46.9			37.6	
Approach LOS		D			E			D			D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	12.7	31.3	18.5	27.5	18.0	26.0	16.3	29.7
Change Period (Y+Rc), s	4.8	4.3	6.3	4.3	4.8	4.3	6.3	4.3
Max Green Setting (Gmax), s	8.6	26.3	12.2	23.2	13.2	21.7	10.0	25.4
Max Q Clear Time (g_c+I1), s	6.3	14.1	13.0	14.5	14.7	23.7	9.5	22.6
Green Ext Time (p_c), s	0.1	1.9	0.0	1.8	0.0	0.0	0.0	1.2

Intersection Summary	
HCM 2010 Ctrl Delay	49.4
HCM 2010 LOS	D

Intersection	
Int Delay, s/veh	7.4

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	191	579	5	0	533	23	4	0	5	34	0	383
Future Vol, veh/h	191	579	5	0	533	23	4	0	5	34	0	383
Conflicting Peds, #/hr	0	0	0	0	0	0	1	0	0	0	0	1
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	205	-	-	155	-	-	-	-	-	-	-	0
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	91	91	91	92	92	92	45	45	45	87	87	87
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	210	636	5	0	579	25	9	0	11	39	0	440

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	604	0	0	641	0	0	1350	1663	321	1330	1653	303
Stage 1	-	-	-	-	-	-	1059	1059	-	592	592	-
Stage 2	-	-	-	-	-	-	291	604	-	738	1061	-
Critical Hdwy	4.14	-	-	4.14	-	-	7.54	6.54	6.94	7.54	6.54	6.94
Critical Hdwy Stg 1	-	-	-	-	-	-	6.54	5.54	-	6.54	5.54	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.54	5.54	-	6.54	5.54	-
Follow-up Hdwy	2.22	-	-	2.22	-	-	3.52	4.02	3.32	3.52	4.02	3.32
Pot Cap-1 Maneuver	970	-	-	939	-	-	109	96	675	113	97	693
Stage 1	-	-	-	-	-	-	240	299	-	460	492	-
Stage 2	-	-	-	-	-	-	693	486	-	376	299	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	970	-	-	939	-	-	33	75	675	93	76	692
Mov Cap-2 Maneuver	-	-	-	-	-	-	33	75	-	93	76	-
Stage 1	-	-	-	-	-	-	188	234	-	361	492	-
Stage 2	-	-	-	-	-	-	252	486	-	290	234	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	2.4	0	75.8	22.9
HCM LOS			F	C

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	70	970	-	-	939	-	-	93	692
HCM Lane V/C Ratio	0.286	0.216	-	-	-	-	-	0.42	0.636
HCM Control Delay (s)	75.8	9.7	-	-	0	-	-	69.3	18.8
HCM Lane LOS	F	A	-	-	A	-	-	F	C
HCM 95th %tile Q(veh)	1	0.8	-	-	0	-	-	1.7	4.6

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	143	198	76	943	745	38
Future Volume (veh/h)	143	198	76	943	745	38
Number	5	12	3	8	4	14
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00	1.00			0.97
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1863	1863	1863	1900
Adj Flow Rate, veh/h	179	248	81	1003	801	41
Adj No. of Lanes	1	1	1	2	2	0
Peak Hour Factor	0.80	0.80	0.94	0.94	0.93	0.93
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	416	371	139	2002	1369	70
Arrive On Green	0.23	0.23	0.08	0.57	0.40	0.40
Sat Flow, veh/h	1774	1583	1774	3632	3514	175
Grp Volume(v), veh/h	179	248	81	1003	414	428
Grp Sat Flow(s),veh/h/ln	1774	1583	1774	1770	1770	1826
Q Serve(g_s), s	3.0	4.9	1.5	5.9	6.3	6.3
Cycle Q Clear(g_c), s	3.0	4.9	1.5	5.9	6.3	6.3
Prop In Lane	1.00	1.00	1.00			0.10
Lane Grp Cap(c), veh/h	416	371	139	2002	708	731
V/C Ratio(X)	0.43	0.67	0.58	0.50	0.58	0.59
Avail Cap(c_a), veh/h	1338	1194	360	3809	1391	1436
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	11.2	12.0	15.3	4.5	8.1	8.1
Incr Delay (d2), s/veh	0.7	2.1	3.8	0.2	0.8	0.7
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.5	2.3	0.9	2.8	3.1	3.2
LnGrp Delay(d),s/veh	11.9	14.1	19.2	4.7	8.9	8.8
LnGrp LOS	B	B	B	A	A	A
Approach Vol, veh/h	427			1084	842	
Approach Delay, s/veh	13.2			5.8	8.9	
Approach LOS	B			A	A	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2	3	4				8
Phs Duration (G+Y+Rc), s		11.1	5.7	17.7				23.4
Change Period (Y+Rc), s		3.0	3.0	3.9				3.9
Max Green Setting (Gmax), s		26.0	7.0	27.1				37.1
Max Q Clear Time (g_c+I1), s		6.9	3.5	8.3				7.9
Green Ext Time (p_c), s		1.3	0.0	5.3				8.5

Intersection Summary	
HCM 2010 Ctrl Delay	8.2
HCM 2010 LOS	A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	22	247	148	220	175	475	119	116	369	517	508	45
Future Volume (veh/h)	22	247	148	220	175	475	119	116	369	517	508	45
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		0.99	1.00		1.00	1.00		0.98
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1900	1863	1863	1900	1863	1863	1863	1863	1900	1863	1863	1900
Adj Flow Rate, veh/h	25	278	101	237	188	292	127	123	12	539	529	43
Adj No. of Lanes	0	1	1	0	1	1	1	2	0	1	2	0
Peak Hour Factor	0.89	0.89	0.89	0.93	0.93	0.93	0.94	0.94	0.94	0.96	0.96	0.96
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	31	342	452	272	215	931	157	249	24	572	1046	85
Arrive On Green	0.20	0.20	0.20	0.27	0.27	0.27	0.09	0.08	0.08	0.32	0.32	0.32
Sat Flow, veh/h	153	1702	1551	1011	802	1563	1774	3262	314	1774	3309	268
Grp Volume(v), veh/h	303	0	101	425	0	292	127	66	69	539	282	290
Grp Sat Flow(s),veh/h/ln	1855	0	1551	1812	0	1563	1774	1770	1807	1774	1770	1808
Q Serve(g_s), s	16.4	0.0	5.2	23.5	0.0	0.0	7.4	3.8	3.8	31.0	13.6	13.7
Cycle Q Clear(g_c), s	16.4	0.0	5.2	23.5	0.0	0.0	7.4	3.8	3.8	31.0	13.6	13.7
Prop In Lane	0.08		1.00	0.56		1.00	1.00		0.17	1.00		0.15
Lane Grp Cap(c), veh/h	372	0	452	487	0	931	157	135	138	572	559	571
V/C Ratio(X)	0.81	0.00	0.22	0.87	0.00	0.31	0.81	0.49	0.50	0.94	0.50	0.51
Avail Cap(c_a), veh/h	584	0	629	605	0	1033	592	338	345	846	844	862
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	40.0	0.0	28.3	36.6	0.0	10.7	46.9	46.5	46.5	34.6	29.2	29.2
Incr Delay (d2), s/veh	4.9	0.0	0.2	11.3	0.0	0.2	3.7	1.0	1.0	11.7	0.3	0.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	8.8	0.0	2.3	13.2	0.0	4.2	3.8	1.9	2.0	17.0	6.7	6.9
LnGrp Delay(d),s/veh	44.9	0.0	28.6	47.9	0.0	10.9	50.6	47.5	47.5	46.3	29.4	29.5
LnGrp LOS	D		C	D		B	D	D	D	D	C	C
Approach Vol, veh/h		404			717			262			1111	
Approach Delay, s/veh		40.8			32.8			49.0			37.6	
Approach LOS		D			C			D			D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2	3	4		6	7	8
Phs Duration (G+Y+Rc), s		24.6	12.3	36.7		31.2	37.4	11.6
Change Period (Y+Rc), s		3.6	3.0	3.6		3.0	3.6	* 3.6
Max Green Setting (Gmax), s		33.0	35.0	50.0		35.0	50.0	* 20
Max Q Clear Time (g_c+I1), s		18.4	9.4	15.7		25.5	33.0	5.8
Green Ext Time (p_c), s		1.8	0.2	2.4		2.7	0.8	0.3

Intersection Summary	
HCM 2010 Ctrl Delay	38.0
HCM 2010 LOS	D

Notes

* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.
User approved changes to right turn type.

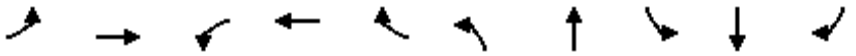
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	112	446	908	659	925	11
Future Volume (veh/h)	112	446	908	659	925	11
Number	7	14	5	2	6	16
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00	1.00			0.97
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1863	1863	1863	1900
Adj Flow Rate, veh/h	126	501	966	701	1076	13
Adj No. of Lanes	1	1	2	2	2	0
Peak Hour Factor	0.89	0.89	0.94	0.94	0.86	0.86
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	367	808	1045	2444	1201	15
Arrive On Green	0.21	0.21	0.30	0.69	0.34	0.34
Sat Flow, veh/h	1774	1583	3442	3632	3673	43
Grp Volume(v), veh/h	126	501	966	701	532	557
Grp Sat Flow(s),veh/h/ln	1774	1583	1721	1770	1770	1854
Q Serve(g_s), s	5.3	18.1	23.8	6.7	25.0	25.0
Cycle Q Clear(g_c), s	5.3	18.1	23.8	6.7	25.0	25.0
Prop In Lane	1.00	1.00	1.00			0.02
Lane Grp Cap(c), veh/h	367	808	1045	2444	594	622
V/C Ratio(X)	0.34	0.62	0.92	0.29	0.90	0.90
Avail Cap(c_a), veh/h	367	808	1081	2543	625	654
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	29.7	15.4	29.5	5.2	27.6	27.6
Incr Delay (d2), s/veh	0.6	1.5	12.8	0.1	15.1	14.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.6	18.4	13.1	3.2	14.6	15.2
LnGrp Delay(d),s/veh	30.2	16.8	42.3	5.3	42.8	42.2
LnGrp LOS	C	B	D	A	D	D
Approach Vol, veh/h	627			1667	1089	
Approach Delay, s/veh	19.5			26.7	42.5	
Approach LOS	B			C	D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4	5	6		
Phs Duration (G+Y+Rc), s		65.0		22.6	31.1	33.9		
Change Period (Y+Rc), s		4.5		4.5	4.5	4.5		
Max Green Setting (Gmax), s		62.9		18.1	27.5	30.9		
Max Q Clear Time (g_c+I1), s		8.7		20.1	25.8	27.0		
Green Ext Time (p_c), s		5.8		0.0	0.8	2.4		

Intersection Summary	
HCM 2010 Ctrl Delay	30.5
HCM 2010 LOS	C

1: Mendocino Ave & Mendocino O/C/Fountaingrove Pkwy

Timing Plan: AM Peak



Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	SBL	SBT	SBR
Lane Group Flow (vph)	417	740	132	380	567	145	682	352	599	537
v/c Ratio	0.90	0.70	0.42	0.89	0.99	0.86	0.65	0.90	0.53	0.74
Control Delay	62.4	23.7	43.1	58.1	54.5	81.7	29.4	66.5	27.2	16.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	62.4	23.7	43.1	58.1	54.5	81.7	29.4	66.5	27.2	16.3
Queue Length 50th (ft)	122	135	37	210	184	83	167	103	145	90
Queue Length 95th (ft)	#205	202	65	#371	#407	#188	228	#172	190	201
Internal Link Dist (ft)		1192		706			612		533	
Turn Bay Length (ft)	178		240			162		162		
Base Capacity (vph)	465	1064	324	428	574	171	1054	392	1131	729
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.90	0.70	0.41	0.89	0.99	0.85	0.65	0.90	0.53	0.74

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

3: Fountaingrove Pkwy & Round Barn Blvd East

Timing Plan: AM Peak

Lane Group	EBL	EBR	NBL	NBT	SBT
Lane Group Flow (vph)	29	72	148	828	1507
v/c Ratio	0.11	0.25	0.69	0.30	0.71
Control Delay	23.4	8.5	48.5	3.7	13.5
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	23.4	8.5	48.5	3.7	13.5
Queue Length 50th (ft)	10	0	53	28	171
Queue Length 95th (ft)	23	19	#149	115	#499
Internal Link Dist (ft)	331			457	260
Turn Bay Length (ft)			135		
Base Capacity (vph)	723	681	215	2801	2115
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.04	0.11	0.69	0.30	0.71

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Lane Group	EBT	EBR	WBT	WBR	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	250	74	349	327	49	358	674	335
v/c Ratio	0.77	0.18	0.84	0.28	0.46	0.74	0.89	0.22
Control Delay	73.4	11.6	71.5	1.2	82.1	25.5	53.1	25.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	73.4	11.6	71.5	1.2	82.1	25.5	53.1	25.6
Queue Length 50th (ft)	232	13	316	0	46	36	569	100
Queue Length 95th (ft)	311	35	#540	23	95	88	#942	154
Internal Link Dist (ft)	245		126			289		330
Turn Bay Length (ft)		80			225		215	
Base Capacity (vph)	449	710	467	1212	454	699	843	1548
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.56	0.10	0.75	0.27	0.11	0.51	0.80	0.22

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

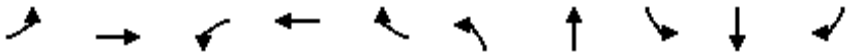
Lane Group	EBL	EBR	NBL	NBT	SBT
Lane Group Flow (vph)	384	507	863	712	922
v/c Ratio	0.90	0.55	0.91	0.32	0.87
Control Delay	53.5	12.1	42.1	6.7	35.6
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	53.5	12.1	42.1	6.7	35.6
Queue Length 50th (ft)	172	127	200	70	212
Queue Length 95th (ft)	#323	210	#309	96	#311
Internal Link Dist (ft)	75			533	381
Turn Bay Length (ft)			178		
Base Capacity (vph)	444	928	956	2284	1081
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.86	0.55	0.90	0.31	0.85

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

1: Mendocino Ave & Mendocino O/C/Fountaingrove Pkwy

Timing Plan: PM Peak



Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	SBL	SBT	SBR
Lane Group Flow (vph)	487	716	173	474	367	220	988	295	557	583
v/c Ratio	0.97	0.64	0.54	1.06	0.63	0.92	1.00	0.77	0.61	0.94
Control Delay	72.8	21.9	45.8	93.0	13.8	81.5	61.1	54.0	32.8	40.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	72.8	21.9	45.8	93.0	13.8	81.5	61.1	54.0	32.8	40.3
Queue Length 50th (ft)	143	128	48	~298	43	125	290	85	146	168
Queue Length 95th (ft)	#242	190	81	#486	134	#259	#431	#145	202	#386
Internal Link Dist (ft)		1192		706			612		533	
Turn Bay Length (ft)	178		240			162		162		
Base Capacity (vph)	503	1119	328	449	584	239	990	381	912	623
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.97	0.64	0.53	1.06	0.63	0.92	1.00	0.77	0.61	0.94

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Lane Group	EBL	EBR	NBL	NBT	SBT
Lane Group Flow (vph)	179	248	81	1003	842
v/c Ratio	0.42	0.44	0.29	0.48	0.51
Control Delay	19.3	5.7	23.1	6.0	10.6
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	19.3	5.7	23.1	6.0	10.6
Queue Length 50th (ft)	40	0	19	56	84
Queue Length 95th (ft)	88	32	63	115	148
Internal Link Dist (ft)	331			457	260
Turn Bay Length (ft)			135		
Base Capacity (vph)	1134	1104	305	2968	2350
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.16	0.22	0.27	0.34	0.36

Intersection Summary

Lane Group	EBT	EBR	WBT	WBR	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	303	166	425	511	127	516	539	576
v/c Ratio	0.79	0.30	0.86	0.45	0.66	0.81	0.94	0.54
Control Delay	65.5	9.7	64.4	1.9	74.8	25.7	69.1	39.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	65.5	9.7	64.4	1.9	74.8	25.7	69.1	39.8
Queue Length 50th (ft)	251	26	360	0	108	55	438	212
Queue Length 95th (ft)	388	59	#655	28	190	124	#732	300
Internal Link Dist (ft)	245		126			289		330
Turn Bay Length (ft)		80			225		215	
Base Capacity (vph)	480	808	497	1322	486	823	902	1372
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.63	0.21	0.86	0.39	0.26	0.63	0.60	0.42

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Lane Group	EBL	EBR	NBL	NBT	SBT
Lane Group Flow (vph)	126	501	966	701	1089
v/c Ratio	0.51	0.62	0.82	0.25	0.81
Control Delay	40.5	17.5	32.7	3.4	29.3
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	40.5	17.5	32.7	3.4	29.3
Queue Length 50th (ft)	62	167	238	45	265
Queue Length 95th (ft)	113	257	#375	80	352
Internal Link Dist (ft)	75			533	381
Turn Bay Length (ft)			178		
Base Capacity (vph)	417	826	1228	2823	1420
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.30	0.61	0.79	0.25	0.77

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	341	446	6	6	845	30	0	0	0	14	0	159
Future Volume (veh/h)	341	446	6	6	845	30	0	0	0	14	0	159
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.97	1.00		0.99	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1900	1863	1863	1900	1900	1863	1900	1900	1863	1863
Adj Flow Rate, veh/h	355	465	6	7	929	33	0	0	0	14	0	164
Adj No. of Lanes	1	2	0	1	2	0	0	1	0	0	1	1
Peak Hour Factor	0.96	0.96	0.96	0.91	0.91	0.91	0.25	0.25	0.25	0.97	0.97	0.97
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	448	2269	29	17	1363	48	0	204	0	334	0	573
Arrive On Green	0.25	0.63	0.63	0.01	0.39	0.39	0.00	0.00	0.00	0.11	0.00	0.11
Sat Flow, veh/h	1774	3577	46	1774	3485	124	0	1863	0	1408	0	1580
Grp Volume(v), veh/h	355	230	241	7	472	490	0	0	0	14	0	164
Grp Sat Flow(s),veh/h/ln	1774	1770	1853	1774	1770	1839	0	1863	0	1408	0	1580
Q Serve(g_s), s	7.5	2.2	2.2	0.2	8.9	8.9	0.0	0.0	0.0	0.4	0.0	3.0
Cycle Q Clear(g_c), s	7.5	2.2	2.2	0.2	8.9	8.9	0.0	0.0	0.0	0.4	0.0	3.0
Prop In Lane	1.00		0.02	1.00		0.07	0.00		0.00	1.00		1.00
Lane Grp Cap(c), veh/h	448	1122	1175	17	692	719	0	204	0	334	0	573
V/C Ratio(X)	0.79	0.20	0.21	0.42	0.68	0.68	0.00	0.00	0.00	0.04	0.00	0.29
Avail Cap(c_a), veh/h	884	1654	1732	221	992	1031	0	353	0	446	0	699
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	0.00	0.00	0.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	14.0	3.1	3.1	19.8	10.1	10.1	0.0	0.0	0.0	16.1	0.0	9.1
Incr Delay (d2), s/veh	3.2	0.1	0.1	16.1	1.2	1.1	0.0	0.0	0.0	0.1	0.0	0.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	4.0	1.0	1.1	0.2	4.6	4.7	0.0	0.0	0.0	0.1	0.0	1.3
LnGrp Delay(d),s/veh	17.2	3.2	3.2	35.9	11.3	11.3	0.0	0.0	0.0	16.1	0.0	9.4
LnGrp LOS	B	A	A	D	B	B				B		A
Approach Vol, veh/h		826			969			0			178	
Approach Delay, s/veh		9.2			11.5			0.0			9.9	
Approach LOS		A			B						A	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2	3	4		6	7	8
Phs Duration (G+Y+Rc), s		7.4	3.4	29.4		7.4	13.1	19.6
Change Period (Y+Rc), s		3.0	3.0	3.9		3.0	3.0	3.9
Max Green Setting (Gmax), s		7.6	5.0	37.5		7.6	20.0	22.5
Max Q Clear Time (g_c+I1), s		0.0	2.2	4.2		5.0	9.5	10.9
Green Ext Time (p_c), s		0.0	0.0	3.0		0.1	0.8	4.8

Intersection Summary	
HCM 2010 Ctrl Delay	10.4
HCM 2010 LOS	B

Notes

User approved changes to right turn type.

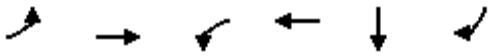
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	191	579	5	0	533	23	4	0	5	34	0	383
Future Volume (veh/h)	191	579	5	0	533	23	4	0	5	34	0	383
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		0.99	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1900	1863	1863	1900	1900	1863	1900	1900	1863	1863
Adj Flow Rate, veh/h	210	636	5	0	579	25	9	0	11	39	0	440
Adj No. of Lanes	1	2	0	1	2	0	0	1	0	0	1	1
Peak Hour Factor	0.91	0.91	0.91	0.92	0.92	0.92	0.45	0.45	0.45	0.87	0.87	0.87
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	275	1824	14	5	930	40	274	49	220	625	0	726
Arrive On Green	0.16	0.51	0.51	0.00	0.27	0.27	0.30	0.00	0.30	0.30	0.00	0.30
Sat Flow, veh/h	1774	3599	28	1774	3455	149	430	163	724	1407	0	1582
Grp Volume(v), veh/h	210	313	328	0	296	308	20	0	0	39	0	440
Grp Sat Flow(s),veh/h/ln	1774	1770	1858	1774	1770	1834	1317	0	0	1407	0	1582
Q Serve(g_s), s	4.1	3.8	3.9	0.0	5.3	5.4	0.0	0.0	0.0	0.3	0.0	7.6
Cycle Q Clear(g_c), s	4.1	3.8	3.9	0.0	5.3	5.4	0.3	0.0	0.0	0.6	0.0	7.6
Prop In Lane	1.00		0.02	1.00		0.08	0.45		0.55	1.00		1.00
Lane Grp Cap(c), veh/h	275	897	941	5	476	494	543	0	0	625	0	726
V/C Ratio(X)	0.76	0.35	0.35	0.00	0.62	0.62	0.04	0.00	0.00	0.06	0.00	0.61
Avail Cap(c_a), veh/h	585	1124	1180	244	784	812	909	0	0	1046	0	1203
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	0.00	1.00	1.00	1.00	0.00	0.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	14.7	5.4	5.4	0.0	11.7	11.7	8.9	0.0	0.0	9.0	0.0	7.4
Incr Delay (d2), s/veh	4.4	0.2	0.2	0.0	1.3	1.3	0.0	0.0	0.0	0.0	0.0	0.8
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.3	1.9	2.0	0.0	2.7	2.8	0.1	0.0	0.0	0.3	0.0	3.4
LnGrp Delay(d),s/veh	19.1	5.6	5.6	0.0	13.0	13.0	9.0	0.0	0.0	9.1	0.0	8.2
LnGrp LOS	B	A	A		B	B	A			A		A
Approach Vol, veh/h		851			604			20			479	
Approach Delay, s/veh		8.9			13.0			9.0			8.3	
Approach LOS		A			B			A			A	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2	3	4		6	7	8
Phs Duration (G+Y+Rc), s		14.0	0.0	22.3		14.0	8.6	13.7
Change Period (Y+Rc), s		3.0	3.0	3.9		3.0	3.0	3.9
Max Green Setting (Gmax), s		22.0	5.0	23.1		22.0	12.0	16.1
Max Q Clear Time (g_c+I1), s		2.3	0.0	5.9		9.6	6.1	7.4
Green Ext Time (p_c), s		0.1	0.0	3.7		1.5	0.3	2.4

Intersection Summary	
HCM 2010 Ctrl Delay	10.0
HCM 2010 LOS	B

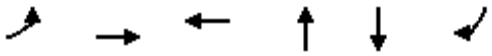
Notes

User approved changes to right turn type.



