Exhibit A

Environmental Assessment No. 2019-6, the Addendum to the City of Reedley certified Program Environmental Impact Report, prepared for the Reedley General Plan Update 2030, dated August 2, 2019

CITY OF REEDLEY
ADDENDUM TO THE REEDLEY GENERAL PLAN UPDATE 2030 EIR

prepared for **Environmental Assessment (EA) No. 2019-6**

LEAD AGENCY:	**APPLICANT**:	
City of Reedley Community Development Department 1733 Ninth Street Reedley, CA 93654 e-mail: ellen.moore@reedley.ca.gov Phone: (559) 637-4200 x 222	Fino Estates 22403 Huntsman Avenue Dinuba, CA 93618	The Reedley General Plan Update 2030 EIR (SCH No. 2010031106) is available for review on the Major Projects Page on the City's website: http://www.reedley.com

PROJECT LOCATION:

Approximate Site Latitude: 36.596°N
Approximate Site Longitude: 119.428°W

Assessor's Parcel Numbers (APNs): 363-090-061 & 363-090-083 (13.51 gross acres)

PROJECT DESCRIPTION: The City of Reedley initiated Environmental Assessment No. 2019-6 for the purpose of assessing the environmental effects of Vesting Tentative Subdivision Map No. 6267 (Fino Estates Project), herein referred to as "the project". The project site is located on the northern edge of the City of Reedley, just south of East Locke Avenue and east of North Frankwood Avenue (Attachment 1). The project site consists of two parcels totaling approximately 13.51 acres to be subdivided (APNs: 363-090-061 and 363-090-083).

The proposed subdivision would allow for the development of 44 residential lots on 13.15 acres of land within the City (APNs 363-090-061 and 363-090-083) as part of this project. The project would subdivide the parcels into 44 legal lots, with lot sizes ranging from 6,001 to 20,695 square feet (Attachment 2). Additionally, the project would dedicate a 36,150 square foot lot to the City for creation of a storm basin area.

The project proposes 7.66 gross acres of single-family residential development (34 lots total/dwelling units) with an average lot size of 7,416 square feet. The project is consistent with the 2030 General Plan Low Density Residential land use designation and the Reedley Municipal Code R-1-6 (One Family Residential) zoning designation.

Also proposed is 5.81 gross acres of multiple family residential development (10 lots total) along North Frankwood Avenue with an average lot size of 18,317 square feet. The lots are proposed to be developed with a density of 15 to 29 dwelling units per acre. This would result in approximately 92 dwelling units. The project is consistent with the 2030 General Plan High Density Residential land use designation and the Reedley Municipal Code RM-2 (Multi-Family Residential) zoning designation.

The project would be able to develop a total of 128 dwelling units.

SUMMARY OF FINDINGS: Section 15162(a) of the State CEQA Guidelines states no subsequent EIR shall be prepared for a project unless the lead agency determines, on the basis of substantial evidence in the light of the whole record, one or more of the following:

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

(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 Negative Declaration 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 Negative Declaration 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;

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 would substantially reduce one or more significant effects on the environment, but the project proponents decline to adopt the mitigation measure or alternative.

The Addendum has been prepared in accordance with the relevant provisions of CEQA and the State CEQA Guidelines as implemented by the City of Reedley. According to Section 15164(a) of the State CEQA Guidelines, "The lead agency or responsible agency shall prepare an addendum to a previously certified EIR if some changes or additions are necessary but none of the conditions described in Section 15162 calling for preparation of a subsequent EIR have occurred." The changes that are being proposed with proposed VSTM No. 6267 (project) are minor in the sense that they would not create potentially significant environmental impacts in addition to those already identified in the City of Reedley General Plan Update 2030 EIR. The project would also not substantially increase the magnitude or severity of impacts that were previously identified. This Addendum does not require public circulation because it does not provide significant new information that changes the City's General Plan Update 2030 EIR in a way that deprives the public of a meaningful opportunity to comment upon a substantial adverse environmental effect of the Project or a feasible way to mitigate or avoid such an effect.

This Addendum includes a description of the project, and a comparison of the impacts for all environmental issues' areas listed in Appendix G of the State CEQA Guidelines.

The City of Reedley shall consider this Addendum to the General Plan Update 2030 EIR prior to making a decision on the proposed project. The General Plan Update 2030 EIR is available for review on the City's website here and at the Planning Division of the City of Reedley Community Development Department, located at 1733 9th Street Reedley, CA 93654.

Additional information on the proposed project, including a copy of the proposed environmental findings, may be obtained from the City of Reedley, Community Development Department, City Hall, 1733 Ninth Street, Reedley, California 93654 during normal business hours (Monday-Friday, 8 AM – 5 PM). Electronic copies can be obtained by e-mailing ellen.moore@reedley.ca.gov.

Environmental Assessment No. 2019-6 and Vesting Tentative Subdivision Map No. 6267 are scheduled to be considered by the City of Reedley Planning Commission on September 5, 2019. The Commission meeting will be held at 5:00 p.m., in the Council Chambers at Reedley City Hall, located at 845 G Street, Reedley, California 96354.

INITIAL STUDY PREPARED BY: Ellen Moore, Associate Planner	SUBMITTED BY:
DATE: August 2, 2019	Ellen Moore, Associate Planner Community Development Department CITY OF REEDLEY

Attachments:

Exhibit A: Addendum to Reedley General Plan Update 2030 EIR, using a CEQA Guidelines Appendix G Checklist (EA No. 2019-6)

EXHIBIT A

Addendum to Reedley General Plan Update 2030 EIR, USING A CEQA GUIDELINES APPENDIX G CHECKLIST

analyzing a subsequent project under City of Reedley, certified Program Environmental Impact Report (SCH No. 2010031106) prepared for the Reedley General Plan Update 2030

Environmental Assessment No. 2019-6

August 2, 2019

1. **Project title:** Fino Estates Project
   Vesting Tentative Subdivision Map (VSTM) No. 6267

2. **Lead agency name and address:**

   City of Reedley
   Community Development Department
   1733 Ninth Street
   Reedley, California 93654

3. **Contact person and phone number:**

   Ellen Moore, Associate Planner
   Community Development Department
   1733 Ninth Street,
   Reedley, California
   (559) 637-4200 ext. 222

   e-mail ellen.moore@reedley.ca.gov

4. **Project location:** Approximate Site Latitude: 36.596°N
   Approximate Site Longitude: 119.428°W

   VSTM No 6267: Assessor's Parcel Numbers (APNs): 363-090-061 & 363-090-083 (13.51 gross acres)

5. **Project applicant/sponsor name and address:**

   Fino Estates
   22403 Huntsman Avenue
   Dinuba, CA 93618

6. **General plan designation:**
   Existing: High Density Residential & Low Density Residential

7. **Zoning:**
   Existing: RM-2 (*Multi-family Residential*) & R-1-6 (*One Family Residential*) Zone Districts

8. **Description of project:**

The City of Reedley initiated Environmental Assessment No. 2019-6 for the purpose of assessing the environmental effects of Vesting Tentative Subdivision Map No. 6267 (Fino Estates Project), herein referred to as “the project”. The project site is located on the northern edge of the City of Reedley, just south of East Locke Avenue and east of North Frankwood Avenue (Attachment 1). The project site consists of two parcels totaling approximately 13.51 acres to be subdivided (APNs: 363-090-061 and 363-090-083).

The proposed subdivision would allow for the development of 44 residential lots on 13.15 acres of land within the City (APNs 363-090-061 and 363-090-083) as part of this project. The project would subdivide the parcels into 44 legal lots, with lot sizes ranging from 6,001 to 20,695 square feet (Attachment 2). Additionally, the project would dedicate a 36,150 square foot lot to the City for creation of a storm basin area.

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The project would be able to develop a total of 128 dwelling units.

9. **Surrounding land uses and setting:**

	Existing Land Use	Existing Zoning
North	Low Density Residential	Residential [R-1(SP)] [Inside City Limits]; Limited Agricultural (AL-20) [Outside City Limits – Inside Sphere of Influence]
East	Low Density Residential	Residential (R-1-9) [Inside City Limits]
South	Low Density Residential	Residential (R-1-6) and RM-2) [Inside City Limits]
West	Low Density Residential	Residential (R-1-6) [Inside City Limits]; Exclusive Agricultural (AE-20) [Outside City Limits – Inside Sphere of Influence]

10. **Other public agencies whose approval is required (e.g., permits, financing approval, or participation agreement):**

San Joaquin Valley Air Pollution Control District

11. Have California Native American tribes traditionally and culturally affiliated with the project area requested consultation pursuant to Public Resources Code section 21080.3.1? If so, has consultation begun?

A Formal Notification of Determination that a Project Application is Complete and Notice of Consultation Opportunity was mailed on April 10, 2019. Proof of Delivery was provided by the United States Postal Service indicating that the Notice was delivered on April 12, 2019. To the date of the preparation of this addendum, there was no request for consultation received by the City of Reedley.

NOTE: Conducting consultation early in the CEQA process allows tribal governments, lead agencies, and project proponents to discuss the level of environmental review, identify and address potential adverse impacts to tribal cultural resources, and reduce the potential for delay and conflict in the environmental review process. (See Public Resources Code section 21083.3.2.) Information may also be available from the California Native American Heritage Commission's Sacred Lands File per Public Resources Code section 5097.96 and the California Historical Resources Information System administered by the California Office of Historic Preservation. Please also note that Public Resources Code section 21082.3(c) contains provisions specific to confidentiality.

ENVIRONMENTAL FACTORS POTENTIALLY AFFECTED:

According to Section 15164(b) of the State CEQA Guidelines, an addendum to an EIR is the appropriate environmental document in instances when "only minor technical changes or additions are necessary or none of the conditions described in Section 15261 calling for the preparation of a subsequent EIR have occurred."