Lane Group	EBL	EBT	WBL	WBT	SBT	SBR
Lane Group Flow (vph)	355	471	7	962	14	164
v/c Ratio	0.66	0.17	0.04	0.69	0.07	0.22
Control Delay	23.4	3.0	25.5	16.9	23.7	7.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	23.4	3.0	25.5	16.9	23.7	7.3
Queue Length 50th (ft)	105	16	2	132	4	22
Queue Length 95th (ft)	181	50	13	214	19	50
Internal Link Dist (ft)		706		1600	472	
Turn Bay Length (ft)	205		155			
Base Capacity (vph)	774	2756	193	1735	233	930
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.46	0.17	0.04	0.55	0.06	0.18

Intersection Summary



Lane Group	EBL	EBT	WBT	NBT	SBT	SBR
Lane Group Flow (vph)	210	641	604	20	39	440
v/c Ratio	0.56	0.32	0.61	0.04	0.10	0.48
Control Delay	25.2	6.8	18.8	0.1	13.7	7.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	25.2	6.8	18.8	0.1	13.7	7.2
Queue Length 50th (ft)	53	42	76	0	8	53
Queue Length 95th (ft)	#130	95	147	0	25	103
Internal Link Dist (ft)		706	1600	1	472	
Turn Bay Length (ft)	205					
Base Capacity (vph)	466	2085	1248	840	670	986
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.45	0.31	0.48	0.02	0.06	0.45

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Appendix E LEVEL OF SERVICE WORKSHEETS: SHORT-TERM CUMULATIVE CONDITIONS

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	391	371	313	109	332	518	133	518	115	302	526	476
Future Volume (veh/h)	391	371	313	109	332	518	133	518	115	302	526	476
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1900	1863	1863	1863	1863	1863	1900	1863	1863	1863
Adj Flow Rate, veh/h	425	403	163	118	361	340	145	563	0	347	605	0
Adj No. of Lanes	2	2	0	2	1	1	1	2	0	2	2	1
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.87	0.87	0.87
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	467	699	279	290	434	369	172	1060	0	387	1115	499
Arrive On Green	0.14	0.28	0.28	0.08	0.23	0.23	0.10	0.30	0.00	0.11	0.32	0.00
Sat Flow, veh/h	3442	2457	980	3442	1863	1583	1774	3632	0	3442	3539	1583
Grp Volume(v), veh/h	425	289	277	118	361	340	145	563	0	347	605	0
Grp Sat Flow(s),veh/h/ln	1721	1770	1667	1721	1863	1583	1774	1770	0	1721	1770	1583
Q Serve(g_s), s	10.9	12.5	12.8	2.9	16.6	18.8	7.2	11.9	0.0	8.9	12.7	0.0
Cycle Q Clear(g_c), s	10.9	12.5	12.8	2.9	16.6	18.8	7.2	11.9	0.0	8.9	12.7	0.0
Prop In Lane	1.00		0.59	1.00		1.00	1.00		0.00	1.00		1.00
Lane Grp Cap(c), veh/h	467	503	474	290	434	369	172	1060	0	387	1115	499
V/C Ratio(X)	0.91	0.57	0.58	0.41	0.83	0.92	0.84	0.53	0.00	0.90	0.54	0.00
Avail Cap(c_a), veh/h	467	503	474	326	438	372	172	1060	0	387	1115	499
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	38.3	27.5	27.6	39.0	32.8	33.7	39.9	26.2	0.0	39.3	25.4	0.0
Incr Delay (d2), s/veh	21.2	1.0	1.3	0.3	12.0	27.3	28.7	1.9	0.0	22.1	1.9	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	6.6	6.2	6.0	1.4	10.0	11.0	4.9	6.1	0.0	5.4	6.5	0.0
LnGrp Delay(d),s/veh	59.4	28.5	28.8	39.3	44.8	61.0	68.5	28.1	0.0	61.5	27.3	0.0
LnGrp LOS	E	C	C	D	D	E	E	C		E	C	
Approach Vol, veh/h		991			819			708			952	
Approach Delay, s/veh		41.9			50.7			36.4			39.8	
Approach LOS		D			D			D			D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	12.4	29.8	15.0	32.6	17.0	25.2	16.4	31.2
Change Period (Y+Rc), s	4.8	4.3	6.3	4.3	4.8	4.3	6.3	4.3
Max Green Setting (Gmax), s	8.5	24.8	8.7	28.3	12.2	21.1	10.1	26.9
Max Q Clear Time (g_c+I1), s	4.9	14.8	9.2	14.7	12.9	20.8	10.9	13.9
Green Ext Time (p_c), s	0.1	1.7	0.0	2.4	0.0	0.1	0.0	2.2

Intersection Summary	
HCM 2010 Ctrl Delay	42.3
HCM 2010 LOS	D

Intersection	
Int Delay, s/veh	7

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	340	448	6	11	845	30	0	0	0	11	7	133
Future Vol, veh/h	340	448	6	11	845	30	0	0	0	11	7	133
Conflicting Peds, #/hr	1	0	3	3	0	1	1	0	1	1	0	1
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	205	-	-	155	-	-	-	-	-	-	-	0
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	96	96	96	91	91	91	25	25	25	97	97	97
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	354	467	6	12	929	33	0	0	0	11	7	137

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	963	0	0	476	0	0	1674	2168	241	1914	2155	483
Stage 1	-	-	-	-	-	-	1181	1181	-	971	971	-
Stage 2	-	-	-	-	-	-	493	987	-	943	1184	-
Critical Hdwy	4.14	-	-	4.14	-	-	7.54	6.54	6.94	7.54	6.54	6.94
Critical Hdwy Stg 1	-	-	-	-	-	-	6.54	5.54	-	6.54	5.54	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.54	5.54	-	6.54	5.54	-
Follow-up Hdwy	2.22	-	-	2.22	-	-	3.52	4.02	3.32	3.52	4.02	3.32
Pot Cap-1 Maneuver	711	-	-	1082	-	-	62	46	760	41	47	530
Stage 1	-	-	-	-	-	-	202	262	-	271	329	-
Stage 2	-	-	-	-	-	-	526	324	-	282	261	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	710	-	-	1079	-	-	21	23	757	25	23	529
Mov Cap-2 Maneuver	-	-	-	-	-	-	21	23	-	25	23	-
Stage 1	-	-	-	-	-	-	101	131	-	136	325	-
Stage 2	-	-	-	-	-	-	376	320	-	141	130	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	6.4	0.1	0	52.8
HCM LOS			A	F

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	-	710	-	-	1079	-	-	24	529
HCM Lane V/C Ratio	-	0.499	-	-	0.011	-	-	0.773	0.259
HCM Control Delay (s)	0	15	-	-	8.4	-	-	$ 338.1	14.2
HCM Lane LOS	A	C	-	-	A	-	-	F	B
HCM 95th %tile Q(veh)	-	2.8	-	-	0	-	-	2.3	1

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	19	25	111	683	1266	169
Future Volume (veh/h)	19	25	111	683	1266	169
Number	5	12	3	8	4	14
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00	1.00			1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1863	1863	1863	1900
Adj Flow Rate, veh/h	25	33	137	843	1376	184
Adj No. of Lanes	1	1	1	2	2	0
Peak Hour Factor	0.75	0.75	0.81	0.81	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	100	89	177	2830	2001	265
Arrive On Green	0.06	0.06	0.10	0.80	0.64	0.64
Sat Flow, veh/h	1774	1583	1774	3632	3234	417
Grp Volume(v), veh/h	25	33	137	843	770	790
Grp Sat Flow(s),veh/h/ln	1774	1583	1774	1770	1770	1788
Q Serve(g_s), s	0.6	1.0	3.6	3.0	13.4	13.7
Cycle Q Clear(g_c), s	0.6	1.0	3.6	3.0	13.4	13.7
Prop In Lane	1.00	1.00	1.00			0.23
Lane Grp Cap(c), veh/h	100	89	177	2830	1128	1139
V/C Ratio(X)	0.25	0.37	0.77	0.30	0.68	0.69
Avail Cap(c_a), veh/h	945	843	333	4258	1685	1703
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	21.6	21.8	21.0	1.3	5.6	5.6
Incr Delay (d2), s/veh	1.3	2.6	7.0	0.1	0.7	0.8
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.3	0.5	2.1	1.4	6.7	6.8
LnGrp Delay(d),s/veh	22.9	24.3	28.0	1.3	6.3	6.4
LnGrp LOS	C	C	C	A	A	A
Approach Vol, veh/h	58			980	1560	
Approach Delay, s/veh	23.7			5.1	6.4	
Approach LOS	C			A	A	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2	3	4				8
Phs Duration (G+Y+Rc), s		5.7	7.8	34.4				42.2
Change Period (Y+Rc), s		3.0	3.0	3.9				3.9
Max Green Setting (Gmax), s		25.5	9.0	45.6				57.6
Max Q Clear Time (g_c+I1), s		3.0	5.6	15.7				5.0
Green Ext Time (p_c), s		0.1	0.1	14.8				7.4

Intersection Summary	
HCM 2010 Ctrl Delay	6.3
HCM 2010 LOS	A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	13	194	61	144	178	303	43	65	251	634	283	29
Future Volume (veh/h)	13	194	61	144	178	303	43	65	251	634	283	29
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1900	1863	1863	1900	1863	1863	1863	1863	1900	1863	1863	1900
Adj Flow Rate, veh/h	16	237	24	155	191	199	49	74	0	682	304	26
Adj No. of Lanes	0	1	1	0	1	1	1	2	0	1	2	0
Peak Hour Factor	0.82	0.82	0.82	0.93	0.93	0.93	0.88	0.88	0.88	0.93	0.93	0.93
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	20	293	320	176	217	980	65	276	0	714	1485	126
Arrive On Green	0.17	0.17	0.17	0.22	0.22	0.22	0.04	0.08	0.00	0.40	0.45	0.45
Sat Flow, veh/h	117	1739	1555	816	1006	1583	1774	3632	0	1774	3301	281
Grp Volume(v), veh/h	253	0	24	346	0	199	49	74	0	682	162	168
Grp Sat Flow(s),veh/h/ln	1857	0	1555	1822	0	1583	1774	1770	0	1774	1770	1812
Q Serve(g_s), s	13.5	0.0	1.3	18.8	0.0	0.0	2.8	2.0	0.0	38.3	5.7	5.8
Cycle Q Clear(g_c), s	13.5	0.0	1.3	18.8	0.0	0.0	2.8	2.0	0.0	38.3	5.7	5.8
Prop In Lane	0.06		1.00	0.45		1.00	1.00		0.00	1.00		0.15
Lane Grp Cap(c), veh/h	313	0	320	394	0	980	65	276	0	714	796	815
V/C Ratio(X)	0.81	0.00	0.07	0.88	0.00	0.20	0.75	0.27	0.00	0.95	0.20	0.21
Avail Cap(c_a), veh/h	614	0	572	462	0	1039	166	652	0	917	1075	1101
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	41.0	0.0	32.9	38.9	0.0	8.5	48.9	44.5	0.0	29.7	17.1	17.1
Incr Delay (d2), s/veh	5.0	0.0	0.1	15.6	0.0	0.1	6.4	0.2	0.0	15.8	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	7.3	0.0	0.6	11.2	0.0	2.4	1.5	1.0	0.0	21.7	2.8	2.9
LnGrp Delay(d),s/veh	46.0	0.0	33.0	54.5	0.0	8.6	55.3	44.7	0.0	45.5	17.1	17.2
LnGrp LOS	D		C	D		A	E	D		D	B	B
Approach Vol, veh/h		277			545			123			1012	
Approach Delay, s/veh		44.9			37.7			49.0			36.3	
Approach LOS		D			D			D			D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2	3	4		6	7	8
Phs Duration (G+Y+Rc), s		20.9	6.8	49.7		25.2	44.9	11.6
Change Period (Y+Rc), s		3.6	3.0	3.6		3.0	3.6	* 3.6
Max Green Setting (Gmax), s		33.9	9.6	62.3		26.0	53.0	* 19
Max Q Clear Time (g_c+I1), s		15.5	4.8	7.8		20.8	40.3	4.0
Green Ext Time (p_c), s		1.4	0.0	1.3		1.3	1.0	0.2

Intersection Summary	
HCM 2010 Ctrl Delay	38.7
HCM 2010 LOS	D

Notes

* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.
User approved changes to right turn type.

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	373	473	792	670	820	8
Future Volume (veh/h)	373	473	792	670	820	8
Number	7	14	5	2	6	16
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00	1.00			0.97
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1863	1863	1863	1900
Adj Flow Rate, veh/h	397	503	861	728	921	9
Adj No. of Lanes	1	1	2	2	2	0
Peak Hour Factor	0.94	0.94	0.92	0.92	0.89	0.89
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	444	830	943	2218	1046	10
Arrive On Green	0.25	0.25	0.27	0.63	0.29	0.29
Sat Flow, veh/h	1774	1583	3442	3632	3683	35
Grp Volume(v), veh/h	397	503	861	728	454	476
Grp Sat Flow(s),veh/h/ln	1774	1583	1721	1770	1770	1855
Q Serve(g_s), s	15.8	16.2	17.8	7.1	17.9	17.9
Cycle Q Clear(g_c), s	15.8	16.2	17.8	7.1	17.9	17.9
Prop In Lane	1.00	1.00	1.00			0.02
Lane Grp Cap(c), veh/h	444	830	943	2218	516	541
V/C Ratio(X)	0.89	0.61	0.91	0.33	0.88	0.88
Avail Cap(c_a), veh/h	448	833	963	2294	543	570
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	26.5	12.1	25.8	6.4	24.7	24.7
Incr Delay (d2), s/veh	19.8	1.3	12.7	0.1	14.9	14.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	10.2	15.4	10.0	3.5	10.8	11.3
LnGrp Delay(d),s/veh	46.3	13.4	38.4	6.5	39.7	39.1
LnGrp LOS	D	B	D	A	D	D
Approach Vol, veh/h	900			1589	930	
Approach Delay, s/veh	27.9			23.8	39.4	
Approach LOS	C			C	D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4	5	6		
Phs Duration (G+Y+Rc), s		50.4		22.8	24.6	25.9		
Change Period (Y+Rc), s		4.5		4.5	4.5	4.5		
Max Green Setting (Gmax), s		47.5		18.5	20.5	22.5		
Max Q Clear Time (g_c+I1), s		9.1		18.2	19.8	19.9		
Green Ext Time (p_c), s		5.9		0.1	0.3	1.4		

Intersection Summary	
HCM 2010 Ctrl Delay	29.1
HCM 2010 LOS	C

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	467	371	288	160	438	340	198	778	111	267	542	579
Future Volume (veh/h)	467	371	288	160	438	340	198	778	111	267	542	579
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		0.99	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1900	1863	1863	1863	1863	1863	1900	1863	1863	1863
Adj Flow Rate, veh/h	502	399	142	174	476	148	220	864	0	278	565	0
Adj No. of Lanes	2	2	0	2	1	1	1	2	0	2	2	1
Peak Hour Factor	0.93	0.93	0.93	0.92	0.92	0.92	0.90	0.90	0.90	0.96	0.96	0.96
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	501	772	271	302	453	380	235	995	0	382	920	412
Arrive On Green	0.15	0.30	0.30	0.09	0.24	0.24	0.13	0.28	0.00	0.11	0.26	0.00
Sat Flow, veh/h	3442	2564	902	3442	1863	1563	1774	3632	0	3442	3539	1583
Grp Volume(v), veh/h	502	274	267	174	476	148	220	864	0	278	565	0
Grp Sat Flow(s),veh/h/ln	1721	1770	1696	1721	1863	1563	1774	1770	0	1721	1770	1583
Q Serve(g_s), s	13.1	11.5	11.8	4.4	21.9	7.1	11.1	20.9	0.0	7.0	12.7	0.0
Cycle Q Clear(g_c), s	13.1	11.5	11.8	4.4	21.9	7.1	11.1	20.9	0.0	7.0	12.7	0.0
Prop In Lane	1.00		0.53	1.00		1.00	1.00		0.00	1.00		1.00
Lane Grp Cap(c), veh/h	501	533	511	302	453	380	235	995	0	382	920	412
V/C Ratio(X)	1.00	0.51	0.52	0.58	1.05	0.39	0.94	0.87	0.00	0.73	0.61	0.00
Avail Cap(c_a), veh/h	501	533	511	333	453	380	235	995	0	382	920	412
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	38.5	26.0	26.1	39.4	34.0	28.5	38.7	30.8	0.0	38.7	29.3	0.0
Incr Delay (d2), s/veh	40.7	0.4	0.5	1.0	56.0	0.2	41.4	10.2	0.0	6.0	3.1	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	9.0	5.7	5.6	2.1	18.3	3.1	8.1	11.6	0.0	3.7	6.6	0.0
LnGrp Delay(d),s/veh	79.2	26.4	26.6	40.4	90.1	28.7	80.1	40.9	0.0	44.7	32.4	0.0
LnGrp LOS	F	C	C	D	F	C	F	D		D	C	
Approach Vol, veh/h		1043			798			1084			843	
Approach Delay, s/veh		51.8			67.9			48.9			36.4	
Approach LOS		D			E			D			D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	12.7	31.4	18.2	27.7	17.9	26.2	16.3	29.6
Change Period (Y+Rc), s	4.8	4.3	6.3	4.3	4.8	4.3	6.3	4.3
Max Green Setting (Gmax), s	8.7	26.3	11.9	23.4	13.1	21.9	10.0	25.3
Max Q Clear Time (g_c+I1), s	6.4	13.8	13.1	14.7	15.1	23.9	9.0	22.9
Green Ext Time (p_c), s	0.1	1.8	0.0	1.8	0.0	0.0	0.1	1.1

Intersection Summary	
HCM 2010 Ctrl Delay	50.9
HCM 2010 LOS	D

Intersection	
Int Delay, s/veh	8

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	169	581	5	3	541	21	4	0	5	33	12	374
Future Vol, veh/h	169	581	5	3	541	21	4	0	5	33	12	374
Conflicting Peds, #/hr	0	0	0	0	0	0	1	0	0	0	0	1
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	205	-	-	155	-	-	-	-	-	-	-	0
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	91	91	91	92	92	92	45	45	45	87	87	87
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	186	638	5	3	588	23	9	0	11	38	14	430

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	611	0	0	643	0	0	1321	1630	322	1297	1621	307
Stage 1	-	-	-	-	-	-	1013	1013	-	606	606	-
Stage 2	-	-	-	-	-	-	308	617	-	691	1015	-
Critical Hdwy	4.14	-	-	4.14	-	-	7.54	6.54	6.94	7.54	6.54	6.94
Critical Hdwy Stg 1	-	-	-	-	-	-	6.54	5.54	-	6.54	5.54	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.54	5.54	-	6.54	5.54	-
Follow-up Hdwy	2.22	-	-	2.22	-	-	3.52	4.02	3.32	3.52	4.02	3.32
Pot Cap-1 Maneuver	964	-	-	938	-	-	115	101	674	119	102	689
Stage 1	-	-	-	-	-	-	256	315	-	451	485	-
Stage 2	-	-	-	-	-	-	677	479	-	401	314	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	964	-	-	938	-	-	32	81	674	99	82	688
Mov Cap-2 Maneuver	-	-	-	-	-	-	32	81	-	99	82	-
Stage 1	-	-	-	-	-	-	207	254	-	364	484	-
Stage 2	-	-	-	-	-	-	246	478	-	318	253	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	2.2	0	78.7	25.4
HCM LOS			F	D

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	68	964	-	-	938	-	-	94	688
HCM Lane V/C Ratio	0.294	0.193	-	-	0.003	-	-	0.55	0.625
HCM Control Delay (s)	78.7	9.6	-	-	8.9	-	-	82.5	18.5
HCM Lane LOS	F	A	-	-	A	-	-	F	C
HCM 95th %tile Q(veh)	1.1	0.7	-	-	0	-	-	2.5	4.4

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	143	184	46	992	772	37
Future Volume (veh/h)	143	184	46	992	772	37
Number	5	12	3	8	4	14
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00	1.00			0.97
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1863	1863	1863	1900
Adj Flow Rate, veh/h	179	230	49	1055	830	40
Adj No. of Lanes	1	1	1	2	2	0
Peak Hour Factor	0.80	0.80	0.94	0.94	0.93	0.93
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	399	356	97	2001	1439	69
Arrive On Green	0.23	0.23	0.05	0.57	0.42	0.42
Sat Flow, veh/h	1774	1583	1774	3632	3526	165
Grp Volume(v), veh/h	179	230	49	1055	428	442
Grp Sat Flow(s),veh/h/ln	1774	1583	1774	1770	1770	1828
Q Serve(g_s), s	2.9	4.3	0.9	6.1	6.1	6.1
Cycle Q Clear(g_c), s	2.9	4.3	0.9	6.1	6.1	6.1
Prop In Lane	1.00	1.00	1.00			0.09
Lane Grp Cap(c), veh/h	399	356	97	2001	742	767
V/C Ratio(X)	0.45	0.65	0.50	0.53	0.58	0.58
Avail Cap(c_a), veh/h	1402	1251	377	3990	1457	1506
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	11.0	11.6	15.1	4.4	7.3	7.3
Incr Delay (d2), s/veh	0.8	2.0	4.0	0.2	0.7	0.7
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.5	2.1	0.5	3.0	3.1	3.2
LnGrp Delay(d),s/veh	11.8	13.5	19.1	4.6	8.0	8.0
LnGrp LOS	B	B	B	A	A	A
Approach Vol, veh/h	409			1104	870	
Approach Delay, s/veh	12.8			5.3	8.0	
Approach LOS	B			A	A	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2	3	4				8
Phs Duration (G+Y+Rc), s		10.4	4.8	17.7				22.5
Change Period (Y+Rc), s		3.0	3.0	3.9				3.9
Max Green Setting (Gmax), s		26.0	7.0	27.1				37.1
Max Q Clear Time (g_c+I1), s		6.3	2.9	8.1				8.1
Green Ext Time (p_c), s		1.3	0.0	5.5				9.0

Intersection Summary	
HCM 2010 Ctrl Delay	7.6
HCM 2010 LOS	A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	22	251	148	221	183	483	119	120	368	520	512	53
Future Volume (veh/h)	22	251	148	221	183	483	119	120	368	520	512	53
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		0.99	1.00		1.00	1.00		0.98
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1900	1863	1863	1900	1863	1863	1863	1863	1900	1863	1863	1900
Adj Flow Rate, veh/h	25	282	88	238	197	286	127	128	15	542	533	50
Adj No. of Lanes	0	1	1	0	1	1	1	2	0	1	2	0
Peak Hour Factor	0.89	0.89	0.89	0.93	0.93	0.93	0.94	0.94	0.94	0.96	0.96	0.96
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	31	347	455	263	218	924	156	246	28	572	1034	97
Arrive On Green	0.20	0.20	0.20	0.26	0.26	0.26	0.09	0.08	0.08	0.32	0.32	0.32
Sat Flow, veh/h	151	1704	1551	992	821	1563	1774	3198	369	1774	3265	305
Grp Volume(v), veh/h	307	0	88	435	0	286	127	70	73	542	288	295
Grp Sat Flow(s),veh/h/ln	1855	0	1551	1813	0	1563	1774	1770	1798	1774	1770	1801
Q Serve(g_s), s	16.4	0.0	4.4	24.2	0.0	0.0	7.3	4.0	4.1	31.0	13.8	13.9
Cycle Q Clear(g_c), s	16.4	0.0	4.4	24.2	0.0	0.0	7.3	4.0	4.1	31.0	13.8	13.9
Prop In Lane	0.08		1.00	0.55		1.00	1.00		0.21	1.00		0.17
Lane Grp Cap(c), veh/h	377	0	455	480	0	924	156	136	138	572	560	570
V/C Ratio(X)	0.81	0.00	0.19	0.91	0.00	0.31	0.81	0.52	0.53	0.95	0.51	0.52
Avail Cap(c_a), veh/h	622	0	659	522	0	961	305	321	326	647	663	674
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	39.6	0.0	27.7	37.0	0.0	10.8	46.6	46.2	46.2	34.4	29.0	29.1
Incr Delay (d2), s/veh	4.3	0.0	0.2	18.5	0.0	0.2	3.8	1.1	1.2	21.1	0.3	0.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	8.9	0.0	1.9	14.5	0.0	4.1	3.8	2.0	2.1	18.6	6.8	6.9
LnGrp Delay(d),s/veh	43.9	0.0	27.9	55.5	0.0	11.0	50.5	47.3	47.4	55.6	29.3	29.3
LnGrp LOS	D		C	E		B	D	D	D	E	C	C
Approach Vol, veh/h		395			721			270			1125	
Approach Delay, s/veh		40.3			37.8			48.8			42.0	
Approach LOS		D			D			D			D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2	3	4		6	7	8
Phs Duration (G+Y+Rc), s		24.8	12.2	36.6		30.6	37.2	11.6
Change Period (Y+Rc), s		3.6	3.0	3.6		3.0	3.6	* 3.6
Max Green Setting (Gmax), s		34.9	17.9	39.0		30.0	38.0	* 19
Max Q Clear Time (g_c+I1), s		18.4	9.3	15.9		26.2	33.0	6.1
Green Ext Time (p_c), s		1.9	0.1	2.3		1.4	0.5	0.3

Intersection Summary	
HCM 2010 Ctrl Delay	41.3
HCM 2010 LOS	D

Notes

* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.
User approved changes to right turn type.

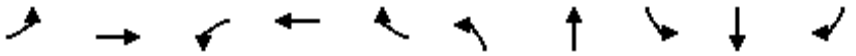
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	126	432	917	673	932	17
Future Volume (veh/h)	126	432	917	673	932	17
Number	7	14	5	2	6	16
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00	1.00			0.97
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1863	1863	1863	1900
Adj Flow Rate, veh/h	142	485	976	716	1084	20
Adj No. of Lanes	1	1	2	2	2	0
Peak Hour Factor	0.89	0.89	0.94	0.94	0.86	0.86
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	364	807	1048	2451	1197	22
Arrive On Green	0.21	0.21	0.30	0.69	0.34	0.34
Sat Flow, veh/h	1774	1583	3442	3632	3646	66
Grp Volume(v), veh/h	142	485	976	716	540	564
Grp Sat Flow(s),veh/h/ln	1774	1583	1721	1770	1770	1849
Q Serve(g_s), s	6.1	18.1	24.3	6.9	25.7	25.7
Cycle Q Clear(g_c), s	6.1	18.1	24.3	6.9	25.7	25.7
Prop In Lane	1.00	1.00	1.00			0.04
Lane Grp Cap(c), veh/h	364	807	1048	2451	596	623
V/C Ratio(X)	0.39	0.60	0.93	0.29	0.91	0.91
Avail Cap(c_a), veh/h	364	807	1074	2525	620	648
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	30.3	15.3	29.8	5.2	27.9	27.9
Incr Delay (d2), s/veh	0.7	1.2	13.8	0.1	16.6	16.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.1	18.0	13.5	3.3	15.2	15.8
LnGrp Delay(d),s/veh	30.9	16.5	43.5	5.3	44.5	43.9
LnGrp LOS	C	B	D	A	D	D
Approach Vol, veh/h	627			1692	1104	
Approach Delay, s/veh	19.8			27.3	44.2	
Approach LOS	B			C	D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4	5	6		
Phs Duration (G+Y+Rc), s		65.6		22.6	31.4	34.2		
Change Period (Y+Rc), s		4.5		4.5	4.5	4.5		
Max Green Setting (Gmax), s		62.9		18.1	27.5	30.9		
Max Q Clear Time (g_c+I1), s		8.9		20.1	26.3	27.7		
Green Ext Time (p_c), s		6.0		0.0	0.6	2.0		

Intersection Summary	
HCM 2010 Ctrl Delay	31.4
HCM 2010 LOS	C

1: Mendocino Ave & Mendocino O/C/Fountaingrove Pkwy

Timing Plan: AM Peak



Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	SBL	SBT	SBR
Lane Group Flow (vph)	425	743	118	361	563	145	688	347	605	547
v/c Ratio	0.91	0.64	0.38	0.83	0.97	0.86	0.66	0.90	0.54	0.75
Control Delay	64.8	21.6	42.3	50.5	51.1	81.7	29.8	67.6	27.7	16.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	64.8	21.6	42.3	50.5	51.1	81.7	29.8	67.6	27.7	16.8
Queue Length 50th (ft)	124	134	33	196	181	83	171	102	148	92
Queue Length 95th (ft)	#210	201	59	#340	#400	#188	232	#171	193	205
Internal Link Dist (ft)		1192		706			612		533	
Turn Bay Length (ft)	178		240			162		162		
Base Capacity (vph)	465	1166	324	436	578	171	1046	385	1115	729
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.91	0.64	0.36	0.83	0.97	0.85	0.66	0.90	0.54	0.75

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

3: Fountaingrove Pkwy & Round Barn Blvd East

Timing Plan: AM Peak

Lane Group	EBL	EBR	NBL	NBT	SBT
Lane Group Flow (vph)	25	33	137	843	1560
v/c Ratio	0.11	0.14	0.58	0.28	0.70
Control Delay	27.6	11.2	43.5	3.0	12.2
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	27.6	11.2	43.5	3.0	12.2
Queue Length 50th (ft)	10	0	55	30	196
Queue Length 95th (ft)	24	15	#142	115	484
Internal Link Dist (ft)	331			457	260
Turn Bay Length (ft)			135		
Base Capacity (vph)	689	628	243	3044	2423
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.04	0.05	0.56	0.28	0.64

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Lane Group	EBT	EBR	WBT	WBR	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	253	74	346	326	49	359	682	335
v/c Ratio	0.77	0.18	0.90	0.29	0.45	0.72	0.90	0.22
Control Delay	64.2	8.3	76.2	1.4	71.8	22.1	50.5	22.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	64.2	8.3	76.2	1.4	71.8	22.1	50.5	22.2
Queue Length 50th (ft)	192	8	266	0	38	30	484	82
Queue Length 95th (ft)	266	28	#522	25	85	79	#877	134
Internal Link Dist (ft)	245		126			289		330
Turn Bay Length (ft)		80			225		215	
Base Capacity (vph)	508	447	383	1128	137	717	758	1757
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.50	0.17	0.90	0.29	0.36	0.50	0.90	0.19

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

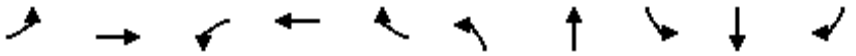
5: Mendocino Ave/Old Redwood Hwy & US 101 NB Ramps

Timing Plan: AM Peak

Lane Group	EBL	EBR	NBL	NBT	SBT
Lane Group Flow (vph)	397	503	861	728	930
v/c Ratio	0.92	0.54	0.91	0.32	0.88
Control Delay	56.7	12.0	42.3	6.8	36.4
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	56.7	12.0	42.3	6.8	36.4
Queue Length 50th (ft)	180	126	199	72	214
Queue Length 95th (ft)	#339	207	#308	99	#315
Internal Link Dist (ft)	75			533	381
Turn Bay Length (ft)			178		
Base Capacity (vph)	441	927	949	2268	1074
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.90	0.54	0.91	0.32	0.87

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.



Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	SBL	SBT	SBR
Lane Group Flow (vph)	502	709	174	476	370	220	987	278	565	603
v/c Ratio	1.01	0.63	0.54	1.05	0.63	0.94	1.00	0.73	0.61	0.96
Control Delay	81.8	21.4	45.7	91.3	14.2	86.3	62.3	51.0	32.7	45.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	81.8	21.4	45.7	91.3	14.2	86.3	62.3	51.0	32.7	45.9
Queue Length 50th (ft)	~150	124	49	~298	46	126	~291	80	148	184
Queue Length 95th (ft)	#254	185	82	#486	139	#263	#432	#132	204	#410
Internal Link Dist (ft)		1192		706			612		533	
Turn Bay Length (ft)	178		240			162		162		
Base Capacity (vph)	499	1124	331	453	584	234	985	381	920	626
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	1.01	0.63	0.53	1.05	0.63	0.94	1.00	0.73	0.61	0.96

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Lane Group	EBL	EBR	NBL	NBT	SBT
Lane Group Flow (vph)	179	230	49	1055	870
v/c Ratio	0.41	0.41	0.17	0.51	0.49
Control Delay	18.3	5.7	21.4	6.4	9.4
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	18.3	5.7	21.4	6.4	9.4
Queue Length 50th (ft)	28	0	8	62	47
Queue Length 95th (ft)	88	31	43	123	155
Internal Link Dist (ft)	331			457	260
Turn Bay Length (ft)			135		
Base Capacity (vph)	1162	1118	312	3084	2405
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.15	0.21	0.16	0.34	0.36

Intersection Summary

Lane Group	EBT	EBR	WBT	WBR	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	307	166	435	519	127	519	542	588
v/c Ratio	0.80	0.29	0.94	0.46	0.68	0.79	0.94	0.53
Control Delay	60.5	7.2	72.8	2.1	69.9	22.9	65.9	36.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	60.5	7.2	72.8	2.1	69.9	22.9	65.9	36.2
Queue Length 50th (ft)	217	17	314	0	92	48	386	188
Queue Length 95th (ft)	340	44	#636	33	175	116	#759	292
Internal Link Dist (ft)	245		126			289		330
Turn Bay Length (ft)		80			225		215	
Base Capacity (vph)	554	635	465	1133	271	835	576	1168
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.55	0.26	0.94	0.46	0.47	0.62	0.94	0.50

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

5: Mendocino Ave/Old Redwood Hwy & US 101 NB Ramps

Timing Plan: PM Peak

Lane Group	EBL	EBR	NBL	NBT	SBT
Lane Group Flow (vph)	142	485	976	716	1104
v/c Ratio	0.55	0.58	0.87	0.27	0.86
Control Delay	41.8	16.2	37.1	3.9	33.2
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	41.8	16.2	37.1	3.9	33.2
Queue Length 50th (ft)	71	159	245	48	275
Queue Length 95th (ft)	126	243	#391	88	#379
Internal Link Dist (ft)	75			533	381
Turn Bay Length (ft)			178		
Base Capacity (vph)	391	855	1155	2724	1335
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.36	0.57	0.85	0.26	0.83

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

HCM 2010 Signalized Intersection Summary
2: Fountaingrove Pkwy & Round Barn Blvd West

Timing Plan: AM Peak

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	340	448	6	11	845	30	0	0	0	11	7	133
Future Volume (veh/h)	340	448	6	11	845	30	0	0	0	11	7	133
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.97	1.00		0.99	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1900	1863	1863	1900	1900	1863	1900	1900	1863	1863
Adj Flow Rate, veh/h	354	467	6	12	929	33	0	0	0	11	7	137
Adj No. of Lanes	1	2	0	1	2	0	0	1	0	0	1	1
Peak Hour Factor	0.96	0.96	0.96	0.91	0.91	0.91	0.25	0.25	0.25	0.97	0.97	0.97
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	446	2248	29	28	1369	49	0	193	0	220	98	562
Arrive On Green	0.25	0.63	0.63	0.02	0.39	0.39	0.00	0.00	0.00	0.10	0.10	0.10
Sat Flow, veh/h	1774	3577	46	1774	3485	124	0	1863	0	697	940	1580
Grp Volume(v), veh/h	354	231	242	12	472	490	0	0	0	18	0	137
Grp Sat Flow(s),veh/h/ln	1774	1770	1853	1774	1770	1839	0	1863	0	1637	0	1580
Q Serve(g_s), s	7.3	2.2	2.2	0.3	8.7	8.7	0.0	0.0	0.0	0.0	0.0	2.4
Cycle Q Clear(g_c), s	7.3	2.2	2.2	0.3	8.7	8.7	0.0	0.0	0.0	0.3	0.0	2.4
Prop In Lane	1.00		0.02	1.00		0.07	0.00		0.00	0.61		1.00
Lane Grp Cap(c), veh/h	446	1112	1165	28	695	722	0	193	0	318	0	562
V/C Ratio(X)	0.79	0.21	0.21	0.43	0.68	0.68	0.00	0.00	0.00	0.06	0.00	0.24
Avail Cap(c_a), veh/h	813	1581	1656	226	996	1034	0	474	0	552	0	800
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	0.00	0.00	0.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	13.8	3.1	3.1	19.2	9.9	9.9	0.0	0.0	0.0	15.9	0.0	8.9
Incr Delay (d2), s/veh	3.3	0.1	0.1	10.3	1.2	1.1	0.0	0.0	0.0	0.1	0.0	0.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.9	1.1	1.1	0.2	4.4	4.6	0.0	0.0	0.0	0.2	0.0	1.1
LnGrp Delay(d),s/veh	17.0	3.2	3.2	29.5	11.0	11.0	0.0	0.0	0.0	16.0	0.0	9.2
LnGrp LOS	B	A	A	C	B	B				B		A
Approach Vol, veh/h		827			974			0			155	
Approach Delay, s/veh		9.1			11.2			0.0			10.0	
Approach LOS		A			B						A	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2	3	4		6	7	8
Phs Duration (G+Y+Rc), s		7.1	3.6	28.6		7.1	12.9	19.3
Change Period (Y+Rc), s		3.0	3.0	3.9		3.0	3.0	3.9
Max Green Setting (Gmax), s		10.0	5.0	35.1		10.0	18.0	22.1
Max Q Clear Time (g_c+I1), s		0.0	2.3	4.2		4.4	9.3	10.7
Green Ext Time (p_c), s		0.0	0.0	3.0		0.2	0.7	4.8

Intersection Summary	
HCM 2010 Ctrl Delay	10.2
HCM 2010 LOS	B

Notes

User approved changes to right turn type.

HCM 2010 Signalized Intersection Summary
2: Fountaingrove Pkwy & Round Barn Blvd West

Timing Plan: PM Peak

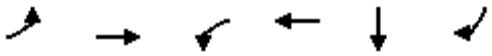
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	169	581	5	3	541	21	4	0	5	33	12	374
Future Volume (veh/h)	169	581	5	3	541	21	4	0	5	33	12	374
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		0.99	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1900	1863	1863	1900	1900	1863	1900	1900	1863	1863
Adj Flow Rate, veh/h	186	638	5	3	588	23	9	0	11	38	14	430
Adj No. of Lanes	1	2	0	1	2	0	0	1	0	0	1	1
Peak Hour Factor	0.91	0.91	0.91	0.92	0.92	0.92	0.45	0.45	0.45	0.87	0.87	0.87
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	245	1475	12	7	957	37	278	51	221	488	154	703
Arrive On Green	0.14	0.41	0.41	0.00	0.28	0.28	0.31	0.00	0.31	0.31	0.31	0.31
Sat Flow, veh/h	1774	3599	28	1774	3471	136	427	166	724	1020	503	1582
Grp Volume(v), veh/h	186	314	329	3	300	311	20	0	0	52	0	430
Grp Sat Flow(s),veh/h/ln	1774	1770	1858	1774	1770	1837	1317	0	0	1522	0	1582
Q Serve(g_s), s	3.6	4.5	4.5	0.1	5.2	5.2	0.0	0.0	0.0	0.0	0.0	7.3
Cycle Q Clear(g_c), s	3.6	4.5	4.5	0.1	5.2	5.2	0.3	0.0	0.0	0.7	0.0	7.3
Prop In Lane	1.00		0.02	1.00		0.07	0.45		0.55	0.73		1.00
Lane Grp Cap(c), veh/h	245	725	761	7	488	506	550	0	0	642	0	703
V/C Ratio(X)	0.76	0.43	0.43	0.41	0.61	0.62	0.04	0.00	0.00	0.08	0.00	0.61
Avail Cap(c_a), veh/h	603	1167	1225	251	816	847	927	0	0	1108	0	1195
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	0.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	14.7	7.5	7.5	17.5	11.2	11.2	8.6	0.0	0.0	8.8	0.0	7.5
Incr Delay (d2), s/veh	4.8	0.4	0.4	33.2	1.3	1.2	0.0	0.0	0.0	0.1	0.0	0.9
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.0	2.3	2.4	0.1	2.7	2.8	0.1	0.0	0.0	0.4	0.0	3.2
LnGrp Delay(d),s/veh	19.4	7.9	7.9	50.8	12.4	12.4	8.6	0.0	0.0	8.8	0.0	8.4
LnGrp LOS	B	A	A	D	B	B	A			A		A
Approach Vol, veh/h		829			614			20			482	
Approach Delay, s/veh		10.5			12.6			8.6			8.4	
Approach LOS		B			B			A			A	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2	3	4		6	7	8
Phs Duration (G+Y+Rc), s		13.8	3.1	18.4		13.8	7.9	13.6
Change Period (Y+Rc), s		3.0	3.0	3.9		3.0	3.0	3.9
Max Green Setting (Gmax), s		21.8	5.0	23.3		21.8	12.0	16.3
Max Q Clear Time (g_c+I1), s		2.3	2.1	6.5		9.3	5.6	7.2
Green Ext Time (p_c), s		0.1	0.0	3.6		1.5	0.3	2.5

Intersection Summary	
HCM 2010 Ctrl Delay	10.6
HCM 2010 LOS	B

Notes

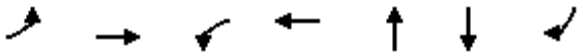
User approved changes to right turn type.



Lane Group	EBL	EBT	WBL	WBT	SBT	SBR
Lane Group Flow (vph)	354	473	12	962	18	137
v/c Ratio	0.68	0.18	0.06	0.69	0.07	0.19
Control Delay	24.9	3.4	25.7	17.0	22.2	6.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	24.9	3.4	25.7	17.0	22.2	6.8
Queue Length 50th (ft)	103	16	4	132	5	17
Queue Length 95th (ft)	#194	57	18	216	21	41
Internal Link Dist (ft)		706		1600	472	
Turn Bay Length (ft)	205		155			
Base Capacity (vph)	698	2683	194	1708	350	883
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.51	0.18	0.06	0.56	0.05	0.16

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.



Lane Group	EBL	EBT	WBL	WBT	NBT	SBT	SBR
Lane Group Flow (vph)	186	643	3	611	20	52	430
v/c Ratio	0.51	0.34	0.02	0.61	0.04	0.11	0.47
Control Delay	24.1	8.4	24.0	18.5	0.1	13.8	7.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	24.1	8.4	24.0	18.5	0.1	13.8	7.3
Queue Length 50th (ft)	46	42	1	75	0	11	51
Queue Length 95th (ft)	115	128	8	148	0	30	102
Internal Link Dist (ft)		706		1600	1	472	
Turn Bay Length (ft)	205		155				
Base Capacity (vph)	472	2000	196	1278	839	767	990
Starvation Cap Reductn	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.39	0.32	0.02	0.48	0.02	0.07	0.43

Intersection Summary

Appendix F LEVEL OF SERVICE WORKSHEETS: SHORT-TERM CUMULATIVE PLUS PROJECT CONDITIONS

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	391	378	313	130	374	530	133	518	121	311	526	476
Future Volume (veh/h)	391	378	313	130	374	530	133	518	121	311	526	476
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1900	1863	1863	1863	1863	1863	1900	1863	1863	1863
Adj Flow Rate, veh/h	425	411	161	141	407	351	145	563	0	357	605	0
Adj No. of Lanes	2	2	0	2	1	1	1	2	0	2	2	1
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.87	0.87	0.87
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	467	704	272	297	437	371	171	1058	0	386	1113	498
Arrive On Green	0.14	0.28	0.28	0.09	0.23	0.23	0.10	0.30	0.00	0.11	0.31	0.00
Sat Flow, veh/h	3442	2481	960	3442	1863	1583	1774	3632	0	3442	3539	1583
Grp Volume(v), veh/h	425	292	280	141	407	351	145	563	0	357	605	0
Grp Sat Flow(s),veh/h/ln	1721	1770	1671	1721	1863	1583	1774	1770	0	1721	1770	1583
Q Serve(g_s), s	11.0	12.7	13.0	3.5	19.3	19.6	7.2	11.9	0.0	9.2	12.7	0.0
Cycle Q Clear(g_c), s	11.0	12.7	13.0	3.5	19.3	19.6	7.2	11.9	0.0	9.2	12.7	0.0
Prop In Lane	1.00		0.57	1.00		1.00	1.00		0.00	1.00		1.00
Lane Grp Cap(c), veh/h	467	502	474	297	437	371	171	1058	0	386	1113	498
V/C Ratio(X)	0.91	0.58	0.59	0.47	0.93	0.95	0.85	0.53	0.00	0.92	0.54	0.00
Avail Cap(c_a), veh/h	467	502	474	325	437	371	171	1058	0	386	1113	498
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	38.4	27.6	27.7	39.2	33.7	33.9	40.0	26.3	0.0	39.6	25.5	0.0
Incr Delay (d2), s/veh	21.5	1.1	1.4	0.4	26.5	32.6	29.0	1.9	0.0	27.2	1.9	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	6.6	6.4	6.2	1.7	13.0	11.9	4.9	6.1	0.0	5.9	6.5	0.0
LnGrp Delay(d),s/veh	59.9	28.8	29.1	39.6	60.2	66.4	69.0	28.2	0.0	66.8	27.4	0.0
LnGrp LOS	E	C	C	D	E	E	E	C		E	C	
Approach Vol, veh/h		997			899			708			962	
Approach Delay, s/veh		42.1			59.4			36.6			42.0	
Approach LOS		D			E			D			D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	12.6	29.8	15.0	32.6	17.0	25.4	16.4	31.2
Change Period (Y+Rc), s	4.8	4.3	6.3	4.3	4.8	4.3	6.3	4.3
Max Green Setting (Gmax), s	8.5	24.8	8.7	28.3	12.2	21.1	10.1	26.9
Max Q Clear Time (g_c+I1), s	5.5	15.0	9.2	14.7	13.0	21.6	11.2	13.9
Green Ext Time (p_c), s	0.1	1.8	0.0	2.4	0.0	0.0	0.0	2.2

Intersection Summary	
HCM 2010 Ctrl Delay	45.4
HCM 2010 LOS	D

Intersection	
Int Delay, s/veh	9.9

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	351	459	6	11	883	31	0	0	0	15	7	170
Future Vol, veh/h	351	459	6	11	883	31	0	0	0	15	7	170
Conflicting Peds, #/hr	1	0	3	3	0	1	1	0	1	1	0	1
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	205	-	-	155	-	-	-	-	-	-	-	0
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	96	96	96	91	91	91	25	25	25	97	97	97
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	366	478	6	12	970	34	0	0	0	15	7	175

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	1005	0	0	487	0	0	1730	2245	246	1984	2231	504
Stage 1	-	-	-	-	-	-	1216	1216	-	1012	1012	-
Stage 2	-	-	-	-	-	-	514	1029	-	972	1219	-
Critical Hdwy	4.14	-	-	4.14	-	-	7.54	6.54	6.94	7.54	6.54	6.94
Critical Hdwy Stg 1	-	-	-	-	-	-	6.54	5.54	-	6.54	5.54	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.54	5.54	-	6.54	5.54	-
Follow-up Hdwy	2.22	-	-	2.22	-	-	3.52	4.02	3.32	3.52	4.02	3.32
Pot Cap-1 Maneuver	685	-	-	1072	-	-	57	41	754	36	42	513
Stage 1	-	-	-	-	-	-	192	252	-	256	315	-
Stage 2	-	-	-	-	-	-	511	309	-	271	251	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	684	-	-	1069	-	-	16	19	751	21	19	512
Mov Cap-2 Maneuver	-	-	-	-	-	-	16	19	-	21	19	-
Stage 1	-	-	-	-	-	-	89	117	-	119	311	-
Stage 2	-	-	-	-	-	-	324	305	-	126	116	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	6.9	0.1	0	73.4
HCM LOS			A	F

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	-	684	-	-	1069	-	-	20	512
HCM Lane V/C Ratio	-	0.535	-	-	0.011	-	-	1.134	0.342
HCM Control Delay (s)	0	16.1	-	-	8.4	-	-	$ 519.7	15.6
HCM Lane LOS	A	C	-	-	A	-	-	F	C
HCM 95th %tile Q(veh)	-	3.2	-	-	0	-	-	3.1	1.5

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	24	63	122	687	1267	171
Future Volume (veh/h)	24	63	122	687	1267	171
Number	5	12	3	8	4	14
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00	1.00			1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1863	1863	1863	1900
Adj Flow Rate, veh/h	32	84	151	848	1377	186
Adj No. of Lanes	1	1	1	2	2	0
Peak Hour Factor	0.75	0.75	0.81	0.81	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	140	125	194	2786	1944	260
Arrive On Green	0.08	0.08	0.11	0.79	0.62	0.62
Sat Flow, veh/h	1774	1583	1774	3632	3230	420
Grp Volume(v), veh/h	32	84	151	848	772	791
Grp Sat Flow(s),veh/h/ln	1774	1583	1774	1770	1770	1787
Q Serve(g_s), s	0.9	2.7	4.3	3.4	15.1	15.6
Cycle Q Clear(g_c), s	0.9	2.7	4.3	3.4	15.1	15.6
Prop In Lane	1.00	1.00	1.00			0.24
Lane Grp Cap(c), veh/h	140	125	194	2786	1097	1107
V/C Ratio(X)	0.23	0.67	0.78	0.30	0.70	0.71
Avail Cap(c_a), veh/h	879	785	310	3962	1568	1584
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	22.2	23.1	22.3	1.5	6.6	6.7
Incr Delay (d2), s/veh	0.8	6.2	6.6	0.1	0.8	0.9
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.5	1.4	2.5	1.7	7.3	7.7
LnGrp Delay(d),s/veh	23.1	29.3	28.9	1.6	7.4	7.6
LnGrp LOS	C	C	C	A	A	A
Approach Vol, veh/h	116			999	1563	
Approach Delay, s/veh	27.6			5.7	7.5	
Approach LOS	C			A	A	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2	3	4				8
Phs Duration (G+Y+Rc), s		7.0	8.6	35.8				44.4
Change Period (Y+Rc), s		3.0	3.0	3.9				3.9
Max Green Setting (Gmax), s		25.5	9.0	45.6				57.6
Max Q Clear Time (g_c+I1), s		4.7	6.3	17.6				5.4
Green Ext Time (p_c), s		0.3	0.1	14.3				7.5

Intersection Summary	
HCM 2010 Ctrl Delay	7.7
HCM 2010 LOS	A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	13	195	61	149	182	307	43	65	252	639	283	29
Future Volume (veh/h)	13	195	61	149	182	307	43	65	252	639	283	29
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1900	1863	1863	1900	1863	1863	1863	1863	1900	1863	1863	1900
Adj Flow Rate, veh/h	16	238	24	160	196	202	49	74	0	687	304	26
Adj No. of Lanes	0	1	1	0	1	1	1	2	0	1	2	0
Peak Hour Factor	0.82	0.82	0.82	0.93	0.93	0.93	0.88	0.88	0.88	0.93	0.93	0.93
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	20	293	319	180	220	989	64	269	0	718	1487	126
Arrive On Green	0.17	0.17	0.17	0.22	0.22	0.22	0.04	0.08	0.00	0.40	0.45	0.45
Sat Flow, veh/h	117	1740	1555	819	1003	1583	1774	3632	0	1774	3301	281
Grp Volume(v), veh/h	254	0	24	356	0	202	49	74	0	687	162	168
Grp Sat Flow(s),veh/h/ln	1857	0	1555	1822	0	1583	1774	1770	0	1774	1770	1812
Q Serve(g_s), s	13.9	0.0	1.3	19.9	0.0	0.0	2.9	2.1	0.0	39.5	5.8	5.9
Cycle Q Clear(g_c), s	13.9	0.0	1.3	19.9	0.0	0.0	2.9	2.1	0.0	39.5	5.8	5.9
Prop In Lane	0.06		1.00	0.45		1.00	1.00		0.00	1.00		0.15
Lane Grp Cap(c), veh/h	312	0	319	400	0	989	64	269	0	718	797	816
V/C Ratio(X)	0.81	0.00	0.08	0.89	0.00	0.20	0.76	0.27	0.00	0.96	0.20	0.21
Avail Cap(c_a), veh/h	599	0	559	451	0	1033	162	636	0	895	1049	1074
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	42.1	0.0	33.8	39.8	0.0	8.5	50.2	45.8	0.0	30.4	17.5	17.5
Incr Delay (d2), s/veh	5.1	0.0	0.1	18.0	0.0	0.1	6.8	0.2	0.0	16.9	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	7.6	0.0	0.6	12.0	0.0	2.5	1.5	1.0	0.0	22.6	2.8	2.9
LnGrp Delay(d),s/veh	47.2	0.0	33.9	57.8	0.0	8.6	57.0	46.0	0.0	47.3	17.5	17.5
LnGrp LOS	D		C	E		A	E	D		D	B	B
Approach Vol, veh/h		278			558			123			1017	
Approach Delay, s/veh		46.1			40.0			50.4			37.6	
Approach LOS		D			D			D			D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2	3	4		6	7	8
Phs Duration (G+Y+Rc), s		21.3	6.8	51.0		26.1	46.2	11.6
Change Period (Y+Rc), s		3.6	3.0	3.6		3.0	3.6	* 3.6
Max Green Setting (Gmax), s		33.9	9.6	62.3		26.0	53.0	* 19
Max Q Clear Time (g_c+I1), s		15.9	4.9	7.9		21.9	41.5	4.1
Green Ext Time (p_c), s		1.4	0.0	1.3		1.1	1.0	0.2

Intersection Summary	
HCM 2010 Ctrl Delay	40.3
HCM 2010 LOS	D

Notes

* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.
User approved changes to right turn type.