Environmental factors checked below would be potentially affected by this project, although none of the impacts would be potentially significant with application of project-specific mitigation measures:

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

DETERMINATION: (To be completed by the Lead Agency)

On the basis of this initial evaluation:

I find that, although some aspects of these activities that would be allowed subsequent to the proposed project could have some adverse effects on the environment, those effects would not result in a significant adverse effect because revisions in the project have been made and project-specific mitigation measures will be applied, as agreed to by the project proponent. I further find that the project will not have additional significant adverse effects on the environment beyond those identified in the City of Reedley, certified Program Environmental Impact Report, prepared for the Reedley General Plan Update 2030.

☒ Therefore, An EIR Addendum will be prepared.

X ______________________________
Ellen Moore, Associate Planner — August 2, 2019
Community Development Department

EVALUATION OF ADDITIONAL ENVIRONMENTAL IMPACTS:
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(1) Substantial changes are proposed in the project which will require major revisions of the previous EIR or negative declaration due to the involvement of new significant environmental effects or a substantial increase in the severity of previously identified significant effects;

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This Addendum includes a description of the project, and a comparison of the impacts for all environmental issues’ areas listed in Appendix G of the State CEQA Guidelines.

The City of Reedley shall consider this Addendum to the General Plan Update 2030 EIR prior to making a decision on the proposed project. The General Plan Update 2030 EIR is available for review on the City’s website here and at the Planning Division of the City of Reedley Community Development Department, located at 1733 9th Street Reedley, CA 93654.

ENVIRONMENTAL ISSUE AREA	Where Impact Was Analyzed in the Reedley 2030 General Plan EIR	Do Proposed Changes Involve New or Substantially More Severe Significant Impacts?	Do Any New Circumstances Involve New or Substantially More Severe Significant Impacts?	Any Substantially Important New Information Requiring New Analysis or Verification?	Do Reedley 2030 General Plan EIR Mitigation Measures Address/ Resolve New or More Severe Project Impacts?
I. AESTHETICS -- Would the project:					
a) Have a substantial adverse effect on a scenic vista?	Impact AES-2	No	No	No	N/A
b) Substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway?	Impact AES-1	No	No	No	N/A
c) In non-urbanized areas, substantially degrade the existing visual character or quality of public views of the site and its surroundings? (Public views are those that are experienced from publicly accessible vantage point). If the project is in an urbanized area, would the project conflict with applicable zoning and other regulations governing scenic quality?	Impact AES-1	No	No	No	N/A
d) Create a new source of substantial light or glare which would adversely affect day or nighttime views in the area?	Impact AES-3	No	No	No	N/A

Impact

The project lies within the scope and study area of the 2013 Program EIR (PEIR) for the Reedley 2030 General Plan. As discussed in the City of Reedley General Plan 2030 Environmental Impact Report (EIR), the City's primary scenic and visual resources consist of the aesthetic land use pattern throughout the city and scenic vistas of surrounding agricultural land from the city's urban edge (Reedley 2013a). The 2013 PEIR found no significant impacts to scenic vistas in the project area from future buildout of the General Plan in the project area. The proposed project is consistent with the development assumptions assumed for the site in the General Plan PEIR, and therefore would not adversely affect scenic vistas or scenic resources in the City of Reedley. Compliance with the zoning regulations and implementation of the 2030 General Plan's proposed policies would ensure there would be no impacts to visual character associated with the subdivision project beyond those identified in the 2013 PEIR.

The subdivision project site does not include any scenic resources such as trees, rock outcroppings, or historic structures, nor is the site near or adjacent to a designated or eligible State scenic highway. Existing sources of nighttime lighting in the vicinity of the site include streetlights along North Frankwood and East Locke Avenues, light from the headlights of vehicles traveling along these streets, and the surrounding residential development. Development of the subdivision site would increase ambient nighttime lighting through the addition of exterior fixtures associated with residential structures and addition of vehicles in the area. However, as indicated in the PEIR, the effect of nighttime lighting is not considered to be significant as the effects would not likely be concentrated to the extent that they would be perceived by a viewer as significant and adverse. The proposed project would incorporate Conditions of Approval, which are provided in Attachment 3. Engineering Department Condition of Approval number 18 would require the project proponent to provide written consent to the City for inclusion of the property into the Landscaping and Lighting Maintenance District No. 1 to provide for maintenance of the landscaping within the City right of way and street lights located throughout the project planter. Inclusion into the Landscaping and Lighting Maintenance District No. 1 would ensure that landscaping and lighting maintenance conform to City standards and would reduce visual impacts associated with rundown landscaping and lighting amenities. Moreover, lighting and glare would continue to be regulated by standards contained in Article 10, Zoning Regulations, that control the type, intensity, and location of light sources, and that limit casting of lighting to off-site properties. Enforcement of existing regulations would reduce the potential impact related to light and glare to a less than significant level.

Therefore, no project-specific mitigation for aesthetics impacts is required. As such, the proposed project would comply with City standards for landscaping and lighting and not result in substantial light or glare or substantially cause more a severe impact related to light and glare beyond that identified in the 2030 General Plan EIR.

ENVIRONMENTAL ISSUE AREA	Where Impact Was Analyzed in the Reedley 2030 General Plan EIR	Do Proposed Changes Involve New or Substantially More Severe Significant Impacts?	Do Any New Circumstances Involve New or Substantially More Severe Significant Impacts?	Any Substantially Important New Information Requiring New Analysis or Verification?	Do Reedley 2030 General Plan EIR Mitigation Measures Address/Resolve New or More Severe Project Impacts?
II. AGRICULTURE AND FORESTRY RESOURCES: In determining whether impacts to agricultural resources are significant environmental effects, lead agencies may refer to the California Agricultural Land Evaluation and Site Assessment Model (1997) prepared by the California Dept. of Conservation as an optional model to use in assessing impacts on agriculture and farmland. In determining whether impacts to forest resources, including timberland, are significant environmental effects, lead agencies may refer to information complied by the California Department of Forestry and Fire Protection regarding the state's inventory of forest land, including the Forest and Range Assessment Project and the Forest Legacy Assessment project; and forest carbon measurement methodology provided in Forest Protocols adopted by the California Air Resources Board. Would the project:					
a) Convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland), as shown on the maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency, to non-agricultural use?	Impact AG-1	No	No	No	N/A
b) Conflict with existing zoning for agricultural use, or a Williamson Act contract?	Impact AG-2	No	No	No	N/A
c) Conflict with existing zoning for, or cause rezoning of, forest land (as defined in Public Resources Code section 12220(g)), timberland (as defined by Public Resources Code section 4526), or timberland zoned Timberland Production (as defined by Government Code section 51104(g))?	Impact AG-3	No	No	No	N/A
d) Result in the loss of forest land or conversion of forest land to non-forest use?	N/A; New CEQA checklist item added subsequent	No	No	No	N/A

ENVIRONMENTAL ISSUE AREA	Where Impact Was Analyzed in the Reedley 2030 General Plan EIR	Do Proposed Changes Involve New or Substantially More Severe Significant Impacts?	Do Any New Circumstances Involve New or Substantially More Severe Significant Impacts?	Any Substantially Important New Information Requiring New Analysis or Verification?	Do Reedley 2030 General Plan EIR Mitigation Measures Address/Resolve New or More Severe Project Impacts?
e) Involve other changes in the existing environment which, due to their location or nature, could result in conversion of Farmland, to non-agricultural use?	Impact AG-1	No	No	No	N/A

Setting

Development of a City's General Plan and establishment of the urban Sphere of Influence of a City typically involves the establishment of programs, policies and standards to minimize impacts from agricultural conversion to the maximum degree feasible and that the benefits resulting from the comprehensive planning approach balances the need for urban growth against adverse effects of urban encroachment onto agricultural resource areas.

The Reedley 2030 General Plan contains a range of policies which would minimize the potential for premature conversion of important farmland within the SOI. These policies include:

LU 2.5.2 New development opportunities in the City shall be sequential and contiguous to existing development to ensure the orderly extension of municipal services and unnecessary conversion of agricultural land. Development standards shall incorporate measures to protect and preserve agricultural land.

LU 2.5.7 Require contiguous development within the Sphere of Influence unless it can be demonstrated that the development of contiguous property is infeasible. An analysis of the fiscal, public utilities, surface transportation and service impacts shall be required as part of the application to annex new territory into the City.

Impact

The project site is currently occupied by a single-family dwelling on the western portion of APN 363-090-083 and land for agricultural use on the eastern portion. APN 363-090-061 is primarily undeveloped grassland and a single-family dwelling occupies the western portion of the project site. The project site lies within the scope and study area of the 2013 PEIR for the Reedley 2030 General Plan. The proposed project is within the existing City limits and the approximately 13.15 acres are designated as "Rural Residential Land" and "Farmland of Local Importance" by the California Department of Conservation's (DOC), Important Farmland Map (DOC 2018). The project site was identified for both low- and high-density residential development in the General Plan PEIR. Therefore, the proposed project would not result in additional conversion of agricultural land beyond that identified in the General Plan EIR.

The project site is directly adjacent on the north, south, east and west by built-up areas within Reedley City Limits. Although project implementation would result in the conversion of farmland to non-agricultural uses, approval of the project would constitute contiguous development which would prevent potential cumulative consumption of agricultural land for additional development in the City of Reedley. As such, this impact is less than significant.

The proposed project would not conflict with any forest land or Timberland Production or result in any loss of forest land because there is no land located within the City, within the existing SOI, or within the proposed expanded SOI that is zoned as forest land or timberland (Reedley 2014a). Therefore, the project would have no impact on forest land.