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	373	482	804	670	820	8
Future Volume (veh/h)	373	482	804	670	820	8
Number	7	14	5	2	6	16
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00	1.00			0.97
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1863	1863	1863	1900
Adj Flow Rate, veh/h	397	513	874	728	921	9
Adj No. of Lanes	1	1	2	2	2	0
Peak Hour Factor	0.94	0.94	0.92	0.92	0.89	0.89
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	445	834	949	2220	1043	10
Arrive On Green	0.25	0.25	0.28	0.63	0.29	0.29
Sat Flow, veh/h	1774	1583	3442	3632	3683	35
Grp Volume(v), veh/h	397	513	874	728	454	476
Grp Sat Flow(s),veh/h/ln	1774	1583	1721	1770	1770	1855
Q Serve(g_s), s	15.9	16.7	18.2	7.1	18.1	18.1
Cycle Q Clear(g_c), s	15.9	16.7	18.2	7.1	18.1	18.1
Prop In Lane	1.00	1.00	1.00			0.02
Lane Grp Cap(c), veh/h	445	834	949	2220	514	539
V/C Ratio(X)	0.89	0.62	0.92	0.33	0.88	0.88
Avail Cap(c_a), veh/h	445	834	957	2279	540	566
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	26.7	12.2	25.9	6.5	25.0	25.0
Incr Delay (d2), s/veh	19.8	1.4	13.8	0.1	15.4	14.8
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	10.2	15.7	10.4	3.5	11.0	11.5
LnGrp Delay(d),s/veh	46.4	13.6	39.8	6.5	40.3	39.8
LnGrp LOS	D	B	D	A	D	D
Approach Vol, veh/h	910			1602	930	
Approach Delay, s/veh	27.9			24.7	40.0	
Approach LOS	C			C	D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4	5	6		
Phs Duration (G+Y+Rc), s		50.8		23.0	24.8	25.9		
Change Period (Y+Rc), s		4.5		4.5	4.5	4.5		
Max Green Setting (Gmax), s		47.5		18.5	20.5	22.5		
Max Q Clear Time (g_c+I1), s		9.1		18.7	20.2	20.1		
Green Ext Time (p_c), s		5.9		0.0	0.1	1.4		

Intersection Summary	
HCM 2010 Ctrl Delay	29.7
HCM 2010 LOS	C

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	467	395	288	172	462	347	198	778	131	296	542	579
Future Volume (veh/h)	467	395	288	172	462	347	198	778	131	296	542	579
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		0.99	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1900	1863	1863	1863	1863	1863	1900	1863	1863	1863
Adj Flow Rate, veh/h	502	425	154	187	502	155	220	864	0	308	565	0
Adj No. of Lanes	2	2	0	2	1	1	1	2	0	2	2	1
Peak Hour Factor	0.93	0.93	0.93	0.92	0.92	0.92	0.90	0.90	0.90	0.96	0.96	0.96
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	501	767	275	303	453	380	235	995	0	382	920	412
Arrive On Green	0.15	0.30	0.30	0.09	0.24	0.24	0.13	0.28	0.00	0.11	0.26	0.00
Sat Flow, veh/h	3442	2549	914	3442	1863	1563	1774	3632	0	3442	3539	1583
Grp Volume(v), veh/h	502	294	285	187	502	155	220	864	0	308	565	0
Grp Sat Flow(s),veh/h/ln	1721	1770	1694	1721	1863	1563	1774	1770	0	1721	1770	1583
Q Serve(g_s), s	13.1	12.5	12.7	4.7	21.9	7.5	11.1	20.9	0.0	7.9	12.7	0.0
Cycle Q Clear(g_c), s	13.1	12.5	12.7	4.7	21.9	7.5	11.1	20.9	0.0	7.9	12.7	0.0
Prop In Lane	1.00		0.54	1.00		1.00	1.00		0.00	1.00		1.00
Lane Grp Cap(c), veh/h	501	532	510	303	453	380	235	995	0	382	920	412
V/C Ratio(X)	1.00	0.55	0.56	0.62	1.11	0.41	0.94	0.87	0.00	0.81	0.61	0.00
Avail Cap(c_a), veh/h	501	532	510	333	453	380	235	995	0	382	920	412
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	38.5	26.4	26.5	39.6	34.1	28.6	38.7	30.8	0.0	39.1	29.3	0.0
Incr Delay (d2), s/veh	40.7	0.7	0.9	1.8	74.8	0.3	41.4	10.2	0.0	11.1	3.1	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	9.0	6.2	6.1	2.3	20.6	3.3	8.1	11.6	0.0	4.3	6.6	0.0
LnGrp Delay(d),s/veh	79.2	27.1	27.3	41.4	108.9	28.9	80.1	40.9	0.0	50.2	32.4	0.0
LnGrp LOS	F	C	C	D	F	C	F	D		D	C	
Approach Vol, veh/h		1081			844			1084			873	
Approach Delay, s/veh		51.3			79.2			48.9			38.7	
Approach LOS		D			E			D			D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	12.7	31.4	18.2	27.7	17.9	26.2	16.3	29.6
Change Period (Y+Rc), s	4.8	4.3	6.3	4.3	4.8	4.3	6.3	4.3
Max Green Setting (Gmax), s	8.7	26.3	11.9	23.4	13.1	21.9	10.0	25.3
Max Q Clear Time (g_c+I1), s	6.7	14.7	13.1	14.7	15.1	23.9	9.9	22.9
Green Ext Time (p_c), s	0.1	1.9	0.0	1.8	0.0	0.0	0.0	1.1

Intersection Summary	
HCM 2010 Ctrl Delay	53.9
HCM 2010 LOS	D

Intersection	
Int Delay, s/veh	10.4

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	205	618	5	3	562	25	4	0	5	35	12	395
Future Vol, veh/h	205	618	5	3	562	25	4	0	5	35	12	395
Conflicting Peds, #/hr	0	0	0	0	0	0	1	0	0	0	0	1
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	205	-	-	155	-	-	-	-	-	-	-	0
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	91	91	91	92	92	92	45	45	45	87	87	87
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	225	679	5	3	611	27	9	0	11	40	14	454

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	638	0	0	684	0	0	1452	1776	342	1421	1765	320
Stage 1	-	-	-	-	-	-	1132	1132	-	631	631	-
Stage 2	-	-	-	-	-	-	320	644	-	790	1134	-
Critical Hdwy	4.14	-	-	4.14	-	-	7.54	6.54	6.94	7.54	6.54	6.94
Critical Hdwy Stg 1	-	-	-	-	-	-	6.54	5.54	-	6.54	5.54	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.54	5.54	-	6.54	5.54	-
Follow-up Hdwy	2.22	-	-	2.22	-	-	3.52	4.02	3.32	3.52	4.02	3.32
Pot Cap-1 Maneuver	942	-	-	905	-	-	92	82	654	97	83	676
Stage 1	-	-	-	-	-	-	216	276	-	436	473	-
Stage 2	-	-	-	-	-	-	666	466	-	350	276	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	942	-	-	905	-	-	21	62	654	78	63	675
Mov Cap-2 Maneuver	-	-	-	-	-	-	21	62	-	78	63	-
Stage 1	-	-	-	-	-	-	164	210	-	332	472	-
Stage 2	-	-	-	-	-	-	211	465	-	262	210	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	2.5	0	137.8	32.6
HCM LOS			F	D

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	45	942	-	-	905	-	-	74	675
HCM Lane V/C Ratio	0.444	0.239	-	-	0.004	-	-	0.73	0.673
HCM Control Delay (s)	137.8	10	-	-	9	-	-	133.2	20.6
HCM Lane LOS	F	B	-	-	A	-	-	F	C
HCM 95th %tile Q(veh)	1.6	0.9	-	-	0	-	-	3.4	5.2

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	146	205	83	994	776	41
Future Volume (veh/h)	146	205	83	994	776	41
Number	5	12	3	8	4	14
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00	1.00			0.97
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1863	1863	1863	1900
Adj Flow Rate, veh/h	182	256	88	1057	834	44
Adj No. of Lanes	1	1	1	2	2	0
Peak Hour Factor	0.80	0.80	0.94	0.94	0.93	0.93
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	421	376	144	2020	1385	73
Arrive On Green	0.24	0.24	0.08	0.57	0.41	0.41
Sat Flow, veh/h	1774	1583	1774	3632	3508	180
Grp Volume(v), veh/h	182	256	88	1057	432	446
Grp Sat Flow(s),veh/h/ln	1774	1583	1774	1770	1770	1825
Q Serve(g_s), s	3.1	5.3	1.7	6.6	6.9	6.9
Cycle Q Clear(g_c), s	3.1	5.3	1.7	6.6	6.9	6.9
Prop In Lane	1.00	1.00	1.00			0.10
Lane Grp Cap(c), veh/h	421	376	144	2020	718	741
V/C Ratio(X)	0.43	0.68	0.61	0.52	0.60	0.60
Avail Cap(c_a), veh/h	1285	1146	346	3657	1336	1378
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	11.6	12.5	15.9	4.7	8.4	8.4
Incr Delay (d2), s/veh	0.7	2.2	4.1	0.2	0.8	0.8
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.6	2.5	1.0	3.1	3.4	3.5
LnGrp Delay(d),s/veh	12.3	14.6	20.1	4.9	9.2	9.2
LnGrp LOS	B	B	C	A	A	A
Approach Vol, veh/h	438			1145	878	
Approach Delay, s/veh	13.7			6.1	9.2	
Approach LOS	B			A	A	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2	3	4				8
Phs Duration (G+Y+Rc), s		11.5	5.9	18.5				24.4
Change Period (Y+Rc), s		3.0	3.0	3.9				3.9
Max Green Setting (Gmax), s		26.0	7.0	27.1				37.1
Max Q Clear Time (g_c+I1), s		7.3	3.7	8.9				8.6
Green Ext Time (p_c), s		1.3	0.0	5.5				9.0

Intersection Summary	
HCM 2010 Ctrl Delay	8.6
HCM 2010 LOS	A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	22	255	148	224	185	485	119	120	372	536	512	53
Future Volume (veh/h)	22	255	148	224	185	485	119	120	372	536	512	53
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		0.99	1.00		1.00	1.00		0.98
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1900	1863	1863	1900	1863	1863	1863	1863	1900	1863	1863	1900
Adj Flow Rate, veh/h	25	287	90	241	199	287	127	128	16	558	533	50
Adj No. of Lanes	0	1	1	0	1	1	1	2	0	1	2	0
Peak Hour Factor	0.89	0.89	0.89	0.93	0.93	0.93	0.94	0.94	0.94	0.96	0.96	0.96
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	30	349	456	262	216	934	156	235	29	585	1050	98
Arrive On Green	0.20	0.20	0.20	0.26	0.26	0.26	0.09	0.07	0.07	0.33	0.32	0.32
Sat Flow, veh/h	149	1707	1551	993	820	1563	1774	3173	391	1774	3265	305
Grp Volume(v), veh/h	312	0	90	440	0	287	127	71	73	558	288	295
Grp Sat Flow(s),veh/h/ln	1855	0	1551	1813	0	1563	1774	1770	1794	1774	1770	1801
Q Serve(g_s), s	17.3	0.0	4.7	25.4	0.0	0.0	7.6	4.1	4.3	33.2	14.2	14.3
Cycle Q Clear(g_c), s	17.3	0.0	4.7	25.4	0.0	0.0	7.6	4.1	4.3	33.2	14.2	14.3
Prop In Lane	0.08		1.00	0.55		1.00	1.00		0.22	1.00		0.17
Lane Grp Cap(c), veh/h	379	0	456	479	0	934	156	131	133	585	569	579
V/C Ratio(X)	0.82	0.00	0.20	0.92	0.00	0.31	0.82	0.54	0.55	0.95	0.51	0.51
Avail Cap(c_a), veh/h	600	0	641	504	0	957	294	310	314	625	640	651
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	41.0	0.0	28.7	38.6	0.0	10.9	48.3	48.1	48.2	35.4	29.7	29.7
Incr Delay (d2), s/veh	5.1	0.0	0.2	21.6	0.0	0.2	3.9	1.3	1.3	23.9	0.3	0.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	9.4	0.0	2.0	15.6	0.0	4.2	3.9	2.1	2.2	20.2	7.0	7.2
LnGrp Delay(d),s/veh	46.1	0.0	28.9	60.1	0.0	11.1	52.3	49.4	49.5	59.3	29.9	29.9
LnGrp LOS	D		C	E		B	D	D	D	E	C	C
Approach Vol, veh/h		402			727			271			1141	
Approach Delay, s/veh		42.3			40.8			50.8			44.3	
Approach LOS		D			D			D			D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2	3	4		6	7	8
Phs Duration (G+Y+Rc), s		25.6	12.5	38.3		31.5	39.1	11.6
Change Period (Y+Rc), s		3.6	3.0	3.6		3.0	3.6	* 3.6
Max Green Setting (Gmax), s		34.9	17.9	39.0		30.0	38.0	* 19
Max Q Clear Time (g_c+I1), s		19.3	9.6	16.3		27.4	35.2	6.3
Green Ext Time (p_c), s		1.9	0.1	2.3		1.0	0.4	0.3

Intersection Summary	
HCM 2010 Ctrl Delay	43.6
HCM 2010 LOS	D

Notes

* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.
User approved changes to right turn type.

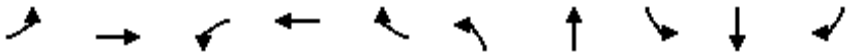
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	126	461	924	673	932	17
Future Volume (veh/h)	126	461	924	673	932	17
Number	7	14	5	2	6	16
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00	1.00			0.97
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1863	1863	1863	1900
Adj Flow Rate, veh/h	142	518	983	716	1084	20
Adj No. of Lanes	1	1	2	2	2	0
Peak Hour Factor	0.89	0.89	0.94	0.94	0.86	0.86
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	362	808	1054	2456	1197	22
Arrive On Green	0.20	0.20	0.31	0.69	0.34	0.34
Sat Flow, veh/h	1774	1583	3442	3632	3646	66
Grp Volume(v), veh/h	142	518	983	716	540	564
Grp Sat Flow(s),veh/h/ln	1774	1583	1721	1770	1770	1849
Q Serve(g_s), s	6.1	18.0	24.5	6.8	25.7	25.7
Cycle Q Clear(g_c), s	6.1	18.0	24.5	6.8	25.7	25.7
Prop In Lane	1.00	1.00	1.00			0.04
Lane Grp Cap(c), veh/h	362	808	1054	2456	596	623
V/C Ratio(X)	0.39	0.64	0.93	0.29	0.91	0.91
Avail Cap(c_a), veh/h	362	808	1077	2527	620	648
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	30.4	15.7	29.7	5.2	27.9	27.9
Incr Delay (d2), s/veh	0.7	1.7	14.0	0.1	16.6	16.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.1	19.3	13.7	3.3	15.2	15.8
LnGrp Delay(d),s/veh	31.1	17.5	43.7	5.2	44.6	44.0
LnGrp LOS	C	B	D	A	D	D
Approach Vol, veh/h	660			1699	1104	
Approach Delay, s/veh	20.4			27.5	44.3	
Approach LOS	C			C	D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4	5	6		
Phs Duration (G+Y+Rc), s		65.7		22.5	31.5	34.2		
Change Period (Y+Rc), s		4.5		4.5	4.5	4.5		
Max Green Setting (Gmax), s		63.0		18.0	27.6	30.9		
Max Q Clear Time (g_c+I1), s		8.8		20.0	26.5	27.7		
Green Ext Time (p_c), s		6.0		0.0	0.5	2.0		

Intersection Summary		
HCM 2010 Ctrl Delay		31.5
HCM 2010 LOS		C

1: Mendocino Ave & Mendocino O/C/Fountaingrove Pkwy

Timing Plan: AM Peak



Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	SBL	SBT	SBR
Lane Group Flow (vph)	425	751	141	407	576	145	695	357	605	547
v/c Ratio	0.91	0.70	0.45	0.93	1.00	0.86	0.66	0.93	0.54	0.76
Control Delay	64.8	23.9	43.6	64.9	56.8	81.7	29.9	71.9	27.7	18.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	64.8	23.9	43.6	64.9	56.8	81.7	29.9	71.9	27.7	18.5
Queue Length 50th (ft)	124	138	40	227	192	83	172	105	148	104
Queue Length 95th (ft)	#210	205	69	#402	#417	#188	234	#178	193	218
Internal Link Dist (ft)		1192		706			612		533	
Turn Bay Length (ft)	178		240			162		162		
Base Capacity (vph)	465	1076	324	436	578	171	1046	385	1115	717
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.91	0.70	0.44	0.93	1.00	0.85	0.66	0.93	0.54	0.76

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Lane Group	EBL	EBR	NBL	NBT	SBT
Lane Group Flow (vph)	32	84	151	848	1563
v/c Ratio	0.14	0.30	0.64	0.30	0.73
Control Delay	28.1	9.7	46.6	3.4	13.6
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	28.1	9.7	46.6	3.4	13.6
Queue Length 50th (ft)	13	0	61	31	200
Queue Length 95th (ft)	29	21	#161	115	485
Internal Link Dist (ft)	331			457	260
Turn Bay Length (ft)			135		
Base Capacity (vph)	670	643	236	2987	2356
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.05	0.13	0.64	0.28	0.66

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Lane Group	EBT	EBR	WBT	WBR	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	254	74	356	330	49	360	687	335
v/c Ratio	0.77	0.18	0.93	0.29	0.45	0.72	0.91	0.22
Control Delay	64.2	8.3	80.7	1.4	71.9	22.1	51.4	22.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	64.2	8.3	80.7	1.4	71.9	22.1	51.4	22.2
Queue Length 50th (ft)	193	8	276	0	38	30	491	82
Queue Length 95th (ft)	267	28	#544	26	85	79	#886	134
Internal Link Dist (ft)	245		126			289		330
Turn Bay Length (ft)		80			225		215	
Base Capacity (vph)	508	448	382	1130	137	718	758	1756
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.50	0.17	0.93	0.29	0.36	0.50	0.91	0.19

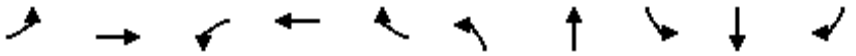
Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Lane Group	EBL	EBR	NBL	NBT	SBT
Lane Group Flow (vph)	397	513	874	728	930
v/c Ratio	0.92	0.55	0.92	0.32	0.88
Control Delay	57.2	12.2	43.5	6.8	36.6
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	57.2	12.2	43.5	6.8	36.6
Queue Length 50th (ft)	180	130	203	72	214
Queue Length 95th (ft)	#339	213	#315	99	#315
Internal Link Dist (ft)	75			533	381
Turn Bay Length (ft)			178		
Base Capacity (vph)	440	913	947	2263	1071
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.90	0.56	0.92	0.32	0.87

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.



Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	SBL	SBT	SBR
Lane Group Flow (vph)	502	735	187	502	377	220	1010	308	565	603
v/c Ratio	1.01	0.66	0.58	1.11	0.65	0.94	1.03	0.81	0.61	0.97
Control Delay	81.8	22.9	46.8	109.1	14.9	86.3	67.9	56.8	32.7	47.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	81.8	22.9	46.8	109.1	14.9	86.3	67.9	56.8	32.7	47.6
Queue Length 50th (ft)	~150	137	53	~329	50	126	~320	89	148	189
Queue Length 95th (ft)	#254	201	87	#520	146	#263	#447	#154	204	#416
Internal Link Dist (ft)		1192		706			612		533	
Turn Bay Length (ft)	178		240			162		162		
Base Capacity (vph)	499	1115	331	453	584	234	985	381	920	622
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	1.01	0.66	0.56	1.11	0.65	0.94	1.03	0.81	0.61	0.97

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Lane Group	EBL	EBR	NBL	NBT	SBT
Lane Group Flow (vph)	183	256	88	1057	878
v/c Ratio	0.42	0.44	0.31	0.51	0.53
Control Delay	19.4	5.7	24.1	6.4	11.0
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	19.4	5.7	24.1	6.4	11.0
Queue Length 50th (ft)	42	0	21	62	90
Queue Length 95th (ft)	89	32	68	132	163
Internal Link Dist (ft)	331			457	260
Turn Bay Length (ft)			135		
Base Capacity (vph)	1117	1093	300	2938	2310
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.16	0.23	0.29	0.36	0.38

Intersection Summary

Lane Group	EBT	EBR	WBT	WBR	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	312	166	440	522	127	524	558	588
v/c Ratio	0.80	0.29	0.95	0.46	0.68	0.79	0.97	0.53
Control Delay	60.9	7.2	75.4	2.1	70.0	22.9	72.0	36.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	60.9	7.2	75.4	2.1	70.0	22.9	72.0	36.4
Queue Length 50th (ft)	222	17	321	0	92	48	405	189
Queue Length 95th (ft)	345	44	#646	33	175	115	#790	292
Internal Link Dist (ft)	245		126			289		330
Turn Bay Length (ft)		80			225		215	
Base Capacity (vph)	553	637	464	1133	270	838	574	1165
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.56	0.26	0.95	0.46	0.47	0.63	0.97	0.50

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

5: Mendocino Ave/Old Redwood Hwy & US 101 NB Ramps

Timing Plan: PM Peak

Lane Group	EBL	EBR	NBL	NBT	SBT
Lane Group Flow (vph)	142	518	983	716	1104
v/c Ratio	0.56	0.62	0.87	0.27	0.86
Control Delay	41.9	17.1	37.3	3.9	33.3
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	41.9	17.1	37.3	3.9	33.3
Queue Length 50th (ft)	71	175	247	48	275
Queue Length 95th (ft)	126	269	#395	88	#380
Internal Link Dist (ft)	75			533	381
Turn Bay Length (ft)			178		
Base Capacity (vph)	388	855	1156	2722	1332
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.37	0.61	0.85	0.26	0.83

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	351	459	6	11	883	31	0	0	0	15	7	170
Future Volume (veh/h)	351	459	6	11	883	31	0	0	0	15	7	170
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.97	1.00		0.99	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1900	1863	1863	1900	1900	1863	1900	1900	1863	1863
Adj Flow Rate, veh/h	366	478	6	12	970	34	0	0	0	15	7	175
Adj No. of Lanes	1	2	0	1	2	0	0	1	0	0	1	1
Peak Hour Factor	0.96	0.96	0.96	0.91	0.91	0.91	0.25	0.25	0.25	0.97	0.97	0.97
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	452	2259	28	28	1366	48	0	221	0	245	86	591
Arrive On Green	0.25	0.63	0.63	0.02	0.39	0.39	0.00	0.00	0.00	0.12	0.12	0.12
Sat Flow, veh/h	1774	3578	45	1774	3486	122	0	1863	0	858	728	1579
Grp Volume(v), veh/h	366	236	248	12	492	512	0	0	0	22	0	175
Grp Sat Flow(s),veh/h/ln	1774	1770	1853	1774	1770	1839	0	1863	0	1586	0	1579
Q Serve(g_s), s	8.2	2.4	2.4	0.3	9.9	9.9	0.0	0.0	0.0	0.0	0.0	3.3
Cycle Q Clear(g_c), s	8.2	2.4	2.4	0.3	9.9	9.9	0.0	0.0	0.0	0.4	0.0	3.3
Prop In Lane	1.00		0.02	1.00		0.07	0.00		0.00	0.68		1.00
Lane Grp Cap(c), veh/h	452	1117	1170	28	693	721	0	221	0	332	0	591
V/C Ratio(X)	0.81	0.21	0.21	0.44	0.71	0.71	0.00	0.00	0.00	0.07	0.00	0.30
Avail Cap(c_a), veh/h	757	1472	1542	210	927	963	0	441	0	512	0	778
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	0.00	0.00	0.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	14.8	3.3	3.3	20.6	10.8	10.8	0.0	0.0	0.0	16.6	0.0	9.3
Incr Delay (d2), s/veh	3.5	0.1	0.1	10.4	1.7	1.6	0.0	0.0	0.0	0.1	0.0	0.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	4.4	1.1	1.2	0.2	5.1	5.3	0.0	0.0	0.0	0.2	0.0	1.5
LnGrp Delay(d),s/veh	18.3	3.4	3.4	31.0	12.5	12.4	0.0	0.0	0.0	16.7	0.0	9.6
LnGrp LOS	B	A	A	C	B	B				B		A
Approach Vol, veh/h		850			1016			0			197	
Approach Delay, s/veh		9.8			12.7			0.0			10.4	
Approach LOS		A			B						B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2	3	4		6	7	8
Phs Duration (G+Y+Rc), s		8.0	3.7	30.5		8.0	13.8	20.4
Change Period (Y+Rc), s		3.0	3.0	3.9		3.0	3.0	3.9
Max Green Setting (Gmax), s		10.0	5.0	35.1		10.0	18.0	22.1
Max Q Clear Time (g_c+I1), s		0.0	2.3	4.4		5.3	10.2	11.9
Green Ext Time (p_c), s		0.0	0.0	3.1		0.3	0.7	4.6

Intersection Summary	
HCM 2010 Ctrl Delay	11.3
HCM 2010 LOS	B

Notes

User approved changes to right turn type.

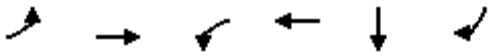
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	205	618	5	3	562	25	4	0	5	35	12	395
Future Volume (veh/h)	205	618	5	3	562	25	4	0	5	35	12	395
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		0.99	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1900	1863	1863	1900	1900	1863	1900	1900	1863	1863
Adj Flow Rate, veh/h	225	679	5	3	611	27	9	0	11	40	14	454
Adj No. of Lanes	1	2	0	1	2	0	0	1	0	0	1	1
Peak Hour Factor	0.91	0.91	0.91	0.92	0.92	0.92	0.45	0.45	0.45	0.87	0.87	0.87
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	292	1561	11	7	942	42	267	47	218	481	145	744
Arrive On Green	0.16	0.43	0.43	0.00	0.27	0.27	0.31	0.00	0.31	0.31	0.31	0.31
Sat Flow, veh/h	1774	3601	27	1774	3451	152	430	154	713	1041	475	1582
Grp Volume(v), veh/h	225	334	350	3	313	325	20	0	0	54	0	454
Grp Sat Flow(s),veh/h/ln	1774	1770	1858	1774	1770	1834	1297	0	0	1515	0	1582
Q Serve(g_s), s	4.7	5.1	5.1	0.1	6.0	6.0	0.0	0.0	0.0	0.1	0.0	8.2
Cycle Q Clear(g_c), s	4.7	5.1	5.1	0.1	6.0	6.0	0.3	0.0	0.0	0.8	0.0	8.2
Prop In Lane	1.00		0.01	1.00		0.08	0.45		0.55	0.74		1.00
Lane Grp Cap(c), veh/h	292	767	805	7	483	501	532	0	0	626	0	744
V/C Ratio(X)	0.77	0.43	0.44	0.41	0.65	0.65	0.04	0.00	0.00	0.09	0.00	0.61
Avail Cap(c_a), veh/h	552	1070	1123	230	748	775	842	0	0	1014	0	1155
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	0.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	15.4	7.6	7.6	19.1	12.4	12.4	9.4	0.0	0.0	9.6	0.0	7.6
Incr Delay (d2), s/veh	4.3	0.4	0.4	33.3	1.5	1.4	0.0	0.0	0.0	0.1	0.0	0.8
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.6	2.5	2.6	0.1	3.1	3.2	0.2	0.0	0.0	0.4	0.0	3.6
LnGrp Delay(d),s/veh	19.7	8.0	8.0	52.5	13.8	13.8	9.4	0.0	0.0	9.6	0.0	8.4
LnGrp LOS	B	A	A	D	B	B	A			A		A
Approach Vol, veh/h		909			641			20			508	
Approach Delay, s/veh		10.9			14.0			9.4			8.5	
Approach LOS		B			B			A			A	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2	3	4		6	7	8
Phs Duration (G+Y+Rc), s		14.8	3.2	20.6		14.8	9.3	14.4
Change Period (Y+Rc), s		3.0	3.0	3.9		3.0	3.0	3.9
Max Green Setting (Gmax), s		21.8	5.0	23.3		21.8	12.0	16.3
Max Q Clear Time (g_c+I1), s		2.3	2.1	7.1		10.2	6.7	8.0
Green Ext Time (p_c), s		0.1	0.0	3.9		1.6	0.3	2.5

Intersection Summary	
HCM 2010 Ctrl Delay	11.3
HCM 2010 LOS	B

Notes

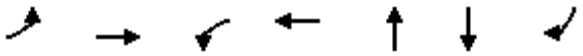
User approved changes to right turn type.



Lane Group	EBL	EBT	WBL	WBT	SBT	SBR
Lane Group Flow (vph)	366	484	12	1004	22	175
v/c Ratio	0.70	0.18	0.06	0.73	0.09	0.23
Control Delay	26.3	3.6	26.1	18.4	22.2	7.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	26.3	3.6	26.1	18.4	22.2	7.6
Queue Length 50th (ft)	110	18	4	148	7	25
Queue Length 95th (ft)	#209	58	18	229	24	54
Internal Link Dist (ft)		706		1600	472	
Turn Bay Length (ft)	205		155			
Base Capacity (vph)	678	2656	188	1660	334	860
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.54	0.18	0.06	0.60	0.07	0.20

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.



Lane Group	EBL	EBT	WBL	WBT	NBT	SBT	SBR
Lane Group Flow (vph)	225	684	3	638	20	54	454
v/c Ratio	0.59	0.36	0.02	0.63	0.04	0.12	0.49
Control Delay	27.1	8.7	24.7	19.4	0.1	14.0	7.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	27.1	8.7	24.7	19.4	0.1	14.0	7.8
Queue Length 50th (ft)	62	48	1	86	0	12	63
Queue Length 95th (ft)	#153	138	8	156	0	31	111
Internal Link Dist (ft)		706		1600	1	472	
Turn Bay Length (ft)	205		155				
Base Capacity (vph)	451	1988	188	1223	808	731	983
Starvation Cap Reductn	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.50	0.34	0.02	0.52	0.02	0.07	0.46

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Appendix G LEVEL OF SERVICE WORKSHEETS: 2040 NO PROJECT CONDITIONS

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	376	505	279	89	303	598	121	501	149	508	588	537
Future Volume (veh/h)	376	505	279	89	303	598	121	501	149	508	588	537
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1900	1863	1863	1863	1863	1863	1900	1863	1863	1863
Adj Flow Rate, veh/h	409	549	225	97	329	409	132	545	0	584	676	0
Adj No. of Lanes	2	2	0	2	1	1	1	2	0	2	2	1
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.87	0.87	0.87
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	420	723	295	257	464	394	154	924	0	589	1221	546
Arrive On Green	0.12	0.30	0.30	0.07	0.25	0.25	0.09	0.26	0.00	0.17	0.35	0.00
Sat Flow, veh/h	3442	2438	996	3442	1863	1583	1774	3632	0	3442	3539	1583
Grp Volume(v), veh/h	409	398	376	97	329	409	132	545	0	584	676	0
Grp Sat Flow(s),veh/h/ln	1721	1770	1665	1721	1863	1583	1774	1770	0	1721	1770	1583
Q Serve(g_s), s	11.8	20.4	20.5	2.7	16.1	24.9	7.3	13.5	0.0	16.9	15.5	0.0
Cycle Q Clear(g_c), s	11.8	20.4	20.5	2.7	16.1	24.9	7.3	13.5	0.0	16.9	15.5	0.0
Prop In Lane	1.00		0.60	1.00		1.00	1.00		0.00	1.00		1.00
Lane Grp Cap(c), veh/h	420	525	493	257	464	394	154	924	0	589	1221	546
V/C Ratio(X)	0.97	0.76	0.76	0.38	0.71	1.04	0.86	0.59	0.00	0.99	0.55	0.00
Avail Cap(c_a), veh/h	420	525	493	293	464	394	154	924	0	589	1221	546
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	43.7	31.9	32.0	44.1	34.2	37.5	45.0	32.3	0.0	41.4	26.5	0.0
Incr Delay (d2), s/veh	36.9	5.7	6.2	0.3	4.3	55.3	33.4	2.8	0.0	35.0	1.8	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	7.8	10.8	10.3	1.3	8.8	16.9	5.0	6.9	0.0	10.9	7.8	0.0
LnGrp Delay(d),s/veh	80.6	37.6	38.2	44.4	38.5	92.9	78.4	35.0	0.0	76.4	28.3	0.0
LnGrp LOS	F	D	D	D	D	F	E	D		E	C	
Approach Vol, veh/h		1183			835			677			1260	
Approach Delay, s/veh		52.7			65.8			43.5			50.6	
Approach LOS		D			E			D			D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	12.3	33.9	15.0	38.8	17.0	29.2	23.4	30.4
Change Period (Y+Rc), s	4.8	4.3	6.3	4.3	4.8	4.3	6.3	4.3
Max Green Setting (Gmax), s	8.5	28.6	8.7	34.5	12.2	24.9	17.1	26.1
Max Q Clear Time (g_c+I1), s	4.7	22.5	9.3	17.5	13.8	26.9	18.9	15.5
Green Ext Time (p_c), s	0.0	1.9	0.0	3.0	0.0	0.0	0.0	1.9

Intersection Summary	
HCM 2010 Ctrl Delay	53.2
HCM 2010 LOS	D

Intersection	
Int Delay, s/veh	19.3

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	712	457	7	5	800	48	0	0	0	11	0	204
Future Vol, veh/h	712	457	7	5	800	48	0	0	0	11	0	204
Conflicting Peds, #/hr	1	0	3	3	0	1	1	0	1	1	0	1
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	205	-	-	155	-	-	-	-	-	-	-	0
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	96	96	96	91	91	91	25	25	25	97	97	97
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	742	476	7	5	879	53	0	0	0	11	0	210

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	933	0	0	486	0	0	2418	2910	246	2640	2887	468
Stage 1	-	-	-	-	-	-	1967	1967	-	917	917	-
Stage 2	-	-	-	-	-	-	451	943	-	1723	1970	-
Critical Hdwy	4.14	-	-	4.14	-	-	7.54	6.54	6.94	7.54	6.54	6.94
Critical Hdwy Stg 1	-	-	-	-	-	-	6.54	5.54	-	6.54	5.54	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.54	5.54	-	6.54	5.54	-
Follow-up Hdwy	2.22	-	-	2.22	-	-	3.52	4.02	3.32	3.52	4.02	3.32
Pot Cap-1 Maneuver	~ 729	-	-	1073	-	-	17	15	754	~ 11	16	542
Stage 1	-	-	-	-	-	-	65	107	-	293	349	-
Stage 2	-	-	-	-	-	-	557	339	-	92	107	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	~ 728	-	-	1070	-	-	-	0	751	-	0	541
Mov Cap-2 Maneuver	-	-	-	-	-	-	-	0	-	-	0	-
Stage 1	-	-	-	-	-	-	65	0	-	293	347	-
Stage 2	-	-	-	-	-	-	339	337	-	-	0	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	37.5	0	0	
HCM LOS			A	-

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	-	~ 728	-	-	1070	-	-	-	541
HCM Lane V/C Ratio	-	1.019	-	-	0.005	-	-	-	0.389
HCM Control Delay (s)	0	62	-	-	8.4	-	-	-	15.8
HCM Lane LOS	A	F	-	-	A	-	-	-	C
HCM 95th %tile Q(veh)	-	17.6	-	-	0	-	-	-	1.8

Notes			
~: Volume exceeds capacity	$: Delay exceeds 300s	+: Computation Not Defined	*: All major volume in platoon

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	31	35	337	687	1368	258
Future Volume (veh/h)	31	35	337	687	1368	258
Number	5	12	3	8	4	14
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00	1.00			1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1863	1863	1863	1900
Adj Flow Rate, veh/h	41	47	416	848	1487	280
Adj No. of Lanes	1	1	1	2	2	0
Peak Hour Factor	0.75	0.75	0.81	0.81	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	82	73	456	3144	1800	332
Arrive On Green	0.05	0.05	0.26	0.89	0.60	0.60
Sat Flow, veh/h	1774	1583	1774	3632	3076	550
Grp Volume(v), veh/h	41	47	416	848	869	898
Grp Sat Flow(s),veh/h/ln	1774	1583	1774	1770	1770	1764
Q Serve(g_s), s	2.4	3.1	24.0	3.7	40.4	43.5
Cycle Q Clear(g_c), s	2.4	3.1	24.0	3.7	40.4	43.5
Prop In Lane	1.00	1.00	1.00			0.31
Lane Grp Cap(c), veh/h	82	73	456	3144	1068	1064
V/C Ratio(X)	0.50	0.64	0.91	0.27	0.81	0.84
Avail Cap(c_a), veh/h	430	384	638	3938	1282	1278
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	49.2	49.5	38.1	0.9	16.3	16.9
Incr Delay (d2), s/veh	4.6	9.0	13.9	0.0	3.5	4.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.3	1.5	13.5	1.8	20.6	22.3
LnGrp Delay(d),s/veh	53.8	58.5	52.0	0.9	19.8	21.5
LnGrp LOS	D	E	D	A	B	C
Approach Vol, veh/h	88			1264	1767	
Approach Delay, s/veh	56.3			17.7	20.7	
Approach LOS	E			B	C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2	3	4				8
Phs Duration (G+Y+Rc), s		7.9	30.1	67.6				97.7
Change Period (Y+Rc), s		3.0	3.0	3.9				3.9
Max Green Setting (Gmax), s		25.6	38.0	76.5				117.5
Max Q Clear Time (g_c+I1), s		5.1	26.0	45.5				5.7
Green Ext Time (p_c), s		0.2	1.1	18.2				7.6

Intersection Summary	
HCM 2010 Ctrl Delay	20.5
HCM 2010 LOS	C

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	24	244	74	97	136	344	53	111	290	624	269	30
Future Volume (veh/h)	24	244	74	97	136	344	53	111	290	624	269	30
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1900	1863	1863	1900	1863	1863	1863	1863	1900	1863	1863	1900
Adj Flow Rate, veh/h	29	298	39	104	146	204	60	126	137	671	289	26
Adj No. of Lanes	0	1	1	0	1	1	1	2	0	1	2	0
Peak Hour Factor	0.82	0.82	0.82	0.93	0.93	0.93	0.88	0.88	0.88	0.93	0.93	0.93
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	34	350	392	121	169	878	77	193	173	701	1532	137
Arrive On Green	0.21	0.21	0.21	0.16	0.16	0.16	0.04	0.11	0.11	0.40	0.47	0.47
Sat Flow, veh/h	164	1690	1556	759	1066	1583	1774	1770	1583	1774	3286	294
Grp Volume(v), veh/h	327	0	39	250	0	204	60	126	137	671	155	160
Grp Sat Flow(s),veh/h/ln	1855	0	1556	1825	0	1583	1774	1770	1583	1774	1770	1810
Q Serve(g_s), s	18.1	0.0	2.1	14.2	0.0	0.0	3.6	7.3	9.0	39.2	5.4	5.5
Cycle Q Clear(g_c), s	18.1	0.0	2.1	14.2	0.0	0.0	3.6	7.3	9.0	39.2	5.4	5.5
Prop In Lane	0.09		1.00	0.42		1.00	1.00		1.00	1.00		0.16
Lane Grp Cap(c), veh/h	384	0	392	290	0	878	77	193	173	701	825	844
V/C Ratio(X)	0.85	0.00	0.10	0.86	0.00	0.23	0.78	0.65	0.79	0.96	0.19	0.19
Avail Cap(c_a), veh/h	581	0	557	334	0	916	170	314	281	832	975	997
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	40.6	0.0	30.7	43.7	0.0	12.2	50.4	45.5	46.3	31.3	16.6	16.7
Incr Delay (d2), s/veh	7.5	0.0	0.1	18.1	0.0	0.1	6.1	1.4	3.1	18.7	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	10.1	0.0	0.9	8.6	0.0	3.1	1.9	3.6	4.1	22.8	2.7	2.8
LnGrp Delay(d),s/veh	48.2	0.0	30.8	61.8	0.0	12.3	56.6	46.9	49.4	50.0	16.7	16.7
LnGrp LOS	D		C	E		B	E	D	D	D	B	B
Approach Vol, veh/h		366			454			323			986	
Approach Delay, s/veh		46.3			39.6			49.8			39.4	
Approach LOS		D			D			D			D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2	3	4		6	7	8
Phs Duration (G+Y+Rc), s		25.7	7.6	53.3		19.9	45.7	15.2
Change Period (Y+Rc), s		3.6	3.0	3.6		3.0	3.6	* 3.6
Max Green Setting (Gmax), s		33.4	10.2	58.7		19.5	50.0	* 19
Max Q Clear Time (g_c+I1), s		20.1	5.6	7.5		16.2	41.2	11.0
Green Ext Time (p_c), s		1.7	0.0	1.2		0.7	0.9	0.6

Intersection Summary	
HCM 2010 Ctrl Delay	42.2
HCM 2010 LOS	D

Notes

* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.
User approved changes to right turn type.

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	490	722	843	665	913	4
Future Volume (veh/h)	490	722	843	665	913	4
Number	7	14	5	2	6	16
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00	1.00			0.97
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1863	1863	1863	1900
Adj Flow Rate, veh/h	521	768	916	723	1026	4
Adj No. of Lanes	1	1	2	2	2	0
Peak Hour Factor	0.94	0.94	0.92	0.92	0.89	0.89
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	525	890	915	2172	1094	4
Arrive On Green	0.30	0.30	0.27	0.61	0.30	0.30
Sat Flow, veh/h	1774	1583	3442	3632	3708	14
Grp Volume(v), veh/h	521	768	916	723	502	528
Grp Sat Flow(s),veh/h/ln	1774	1583	1721	1770	1770	1860
Q Serve(g_s), s	29.2	29.5	26.5	9.9	27.5	27.5
Cycle Q Clear(g_c), s	29.2	29.5	26.5	9.9	27.5	27.5
Prop In Lane	1.00	1.00	1.00			0.01
Lane Grp Cap(c), veh/h	525	890	915	2172	536	563
V/C Ratio(X)	0.99	0.86	1.00	0.33	0.94	0.94
Avail Cap(c_a), veh/h	525	890	915	2184	542	569
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	35.0	18.6	36.6	9.3	33.8	33.8
Incr Delay (d2), s/veh	37.1	8.8	30.0	0.1	24.1	23.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	19.6	32.6	16.3	4.8	17.0	17.7
LnGrp Delay(d),s/veh	72.1	27.3	66.6	9.4	57.9	57.1
LnGrp LOS	E	C	F	A	E	E
Approach Vol, veh/h	1289			1639	1030	
Approach Delay, s/veh	45.4			41.4	57.5	
Approach LOS	D			D	E	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4	5	6		
Phs Duration (G+Y+Rc), s		65.7		34.0	31.0	34.7		
Change Period (Y+Rc), s		4.5		4.5	4.5	4.5		
Max Green Setting (Gmax), s		61.5		29.5	26.5	30.5		
Max Q Clear Time (g_c+I1), s		11.9		31.5	28.5	29.5		
Green Ext Time (p_c), s		6.0		0.0	0.0	0.6		

Intersection Summary	
HCM 2010 Ctrl Delay	46.9
HCM 2010 LOS	D

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	422	456	234	205	528	549	152	755	120	475	662	628
Future Volume (veh/h)	422	456	234	205	528	549	152	755	120	475	662	628
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		0.99	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1900	1863	1863	1863	1863	1863	1900	1863	1863	1863
Adj Flow Rate, veh/h	454	490	199	223	574	414	169	839	0	495	690	0
Adj No. of Lanes	2	2	0	2	1	1	1	2	0	2	2	1
Peak Hour Factor	0.93	0.93	0.93	0.92	0.92	0.92	0.90	0.90	0.90	0.96	0.96	0.96
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	439	854	345	277	559	469	184	972	0	503	1122	502
Arrive On Green	0.13	0.35	0.35	0.08	0.30	0.30	0.10	0.27	0.00	0.15	0.32	0.00
Sat Flow, veh/h	3442	2458	992	3442	1863	1563	1774	3632	0	3442	3539	1583
Grp Volume(v), veh/h	454	352	337	223	574	414	169	839	0	495	690	0
Grp Sat Flow(s),veh/h/ln	1721	1770	1681	1721	1863	1563	1774	1770	0	1721	1770	1583
Q Serve(g_s), s	16.6	21.1	21.3	8.3	39.0	32.8	12.3	29.3	0.0	18.6	21.5	0.0
Cycle Q Clear(g_c), s	16.6	21.1	21.3	8.3	39.0	32.8	12.3	29.3	0.0	18.6	21.5	0.0
Prop In Lane	1.00		0.59	1.00		1.00	1.00		0.00	1.00		1.00
Lane Grp Cap(c), veh/h	439	614	584	277	559	469	184	972	0	503	1122	502
V/C Ratio(X)	1.03	0.57	0.58	0.81	1.03	0.88	0.92	0.86	0.00	0.98	0.62	0.00
Avail Cap(c_a), veh/h	439	614	584	397	559	469	184	972	0	503	1122	502
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	56.7	34.6	34.6	58.8	45.5	43.3	57.7	44.8	0.0	55.3	37.7	0.0
Incr Delay (d2), s/veh	51.7	0.8	0.9	4.9	45.2	17.1	42.8	10.0	0.0	35.8	2.5	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	11.0	10.4	10.0	4.1	27.0	16.4	8.2	15.7	0.0	11.4	10.9	0.0
LnGrp Delay(d),s/veh	108.4	35.4	35.6	63.7	90.7	60.4	100.5	54.9	0.0	91.2	40.2	0.0
LnGrp LOS	F	D	D	E	F	E	F	D		F	D	
Approach Vol, veh/h		1143			1211			1008			1185	
Approach Delay, s/veh		64.5			75.4			62.5			61.5	
Approach LOS		E			E			E			E	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	15.3	49.4	19.8	45.5	21.4	43.3	25.3	40.0
Change Period (Y+Rc), s	4.8	4.3	6.3	4.3	4.8	4.3	6.3	4.3
Max Green Setting (Gmax), s	15.0	40.6	13.5	41.2	16.6	39.0	19.0	35.7
Max Q Clear Time (g_c+I1), s	10.3	23.3	14.3	23.5	18.6	41.0	20.6	31.3
Green Ext Time (p_c), s	0.2	2.7	0.0	3.1	0.0	0.0	0.0	1.7

Intersection Summary	
HCM 2010 Ctrl Delay	66.2
HCM 2010 LOS	E

Intersection	
Int Delay, s/veh	58.3

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	433	608	5	0	549	36	5	0	4	44	0	717
Future Vol, veh/h	433	608	5	0	549	36	5	0	4	44	0	717
Conflicting Peds, #/hr	0	0	0	0	0	0	1	0	0	0	0	1
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	205	-	-	155	-	-	-	-	-	-	-	0
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	91	91	91	92	92	92	45	45	45	87	87	87
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	476	668	5	0	597	39	11	0	9	51	0	824