Given the extent of urban uses to the west, east, north and south of the project site, other changes in the existing environment that could result in conversion of Farmland to non-agricultural use would be less than significant because Reedley has existing General Plan policies which require an orderly expansion of the Reedley City Limits, thus avoiding premature conversion of farmland.

<u>Relevant EIR Mitigation Measures</u>

1. The proposed project incorporates and implements PEIR mitigation measures relating to agricultural land preservation (AG-1 & AG-2), as identified in the attached Exhibit C, Mitigation Monitoring Checklist for Final Environmental Impact Report (SCH No. 2010031106) & Reedley General Plan 2030, dated February 18, 2014.

Therefore, no project-specific mitigation for agricultural and forestry resources is required.

ENVIRONMENTAL ISSUE AREA	Where Impact Was Analyzed in the Reedley 2030 General Plan EIR	Do Proposed Changes Involve New or Substantially More Severe Significant Impacts?	Do Any New Circumstances Involve New or Substantially More Severe Significant Impacts?	Any Substantially Important New Information Requiring New Analysis or Verification?	Do Reedley 2030 General Plan EIR Mitigation Measures Address/Resolve New or More Severe Project Impacts?
III. AIR QUALITY AND GLOBAL CLIMATE CHANGE - Where available, the significance criteria established by the applicable air quality management district or air pollution control district may be relied upon to make the following determinations. Would the project:					
a) Conflict with or obstruct implementation of the applicable air quality plan (*e.g.*, by having potential emissions of regulated criterion pollutants which exceed the San Joaquin Valley Air Pollution Control Districts (SJVAPCD) adopted thresholds for these pollutants)?	Impact AQ-1	No	No	No	N/A
b) Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable federal or state ambient air quality standard?	Impact AQ-2	No	No	No	N/A
c) Expose sensitive receptors to substantial pollutant concentrations?	Impact AQ-3	No	No	No	N/A
d) Result in other emissions (such as those leading to odors adversely affecting a substantial number of people?	Impact AQ-4	No	No	No	N/A

Setting

The primary way of determining consistency with the growth assumptions contained in the San Joaquin Valley Air Pollution Control District's (SJVAPCD) air quality management plan (AQMP) is by determining consistency with the applicable General Plan to ensure that the project's population density and land use are consistent with the growth assumptions used in the AQMPs for the air basin.

The proposed project is located in Fresno County, which is designated as non-attainment for Ozone (1-hour and 8-hour) and PM_{10} (State standards) and $PM_{2.5}$. Therefore, the SJVAPCD has prepared several AQMPs to outline its strategy for achieving attainment for these criteria pollutants. The SJVAPCD's applicable AQMPs include the 2016 Ozone Plan, 2007 PM_{10} Maintenance Plan, and 2012 $PM_{2.5}$ Plan. The District is in the process of developing an attainment strategy to address multiple PM2.5 standards (1997, 2006, and 2012 $PM_{2.5}$ standards) and a plan to demonstrate maintenance of the 1987 PM_{10} standard as required under the federal Clean Air Act. Inconsistency with any of the plans would be considered a cumulatively adverse air quality impact.

As required by California law, City and County General Plans contain a Land Use Element that details the types and quantities of land uses that the city or county estimates will be needed for future growth, and that designate locations for land uses to regulate growth. Fresno Council of Governments (FCOG) uses the growth projections and land use information in adopted general plans to estimate future average daily trips and then vehicle miles traveled (VMT), which are then provided to SJVAPCD to estimate future emissions in the AQMPs. Existing and future pollutant emissions computed in the AQMP are based on land uses from area general plans. AQMPs also detail the control measures and emission reductions required for reaching attainment of the air standards.

Thresholds of Significance

The SJVAPCD's current adopted thresholds of significance for criteria pollutant emissions and their application is shown in Table 1. Table 1 shows both construction and operational emission thresholds.

Table 1 – Air Quality Thresholds of Significance – Criteria Pollutants

		Operational Emissions	
	Construction Emissions	**Permitted Equipment and Activities**	**Non-Permitted Equipment and Activities**
Pollutant/Precursor	**Emissions (tpy)**	**Emissions (tpy)**	**Emissions (tpy)**
CO	100	100	100
NO_X	10	10	10
ROG	10	10	10
SO_X	27	27	27
PM_{10}	15	15	15
$PM_{2.5}$	15	15	15
Source: SJVACPD			

Sensitive Receptors

Sensitive receptors refer to those segments of the population most susceptible to poor air quality (i.e., children, the elderly, and those with pre-existing serious health problems affected by air quality). Land uses that have the greatest potential to attract these types of sensitive receptors include schools, parks, playgrounds, daycare centers, nursing homes, hospitals, and residential communities. From a health risk perspective, the project may potentially place sensitive receptors in the vicinity of existing sources. The nearest sensitive receptors to the project area are the single-family residences located directly north, east, south, and west of the proposed subdivision.

Impact

Consistency with Applicable Clean Air Plan

The applicable General Plan for the project is the City of Reedley General Plan 2030, which was adopted in 2014. The City's General Plan 2030 outlines forecasted population growth through the year 2030. The California Department of Finance (DOF) estimated the City's population in 2019 to be 26,666 persons. Per the DOF data, the average persons per household in 2019 is 3.81 (DOF 2019); therefore, by applying for a subdivision to facilitate the development of 34 single-family homes and a subsequent population growth of 130. Additionally, the project would facilitate multi-family development that would comply with the High Density Residential land use designation with a density range of 15-29 dwelling units per gross acre. It is estimated that the proposed project would result in the development of 92 new multi-family (low rise apartment) dwelling units, and a subsequent population growth of 351. Therefore, the project would accommodate a total population growth of an estimated 481 people. This would result in a total City population of 27,147. Since the City's 2019 population, with implementation of the project, is estimated to be below that forecasted in the General Plan by 7,073 people, and because the project is consistent with existing zoning and General Plan land use designations for the site, the project would be within the growth assumptions contained in the General Plan (34,220 persons in 2019). Because the project is consistent with the currently adopted General Plan for the City of Reedley, it is therefore consistent with the population growth and VMT applied in SJVAPCD's AQMP. As a result, the project would not conflict with or obstruct implementation of any air quality management plans, and this impact would be less than significant.

Air Quality Emissions

Construction

Construction activities associated with development would generate diesel emissions and dust. Construction emissions modeled include emissions generated by construction equipment used on-site and emissions generated by vehicle trips associated with construction, such as worker and vendor trips.

The proposed project was reviewed by the SJVAPCD. Based on their review, during the construction phase of the project, the specific annual emissions of criteria pollutants are not expected to exceed any of the District significance thresholds (Table 1) for carbon monoxide (CO), nitrogen oxides (NO_X), f reactive organic gases (ROG), sulfur oxides (SO_X), particulate matter of 10 microns or less in size (PM_{10}), or particulate matter of 2.5 microns or less in size ($PM_{2.5}$). In addition, the SJVAPCD has published guidance for determining significant impacts based on project types and sizes. Using project type and size, the district has pre-quantified emissions and determined sizes where it is reasonable a proposed project would not exceed applicable thresholds of significance (Table 1). Under the Small Project Analysis Level (SPAL) by Project Type, the screening criterion is 390 single family homes and 590 low rise apartments. The proposed project would introduce 34 single family homes and an estimated 92 low rise apartments. Therefore, based on SJVAPCD review, and anticipated type and size of development, the subdivision would not exceed the criteria pollutant emissions significance thresholds, and construction impacts to air quality would be less than significant.

Although the project's construction emissions would not exceed thresholds, a Condition of Approval is required for the subdivision based on SJVAPCD comments, which states that construction of the project would utilize off-road construction fleets which achieves fleet average emissions equal to or cleaner than the Tier III emission standards. This would be achieved through any combination of uncontrolled engines and engines complying with Tier III and above engine standards. In addition, the proposed subdivision may be subject to SJVAPCD Regulation VIII (Fugitive PM_{10} Prohibitions), Rule 4102 (Nuisance), Rule 4601 (Architectural Coatings), and Rule 4641 (Cutback, Slow Cure, and

Emulsified Asphalt, Paving and Maintenance Operations). Adherence to these rules and regulations would continue to ensure construction emission impacts to air quality remain less than significant.

Operation

Implementation of the proposed subdivision would result in operational emissions associated with on-site development. Operational emissions would be comprised of area source emissions, energy emissions, and mobile source emissions. Area source emissions are generated by landscape maintenance equipment, consumer products, and architectural coating. Emissions attributed to energy use include electricity and natural gas consumption for space and water heating. Mobile source emissions are generated by the increase in motor vehicle trips to and from the project site associated with operation of on-site development.

The subdivision project was reviewed by the SJVAPCD. Based on their review, during operation of the project, the specific annual emissions of criteria pollutants are not expected to exceed any of the District significance thresholds (Table 1) for carbon monoxide (CO), nitrogen oxides (NO_X), f reactive organic gases (ROG), sulfur oxides (SO_X), particulate matter of 10 microns or less in size (PM_{10}), or particulate matter of 2.5 microns or less in size ($PM_{2.5}$). Therefore, since the subdivision would not exceed the annual criteria pollutant emissions significance thresholds, the projects operational impacts to air quality would be less than significant.

Compliance with District Rule 9510

Because the project would construct over 126 residential dwelling units at full buildout, the proposed subdivision project would be subject to SJVAPCD District Rule 9510 (Indirect Source Review), which is intended to mitigate a project's impact on air quality through project design elements or by payment of applicable off-site mitigation fees. Therefore, the applicant is required to submit an Air Impact Assessment (AIA) application to the SJVAPCD no later than final discretionary approval of the project, and to pay any applicable off-site mitigation fees. As a condition of project approval, payment of fees and submittal of an AIA would further ensure the subdivision project would not violate any air quality standards, contribute substantially to an existing or projected air quality violation, or result in a cumulatively considerable net increase of any criteria pollutant for which Fresno County is in non-attainment.