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	636	0	0	673	0	0	1923	2259	337	1903	2242	319
Stage 1	-	-	-	-	-	-	1623	1623	-	617	617	-
Stage 2	-	-	-	-	-	-	300	636	-	1286	1625	-
Critical Hdwy	4.14	-	-	4.14	-	-	7.54	6.54	6.94	7.54	6.54	6.94
Critical Hdwy Stg 1	-	-	-	-	-	-	6.54	5.54	-	6.54	5.54	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.54	5.54	-	6.54	5.54	-
Follow-up Hdwy	2.22	-	-	2.22	-	-	3.52	4.02	3.32	3.52	4.02	3.32
Pot Cap-1 Maneuver	943	-	-	914	-	-	40	41	659	~ 42	42	~ 677
Stage 1	-	-	-	-	-	-	107	160	-	444	479	-
Stage 2	-	-	-	-	-	-	684	470	-	174	159	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	943	-	-	914	-	-	-	20	659	~ 25	21	~ 676
Mov Cap-2 Maneuver	-	-	-	-	-	-	-	20	-	~ 25	21	-
Stage 1	-	-	-	-	-	-	53	79	-	220	479	-
Stage 2	-	-	-	-	-	-	-	470	-	85	79	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	5.2	0		171.9
HCM LOS			-	F

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	-	943	-	-	914	-	-	25	676
HCM Lane V/C Ratio	-	0.505	-	-	-	-	-	2.023	1.219
HCM Control Delay (s)	-	12.6	-	-	0	-	-	$ 808.2	132.8
HCM Lane LOS	-	B	-	-	A	-	-	F	F
HCM 95th %tile Q(veh)	-	2.9	-	-	0	-	-	6.2	29.1

Notes			
~: Volume exceeds capacity	$: Delay exceeds 300s	+: Computation Not Defined	*: All major volume in platoon

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	255	598	156	1082	803	80
Future Volume (veh/h)	255	598	156	1082	803	80
Number	5	12	3	8	4	14
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00	1.00			0.97
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1863	1863	1863	1900
Adj Flow Rate, veh/h	319	748	166	1151	863	86
Adj No. of Lanes	1	1	1	2	2	0
Peak Hour Factor	0.80	0.80	0.94	0.94	0.93	0.93
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	726	648	206	1734	1069	107
Arrive On Green	0.41	0.41	0.12	0.49	0.33	0.33
Sat Flow, veh/h	1774	1583	1774	3632	3335	323
Grp Volume(v), veh/h	319	748	166	1151	471	478
Grp Sat Flow(s),veh/h/ln	1774	1583	1774	1770	1770	1795
Q Serve(g_s), s	8.9	28.0	6.2	16.8	16.6	16.6
Cycle Q Clear(g_c), s	8.9	28.0	6.2	16.8	16.6	16.6
Prop In Lane	1.00	1.00	1.00			0.18
Lane Grp Cap(c), veh/h	726	648	206	1734	584	592
V/C Ratio(X)	0.44	1.15	0.80	0.66	0.81	0.81
Avail Cap(c_a), veh/h	726	648	259	2074	701	711
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	14.6	20.2	29.5	13.2	20.9	20.9
Incr Delay (d2), s/veh	0.4	86.3	13.6	0.6	5.9	5.8
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	4.4	27.7	3.8	8.3	9.1	9.2
LnGrp Delay(d),s/veh	15.0	106.6	43.0	13.8	26.8	26.7
LnGrp LOS	B	F	D	B	C	C
Approach Vol, veh/h	1067			1317	949	
Approach Delay, s/veh	79.2			17.5	26.8	
Approach LOS	E			B	C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2	3	4				8
Phs Duration (G+Y+Rc), s		31.0	11.0	26.5				37.4
Change Period (Y+Rc), s		3.0	3.0	3.9				3.9
Max Green Setting (Gmax), s		28.0	10.0	27.1				40.1
Max Q Clear Time (g_c+I1), s		30.0	8.2	18.6				18.8
Green Ext Time (p_c), s		0.0	0.1	3.9				8.9

Intersection Summary	
HCM 2010 Ctrl Delay	39.9
HCM 2010 LOS	D

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	22	213	150	233	169	509	139	148	412	492	581	47
Future Volume (veh/h)	22	213	150	233	169	509	139	148	412	492	581	47
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		0.99	1.00		1.00	1.00		0.98
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1900	1863	1863	1900	1863	1863	1863	1863	1900	1863	1863	1900
Adj Flow Rate, veh/h	25	239	85	251	182	312	148	157	183	512	605	45
Adj No. of Lanes	0	1	1	0	1	1	1	2	0	1	2	0
Peak Hour Factor	0.89	0.89	0.89	0.93	0.93	0.93	0.94	0.94	0.94	0.96	0.96	0.96
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	31	296	430	279	202	898	176	238	213	541	1151	85
Arrive On Green	0.18	0.18	0.18	0.27	0.27	0.27	0.10	0.13	0.13	0.30	0.35	0.35
Sat Flow, veh/h	176	1678	1549	1049	761	1563	1774	1770	1583	1774	3334	248
Grp Volume(v), veh/h	264	0	85	433	0	312	148	157	183	512	321	329
Grp Sat Flow(s),veh/h/ln	1854	0	1549	1810	0	1563	1774	1770	1583	1774	1770	1812
Q Serve(g_s), s	15.9	0.0	4.9	26.9	0.0	0.0	9.5	9.8	13.2	32.9	16.9	16.9
Cycle Q Clear(g_c), s	15.9	0.0	4.9	26.9	0.0	0.0	9.5	9.8	13.2	32.9	16.9	16.9
Prop In Lane	0.09		1.00	0.58		1.00	1.00		1.00	1.00		0.14
Lane Grp Cap(c), veh/h	327	0	430	481	0	898	176	238	213	541	611	625
V/C Ratio(X)	0.81	0.00	0.20	0.90	0.00	0.35	0.84	0.66	0.86	0.95	0.53	0.53
Avail Cap(c_a), veh/h	540	0	608	544	0	952	318	287	257	670	638	653
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	46.1	0.0	32.3	41.2	0.0	13.4	51.5	47.9	49.3	39.6	30.5	30.5
Incr Delay (d2), s/veh	4.7	0.0	0.2	16.6	0.0	0.2	4.1	2.4	18.7	18.8	0.3	0.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	8.6	0.0	2.1	15.7	0.0	5.4	4.9	5.0	6.9	18.9	8.2	8.6
LnGrp Delay(d),s/veh	50.8	0.0	32.6	57.9	0.0	13.6	55.6	50.3	68.0	58.4	30.8	30.8
LnGrp LOS	D		C	E		B	E	D	E	E	C	C
Approach Vol, veh/h		349			745			488			1162	
Approach Delay, s/veh		46.4			39.3			58.5			42.9	
Approach LOS		D			D			E			D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2	3	4		6	7	8
Phs Duration (G+Y+Rc), s		24.1	14.6	43.8		34.0	39.1	19.3
Change Period (Y+Rc), s		3.6	3.0	3.6		3.0	3.6	* 3.6
Max Green Setting (Gmax), s		33.9	20.9	42.0		35.0	44.0	* 19
Max Q Clear Time (g_c+I1), s		17.9	11.5	18.9		28.9	34.9	15.2
Green Ext Time (p_c), s		1.6	0.1	2.6		2.1	0.6	0.5

Intersection Summary	
HCM 2010 Ctrl Delay	45.2
HCM 2010 LOS	D

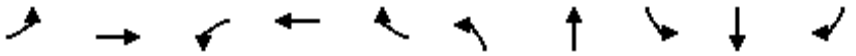
Notes

* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.
User approved changes to right turn type.

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	137	566	987	730	1175	12
Future Volume (veh/h)	137	566	987	730	1175	12
Number	7	14	5	2	6	16
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00	1.00			0.97
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1863	1863	1863	1900
Adj Flow Rate, veh/h	154	636	1050	777	1366	14
Adj No. of Lanes	1	1	2	2	2	0
Peak Hour Factor	0.89	0.89	0.94	0.94	0.86	0.86
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	293	759	1082	2665	1427	15
Arrive On Green	0.16	0.16	0.31	0.75	0.40	0.40
Sat Flow, veh/h	1774	1583	3442	3632	3681	37
Grp Volume(v), veh/h	154	636	1050	777	673	707
Grp Sat Flow(s),veh/h/ln	1774	1583	1721	1770	1770	1855
Q Serve(g_s), s	8.7	18.1	33.0	7.6	40.6	40.7
Cycle Q Clear(g_c), s	8.7	18.1	33.0	7.6	40.6	40.7
Prop In Lane	1.00	1.00	1.00			0.02
Lane Grp Cap(c), veh/h	293	759	1082	2665	704	738
V/C Ratio(X)	0.53	0.84	0.97	0.29	0.96	0.96
Avail Cap(c_a), veh/h	293	759	1082	2674	708	742
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	41.9	24.9	37.1	4.3	32.1	32.2
Incr Delay (d2), s/veh	1.7	8.2	20.5	0.1	23.7	23.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	4.4	31.1	18.7	3.7	24.5	25.5
LnGrp Delay(d),s/veh	43.6	33.1	57.6	4.3	55.8	55.3
LnGrp LOS	D	C	E	A	E	E
Approach Vol, veh/h	790			1827	1380	
Approach Delay, s/veh	35.1			35.0	55.5	
Approach LOS	D			C	E	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4	5	6		
Phs Duration (G+Y+Rc), s		87.1		22.6	39.0	48.1		
Change Period (Y+Rc), s		4.5		4.5	4.5	4.5		
Max Green Setting (Gmax), s		82.9		18.1	34.5	43.9		
Max Q Clear Time (g_c+I1), s		9.6		20.1	35.0	42.7		
Green Ext Time (p_c), s		6.7		0.0	0.0	1.0		

Intersection Summary	
HCM 2010 Ctrl Delay	42.1
HCM 2010 LOS	D



Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	SBL	SBT	SBR
Lane Group Flow (vph)	409	852	97	329	650	132	707	584	676	617
v/c Ratio	0.98	0.76	0.35	0.71	1.05	0.86	0.77	0.99	0.55	0.80
Control Delay	83.9	33.0	47.1	44.0	72.5	90.5	38.9	78.4	28.6	20.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	83.9	33.0	47.1	44.0	72.5	90.5	38.9	78.4	28.6	20.9
Queue Length 50th (ft)	136	235	30	192	~300	84	208	193	181	149
Queue Length 95th (ft)	#232	315	56	291	#521	#192	276	#290	229	281
Internal Link Dist (ft)		1192		706			612		533	
Turn Bay Length (ft)	178		240			162		162		
Base Capacity (vph)	418	1121	291	463	617	153	916	587	1221	771
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.98	0.76	0.33	0.71	1.05	0.86	0.77	0.99	0.55	0.80

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Lane Group	EBL	EBR	NBL	NBT	SBT
Lane Group Flow (vph)	41	47	416	848	1767
v/c Ratio	0.28	0.28	0.87	0.27	0.87
Control Delay	62.3	18.8	65.3	2.1	30.2
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	62.3	18.8	65.3	2.1	30.2
Queue Length 50th (ft)	35	0	336	38	660
Queue Length 95th (ft)	60	25	#490	106	#1056
Internal Link Dist (ft)	331			457	260
Turn Bay Length (ft)			135		
Base Capacity (vph)	355	350	527	3161	2073
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.12	0.13	0.79	0.27	0.85

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

4: Cleveland Ave & Industrial Dr/Mendocino O/C

Timing Plan: AM Peak

Lane Group	EBT	EBR	WBT	WBR	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	327	90	250	370	60	456	671	321
v/c Ratio	0.83	0.18	0.85	0.34	0.50	0.77	0.90	0.21
Control Delay	63.3	8.6	75.9	1.7	70.8	25.1	50.3	21.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	63.3	8.6	75.9	1.7	70.8	25.1	50.3	21.0
Queue Length 50th (ft)	238	12	187	0	45	50	468	75
Queue Length 95th (ft)	329	35	#387	28	97	105	#854	121
Internal Link Dist (ft)	245		126			289		330
Turn Bay Length (ft)		80			225		215	
Base Capacity (vph)	522	516	300	1077	152	778	746	1726
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.63	0.17	0.83	0.34	0.39	0.59	0.90	0.19

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Lane Group	EBL	EBR	NBL	NBT	SBT
Lane Group Flow (vph)	521	768	916	723	1030
v/c Ratio	1.00	0.80	1.01	0.33	0.96
Control Delay	75.6	22.8	69.3	9.8	53.5
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	75.6	22.8	69.3	9.8	53.5
Queue Length 50th (ft)	331	341	~304	107	337
Queue Length 95th (ft)	#547	529	#439	141	#463
Internal Link Dist (ft)	75			533	381
Turn Bay Length (ft)			178		
Base Capacity (vph)	522	962	909	2176	1078
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	1.00	0.80	1.01	0.33	0.96

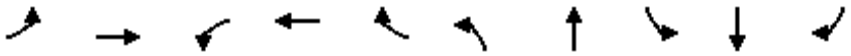
Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

1: Mendocino Ave & Mendocino O/C/Fountaingrove Pkwy

Timing Plan: PM Peak



Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	SBL	SBT	SBR
Lane Group Flow (vph)	454	742	223	574	597	169	972	495	690	654
v/c Ratio	1.04	0.64	0.68	1.03	0.94	0.92	1.01	0.99	0.61	0.93
Control Delay	107.3	36.5	67.2	90.3	50.2	107.2	78.7	92.6	40.5	42.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	107.3	36.5	67.2	90.3	50.2	107.2	78.7	92.6	40.5	42.7
Queue Length 50th (ft)	~211	253	94	~516	325	143	~439	217	259	314
Queue Length 95th (ft)	#320	332	136	#742	#568	#284	#586	#332	325	#570
Internal Link Dist (ft)		1192		706			612		533	
Turn Bay Length (ft)	178		240			162		162		
Base Capacity (vph)	438	1153	396	558	636	183	958	501	1122	704
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	1.04	0.64	0.56	1.03	0.94	0.92	1.01	0.99	0.61	0.93

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

3: Fountaingrove Pkwy & Round Barn Blvd East

Timing Plan: PM Peak

Lane Group	EBL	EBR	NBL	NBT	SBT
Lane Group Flow (vph)	319	748	166	1151	949
v/c Ratio	0.48	0.94	0.69	0.62	0.78
Control Delay	20.5	35.2	47.7	13.6	25.6
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	20.5	35.2	47.7	13.6	25.6
Queue Length 50th (ft)	111	203	75	180	196
Queue Length 95th (ft)	156	#340	#162	240	265
Internal Link Dist (ft)	331			457	260
Turn Bay Length (ft)			135		
Base Capacity (vph)	718	835	256	2058	1379
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.44	0.90	0.65	0.56	0.69

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Lane Group	EBT	EBR	WBT	WBR	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	264	169	433	547	148	595	513	654
v/c Ratio	0.77	0.30	0.86	0.47	0.71	0.85	0.90	0.60
Control Delay	64.9	7.7	63.6	2.0	75.0	30.8	62.1	40.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	64.9	7.7	63.6	2.0	75.0	30.8	62.1	40.1
Queue Length 50th (ft)	215	19	353	0	122	84	403	236
Queue Length 95th (ft)	318	45	#635	30	209	166	#704	350
Internal Link Dist (ft)	245		126			289		330
Turn Bay Length (ft)		80			225		215	
Base Capacity (vph)	507	633	512	1197	298	822	629	1205
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.52	0.27	0.85	0.46	0.50	0.72	0.82	0.54

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Lane Group	EBL	EBR	NBL	NBT	SBT
Lane Group Flow (vph)	154	636	1050	777	1380
v/c Ratio	0.66	0.80	0.94	0.28	0.94
Control Delay	57.6	30.6	51.5	3.7	44.1
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	57.6	30.6	51.5	3.7	44.1
Queue Length 50th (ft)	101	340	356	63	466
Queue Length 95th (ft)	166	490	#517	98	#607
Internal Link Dist (ft)	75			533	381
Turn Bay Length (ft)			178		
Base Capacity (vph)	302	797	1118	2770	1465
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.51	0.80	0.94	0.28	0.94

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

HCM 2010 Signalized Intersection Summary
2: Fountaingrove Pkwy & Round Barn Blvd West

Timing Plan: AM Peak

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	712	457	7	5	800	48	0	0	0	11	0	204
Future Volume (veh/h)	712	457	7	5	800	48	0	0	0	11	0	204
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.97	1.00		0.98	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1900	1863	1863	1900	1900	1863	1900	1900	1863	1863
Adj Flow Rate, veh/h	742	476	7	5	879	53	0	0	0	11	0	210
Adj No. of Lanes	1	2	0	1	2	0	0	1	0	0	1	1
Peak Hour Factor	0.96	0.96	0.96	0.91	0.91	0.91	0.25	0.25	0.25	0.97	0.97	0.97
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	798	2666	39	12	1028	62	0	184	0	246	0	869
Arrive On Green	0.45	0.75	0.75	0.01	0.30	0.30	0.00	0.00	0.00	0.10	0.00	0.10
Sat Flow, veh/h	1774	3569	52	1774	3388	204	0	1863	0	1407	0	1579
Grp Volume(v), veh/h	742	236	247	5	459	473	0	0	0	11	0	210
Grp Sat Flow(s),veh/h/ln	1774	1770	1852	1774	1770	1823	0	1863	0	1407	0	1579
Q Serve(g_s), s	26.5	2.6	2.6	0.2	16.4	16.4	0.0	0.0	0.0	0.5	0.0	4.6
Cycle Q Clear(g_c), s	26.5	2.6	2.6	0.2	16.4	16.4	0.0	0.0	0.0	0.5	0.0	4.6
Prop In Lane	1.00		0.03	1.00		0.11	0.00		0.00	1.00		1.00
Lane Grp Cap(c), veh/h	798	1322	1383	12	537	553	0	184	0	246	0	869
V/C Ratio(X)	0.93	0.18	0.18	0.43	0.85	0.85	0.00	0.00	0.00	0.04	0.00	0.24
Avail Cap(c_a), veh/h	925	1374	1438	132	583	600	0	222	0	275	0	901
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	0.00	0.00	0.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	17.4	2.5	2.5	33.2	22.0	22.0	0.0	0.0	0.0	27.5	0.0	7.9
Incr Delay (d2), s/veh	14.2	0.1	0.1	22.5	11.2	10.9	0.0	0.0	0.0	0.1	0.0	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	15.9	1.3	1.3	0.2	9.6	9.8	0.0	0.0	0.0	0.2	0.0	2.0
LnGrp Delay(d),s/veh	31.6	2.5	2.5	55.7	33.2	32.9	0.0	0.0	0.0	27.5	0.0	8.0
LnGrp LOS	C	A	A	E	C	C				C		A
Approach Vol, veh/h		1225			937			0			221	
Approach Delay, s/veh		20.1			33.2			0.0			9.0	
Approach LOS		C			C						A	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2	3	4		6	7	8
Phs Duration (G+Y+Rc), s		9.6	3.4	54.0		9.6	33.2	24.3
Change Period (Y+Rc), s		3.0	3.0	3.9		3.0	3.0	3.9
Max Green Setting (Gmax), s		8.0	5.0	52.1		8.0	35.0	22.1
Max Q Clear Time (g_c+I1), s		0.0	2.2	4.6		6.6	28.5	18.4
Green Ext Time (p_c), s		0.0	0.0	3.2		0.1	1.7	2.0

Intersection Summary	
HCM 2010 Ctrl Delay	24.2
HCM 2010 LOS	C

Notes

User approved changes to right turn type.

HCM 2010 Signalized Intersection Summary
2: Fountaingrove Pkwy & Round Barn Blvd West

Timing Plan: PM Peak

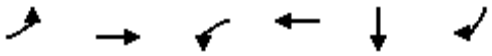
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	433	608	5	0	549	36	5	0	4	44	0	717
Future Volume (veh/h)	433	608	5	0	549	36	5	0	4	44	0	717
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		0.99	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1900	1863	1863	1900	1900	1863	1900	1900	1863	1863
Adj Flow Rate, veh/h	476	668	5	0	597	39	11	0	9	51	0	824
Adj No. of Lanes	1	2	0	1	2	0	0	1	0	0	1	1
Peak Hour Factor	0.91	0.91	0.91	0.92	0.92	0.92	0.45	0.45	0.45	0.87	0.87	0.87
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	522	1973	15	3	685	45	246	26	146	594	0	998
Arrive On Green	0.29	0.55	0.55	0.00	0.20	0.20	0.34	0.00	0.34	0.34	0.00	0.34
Sat Flow, veh/h	1774	3601	27	1774	3370	220	453	78	434	1408	0	1582
Grp Volume(v), veh/h	476	328	345	0	313	323	20	0	0	51	0	824
Grp Sat Flow(s),veh/h/ln	1774	1770	1858	1774	1770	1821	964	0	0	1408	0	1582
Q Serve(g_s), s	15.4	6.1	6.1	0.0	10.2	10.2	0.0	0.0	0.0	0.9	0.0	20.0
Cycle Q Clear(g_c), s	15.4	6.1	6.1	0.0	10.2	10.2	0.5	0.0	0.0	1.4	0.0	20.0
Prop In Lane	1.00		0.01	1.00		0.12	0.55		0.45	1.00		1.00
Lane Grp Cap(c), veh/h	522	970	1018	3	360	370	418	0	0	594	0	998
V/C Ratio(X)	0.91	0.34	0.34	0.00	0.87	0.87	0.05	0.00	0.00	0.09	0.00	0.83
Avail Cap(c_a), veh/h	537	970	1018	149	360	370	418	0	0	594	0	998
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	0.00	1.00	1.00	1.00	0.00	0.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	20.3	7.5	7.5	0.0	22.9	23.0	13.3	0.0	0.0	13.5	0.0	8.5
Incr Delay (d2), s/veh	19.6	0.2	0.2	0.0	19.9	19.8	0.0	0.0	0.0	0.1	0.0	5.8
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	10.4	3.0	3.1	0.0	6.9	7.1	0.2	0.0	0.0	0.6	0.0	11.7
LnGrp Delay(d),s/veh	39.9	7.7	7.7	0.0	42.9	42.8	13.3	0.0	0.0	13.6	0.0	14.3
LnGrp LOS	D	A	A		D	D	B			B		B
Approach Vol, veh/h		1149			636			20			875	
Approach Delay, s/veh		21.0			42.8			13.3			14.2	
Approach LOS		C			D			B			B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2	3	4		6	7	8
Phs Duration (G+Y+Rc), s		23.0	0.0	36.5		23.0	20.5	16.0
Change Period (Y+Rc), s		3.0	3.0	3.9		3.0	3.0	3.9
Max Green Setting (Gmax), s		20.0	5.0	25.1		20.0	18.0	12.1
Max Q Clear Time (g_c+I1), s		2.5	0.0	8.1		22.0	17.4	12.2
Green Ext Time (p_c), s		0.1	0.0	3.9		0.0	0.1	0.0

Intersection Summary	
HCM 2010 Ctrl Delay	23.9
HCM 2010 LOS	C

Notes

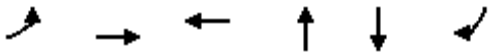
User approved changes to right turn type.



Lane Group	EBL	EBT	WBL	WBT	SBT	SBR
Lane Group Flow (vph)	742	483	5	932	11	210
v/c Ratio	0.92	0.18	0.04	0.88	0.07	0.22
Control Delay	37.9	2.6	33.6	36.3	31.5	6.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	37.9	2.6	33.6	36.3	31.5	6.5
Queue Length 50th (ft)	302	17	2	215	5	35
Queue Length 95th (ft)	#527	50	12	#328	19	64
Internal Link Dist (ft)		706		1600	472	
Turn Bay Length (ft)	205		155			
Base Capacity (vph)	866	2795	124	1088	156	1009
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.86	0.17	0.04	0.86	0.07	0.21

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.