Toxic Air Contaminants

The first step in evaluating the potential for impacts to sensitive receptors for toxic air contaminants from the project is to perform a screening level analysis. For Type B Projects, which the proposed project is classified according to SJVAPCD's 2015 *Guidance for Assessing and Mitigating Air Quality Impacts*, one type of screening tool is found in the California Air Resources Board (CARB) Handbook: *Air Quality and Land Use Handbook: A Community Perspective*. This handbook includes a table with recommended buffer distances associated with various types of common sources. An evaluation of nearby land uses (residential, agricultural) shows that the project would not place sensitive receptors in the vicinity of existing toxic sources. Since the project is not located within the recommended buffer distances associated with the toxic sources found in CARB's Handbook, the project would not expose sensitive receptors to substantial pollutant concentrations. Therefore, the project would have a less than significant impact on exposing sensitive receptors to substantial pollutant concentrations.

Odors

The intensity of an odor source's operations and its proximity to sensitive receptors influences the potential significance of odor emissions. The SJVAPCD has identified some common types of facilities that have been known to produce odors in the San Joaquin Valley Air Basin (wastewater treatment facilities, sanitary landfills, transfer stations, manufacturing plants, etc.). The types of facilities identified by the SJVAPCD that are known to produce odors do not fit the characteristics of the proposed residential project. In addition, none of the potential odor generating sources are located within the screening distances (one to two miles) away from the project, which have the potential to subject new residents at the project site to adverse odor emissions. As a result, the project would not generate potential odorous emissions or attract receivers and other sensitive receptors near existing odor sources. Therefore, the project would have a less than significant impact on creating objectionable odors affecting a substantial number of people.

Therefore, no project-specific mitigation for air quality impacts is required.

ENVIRONMENTAL ISSUE AREA	Where Impact Was Analyzed in the Reedley 2030 General Plan EIR	Do Proposed Changes Involve New or Substantially More Severe Significant Impacts?	Do Any New Circumstances Involve New or Substantially More Severe Significant Impacts?	Any Substantially Important New Information Requiring New Analysis or Verification?	Do Reedley 2030 General Plan EIR Mitigation Measures Address/Resolve New or More Severe Project Impacts?
IV. BIOLOGICAL RESOURCES – Would the project:					
a) Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special status species in local or regional project would not adversely habitat, wetlands, plants or wildlife, migratory routes, conservation plans, policies, or regulations, or by the California Department of Fish and Game or U.S. Fish and Wildlife Service?	Impact BIO-1	No	No	No	N/A
b) Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations or by the California Department of Fish and Game or U.S. Fish and Wildlife Service?	Impact BIO-2	No	No	No	N/A
c) Have a substantial adverse effect on state or federally protected wetlands (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means?	Impact BIO-3	No	No	No	N/A

ENVIRONMENTAL ISSUE AREA	Where Impact Was Analyzed in the Reedley 2030 General Plan EIR	Do Proposed Changes Involve New or Substantially More Severe Significant Impacts?	Do Any New Circumstances Involve New or Substantially More Severe Significant Impacts?	Any Substantially Important New Information Requiring New Analysis or Verification?	Do Reedley 2030 General Plan EIR Mitigation Measures Address/Resolve New or More Severe Project Impacts?
d) Interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites?	Impact BIO-4	No	No	No	N/A
e) Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?	Impacts BIO-1 through BIO-4	No	No	No	N/A
f) Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan?	Section 2.4 Biological Resources	No	No	No	N/A

Impact

The subdivision parcels lie within the scope and study area of the 2013 PEIR for the Reedley 2030 General Plan. As identified in Figure 8 – Biological Resources of the PEIR, the proposed parcels for annexation and subdivision are identified as Agricultural Croplands (Reedley 2013a). Generally speaking, excluding untilled property margins, there would be limited biological value expected within agricultural croplands, primarily due to their intensive, regular disturbance regime. However, the project site is currently occupied with orchard crops, the removal of which could result in potential impacts to nesting birds. Therefore, Mitigation Measure BIO-3 contained in the General Plan PEIR pertaining to avoidance of nesting birds would be required to reduce potential impacts to nesting birds to less than significant. The project would not adversely affect habitat, wetlands, plants or wildlife, migratory routes, conservation plans, or other biological resources because no known resources of this type exist on the premises. No known threatened or endangered plant or animal species, or migratory fish or wildlife species occur on the project site, as suitable habitat for these species is not present [(United States Fish and Wildlife [USFWS] Environmental Conservation Online System [ECOS] - Threatened and Endangered Species Active Critical Habitat Report (USFW 2019); Reedley 2013a)]. In addition, there are no wetlands, riparian areas, or other sensitive habitats on the project site. The proposed development would not interfere with a tree preservation policy or ordinance, or conflict with any habitat conservation or natural community conservation plan.

Because this subject property is located within and adjacent to an urbanized area of Reedley, the project would have a less than significant impact on any protected habitat, wetlands, plants or wildlife, migratory routes, conservation plans, or other biological resources because no known resources of this type exist on the premises. The subject property has no vegetation or wetlands to provide habitat. Implementation of the proposed project would result in less than significant impacts to biological resources.

Relevant EIR Mitigation Measures

1. The proposed project incorporates and implements as applicable PEIR mitigation measures relating to biological resources (BIO-3), as identified in the attached Exhibit C, Mitigation Monitoring Checklist for Final Environmental Impact Report (SCH No. 2010031106) & Reedley General Plan 2030, dated February 18, 2014.

Therefore, no project-specific mitigation for biological impacts is required.

ENVIRONMENTAL ISSUE AREA	Where Impact Was Analyzed in the Reedley 2030 General Plan EIR	Do Proposed Changes Involve New or Substantially More Severe Significant Impacts?	Do Any New Circumstances Involve New or Substantially More Severe Significant Impacts?	Any Substantially Important New Information Requiring New Analysis or Verification?	Do Reedley 2030 General Plan EIR Mitigation Measures Address/Resolve New or More Severe Project Impacts?
V. CULTURAL RESOURCES -- Would the project:					
a) Cause a substantial adverse change in the significance of a historical resource pursuant to §15064.5?	Impact CR-1	No	No	No	N/A
b) Cause a substantial adverse change in the significance of an archaeological resource pursuant to §15064.5?	Impact CR-1	No	No	No	N/A
c) Disturb any human remains, including those interred outside of formal cemeteries?	Impact CR-2	No	No	No	N/A

Impact

Historic Resources

The subdivision lies within the scope of the 2013 Program EIR for the Reedley 2030 General Plan. As identified in the PEIR, there are no structures which exist on or within the immediate vicinity of the site that are listed on or considered to be eligible for the National or Local Register of Historic Places, and the subject parcels are not within either a designated or proposed historic district. As such, the project would have no impact on any historical/cultural resources.

Archaeological Resources

There is no evidence that cultural resources of any type (including archaeological or unique geologic features) exist within the subject territory. Past record searches for the region have not revealed the likelihood of cultural resources on the subject property or in its immediate vicinity. In addition, the subdivision site is currently fallow agricultural land, and therefore has been disturbed from previous agricultural practices. However, because of the slight possibility of previously undiscovered archeological resources that may be uncovered during excavation required for the proposed development, Condition of Approval 20(a) and project-specific archaeological mitigation measures discussed in Impact CR-1 of the 2030 General Plan EIR (City of Reedley 2013) would reduce impacts to be less than significant.

Human Remains

The site has been heavily disturbed from previous agricultural activities. During the grading phase of the proposed development, the project would result in ground disturbing activity. If human remains are found, the State of California Health and Safety Code Section 7050.5 states that no further disturbance shall occur until the county coroner has made a determination of origin and disposition pursuant to Public Resources Code Section 5097.98. In the event of an unanticipated discovery of human remains, the county coroner must be notified immediately. If the human remains are determined to be prehistoric, the coroner will notify the Native American Heritage Commission (NAHC), which will determine and notify a most likely descendant (MLD). The MLD shall complete the inspection of the site and make recommendations to the landowner within 48 hours of being granted access. With adherence to existing regulations regarding the treatment of human remains, this impact would be less than significant.

Therefore, no project-specific mitigation for cultural resources impacts is required.

ENVIRONMENTAL ISSUE AREA	Where Impact Was Analyzed in the Reedley 2030 General Plan EIR	Do Proposed Changes Involve New or Substantially More Severe Significant Impacts?	Do Any New Circumstances Involve New or Substantially More Severe Significant Impacts?	Any Substantially Important New Information Requiring New Analysis or Verification?	Do Reedley 2030 General Plan EIR Mitigation Measures Address/Resolve New or More Severe Project Impacts?
VI. ENERGY -- Would the project:					
a) Result in potentially significant environmental impact due to wasteful, inefficient, or unnecessary consumption of energy resources, during project construction or operation?	N/A; New CEQA checklist item added subsequent to General Plan EIR	No	No	No	N/A
b) Conflict with or obstruct a state or local plan for renewable energy or energy efficiency?	N/A; New CEQA checklist item added subsequent to General Plan EIR	No	No	No	N/A

Electricity and Natural Gas

In 2017, California used 292,039 gigawatt-hours (GWh) of electricity, of which 29 percent were from renewable resources (California Energy Commission [CEC] 2019a). California also consumed approximately 12,500 million U.S. therms (MMthm) of natural gas in 2017. The project site would be provided electricity by Pacific Gas and Electric (PG&E). Table 2 and Table 3 show the electricity and natural gas consumption by sector and total for PG&E. In 2017, PG&E provided approximately 28.2 percent of the total electricity used in California. Also, in 2017, PG&E provided approximately 37.7 percent of the total natural gas usage in California.

Table 2 – Electricity Consumption in the PG&E Service Area in 2017

Agriculture and Water Pump	Commercial Building	Commercial Other	Industry	Mining and Construction	Residential	Streetlight	Total Usage
5049.7	30,446.9	4,309.6	10,409.9	1,747.3	29,920.2	340.7	82,224.3
Notes: All usage expressed in GWh Source: CEC 2017a							

Table 3 – Natural Gas Consumption in PG&E Service Area in 2017

Agriculture and Water Pump	Commercial Building	Commercial Other	Industry	Mining and Construction	Residential	Total Usage
36.4	864.8	68.0	1,701.3	170.8	1,873.4	4,714.7
Notes: All usage expressed in MMthm Source: CEC 2017b						

Petroleum

In 2016, approximately 40 percent of the state's energy consumption was used for transportation activities (United States Energy Information Administration [EIA] 2019). Californians presently consume over 19 billion gallons of motor vehicle fuels per year (CEC 2019b). Though California's population and economy are expected to grow, gasoline demand is projected to decline from roughly 15.8 billion gallons in 2017 to between 12.3 billion and 12.7 billion gallons in 2030, a 20 percent to 22 percent reduction. This decline comes in response to both increasing vehicle electrification and higher fuel economy for new gasoline vehicles (CEC 2019b).

Impact

Construction Energy Demand

During project construction, energy would be consumed in the form of petroleum-based fuels used to power off-road construction vehicles and equipment on the project site, construction worker travel to and from the project site, and vehicles used to deliver materials to the site. The proposed project would require site preparation and grading, including hauling material off-site; pavement and asphalt installation; building construction; architectural coating; and landscaping and hardscaping.

The total consumption of gasoline and diesel fuel during project construction was estimated using the assumptions and factors from CalEEMod (Attachment 4). Table 4 presents the estimated construction phase energy consumption, indicating construction equipment, vendor trips, and worker trips would consume approximately 54,274 gallons of fuel over the project construction period. Construction equipment would consume an estimated 54,149 gallons of fuel; vendor and hauling trips would consume approximately 22 gallons of fuel; and worker trips would consume approximately 103 gallons of fuel over the combined phases of project construction.

Table 4 – Estimated Fuel Consumption during Construction

Fuel Type	Gallons of Fuel	MMBtu[4]
Diesel Fuel (Construction Equipment)[1]	54,149	6,902
Diesel Fuel (Hauling & Vendor Trips)[2]	22	3
Other Petroleum Fuel (Worker Trips)[3]	103	11
Total	**54,274**	**6,916**

[1] Fuel demand rate for construction equipment is derived from the total hours of operation, the equipment's horse power, the equipment's load factor, and the equipment's fuel usage per horse power per hour of operation, which are all taken from CalEEMod outputs (see Attachment 4), and from compression-ignition engine brake-specific fuel consumptions factors for engines between 0 to 100 horsepower and greater than 100 horsepower. Fuel consumed for all construction equipment is assumed to be diesel fuel.

[2] Fuel demand rates for hauling and vendor trips (cut material imports) are derived from hauling and vendor trip number, hauling and vendor trip length, and hauling and vendor vehicle class from "Trips and VMT" Table contained in Section 3.0, *Construction Detail*, of the CalEEMod results (see Attachment 4). The fuel economy for hauling and vendor trip vehicles is derived from the United States Department of Transportation (DOT 2018). Fuel consumed for all hauling trucks is assumed to be diesel fuel.

[3] The fuel economy for worker trip vehicles is derived from DOT National Transportation Statistics (24 mpg) (DOT 2018). Fuel consumed for all worker trips is assumed to be gasoline fuel.

[4] CaRFG CA-GREET 2.0 fuel specification of 109,786 Btu/gallon used to identify conversion rate for fuel energy consumption for worker trips specified above (CARB 2015). Low-sulfur Diesel CA-GREET 2.0 fuel specification of 127,464 Btu/gallon used to identify conversion rate for fuel energy consumption for construction equipment specified above (CARB 2015). Totals may not add up due to rounding.

The construction energy estimates represent a conservative estimate as the construction equipment used in each phase of construction was assumed to be operating every day of construction. Construction equipment would be maintained to all applicable standards as required, and construction activity and associated fuel consumption and energy use would be temporary and typical for construction sites. It is also reasonable to assume contractors would avoid wasteful, inefficient, and unnecessary fuel consumption during construction to reduce construction costs. Therefore, the proposed project would not involve the inefficient, wasteful, and unnecessary use of energy during construction, and the construction-phase impact related to energy consumption would be less than significant.

Operational Energy Demand

The operation of the dwelling units planned under the proposed project would require energy use in the form of electricity, natural gas, and gasoline consumption. Natural gas and electricity would be used for heating and cooling systems, lighting, appliances, water use, and the overall operation of the project. Gasoline consumption would be attributed to vehicular travel from residents and guests traveling to and from the project site. The proposed project's estimated number of average daily trips is used to determine the energy consumption associated with fuel use from project operation. According to the CalEEMod calculations, the proposed project would result in 4,564,542 annual VMT (Attachment 4). Table 5 shows the estimated total annual fuel consumption of the project using the estimated VMT with the assumed vehicle fleet mix (Attachment 4).

Table 5 – Estimated Project Annual Transportation Energy Consumption

Vehicle Type[1]	Percent of Vehicle Trips[2]	Annual Vehicle Miles Traveled[3]	Average Fuel Economy (miles/gallon)[4]	Total Annual Fuel Consumption (gallons)	Total Fuel Consumption (MMBtu)[5]
Passenger Cars	48.14%	2,197,325	24.0	91,555	10,051
Light/Medium Trucks	32.86%	1,500,096	17.4	86,212	9,465
Heavy Trucks/Other	18.47%	843,107	7.4	113,933	14,452
Motorcycles	0.53%	24,014	43.9	547	60
Total	**100.0**	**4,564,542**	–	**292,248**	**34,028**

[1] Vehicle classes provided in CalEEMod do not correspond exactly to vehicle classes in DOT fuel consumption data, except for motorcycles. Therefore, it was assumed that passenger cars correspond to the light-duty, short-base vehicle class, light/medium trucks correspond to the light-duty long-base vehicle class, and heavy trucks/other correspond to the single unit, 2-axle 6-tire or more class.

[2] Percent of vehicle trips from Table 4.4 "Fleet Mix" in Air Quality and Greenhouse gas Emissions Study, CalEEMod output (see Attachment 4).

[3] Mitigated annual VMT found in Table 4.2 "Trip Summary Information" in Air Quality and Greenhouse Gas Emissions Study CalEEMod output (see Attachment 4).

[4] Average Fuel Economy: DOT 2018.

[5] CaRFG fuel specification of 109,786 Btu/gallon used to identify conversion rate for fuel energy consumption for vehicle classes specified above (CARB 2015).

Notes: Totals may not add up due to rounding.

As shown in Table 4, the proposed project would consume approximately 292,248 gallons of fuel, or 34,028 MMBtu, each year for transportation uses from the operation under the most conservative estimate.

Operation of the dwelling units planned under the proposed project would consume approximately 1.1 GWh of electricity per year (electricity use provided in the CalEEMod output of Attachment 5). The proposed project's electricity demand would be served by PG&E, which provided 82,224 GWh of electricity in 2017; therefore, PG&E would have sufficient supplies for the proposed project. Estimated natural gas consumption for the proposed project would be approximately 0.03 MMthm per year (electricity use provided in the CalEEMod output of Attachment 4). The proposed project's natural gas demand would be serviced by PG&E, which provided approximately 4,715 MMthm per year in 2017; therefore, PG&E would have sufficient supplies for the proposed project.

All dwelling units built under the proposed project would be required to comply with all standards set in California Building Code (CBC) Title 24, which would minimize the wasteful, inefficient, or unnecessary consumption of energy resources during operation**.** California's Green Building Standards Code (CALGreen; California Code of Regulations, Title 24, Part 11) requires implementation of energy efficient light fixtures and building materials into the design of new construction projects. Furthermore, the 2019 Building Energy Efficiency Standards (CBC Title 24, Part 6) requires newly constructed buildings to meet energy performance standards set by the Energy Commission. These standards are specifically crafted for new buildings to result in energy efficient performance so that the buildings do not result in wasteful, inefficient, or unnecessary consumption of energy. The standards are updated every three years and each iteration is more energy efficient than the previous standards. For example, according to the CEC, residences built with the 2019 standards will use about seven percent less energy due to energy efficiency measures versus those built under the 2016 standards, or 53 percent less energy with rooftop solar, and nonresidential buildings will use about 30 percent less energy due mainly to lighting upgrades (CEC 2018). Furthermore, the proposed project would continue to reduce its use of nonrenewable energy resources as the electricity generated by renewable resources provided by PG&E continues to increase to comply with state requirements through Senate Bill 100, which requires electricity providers to increase procurement from eligible renewable energy resources to 33 percent of total retail sales by 2020, 60 percent by 2030, and 100 percent by 2045.

Project construction would be temporary and typical of similar projects, and would not result in the wasteful, inefficient, or unnecessary consumption of energy. Project operation would involve the consumption of fuel, natural gas, and electricity; however, calculated energy consumption estimates did not deduct existing energy use from the two residences currently on the project site and therefore represent a highly conservative estimate. The proposed project's energy usage would be in conformance with the latest version of California's Green Building Standards Code and the Building Energy Efficiency Standards. In addition, PG&E has sufficient supplies to serve the project and the proposed project would include rooftop solar PV panels that would further off set energy consumption. Therefore, the proposed project would have a less than significant impact.