Lane Group	EBL	EBT	WBT	NBT	SBT	SBR
Lane Group Flow (vph)	476	673	636	20	51	824
v/c Ratio	0.90	0.34	0.87	0.03	0.11	0.77
Control Delay	43.7	7.9	38.5	0.1	14.8	12.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	43.7	7.9	38.5	0.1	14.8	12.3
Queue Length 50th (ft)	163	63	116	0	13	151
Queue Length 95th (ft)	#322	93	#206	0	32	265
Internal Link Dist (ft)		706	1600	1	472	
Turn Bay Length (ft)	205					
Base Capacity (vph)	542	1968	729	628	471	1087
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.88	0.34	0.87	0.03	0.11	0.76

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Appendix H LEVEL OF SERVICE WORKSHEETS: 2040 PLUS PROJECT CONDITIONS

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	376	512	279	110	345	610	121	501	155	517	588	537
Future Volume (veh/h)	376	512	279	110	345	610	121	501	155	517	588	537
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1900	1863	1863	1863	1863	1863	1900	1863	1863	1863
Adj Flow Rate, veh/h	409	557	224	120	375	413	132	545	0	594	676	0
Adj No. of Lanes	2	2	0	2	1	1	1	2	0	2	2	1
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.87	0.87	0.87
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	420	721	289	266	464	394	154	924	0	589	1221	546
Arrive On Green	0.12	0.29	0.29	0.08	0.25	0.25	0.09	0.26	0.00	0.17	0.34	0.00
Sat Flow, veh/h	3442	2453	984	3442	1863	1583	1774	3632	0	3442	3539	1583
Grp Volume(v), veh/h	409	401	380	120	375	413	132	545	0	594	676	0
Grp Sat Flow(s),veh/h/ln	1721	1770	1667	1721	1863	1583	1774	1770	0	1721	1770	1583
Q Serve(g_s), s	11.8	20.7	20.8	3.3	18.9	24.9	7.3	13.5	0.0	17.1	15.5	0.0
Cycle Q Clear(g_c), s	11.8	20.7	20.8	3.3	18.9	24.9	7.3	13.5	0.0	17.1	15.5	0.0
Prop In Lane	1.00		0.59	1.00		1.00	1.00		0.00	1.00		1.00
Lane Grp Cap(c), veh/h	420	520	490	266	464	394	154	924	0	589	1221	546
V/C Ratio(X)	0.97	0.77	0.77	0.45	0.81	1.05	0.86	0.59	0.00	1.01	0.55	0.00
Avail Cap(c_a), veh/h	420	520	490	293	464	394	154	924	0	589	1221	546
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	43.7	32.2	32.3	44.1	35.3	37.6	45.0	32.3	0.0	41.5	26.5	0.0
Incr Delay (d2), s/veh	36.9	6.4	6.9	0.4	9.6	58.3	33.4	2.8	0.0	39.4	1.8	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	7.8	11.1	10.5	1.6	10.9	17.2	5.0	6.9	0.0	11.3	7.8	0.0
LnGrp Delay(d),s/veh	80.6	38.6	39.2	44.6	44.9	95.9	78.4	35.0	0.0	80.9	28.3	0.0
LnGrp LOS	F	D	D	D	D	F	E	D		F	C	
Approach Vol, veh/h		1190			908			677			1270	
Approach Delay, s/veh		53.3			68.0			43.5			52.9	
Approach LOS		D			E			D			D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	12.5	33.7	15.0	38.8	17.0	29.2	23.4	30.4
Change Period (Y+Rc), s	4.8	4.3	6.3	4.3	4.8	4.3	6.3	4.3
Max Green Setting (Gmax), s	8.5	28.6	8.7	34.5	12.2	24.9	17.1	26.1
Max Q Clear Time (g_c+I1), s	5.3	22.8	9.3	17.5	13.8	26.9	19.1	15.5
Green Ext Time (p_c), s	0.1	1.8	0.0	3.0	0.0	0.0	0.0	1.9

Intersection Summary	
HCM 2010 Ctrl Delay	54.8
HCM 2010 LOS	D

Intersection	
Int Delay, s/veh	23.8

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	723	468	7	5	838	49	0	0	0	15	0	241
Future Vol, veh/h	723	468	7	5	838	49	0	0	0	15	0	241
Conflicting Peds, #/hr	1	0	3	3	0	1	1	0	1	1	0	1
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	205	-	-	155	-	-	-	-	-	-	-	0
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	96	96	96	91	91	91	25	25	25	97	97	97
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	753	488	7	5	921	54	0	0	0	15	0	248

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	976	0	0	498	0	0	2473	2987	252	2710	2963	490
Stage 1	-	-	-	-	-	-	2001	2001	-	959	959	-
Stage 2	-	-	-	-	-	-	472	986	-	1751	2004	-
Critical Hdwy	4.14	-	-	4.14	-	-	7.54	6.54	6.94	7.54	6.54	6.94
Critical Hdwy Stg 1	-	-	-	-	-	-	6.54	5.54	-	6.54	5.54	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.54	5.54	-	6.54	5.54	-
Follow-up Hdwy	2.22	-	-	2.22	-	-	3.52	4.02	3.32	3.52	4.02	3.32
Pot Cap-1 Maneuver	~ 703	-	-	1062	-	-	15	14	748	~ 10	14	524
Stage 1	-	-	-	-	-	-	61	103	-	276	334	-
Stage 2	-	-	-	-	-	-	542	324	-	89	103	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	~ 702	-	-	1059	-	-	-	0	745	-	0	523
Mov Cap-2 Maneuver	-	-	-	-	-	-	-	0	-	-	0	-
Stage 1	-	-	-	-	-	-	61	0	-	276	332	-
Stage 2	-	-	-	-	-	-	283	322	-	-	0	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	47.6	0	0	
HCM LOS			A	-

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	-	~ 702	-	-	1059	-	-	-	523
HCM Lane V/C Ratio	-	1.073	-	-	0.005	-	-	-	0.475
HCM Control Delay (s)	0	78.9	-	-	8.4	-	-	-	18
HCM Lane LOS	A	F	-	-	A	-	-	-	C
HCM 95th %tile Q(veh)	-	20.3	-	-	0	-	-	-	2.5

Notes			
~: Volume exceeds capacity	$: Delay exceeds 300s	+: Computation Not Defined	*: All major volume in platoon

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	36	73	348	691	1369	260
Future Volume (veh/h)	36	73	348	691	1369	260
Number	5	12	3	8	4	14
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00	1.00			1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1863	1863	1863	1900
Adj Flow Rate, veh/h	48	97	430	853	1488	283
Adj No. of Lanes	1	1	1	2	2	0
Peak Hour Factor	0.75	0.75	0.81	0.81	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	140	125	462	3056	1721	320
Arrive On Green	0.08	0.08	0.26	0.86	0.58	0.58
Sat Flow, veh/h	1774	1583	1774	3632	3071	554
Grp Volume(v), veh/h	48	97	430	853	871	900
Grp Sat Flow(s),veh/h/ln	1774	1583	1774	1770	1770	1763
Q Serve(g_s), s	3.1	7.2	28.4	5.2	49.1	52.8
Cycle Q Clear(g_c), s	3.1	7.2	28.4	5.2	49.1	52.8
Prop In Lane	1.00	1.00	1.00			0.31
Lane Grp Cap(c), veh/h	140	125	462	3056	1022	1018
V/C Ratio(X)	0.34	0.78	0.93	0.28	0.85	0.88
Avail Cap(c_a), veh/h	379	338	562	3467	1129	1124
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	52.3	54.2	43.3	1.5	21.1	21.9
Incr Delay (d2), s/veh	1.4	9.8	20.0	0.0	6.0	8.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.6	3.5	16.4	2.5	25.4	27.8
LnGrp Delay(d),s/veh	53.7	64.0	63.2	1.5	27.0	29.9
LnGrp LOS	D	E	E	A	C	C
Approach Vol, veh/h	145			1283	1771	
Approach Delay, s/veh	60.6			22.2	28.5	
Approach LOS	E			C	C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2	3	4				8
Phs Duration (G+Y+Rc), s		12.5	34.3	73.2				107.5
Change Period (Y+Rc), s		3.0	3.0	3.9				3.9
Max Green Setting (Gmax), s		25.6	38.0	76.5				117.5
Max Q Clear Time (g_c+I1), s		9.2	30.4	54.8				7.2
Green Ext Time (p_c), s		0.3	0.9	14.5				7.6

Intersection Summary	
HCM 2010 Ctrl Delay	27.4
HCM 2010 LOS	C

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	24	245	74	102	140	348	53	111	291	629	269	30
Future Volume (veh/h)	24	245	74	102	140	348	53	111	291	629	269	30
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1900	1863	1863	1900	1863	1863	1863	1863	1900	1863	1863	1900
Adj Flow Rate, veh/h	29	299	39	110	151	207	60	126	138	676	289	26
Adj No. of Lanes	0	1	1	0	1	1	1	2	0	1	2	0
Peak Hour Factor	0.82	0.82	0.82	0.93	0.93	0.93	0.88	0.88	0.88	0.93	0.93	0.93
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	34	349	390	125	172	886	77	192	172	704	1537	137
Arrive On Green	0.21	0.21	0.21	0.16	0.16	0.16	0.04	0.11	0.11	0.40	0.47	0.47
Sat Flow, veh/h	164	1691	1556	769	1055	1583	1774	1770	1583	1774	3286	294
Grp Volume(v), veh/h	328	0	39	261	0	207	60	126	138	676	155	160
Grp Sat Flow(s),veh/h/ln	1855	0	1556	1824	0	1583	1774	1770	1583	1774	1770	1810
Q Serve(g_s), s	18.8	0.0	2.1	15.4	0.0	0.0	3.7	7.5	9.4	40.9	5.6	5.7
Cycle Q Clear(g_c), s	18.8	0.0	2.1	15.4	0.0	0.0	3.7	7.5	9.4	40.9	5.6	5.7
Prop In Lane	0.09		1.00	0.42		1.00	1.00		1.00	1.00		0.16
Lane Grp Cap(c), veh/h	383	0	390	297	0	886	77	192	172	704	827	846
V/C Ratio(X)	0.86	0.00	0.10	0.88	0.00	0.23	0.78	0.66	0.80	0.96	0.19	0.19
Avail Cap(c_a), veh/h	562	0	541	323	0	909	164	304	272	805	943	964
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	42.1	0.0	31.8	45.1	0.0	12.3	52.2	47.1	47.9	32.4	17.1	17.1
Incr Delay (d2), s/veh	8.6	0.0	0.1	22.1	0.0	0.1	6.1	1.4	3.9	20.3	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	10.6	0.0	0.9	9.6	0.0	3.2	1.9	3.8	4.3	23.9	2.8	2.9
LnGrp Delay(d),s/veh	50.7	0.0	31.9	67.2	0.0	12.4	58.3	48.5	51.8	52.6	17.1	17.2
LnGrp LOS	D		C	E		B	E	D	D	D	B	B
Approach Vol, veh/h		367			468			324			991	
Approach Delay, s/veh		48.7			43.0			51.7			41.4	
Approach LOS		D			D			D			D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2	3	4		6	7	8
Phs Duration (G+Y+Rc), s		26.3	7.8	55.1		20.9	47.3	15.6
Change Period (Y+Rc), s		3.6	3.0	3.6		3.0	3.6	* 3.6
Max Green Setting (Gmax), s		33.4	10.2	58.7		19.5	50.0	* 19
Max Q Clear Time (g_c+I1), s		20.8	5.7	7.7		17.4	42.9	11.4
Green Ext Time (p_c), s		1.7	0.0	1.2		0.5	0.8	0.6

Intersection Summary	
HCM 2010 Ctrl Delay	44.5
HCM 2010 LOS	D

Notes

* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.
User approved changes to right turn type.

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	490	731	855	665	913	4
Future Volume (veh/h)	490	731	855	665	913	4
Number	7	14	5	2	6	16
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00	1.00			0.97
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1863	1863	1863	1900
Adj Flow Rate, veh/h	521	778	929	723	1026	4
Adj No. of Lanes	1	1	2	2	2	0
Peak Hour Factor	0.94	0.94	0.92	0.92	0.89	0.89
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	525	892	921	2173	1089	4
Arrive On Green	0.30	0.30	0.27	0.61	0.30	0.30
Sat Flow, veh/h	1774	1583	3442	3632	3708	14
Grp Volume(v), veh/h	521	778	929	723	502	528
Grp Sat Flow(s),veh/h/ln	1774	1583	1721	1770	1770	1860
Q Serve(g_s), s	29.2	29.5	26.7	9.9	27.6	27.6
Cycle Q Clear(g_c), s	29.2	29.5	26.7	9.9	27.6	27.6
Prop In Lane	1.00	1.00	1.00			0.01
Lane Grp Cap(c), veh/h	525	892	921	2173	533	560
V/C Ratio(X)	0.99	0.87	1.01	0.33	0.94	0.94
Avail Cap(c_a), veh/h	525	892	921	2182	537	565
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	35.0	18.7	36.5	9.3	34.0	34.0
Incr Delay (d2), s/veh	37.4	9.5	31.8	0.1	25.0	24.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	19.6	33.2	16.6	4.8	17.1	17.8
LnGrp Delay(d),s/veh	72.5	28.2	68.3	9.4	59.0	58.2
LnGrp LOS	E	C	F	A	E	E
Approach Vol, veh/h	1299			1652	1030	
Approach Delay, s/veh	45.9			42.5	58.6	
Approach LOS	D			D	E	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4	5	6		
Phs Duration (G+Y+Rc), s		65.8		34.0	31.2	34.6		
Change Period (Y+Rc), s		4.5		4.5	4.5	4.5		
Max Green Setting (Gmax), s		61.5		29.5	26.7	30.3		
Max Q Clear Time (g_c+I1), s		11.9		31.5	28.7	29.6		
Green Ext Time (p_c), s		6.0		0.0	0.0	0.4		

Intersection Summary	
HCM 2010 Ctrl Delay	47.8
HCM 2010 LOS	D

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	422	480	234	217	552	556	152	755	140	504	662	628
Future Volume (veh/h)	422	480	234	217	552	556	152	755	140	504	662	628
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		0.99	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1900	1863	1863	1863	1863	1863	1900	1863	1863	1863
Adj Flow Rate, veh/h	454	516	204	236	600	421	169	839	0	525	690	0
Adj No. of Lanes	2	2	0	2	1	1	1	2	0	2	2	1
Peak Hour Factor	0.93	0.93	0.93	0.92	0.92	0.92	0.90	0.90	0.90	0.96	0.96	0.96
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	439	851	335	290	559	469	184	972	0	503	1122	502
Arrive On Green	0.13	0.34	0.34	0.08	0.30	0.30	0.10	0.27	0.00	0.15	0.32	0.00
Sat Flow, veh/h	3442	2478	975	3442	1863	1563	1774	3632	0	3442	3539	1583
Grp Volume(v), veh/h	454	368	352	236	600	421	169	839	0	525	690	0
Grp Sat Flow(s),veh/h/ln	1721	1770	1684	1721	1863	1563	1774	1770	0	1721	1770	1583
Q Serve(g_s), s	16.6	22.4	22.6	8.8	39.0	33.5	12.3	29.3	0.0	19.0	21.5	0.0
Cycle Q Clear(g_c), s	16.6	22.4	22.6	8.8	39.0	33.5	12.3	29.3	0.0	19.0	21.5	0.0
Prop In Lane	1.00		0.58	1.00		1.00	1.00		0.00	1.00		1.00
Lane Grp Cap(c), veh/h	439	608	578	290	559	469	184	972	0	503	1122	502
V/C Ratio(X)	1.03	0.61	0.61	0.81	1.07	0.90	0.92	0.86	0.00	1.04	0.62	0.00
Avail Cap(c_a), veh/h	439	608	578	397	559	469	184	972	0	503	1122	502
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	56.7	35.4	35.4	58.5	45.5	43.6	57.7	44.8	0.0	55.5	37.7	0.0
Incr Delay (d2), s/veh	51.7	1.2	1.4	6.4	59.4	19.3	42.8	10.0	0.0	52.0	2.5	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	11.0	11.1	10.7	4.4	29.2	17.0	8.2	15.7	0.0	12.6	10.9	0.0
LnGrp Delay(d),s/veh	108.4	36.6	36.8	65.0	104.9	62.9	100.5	54.9	0.0	107.5	40.2	0.0
LnGrp LOS	F	D	D	E	F	E	F	D		F	D	
Approach Vol, veh/h		1174			1257			1008			1215	
Approach Delay, s/veh		64.4			83.3			62.5			69.3	
Approach LOS		E			F			E			E	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	15.7	49.0	19.8	45.5	21.4	43.3	25.3	40.0
Change Period (Y+Rc), s	4.8	4.3	6.3	4.3	4.8	4.3	6.3	4.3
Max Green Setting (Gmax), s	15.0	40.6	13.5	41.2	16.6	39.0	19.0	35.7
Max Q Clear Time (g_c+I1), s	10.8	24.6	14.3	23.5	18.6	41.0	21.0	31.3
Green Ext Time (p_c), s	0.2	2.8	0.0	3.1	0.0	0.0	0.0	1.7

Intersection Summary	
HCM 2010 Ctrl Delay	70.4
HCM 2010 LOS	E

Intersection	
Int Delay, s/veh	73.3

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	469	645	5	0	570	40	5	0	4	46	0	738
Future Vol, veh/h	469	645	5	0	570	40	5	0	4	46	0	738
Conflicting Peds, #/hr	0	0	0	0	0	0	1	0	0	0	0	1
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	205	-	-	155	-	-	-	-	-	-	-	0
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	91	91	91	92	92	92	45	45	45	87	87	87
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	515	709	5	0	620	43	11	0	9	53	0	848

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	663	0	0	714	0	0	2053	2405	357	2027	2386	333
Stage 1	-	-	-	-	-	-	1742	1742	-	642	642	-
Stage 2	-	-	-	-	-	-	311	663	-	1385	1744	-
Critical Hdwy	4.14	-	-	4.14	-	-	7.54	6.54	6.94	7.54	6.54	6.94
Critical Hdwy Stg 1	-	-	-	-	-	-	6.54	5.54	-	6.54	5.54	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.54	5.54	-	6.54	5.54	-
Follow-up Hdwy	2.22	-	-	2.22	-	-	3.52	4.02	3.32	3.52	4.02	3.32
Pot Cap-1 Maneuver	922	-	-	882	-	-	32	33	639	~ 34	34	~ 663
Stage 1	-	-	-	-	-	-	90	139	-	429	467	-
Stage 2	-	-	-	-	-	-	674	457	-	151	139	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	922	-	-	882	-	-	-	15	639	~ 19	15	~ 662
Mov Cap-2 Maneuver	-	-	-	-	-	-	-	15	-	~ 19	15	-
Stage 1	-	-	-	-	-	-	40	61	-	189	467	-
Stage 2	-	-	-	-	-	-	-	457	-	66	61	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	5.8	0		221
HCM LOS			-	F

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	-	922	-	-	882	-	-	19	662
HCM Lane V/C Ratio	-	0.559	-	-	-	-	-	2.783	1.281
HCM Control Delay (s)	-	13.7	-	-	0	-	-	$ 1226.6	158.3
HCM Lane LOS	-	B	-	-	A	-	-	F	F
HCM 95th %tile Q(veh)	-	3.6	-	-	0	-	-	7	32.9

Notes			
~: Volume exceeds capacity	$: Delay exceeds 300s	+: Computation Not Defined	*: All major volume in platoon

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	258	619	193	1084	807	84
Future Volume (veh/h)	258	619	193	1084	807	84
Number	5	12	3	8	4	14
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00	1.00			0.97
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1863	1863	1863	1900
Adj Flow Rate, veh/h	322	774	205	1153	868	90
Adj No. of Lanes	1	1	1	2	2	0
Peak Hour Factor	0.80	0.80	0.94	0.94	0.93	0.93
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	701	625	245	1797	1056	109
Arrive On Green	0.39	0.39	0.14	0.51	0.33	0.33
Sat Flow, veh/h	1774	1583	1774	3632	3321	335
Grp Volume(v), veh/h	322	774	205	1153	476	482
Grp Sat Flow(s),veh/h/ln	1774	1583	1774	1770	1770	1793
Q Serve(g_s), s	9.5	28.0	8.0	16.9	17.5	17.5
Cycle Q Clear(g_c), s	9.5	28.0	8.0	16.9	17.5	17.5
Prop In Lane	1.00	1.00	1.00			0.19
Lane Grp Cap(c), veh/h	701	625	245	1797	579	586
V/C Ratio(X)	0.46	1.24	0.84	0.64	0.82	0.82
Avail Cap(c_a), veh/h	701	625	250	2002	676	685
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	15.9	21.5	29.8	12.7	22.0	22.0
Incr Delay (d2), s/veh	0.5	120.4	20.8	0.6	7.1	7.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	4.7	33.0	5.3	8.3	9.7	9.8
LnGrp Delay(d),s/veh	16.3	141.8	50.6	13.3	29.0	28.9
LnGrp LOS	B	F	D	B	C	C
Approach Vol, veh/h	1096			1358	958	
Approach Delay, s/veh	104.9			19.0	29.0	
Approach LOS	F			B	C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2	3	4				8
Phs Duration (G+Y+Rc), s		31.0	12.8	27.1				39.9
Change Period (Y+Rc), s		3.0	3.0	3.9				3.9
Max Green Setting (Gmax), s		28.0	10.0	27.1				40.1
Max Q Clear Time (g_c+I1), s		30.0	10.0	19.5				18.9
Green Ext Time (p_c), s		0.0	0.0	3.6				8.9

Intersection Summary	
HCM 2010 Ctrl Delay	49.4
HCM 2010 LOS	D

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	22	217	150	236	171	511	139	148	416	508	581	47
Future Volume (veh/h)	22	217	150	236	171	511	139	148	416	508	581	47
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		0.99	1.00		1.00	1.00		0.98
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1900	1863	1863	1900	1863	1863	1863	1863	1900	1863	1863	1900
Adj Flow Rate, veh/h	25	244	86	254	184	317	148	157	177	529	605	45
Adj No. of Lanes	0	1	1	0	1	1	1	2	0	1	2	0
Peak Hour Factor	0.89	0.89	0.89	0.93	0.93	0.93	0.94	0.94	0.94	0.96	0.96	0.96
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	31	298	431	279	202	911	175	230	206	556	1165	86
Arrive On Green	0.18	0.18	0.18	0.27	0.27	0.27	0.10	0.13	0.13	0.31	0.35	0.35
Sat Flow, veh/h	172	1682	1549	1050	760	1563	1774	1770	1583	1774	3334	248
Grp Volume(v), veh/h	269	0	86	438	0	317	148	157	177	529	321	329
Grp Sat Flow(s),veh/h/ln	1854	0	1549	1810	0	1563	1774	1770	1583	1774	1770	1812
Q Serve(g_s), s	16.9	0.0	5.1	28.3	0.0	0.0	9.9	10.2	13.2	35.3	17.4	17.5
Cycle Q Clear(g_c), s	16.9	0.0	5.1	28.3	0.0	0.0	9.9	10.2	13.2	35.3	17.4	17.5
Prop In Lane	0.09		1.00	0.58		1.00	1.00		1.00	1.00		0.14
Lane Grp Cap(c), veh/h	329	0	431	480	0	911	175	230	206	556	618	633
V/C Ratio(X)	0.82	0.00	0.20	0.91	0.00	0.35	0.84	0.68	0.86	0.95	0.52	0.52
Avail Cap(c_a), veh/h	520	0	591	524	0	948	307	277	248	646	618	633
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	47.9	0.0	33.5	43.0	0.0	13.4	53.5	50.2	51.5	40.6	31.3	31.3
Incr Delay (d2), s/veh	5.6	0.0	0.2	19.3	0.0	0.2	4.2	3.4	19.5	21.5	0.4	0.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	9.2	0.0	2.2	16.7	0.0	5.5	5.1	5.2	6.9	20.5	8.5	8.8
LnGrp Delay(d),s/veh	53.5	0.0	33.8	62.4	0.0	13.6	57.7	53.6	71.0	62.1	31.6	31.6
LnGrp LOS	D		C	E		B	E	D	E	E	C	C
Approach Vol, veh/h		355			755			482			1179	
Approach Delay, s/veh		48.7			41.9			61.3			45.3	
Approach LOS		D			D			E			D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2	3	4		6	7	8
Phs Duration (G+Y+Rc), s		25.0	15.0	45.8		35.1	41.5	19.3
Change Period (Y+Rc), s		3.6	3.0	3.6		3.0	3.6	* 3.6
Max Green Setting (Gmax), s		33.9	20.9	42.0		35.0	44.0	* 19
Max Q Clear Time (g_c+I1), s		18.9	11.9	19.5		30.3	37.3	15.2
Green Ext Time (p_c), s		1.6	0.1	2.6		1.7	0.6	0.5

Intersection Summary	
HCM 2010 Ctrl Delay	47.6
HCM 2010 LOS	D

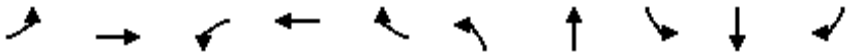
Notes

* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.
User approved changes to right turn type.