As discussed further below under Section VIII, *Greenhouse Gases*, the City adopted its Climate Action Plan (CAP) to address GHG emissions from municipal operations in December of 2015. The CAP outlines the City's GHG emission reduction goals and emissions-reduction measures the City may implement, several of which are energy-related in nature. The City's CAP and the Fresno Council of Governments' (Fresno COG) adopted *Regional Transportation Plan/Sustainable Communities Strategy* (RTP/SCS), which outlines the region's desired land use pattern through 2042 in order to reduce GHG emissions, are based on the population and land use scenarios contained in local General Plans (Fresno COG 2018). The RTP/SCS includes goals and policies which support smart growth through housing projects at existing planned and transit stations, and other activities that tend to reduce GHG emissions (Fresno COG 2018). Because the project would be within the growth assumptions contained in the City's General Plan 2030, the proposed project would be consistent with all applicable plans and energy conservation measures, including the City's CAP and Fresno COG's RTP/SCS. Impacts would be less than significant.

Therefore, no project-specific mitigation for energy impacts is required.

ENVIRONMENTAL ISSUE AREA	Where Impact Was Analyzed in the Reedley 2030 General Plan EIR	Do Proposed Changes Involve New or Substantially More Severe Significant Impacts?	Do Any New Circumstances Involve New or Substantially More Severe Significant Impacts?	Any Substantially Important New Information Requiring New Analysis or Verification?	Do Reedley 2030 General Plan EIR Mitigation Measures Address/ Resolve New or More Severe Project Impacts?
VII. GEOLOGY AND SOILS -- Would the project:					
a) Directly or indirectly cause potential substantial adverse effects, including the risk of loss, injury, or death involving:	Impact GEO-1	No	No	No	N/A
i) Rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area or based on other substantial evidence of a known fault? Refer to Division of Mines and Geology Special Publication 42.	Impact GEO-1	No	No	No	N/A
ii) Strong seismic ground shaking?	Impact GEO-1	No	No	No	N/A
iii) Seismic-related ground failure, including liquefaction?	Impact GEO-1	No	No	No	N/A
iv) Landslides?	Impact GEO-1	No	No	No	N/A
b) Result in substantial soil erosion or the loss of topsoil?	Impact GEO-2	No	No	No	N/A

ENVIRONMENTAL ISSUE AREA	Where Impact Was Analyzed in the Reedley 2030 General Plan EIR	Do Proposed Changes Involve New or Substantially More Severe Significant Impacts?	Do Any New Circumstances Involve New or Substantially More Severe Significant Impacts?	Any Substantially Important New Information Requiring New Analysis or Verification?	Do Reedley 2030 General Plan EIR Mitigation Measures Address/ Resolve New or More Severe Project Impacts?
c) Be located on a geologic unit or soil that is unstable, or that would become unstable as a result of the project, and potentially result in on- or off-site landslide, lateral spreading, subsidence, liquefaction or collapse?	Impact GEO-3	No	No	No	N/A
d) Be located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code (1994), creating substantial direct or indirect risks to life or property?	Impact GEO-4	No	No	No	N/A
e) Have soils incapable of adequately supporting the use of septic tanks or alternative waste water disposal systems where sewers are not available for the disposal of waste water?	Impact GEO-3	No	No	No	N/A
f) Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?	Section 2.6 Cultural Resources	No	No	No	No

Setting

The project lies within the scope of the 2013 PEIR for the Reedley 2030 General Plan. As identified in the PEIR, the City of Reedley and the surrounding County of Fresno area has no known active earthquake faults and is not in any Alquist-Priolo Special Studies Zone (Reedley 2013a). The immediate Fresno area has low seismic activity levels, although shaking may be felt from earthquakes whose epicenter lie to the east, west, and south. Known major faults are over 50 miles away and include the San Andreas Fault, Coalinga area blind thrust fault(s), the Long Valley, Owens Valley, and White Wolf/Tehachapi fault systems. The most serious threat to Reedley from a major earthquake in the Eastern Sierra would be flooding that could be caused by damage to dams on the upper reaches of the San Joaquin River.

Impact

As discussed in the PEIR, there are no known active faults within the vicinity of the project. Although no active faults have been mapped across the project site, seismic events caused by active and potentially active faults in the region could result in seismic ground shaking on-site. A seismic hazard cannot be completely ruled out; however, effects can be minimized by implementing requirements specified in the California Building Code (CBC). Compliance with existing building standards and General Plan 2030 goals and policies would minimize potential safety hazards from seismic ground shaking and potential ground failure/liquefaction, and ensure impacts associated with the project would be less than significant. Additionally, since the project site, like the entire City of Reedley, is located on the level San Joaquin Valley floor, risks from landslides would generally be minimal and potential impacts on new development would remain less than significant.

As identified in the PEIR, soil types located within the existing SOI generally have low to moderate potential for water and wind erosion. Moderately expansive soils, including soils in the Ramona (Rb; Rc) series that exist on the project site, would usually cause damage only to substandard structures and to flatwork such as streets and patios. In addition, foundations can usually be specially engineered to minimize damage due to these moderately expansive soils. The project would connect into the City of Reedley's existing waste water system; therefore, the use of septic tanks or alternative waste water disposal systems would not be required.

The City's General Plan contains a range of goals and policies which will serve to minimize potential soil erosion impacts. The most important of these includes the following policies:

SE 5.2.1 Proposed development projects may be subject to a variety of discretionary action and conditions of approval. The actions and conditions are based on adopted City plans and policies essential to mitigate adverse effects on the environment including the health, safety, and welfare of the community. For example, the City may require preliminary soil (Reedley Municipal Code, Section 11-4-2-D), geotechnical or seismic reports when the subject property is located on land exhibiting potentially unstable soil conditions, suitability for additional development, or other hazardous geologic conditions.

SE 5.2.2 Development should be prohibited in areas where corrective measures to affect the geologic hazard are not feasible.

Implementation of the above policies contained in the City's General Plan 2030 would ensure that future development facilitated by the proposed project would result in less than significant impacts with regard to geology and soils.

There is no evidence that cultural resources of any type (including paleontological features) exist within the subject territory. Past record searches for the region have not revealed the likelihood of cultural resources on the subject property or in its immediate vicinity. In addition, the subdivision site is currently fallow agricultural land, and therefore has been disturbed from previous agricultural practices. However, because of the slight possibility of previously undiscovered paleontological resources that may be uncovered during excavation required for the proposed development, Condition of Approval 20(b) relating to animal fossil discovery and impacts would be less than significant.

Therefore, no project-specific mitigation for geology and soils impacts is required.

ENVIRONMENTAL ISSUE AREA	Where Impact Was Analyzed in the Reedley 2030 General Plan EIR	Do Proposed Changes Involve New or Substantially More Severe Significant Impacts?	Do Any New Circumstances Involve New or Substantially More Severe Significant Impacts?	Any Substantially Important New Information Requiring New Analysis or Verification?	Do Reedley 2030 General Plan EIR Mitigation Measures Address/Resolve New or More Severe Project Impacts?
VIII. GREENHOUSE GAS EMISSIONS -- Would the project:					
a) Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment?	Impact CC-1	No	No	No	N/A
b) Conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gases?	Impact CC-1	No	No	No	N/A

Setting

In response to an increase in human-made greenhouse gas (GHG) concentrations over the past 150 years, California has implemented Assembly Bill (AB) 32, the "California Global Warming Solutions Act of 2006." AB 32 codifies the Statewide goal of reducing emissions to 1990 levels by 2020 (essentially a 15% reduction below 2005 emission levels) and the adoption of regulations to require reporting and verification of Statewide GHG emissions. Furthermore, on September 8, 2016, the governor signed Senate Bill (SB) 32 into law, which requires the State to further reduce GHGs to 40% below 1990 levels by 2030. SB 32 extends AB 32, directing CARB to ensure that GHGs are reduced to 40% below the 1990 level by 2030.

SB 32 became effective on January 1, 2017 and requires CARB to develop technologically feasible and cost-effective regulations to achieve the targeted 40% GHG emission reduction by 2030 set in Executive Order (EO) B-30-15. On December 14, 2017, CARB adopted the 2017 Scoping Plan, which provides a framework for achieving the 2030 target. To meet reduction targets, the 2017 Scoping Plan relies on the continuation and expansion of existing policies and regulations, such as the Cap-and-Trade Program, as well as implementation of recently adopted policies and policies. The 2017 Scoping Plan also puts an increased emphasis on innovation, adoption of existing technology, and strategic investment to support its strategies. As with the 2013 Scoping Plan Update, the 2017 Scoping Plan does not provide project-level thresholds for land use development. Instead, it recommends that local governments adopt policies and locally appropriate quantitative thresholds consistent with a statewide per capita goal of 6 metric tons of carbon dioxide equivalent ($MTCO_2e$) by 2030 and 2 $MTCO_2e$ by 2050 (CARB 2017). As stated in the 2017 Scoping Plan, these goals are appropriate for plan-level analyses (city, county, sub-regional, or regional level), but not for specific individual projects because they include all emissions sectors in the state.

The vast majority of individual projects do not generate sufficient GHG emissions to directly influence climate change. However, physical changes caused by a project can contribute incrementally to cumulative effects that are significant, even if individual changes resulting from a project are limited.

The issue of climate change typically involves an analysis of whether a project's contribution towards an impact would be cumulatively considerable. "Cumulatively considerable" means that the incremental effects of an individual project are significant when viewed in connection with the effects of past projects, other current projects, and probable future projects (CEQA Guidelines, Section 15064[h][1]).

In August 2008, the SJVAPCD governing board adopted the Climate Change Action Plan (CCAP). The CCAP directed the SJVAPCD to develop guidance to assist lead agencies, project proponents, permit applicants, and interested parties in assessing and reducing the impacts of project-specific GHG emissions on global climate change in the context of promoting GHG reductions consistent with AB 32, SB 32, and the CARB Scoping Plan.

In December 2009, the SJCAPCD adopted two guidance documents for assessing impacts of GHG emissions from new development projects: *Guidance for Valley Land-use Agencies in Addressing GHG Emission Impacts for New Projects under CEQA* and *Addressing GHG Emission Impacts for Stationary Source Projects under CEQA When Serving as the Lead Agency*. The guidance provided in both documents can be utilized to reduce project-specific and cumulative impacts for GHG emissions from stationary source and land use development projects to less than significant. Impacts can be determined as having a less than significant GHG emissions impact by: 1) using any combination of SJVAPCD GHG emission reduction measures to meet Best Performance Standards, 2) complying with an approved GHG plan or mitigation program, or 3) reducing GHG emissions by at least 29 percent. Projects exempt from the requirements of CEQA, and projects complying with an approved GHG emission reduction plan or mitigation program would be determined to have a less than significant individual and cumulative impact. Such plans or programs must be specified in law or adopted by the public agency with jurisdiction over the affected resources and have a certified CEQA document.

In December 2015, the City of Reedley adopted its Climate Action Plan (CAP) to address GHG emissions from municipal operations and General Plan 2030 Update Buildout. The CAP outlines the City's near-term, mid-term, and far-term GHG emission reduction goals. The City's GHG emission reduction goals are (Reedley 2015a):

- Near-term: Reduce emissions to 15% below 2005 levels by 2020.
- Mid-term: Reduce emissions to 50% below 2005 levels by 2050.
- Far-term: Reduce emissions to 80% below 2005 levels by 2080.

In the absence of a revised Climate Action Plan that directly addresses SB 32, the adopted SJVAPCD CCAP and Reedley's CAP remain the most appropriate GHG reduction plans with which to assess an individual project's consistency with statewide policies to reduce GHG emissions. Therefore, if the proposed project is consistent with the applicable GHG reduction plan, than its GHG emissions impacts are considered individually and cumulatively less than significant.

Impact

Section XI, *Land Use and Planning* identifies the proposed single-family and multi-family land uses are consistent with the 2030 General Plan. The subdivision would facilitate a population increase of an estimated 481 people and therefore, the project is consistent with the 2030 General Plan buildout estimates for population. The City's CAP and the Fresno Council of Governments' (Fresno COG) adopted *Regional Transportation Plan/Sustainable Communities Strategy* (RTP/SCS), which outlines the region's desired land use pattern through 2042 in order to reduce GHG emissions, are based on the population and land use scenarios contained in local General Plans (Fresno COG 2018). Because the project would be within the growth assumptions contained in the City's General Plan 2030, the proposed project would be consistent with all applicable GHG emission reduction plans, including the SJVAPCD's CCAP, the City's CAP, and Fresno COG's RTP/SCS. In addition, the General Plan 2030 contains goals and policies (COSP 4.11.1 and COSP 4.11.2) which were directed toward reducing GHG emissions of the City by at least 15 percent (Reedley 2015a) and the 2030 General Plan EIR Impact GHG-1 which directed the City to establish a CAP (Reedley 2013a). Therefore, these impacts were considered in the General Plan 2030 EIR, and with the project being consistent with the General Plan, impacts related to GHG emissions would be less than significant.

Therefore, no project-specific mitigation for greenhouse gas emissions impacts is required.

ENVIRONMENTAL ISSUE AREA	Where Impact Was Analyzed in the Reedley 2030 General Plan EIR	Do Proposed Changes Involve New or Substantially More Severe Significant Impacts?	Do Any New Circumstances Involve New or Substantially More Severe Significant Impacts?	Any Substantially Important New Information Requiring New Analysis or Verification?	Do Reedley 2030 General Plan EIR Mitigation Measures Address/Resolve New or More Severe Project Impacts?
IX. HAZARDS AND HAZARDOUS MATERIAL -- Would the project:					
a) Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials?	Impact HAZ-1	No	No	No	N/A
b) Create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment?	Impact HAZ-1	No	No	No	N/A
c) Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school?	Impact HAZ-2	No	No	No	N/A
d) Be located on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, as a result, would it create a significant hazard to the public or the environment?	Impact HAZ-3	No	No	No	N/A

ENVIRONMENTAL ISSUE AREA	Where Impact Was Analyzed in the Reedley 2030 General Plan EIR	Do Proposed Changes Involve New or Substantially More Severe Significant Impacts?	Do Any New Circumstances Involve New or Substantially More Severe Significant Impacts?	Any Substantially Important New Information Requiring New Analysis or Verification?	Do Reedley 2030 General Plan EIR Mitigation Measures Address/Resolve New or More Severe Project Impacts?
e) For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project result in a safety hazard or excessive noise for people residing or working in the project area?	Impact N-3	No	No	No	N/A
f) Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?	Impact HAZ-4	No	No	No	N/A
h) Expose people or structures, either directly or indirectly, to a significant risk of loss, injury or death involving wildland fires?	Section 2.8 Hazards and Hazardous Materials	No	No	No	N/A

Impact

All existing and future development within the City will continue to adhere to County, state and federal regulations regarding the transportation, storage, use and handling of hazardous materials. Through implementation of Reedley 2030 General Plan Policies, enforcement of the City's related zoning regulations, County, state, and federal enforcement of the hazardous materials regulations for which they are responsible, and implementation of the City's emergency operations plan in the event of a hazardous materials release incident, impacts on public health and safety from use and/or accidental release of hazardous materials would be reduced to a less than significant level. In addition, the closest school to the project site is the Thomas Law Reed Elementary School, approximately 0.3 mile south of the project site. In light of the noted policy mitigations and regulatory requirements, as well as the project site's distance from Thomas Law Reed Elementary School, risks from release of hazardous emissions within one-quarter mile of a school site would be less than significant.

The project is not located on a known hazardous materials site, nor is it located in close proximity to one (State Water Resources Control Board 2019; Department of Toxic Substances Control 2019). However, the proposed project would be located on land previously occupied by active agricultural land, which may present a potential risk of exposure to pesticides, herbicides, insecticides, rodenticides, and other related chemicals during ground disturbance activities during construction. Nonetheless, compliance with General Plan policies, such as COSP 4.6.1, and existing federal and state regulations, such as the Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA) and agricultural product regulatory oversight of the California Department of Pesticide Regulation, would minimize potential exposure to agricultural chemicals. Risks to public health and safety from development on or in the vicinity of this project site would be less than significant.

The subject property is not located in any airport safety area, private airstrip, or adjacent to any freight rail lines. The nearest airport to the project site is the Reedley Municipal Airport, which is a public airport located approximately 3.6 miles to the north. The subdivision of the two parcels for residential development would not conflict with traffic levels or patterns for the Reedley Municipal Airport. This impact would be less than significant. Urban areas have overhead and buried power, gas, rail and communication utility lines. Regulations require that contractors verify precise locations of these lines and avoid damaging them during construction activities; again, environmental assessment can rely on compliance without specific additional mitigation.

The City’s emergency operations plan has recently been updated to reflect response plans for a range of emergency situations that are relevant to conditions in the Reedley area. Development of the site would not differ substantially in terms of its character or types of emergency situations that could arise from it; therefore, the potential impact of impairing implementation or physically interfering with an adopted emergency response plan or emergency evacuation plan would be less than significant.

There are no wildland areas near the project site, therefore the project would have no impact related to exposing people or structures to a significant risk of loss, injury or death involving wildland fires. Impacts with regard to hazards and hazardous materials would be less than significant.

Therefore, no project-specific mitigation for hazardous materials and hazardous facilities impacts is required.

ENVIRONMENTAL ISSUE AREA	Where Impact Was Analyzed in the Reedley 2030 General Plan EIR	Do Proposed Changes Involve New or Substantially More Severe Significant Impacts?	Do Any New Circumstances Involve New or Substantially More Severe Significant Impacts?	Any Substantially Important New Information Requiring New Analysis or Verification?	Do Reedley 2030 General Plan EIR Mitigation Measures Address/Resolve New or More Severe Project Impacts?
X. HYDROLOGY AND WATER QUALITY -- Would the project:					
a) Violate any water quality standards or waste discharge requirements or otherwise substantially degrade surface or groundwater quality?	Impact HYD-1	No	No	No	N/A
b) Substantially decrease groundwater supplies or interfere substantially with groundwater recharge such that the project may impede sustainable groundwater management of the basin?	Impact HYD-2	No	No	No	N/A
c) Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river or through the addition of impervious surfaces, in a manner which would:	Impact HYD-3	No	No	No	N/A
i) result in substantial erosion or siltation on- or off-site;	Impact HYD-3	No	No	No	N/A
ii) substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or offsite;	Impact HYD-3	No	No	No	N/A

ENVIRONMENTAL ISSUE AREA	Where Impact Was Analyzed in the Reedley 2030 General Plan EIR	Do Proposed Changes Involve New or Substantially More Severe Significant Impacts?	Do Any New Circumstances Involve New or Substantially More Severe Significant Impacts?	Any Substantially Important New Information Requiring New Analysis or Verification?	Do Reedley 2030 General Plan EIR Mitigation Measures Address/Resolve New or More Severe Project Impacts?
iii) create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff; or	Impact HYD-3	No	No	No	N/A
iv) impede or redirect flood flows?	Impact HYD-3 & Impact HYD-4	No	No	No	N/A
d) In flood hazard, tsunami, or seiche zones, risk release of pollutants due to project inundation?	Impact HYD-5	No	No	No	N/A
e) Conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan?	Impact HYD-2	No	No	No	N/A

Impact

Water Supply, Water Treatment and Delivery Maintenance

The City of Reedley lies directly over the Kings Basin from which the City extracts its domestic water supply. The Kings Basin is a large groundwater subbasin located within the southern part of the San Joaquin Valley Basin, in the Central Valley of California. The groundwater basin covers an area of 1,530 square miles (Reedley 2013a).