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	137	595	994	730	1175	12
Future Volume (veh/h)	137	595	994	730	1175	12
Number	7	14	5	2	6	16
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00	1.00			0.97
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1863	1863	1863	1900
Adj Flow Rate, veh/h	154	669	1057	777	1366	14
Adj No. of Lanes	1	1	2	2	2	0
Peak Hour Factor	0.89	0.89	0.94	0.94	0.86	0.86
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	293	759	1082	2665	1427	15
Arrive On Green	0.16	0.16	0.31	0.75	0.40	0.40
Sat Flow, veh/h	1774	1583	3442	3632	3681	37
Grp Volume(v), veh/h	154	669	1057	777	673	707
Grp Sat Flow(s),veh/h/ln	1774	1583	1721	1770	1770	1855
Q Serve(g_s), s	8.7	18.1	33.3	7.6	40.6	40.7
Cycle Q Clear(g_c), s	8.7	18.1	33.3	7.6	40.6	40.7
Prop In Lane	1.00	1.00	1.00			0.02
Lane Grp Cap(c), veh/h	293	759	1082	2665	704	738
V/C Ratio(X)	0.53	0.88	0.98	0.29	0.96	0.96
Avail Cap(c_a), veh/h	293	759	1082	2674	708	742
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	41.9	25.8	37.2	4.3	32.1	32.2
Incr Delay (d2), s/veh	1.7	11.8	21.8	0.1	23.7	23.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	4.4	33.4	19.1	3.7	24.5	25.5
LnGrp Delay(d),s/veh	43.6	37.5	59.1	4.3	55.8	55.3
LnGrp LOS	D	D	E	A	E	E
Approach Vol, veh/h	823			1834	1380	
Approach Delay, s/veh	38.7			35.9	55.5	
Approach LOS	D			D	E	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4	5	6		
Phs Duration (G+Y+Rc), s		87.1		22.6	39.0	48.1		
Change Period (Y+Rc), s		4.5		4.5	4.5	4.5		
Max Green Setting (Gmax), s		82.9		18.1	34.5	43.9		
Max Q Clear Time (g_c+I1), s		9.6		20.1	35.3	42.7		
Green Ext Time (p_c), s		6.7		0.0	0.0	1.0		

Intersection Summary	
HCM 2010 Ctrl Delay	43.2
HCM 2010 LOS	D



Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	SBL	SBT	SBR
Lane Group Flow (vph)	409	860	120	375	663	132	713	594	676	617
v/c Ratio	0.98	0.83	0.43	0.81	1.07	0.86	0.78	1.01	0.55	0.82
Control Delay	83.9	37.6	48.6	50.6	79.4	90.5	39.1	82.3	28.6	23.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	83.9	37.6	48.6	50.6	79.4	90.5	39.1	82.3	28.6	23.3
Queue Length 50th (ft)	136	239	38	225	~318	84	210	~200	181	168
Queue Length 95th (ft)	#232	#325	66	#370	#539	#192	280	#297	229	303
Internal Link Dist (ft)		1192		706			612		533	
Turn Bay Length (ft)	178		240			162		162		
Base Capacity (vph)	418	1034	291	463	617	153	916	587	1221	755
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.98	0.83	0.41	0.81	1.07	0.86	0.78	1.01	0.55	0.82

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

3: Fountaingrove Pkwy & Round Barn Blvd East

Timing Plan: AM Peak

Lane Group	EBL	EBR	NBL	NBT	SBT
Lane Group Flow (vph)	48	97	430	853	1771
v/c Ratio	0.33	0.45	0.89	0.28	0.90
Control Delay	63.9	16.9	68.9	2.2	33.2
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	63.9	16.9	68.9	2.2	33.2
Queue Length 50th (ft)	41	0	353	40	670
Queue Length 95th (ft)	67	30	#516	106	#1060
Internal Link Dist (ft)	331			457	260
Turn Bay Length (ft)			135		
Base Capacity (vph)	338	376	502	3104	1976
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.14	0.26	0.86	0.27	0.90

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Lane Group	EBT	EBR	WBT	WBR	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	328	90	261	374	60	457	676	321
v/c Ratio	0.83	0.18	0.88	0.35	0.50	0.78	0.91	0.21
Control Delay	63.9	8.6	78.8	1.7	71.0	25.5	51.9	21.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	63.9	8.6	78.8	1.7	71.0	25.5	51.9	21.0
Queue Length 50th (ft)	240	12	197	0	45	51	475	75
Queue Length 95th (ft)	330	35	#410	28	97	106	#865	121
Internal Link Dist (ft)	245		126			289		330
Turn Bay Length (ft)		80			225		215	
Base Capacity (vph)	520	514	298	1079	151	774	742	1718
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.63	0.18	0.88	0.35	0.40	0.59	0.91	0.19

Intersection Summary

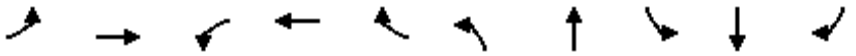
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Lane Group	EBL	EBR	NBL	NBT	SBT
Lane Group Flow (vph)	521	778	929	723	1030
v/c Ratio	1.00	0.81	1.01	0.33	0.96
Control Delay	75.6	23.2	70.6	9.8	54.8
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	75.6	23.2	70.6	9.8	54.8
Queue Length 50th (ft)	331	349	~312	107	338
Queue Length 95th (ft)	#547	541	#445	141	#465
Internal Link Dist (ft)	75			533	381
Turn Bay Length (ft)			178		
Base Capacity (vph)	522	964	916	2176	1071
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	1.00	0.81	1.01	0.33	0.96

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.



Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	SBL	SBT	SBR
Lane Group Flow (vph)	454	768	236	600	604	169	995	525	690	654
v/c Ratio	1.04	0.67	0.70	1.08	0.95	0.92	1.04	1.05	0.61	0.93
Control Delay	107.3	37.9	67.8	103.1	52.3	107.2	84.9	106.3	40.5	44.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	107.3	37.9	67.8	103.1	52.3	107.2	84.9	106.3	40.5	44.0
Queue Length 50th (ft)	~211	270	100	~561	334	143	~471	~247	259	321
Queue Length 95th (ft)	#320	349	143	#791	#580	#284	#607	#361	325	#577
Internal Link Dist (ft)		1192		706			612		533	
Turn Bay Length (ft)	178		240			162		162		
Base Capacity (vph)	438	1142	396	558	636	183	957	501	1122	700
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	1.04	0.67	0.60	1.08	0.95	0.92	1.04	1.05	0.61	0.93

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

3: Fountaingrove Pkwy & Round Barn Blvd East

Timing Plan: PM Peak

Lane Group	EBL	EBR	NBL	NBT	SBT
Lane Group Flow (vph)	323	774	205	1153	958
v/c Ratio	0.48	0.96	0.84	0.62	0.79
Control Delay	20.5	39.7	61.7	14.0	26.7
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	20.5	39.7	61.7	14.0	26.7
Queue Length 50th (ft)	112	224	95	180	198
Queue Length 95th (ft)	158	#366	#210	241	268
Internal Link Dist (ft)	331			457	260
Turn Bay Length (ft)			135		
Base Capacity (vph)	687	813	245	1969	1320
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.47	0.95	0.84	0.59	0.73

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Lane Group	EBT	EBR	WBT	WBR	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	269	169	438	549	148	600	529	654
v/c Ratio	0.78	0.31	0.88	0.47	0.73	0.86	0.90	0.58
Control Delay	67.0	7.9	67.0	2.0	76.8	31.6	62.2	40.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	67.0	7.9	67.0	2.0	76.8	31.6	62.2	40.0
Queue Length 50th (ft)	220	20	360	0	123	84	424	237
Queue Length 95th (ft)	325	46	#647	31	209	166	#739	352
Internal Link Dist (ft)	245		126			289		330
Turn Bay Length (ft)		80			225		215	
Base Capacity (vph)	491	622	495	1182	289	812	609	1167
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.55	0.27	0.88	0.46	0.51	0.74	0.87	0.56

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Lane Group	EBL	EBR	NBL	NBT	SBT
Lane Group Flow (vph)	154	669	1057	777	1380
v/c Ratio	0.66	0.84	0.95	0.28	0.94
Control Delay	57.6	33.6	52.5	3.7	44.1
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	57.6	33.6	52.5	3.7	44.1
Queue Length 50th (ft)	101	371	359	63	466
Queue Length 95th (ft)	166	536	#522	98	#607
Internal Link Dist (ft)	75			533	381
Turn Bay Length (ft)			178		
Base Capacity (vph)	302	797	1118	2770	1465
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.51	0.84	0.95	0.28	0.94

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	723	468	7	5	838	49	0	0	0	15	0	241
Future Volume (veh/h)	723	468	7	5	838	49	0	0	0	15	0	241
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.97	1.00		0.98	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1900	1863	1863	1900	1900	1863	1900	1900	1863	1863
Adj Flow Rate, veh/h	753	488	7	5	921	54	0	0	0	15	0	248
Adj No. of Lanes	1	2	0	1	2	0	0	1	0	0	1	1
Peak Hour Factor	0.96	0.96	0.96	0.91	0.91	0.91	0.25	0.25	0.25	0.97	0.97	0.97
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	799	2660	38	12	1022	60	0	204	0	255	0	886
Arrive On Green	0.45	0.75	0.75	0.01	0.30	0.30	0.00	0.00	0.00	0.11	0.00	0.11
Sat Flow, veh/h	1774	3571	51	1774	3394	199	0	1863	0	1408	0	1579
Grp Volume(v), veh/h	753	242	253	5	480	495	0	0	0	15	0	248
Grp Sat Flow(s),veh/h/ln	1774	1770	1852	1774	1770	1824	0	1863	0	1408	0	1579
Q Serve(g_s), s	28.9	2.9	2.9	0.2	18.6	18.6	0.0	0.0	0.0	0.7	0.0	5.9
Cycle Q Clear(g_c), s	28.9	2.9	2.9	0.2	18.6	18.6	0.0	0.0	0.0	0.7	0.0	5.9
Prop In Lane	1.00		0.03	1.00		0.11	0.00		0.00	1.00		1.00
Lane Grp Cap(c), veh/h	799	1318	1380	12	533	549	0	204	0	255	0	886
V/C Ratio(X)	0.94	0.18	0.18	0.43	0.90	0.90	0.00	0.00	0.00	0.06	0.00	0.28
Avail Cap(c_a), veh/h	870	1318	1380	124	548	565	0	209	0	259	0	890
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	0.00	0.00	0.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	18.7	2.7	2.7	35.3	23.9	23.9	0.0	0.0	0.0	28.6	0.0	8.2
Incr Delay (d2), s/veh	17.4	0.1	0.1	22.7	17.7	17.3	0.0	0.0	0.0	0.1	0.0	0.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	17.9	1.4	1.4	0.2	11.7	12.0	0.0	0.0	0.0	0.3	0.0	2.5
LnGrp Delay(d),s/veh	36.1	2.8	2.7	58.0	41.6	41.2	0.0	0.0	0.0	28.7	0.0	8.4
LnGrp LOS	D	A	A	E	D	D				C		A
Approach Vol, veh/h		1248			980			0			263	
Approach Delay, s/veh		22.9			41.5			0.0			9.5	
Approach LOS		C			D						A	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2	3	4		6	7	8
Phs Duration (G+Y+Rc), s		10.8	3.5	57.1		10.8	35.2	25.4
Change Period (Y+Rc), s		3.0	3.0	3.9		3.0	3.0	3.9
Max Green Setting (Gmax), s		8.0	5.0	52.1		8.0	35.0	22.1
Max Q Clear Time (g_c+I1), s		0.0	2.2	4.9		7.9	30.9	20.6
Green Ext Time (p_c), s		0.0	0.0	3.3		0.0	1.2	0.9

Intersection Summary	
HCM 2010 Ctrl Delay	28.8
HCM 2010 LOS	C

Notes

User approved changes to right turn type.

HCM 2010 Signalized Intersection Summary
2: Fountaingrove Pkwy & Round Barn Blvd West

Timing Plan: PM Peak

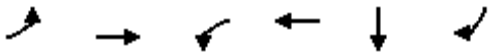
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	469	645	5	0	570	40	5	0	4	46	0	738
Future Volume (veh/h)	469	645	5	0	570	40	5	0	4	46	0	738
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		0.99	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1900	1863	1863	1900	1900	1863	1900	1900	1863	1863
Adj Flow Rate, veh/h	515	709	5	0	620	43	11	0	9	53	0	848
Adj No. of Lanes	1	2	0	1	2	0	0	1	0	0	1	1
Peak Hour Factor	0.91	0.91	0.91	0.92	0.92	0.92	0.45	0.45	0.45	0.87	0.87	0.87
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	532	1987	14	3	677	47	241	26	143	589	0	1002
Arrive On Green	0.30	0.55	0.55	0.00	0.20	0.20	0.33	0.00	0.33	0.33	0.00	0.33
Sat Flow, veh/h	1774	3602	25	1774	3355	232	445	78	428	1408	0	1582
Grp Volume(v), veh/h	515	348	366	0	327	336	20	0	0	53	0	848
Grp Sat Flow(s),veh/h/ln	1774	1770	1858	1774	1770	1818	950	0	0	1408	0	1582
Q Serve(g_s), s	17.2	6.6	6.6	0.0	10.8	10.9	0.0	0.0	0.0	1.0	0.0	20.0
Cycle Q Clear(g_c), s	17.2	6.6	6.6	0.0	10.8	10.9	0.5	0.0	0.0	1.4	0.0	20.0
Prop In Lane	1.00		0.01	1.00		0.13	0.55		0.45	1.00		1.00
Lane Grp Cap(c), veh/h	532	976	1025	3	357	367	410	0	0	589	0	1002
V/C Ratio(X)	0.97	0.36	0.36	0.00	0.92	0.92	0.05	0.00	0.00	0.09	0.00	0.85
Avail Cap(c_a), veh/h	532	976	1025	148	357	367	410	0	0	589	0	1002
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	0.00	1.00	1.00	1.00	0.00	0.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	20.7	7.5	7.5	0.0	23.4	23.5	13.5	0.0	0.0	13.8	0.0	8.7
Incr Delay (d2), s/veh	30.8	0.2	0.2	0.0	27.5	27.4	0.0	0.0	0.0	0.1	0.0	6.8
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	12.9	3.3	3.4	0.0	8.0	8.2	0.2	0.0	0.0	0.6	0.0	12.7
LnGrp Delay(d),s/veh	51.5	7.7	7.7	0.0	50.9	50.8	13.5	0.0	0.0	13.9	0.0	15.5
LnGrp LOS	D	A	A		D	D	B			B		B
Approach Vol, veh/h		1229			663			20			901	
Approach Delay, s/veh		26.1			50.9			13.5			15.4	
Approach LOS		C			D			B			B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2	3	4		6	7	8
Phs Duration (G+Y+Rc), s		23.0	0.0	37.0		23.0	21.0	16.0
Change Period (Y+Rc), s		3.0	3.0	3.9		3.0	3.0	3.9
Max Green Setting (Gmax), s		20.0	5.0	25.1		20.0	18.0	12.1
Max Q Clear Time (g_c+I1), s		2.5	0.0	8.6		22.0	19.2	12.9
Green Ext Time (p_c), s		0.1	0.0	4.1		0.0	0.0	0.0

Intersection Summary	
HCM 2010 Ctrl Delay	28.4
HCM 2010 LOS	C

Notes

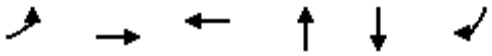
User approved changes to right turn type.



Lane Group	EBL	EBT	WBL	WBT	SBT	SBR
Lane Group Flow (vph)	753	495	5	975	15	248
v/c Ratio	0.94	0.18	0.04	0.92	0.10	0.26
Control Delay	40.4	2.6	33.6	40.0	32.1	7.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	40.4	2.6	33.6	40.0	32.1	7.1
Queue Length 50th (ft)	310	18	2	228	6	44
Queue Length 95th (ft)	#539	51	12	#353	23	77
Internal Link Dist (ft)		706		1600	472	
Turn Bay Length (ft)	205		155			
Base Capacity (vph)	852	2756	122	1071	154	991
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.88	0.18	0.04	0.91	0.10	0.25

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.



Lane Group	EBL	EBT	WBT	NBT	SBT	SBR
Lane Group Flow (vph)	515	714	663	20	53	848
v/c Ratio	0.96	0.36	0.92	0.03	0.12	0.78
Control Delay	54.7	8.1	44.5	0.1	14.8	13.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	54.7	8.1	44.5	0.1	14.8	13.3
Queue Length 50th (ft)	182	68	123	0	13	161
Queue Length 95th (ft)	#357	98	#219	0	33	286
Internal Link Dist (ft)		706	1600	1	472	
Turn Bay Length (ft)	205					
Base Capacity (vph)	536	1969	721	623	466	1080
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.96	0.36	0.92	0.03	0.11	0.79

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Appendix I PEAK HOUR TRAFFIC SIGNAL WARRANT ANALYSIS

Califronia MUTCD 2014 Edition

Existing Conditions: AM Peak

Signal Warrant Analysis

Figure 4C-101. Traffic Signal Warrants Worksheet (Sheet 1 of 2)

DIST	CO	RTE	KPM				
	Sonoma			CALC	CH	DATE	5/23/2017
				CHK		DATE	

Major St: **Fountaingrove Parkway** Critical Approach Speed 40 m/h

Minor St: **Round Barn Boulevard West** Critical Approach Speed 25 m/h

Critical speed of major street traffic > 64 km/h (40 mph)..... ☑

In built up area of isolated community of < 10,000 population ..... ☐

or } RURAL (R) ☐ / URBAN (U) ☐

WARRANT 3 - Peak Hours

PART A or PART B SATISFIED **YES** ☐ **NO** ☑

PART A **SATISFIED** **YES** ☐ **NO** ☑

(All parts, 1, 2 and 3 below must be satisfied)

1. The total delay experienced for traffic on one minor street approach controlled by a STOP sign equals or exceeds four vehicle-hours for a one-lane approach and five vehicle-hours for a two-lane approach; AND — Yes ☑ No ☐

2. The volume on the same minor street approach equals or exceeds 100 vph for one moving lane of traffic or 150 vph for two moving lanes: AND — Yes ☐ No ☑

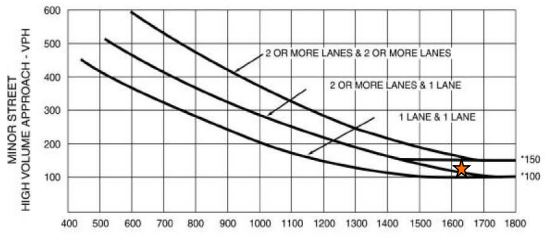
3. The total entering volume services during the hour equals or exceeds 800 vph for intersections with four or more approaches or 650 vph for intersections with three approaches. — Yes ☑ No ☐

PART B **SATISFIED** **YES** ☐ **NO** ☑

APPROACH LANES	One	2 or More	8:00 a.m. Hour			
Both Approaches - Major Street		X	1613			
Highest Approaches - Minor Street		X	132			

The plotted point for vehicles per hour on major streets (both approaches) and the corresponding per hour higher volume vehicle minor street approach (one direction only) for one hour (any consecutive 15 minute intereval) fall below the applicable curve in MUTCD Figure 4C-3.

Figure 4C-3. Warrant 3, Peak Hour



*Note: 150 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 100 vph applies as the lower threshold volume for a minor-street approach with one lane.

Califronia MUTCD 2014 Edition

Existing Conditions: PM Peak

Signal Warrant Analysis

Figure 4C-101. Traffic Signal Warrants Worksheet (Sheet 1 of 2)

DIST	CO	RTE	KPM				
	Sonoma			CALC	CH	DATE	5/23/2017
				CHK		DATE	

Major St: **Fountaingrove Parkway** Critical Approach Speed 40 m/h

Minor St: **Round Barn Boulevard West** Critical Approach Speed 25 m/h

Critical speed of major street traffic > 64 km/h (40 mph)..... ☑

In built up area of isolated community of < 10,000 population ..... ☐ or ☐ } RURAL (R) / URBAN (U)

WARRANT 3 - Peak Hours

PART A or PART B SATISFIED **YES** ☑ **NO** ☐

PART A **SATISFIED** **YES** ☑ **NO** ☐

(All parts, 1, 2 and 3 below must be satisfied)

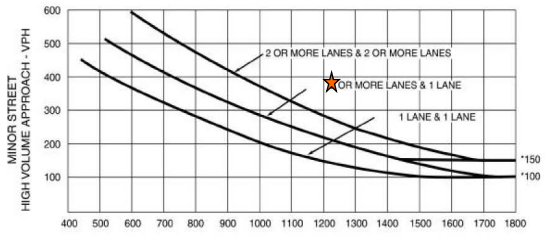
1. The total delay experienced for traffic on one minor street approach controlled by a STOP sign equals or exceeds four vehicle-hours for a one-lane approach and five vehicle-hours for a two-lane approach; AND — Yes ☑ No ☐
2. The volume on the same minor street approach equals or exceeds 100 vph for one moving lane of traffic or 150 vph for two moving lanes: AND — Yes ☑ No ☐
3. The total entering volume services during the hour equals or exceeds 800 vph for intersections with four or more approaches or 650 vph for intersections with three approaches. — Yes ☑ No ☐

PART B **SATISFIED** **YES** ☑ **NO** ☐

APPROACH LANES	One	2 or More	4:45 p.m.			Hour
Both Approaches - Major Street		X	1233			
Highest Approaches - Minor Street		X	394			

The plotted point for vehicles per hour on major streets (both approaches) and the corresponding per hour higher volume vehicle minor street approach (one direction only) for one hour (any consecutive 15 minute intereval) falls above the applicable curve in MUTCD Figure 4C-3.

Figure 4C-3. Warrant 3, Peak Hour



*Note: 150 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 100 vph applies as the lower threshold volume for a minor-street approach with one lane.

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Appendix B:
Post-Fire Assessment Memo

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October 26, 2017

Aaron Hollister, Planning Consultant
City of Santa Rosa
Planning & Economic Development
100 Santa Rosa Avenue, Room 3
Santa Rosa, CA 95404

Subject: Round Barn Village Project Site – Existing Site Conditions Update

Dear Aaron,

The purpose of this memorandum is to document post-fire conditions on the Round Barn Village project site in an effort to determine if any changes or revisions are required to the Round Barn Village IS/MND.

In response to recent wildfires in the City of Santa Rosa, the City has asked that FCS review aerial imagery and photographs of the Round Barn Village Project site to determine post-fire conditions. A summary of observations is as follows:

Much of the grass areas of the project site exhibit evidence of fire activity, with the most prominently burned areas located on the northern half of the project site. The significant areas of larger vegetation (trees) surrounding the riparian area of Nagasawa Creek on the northeast side, and located along Fountaingrove Parkway on the southeast side appear to be only minimally impacted; however, it appears that understory vegetation burn may have occurred throughout these areas. Understory burn may have also significantly damaged the trunks of larger trees to the extent that removal would be required.

Significant large tree loss resulting from fire activity appears to have occurred primarily in a small area in the western portion of the project site near where the existing access road and gate from Round Barn Boulevard are located; a small area along Nagasawa Creek; and a small area between the onsite parking lot and Fountain Grove Parkway. No buildings are located on the project site therefore no structural burn debris would require removal. Considering the level of destruction that occurred elsewhere as a result of the wildfires, the Round Barn Village project site appears to have survived in relatively good shape in terms of remaining vegetation.

Areas surrounding the project site were also affected by the fire in varying degrees. The majority of the Hilton Hotel to the southwest was destroyed. Other immediately adjacent buildings, including the closest sensitive receptors considered in the IS/MND, are still present.

Overall, the change in onsite conditions do not significantly affect the analyses presented in the IS/MND. Changes to the on-site vegetation, as summarized above, nor changes to the

UNITED STATES

Irvine
250 Commerce, Suite 250
Irvine, CA 92602

Pasadena
16 N. Marengo Avenue, Suite 303
Pasadena, CA 91101

Bay Area
1350 Treat Boulevard, Suite 380
Walnut Creek, CA 94597

Central Valley
7265 N First Street, Suite 101
Fresno, CA 93720

Inland Empire
650 E. Hospitality Lane, Suite 125
San Bernardino, CA 92408

Sacramento
915 Highland Pointe Drive, Suite 250
Roseville, CA 95678

Connecticut
2 Corporate Drive
Suite 450
Shelton, CT 06484

EUROPE

United Kingdom
Tel: +44 (0) 845.165.6245
Fax: +44 (0) 20.3070.0890
Jubilee House
Third Avenue
Marlow
United Kingdom SL7 1EY

AUSTRALIA

New South Wales
Tel: +61 (02) 9418.7822
Unit 1, 1 Skyline Place
Frenchs Forest NSW 2086
Australia

AFRICA

Kenya
Tel: +254-737-433-621
ADEC Kenya Services EPZ Ltd.
Nairobi, Kenya

ASIA

Philippines
Tel: +63 (2) 775.0632
Fax: +63 (2) 775.0632 local 8050
26th Floor, Philippine AXA Life Centre,
Sen. Gil Puyat Avenue,
Makati City, Metro Manila

Malaysia
Tel: +603 74902112
Fax: +603 79606977
15-7, Block A, Jaya ONE
72A Jalan Universiti
46200 Petaling Jaya
Selangor, Malaysia

immediately surrounding buildings as a result of the wildfires would result in changes to the IS/MND analysis and findings. The findings and the conclusions of the IS/MND remain appropriate with no revision required.

Sincerely,

Janna Waligorski
FirstCarbon Solutions
1350 Treat Boulevard, Suite 3580
Walnut Creek, CA 94597