The City of Reedley depends entirely on groundwater pumping from the Kings Basin. The topography of the Reedley area is relatively flat, and the primary slopes within the SOI are those found within the Kings River corridor. Subsurface lateral movement of runoff from the Sierra Nevada Mountains to the east and some general surface runoff in creeks, irrigation ditches and open space, percolation ponds and the Kings River are all a source of replenishment of the groundwater table. The City's groundwater supply is pumped from wells located entirely on the eastern side of the Kings River. The

City does not pump or operate any groundwater wells on the westerly side of the Kings River (Reedley 2013a).

The City has historically provided domestic water supply solely through groundwater extraction. The City operates seven active domestic supply water wells that pump water directly into the water system which includes approximately 82 miles of pipeline and three elevated storage tanks (Reedley 2017a). It is common practice for the City to drill its water production wells at depths greater than 800-feet to ensure sufficient supply and to meet State Water Quality standards. This is because water quality in the Kings Basin is generally very good and groundwater quality in the Reedley vicinity is also generally good. In the City of Reedley 2016 Water Quality Report, the City reported that after testing for over 100 constituents, the City's groundwater supply met all health-related standards established by the California Department of Public Health, and the U.S. Environmental Protection Agency. According to the 2015 UWMP, the City manages water quality risks by monitoring contaminants to maintain concentrations below the required maximum control level (MCL), as well as other regulatory health-based objectives, when feasible (Reedley 2017a). Table 6 illustrates the City's water consumption from 2012 through 2017.

Table 6 – City of Reedley Water Consumption 2012-2017

Year	Water Consumed (Millions of Gallons)	Difference from Previous Year (Millions of Gallons)
2012[1]	1,632	N/A
2013[2]	1,597	-35
2014[3]	1,498	-99
2015[4]	1,302	-196
2016[5]	1,365	+63
2017[6]	1,403	+38
Sources: [1.] Reedley 2012; [2.] Reedley 2013b; [3.] Reedley 2014b; [4.] Reedley 2015b; [5.] Reedley 2016; [6.] Reedley 2017b		

As shown in Table 6, the City has reduced its annual water consumption since 2012. The City of Reedley experienced an increase in water consumption from the previous year in 2016 and 2017; however, the City's 2012 through 2017 water consumption has decreased by an annual average of 46 million gallons.

To satisfy the provisions of SB X7-7, the City must establish a per capita water use target for the year 2020 as well as an interim target. In 2015 the City's daily per capita water use was determined to be 139 GPCD, which is less than the 2015 Interim Target of 242 GPCD and Confirmed 2020 target of 215 GPCD. Therefore, the City has met their 2015 per capita water use and is already on track to meet the Confirmed 2020 Target (Reedley 2016).

Through the Reedley Municipal Code (RMC) the City has implemented regulations for the conservation of potable water. Pursuant to RMC, Water Conservation, Section 8-1-12(A), the goals of this section are to minimize water use and reduce unnecessary use of potable water supplies. This section of the code provides a definition of "waste of water", irrigation design guidelines, watering schedules and the enforcement process and penalties.

Goals and policies contained in the City's General Plan 2030, the RMC, and supporting plans such as the UWMP represent the City's effort to reduce wasteful use of water and promote water conservation. The goals and policies contained in the City's General Plan 2030 consist of promoting public education, transparency, conservation and collaboration with other governmental agencies. Implementation of these water polices will not mitigate the critical overdraft of the Kings Basin. However, the goals and policies specifically contained in the Public Utilities section of the City's General Plan 2030 are designed as a comprehensive set of tools to ensure the avoidance of a critical overdraft and ensure the City's diligent oversight, management and use of a finite water resource (Reedley 2013a).

The project would be consistent with the land use and zoning of the 2030 General Plan and the 2030 General EIR, Impact HYD-1 (Reedley 2013a), identified goals and policies that would reduce the consumptive use, and/or applying any building standards related to low flow fixtures. Therefore, the project would not have significant impacts to water quality standards or waste discharge requirements impacts are less than significant.

<u>Wastewater Management</u>

The City currently operates its own wastewater treatment plant (WWTP) located at 1701 West Huntsman Avenue, Reedley, California. The WWTP Phase 1 project was completed which expanded the plant's capacity to five million gallons per day (mgd) and constructed new percolation ponds. The WWTP has also been designed to accommodate future expansion to a total capacity of seven mgd. At total plant build-out, the WWTP could accommodate anticipated growth for the next 20 years. The WWTP is currently operating at approximately 2.3 mgd (Reedley 2017a).

Additionally, the WWTP site contains three additional wastewater basins. According to the City of Reedley *Wastewater Treatment Plant Master Plan*, new percolation ponds (approximately 20 acres total) will be constructed within the WWTP boundary and will enable the plant to continue to provide 100 percent effluent reclamation via percolation (Reedley 2006). As discussed in City's adopted Mitigated Negative Declaration (MND) for the City's Environmental Assessment (EA) No. 2017-7, a condition of the City's permit for the WWTP requires the City to discharge effluent reclamation waters between October and May into three specific ponding basins for recharge purposes (Reedley 2018a). According to the City's MND, the five-year average of effluent discharge used for percolation purposes is 704.4 million gallons; and, in 2012, 654.0 million gallons were discharged into these percolation ponds for groundwater recharge (Reedley 2018a).

According to orders and permits issued by the California Water Quality Control Board for the City's WWTP, certain limits have been placed on discharge flows to percolation ponds and the Kings River. The WWTP is limited to a monthly average discharge flow of 3.5 million gallons per day (mgd) of wastewater to approximately 39 acres of percolation ponds. The City is also limited to a monthly average discharge flow of 1.75 mgd of wastewater into the Kings River. Implementation of the proposed project would not alter these standards or cause the WWTP to exceed acceptable effluent discharge standards already identified in the 2030 General Plan EIR; Impact HYD-1 discusses goals and policies in the General Plan that would reduce these impacts to less than significant.

<u>Drainage, Stormwater Management, and Flood Control</u>

Storm water flows into street collection systems and enters the storm drain inlets where it is conveyed through sub-surface drainage piping to one of several storm water retention basins located throughout the City of Reedley. The design of the storm drainage collection system is based upon the peak flow that the pipeline collection system can carry and the topographic slope (or gradient) available in the area. The design of a storm water retention basin is based upon the total volume of runoff that the retention basin must be capable of storing (Reedley 2018a).

The City has ten drainage zones, nine permanent stormwater retention basins, underground storm drains, storm drain inlets, a drainage ditch, and a pump station distributed throughout the City. For example, the Buttonwillow Irrigation Ditch is located on the east side of the City. Storm drains also carry water to one of three retention basins. The Camacho Park Retention Basin is located at the northeast corner of North Avenue and Columbia. Another retention basin is located at the end of Hemlock Avenue and Curtis Avenue, adjacent to the Reedley Parkway. Both of these retention basins are designed to fill with stormwater using gravity. Stormwater is collected in these basins and percolates through the soil or evaporates into the air. The third retention basin is located at the intersection of Washington Avenue and Carolyn Lane. Stormwater from this basin is pumped to an irrigation canal (Reedley 2018a).

There are also two well-defined areas in the City of Reedley that collect stormwater runoff which flows directly to Alta Irrigation District (AID) facilities. The northern area of the City, where the project site is located, is generally bound by Parlier, Frankwood, Manning and Hollywood Avenues. The second area is generally bound by North, East, and Dinuba Avenues. The two areas described above consist of approximately 20 acres of land (Reedley 2018a).

The storm drain runoff from this 20-acre area is an indirect source of groundwater recharge for AID. The collected stormwater runoff drains into irrigation ditches and canals which are an excellent opportunity for groundwater recharge. Any runoff not absorbed through seepage is available to AID for further recharge or delivery to their customers, which in turn reduces the potential need for drawing more water from the Basin for remaining service needs.

The National Pollutant Discharge Elimination System (NPDES) program controls and reduces pollutants to water bodies from point and non-point discharges. The NPDES Phase II Storm Water Program requires separate municipal storm sewer systems to obtain a permit and develop a storm water management program designed to prevent harmful pollutants from being washed by storm water runoff into local water bodies. The program must include public education, public participation and involvement, illicit discharge detection and elimination, construction site runoff control, post-construction runoff control and pollution prevention, and good housekeeping.

The City's Stormwater Management Implementation Plan (STAR Engineering 2007), represents the five-year management strategy for controlling the discharge of pollutants to the "maximum extent practicable" in stormwater runoff from the City urban area during the first NPDES stormwater permit term. The plan was prepared in support of the City's application for a Municipal Stormwater (MS4) Permit to the Central Valley Regional Water Quality Control Board. The plan includes information on federal, state, and local storm water quality regulations, stormwater quality control strategies and programs to be implemented in Reedley, storm water quality monitoring and assessment, and plan implementation requirements. The City is currently in compliance with all State Stormwater regulations and in the process of updating its Storm Drainage Master Planning Report (Reedley 2018a).

The Reedley Municipal Code, Stormwater Management Section 8-5-1, sets forth the local governing regulations for implementing stormwater quality management strategies consistent with its General Construction permit from the Central Valley Regional Water Quality Control Board. The regulations are applicable to all storm water generated on any developed or undeveloped urban land within the City or conveyed by the public storm drain system. The critical component of the regulations is as follows:

> All persons engaged in activities which will or may reasonably be expected to result in pollutants entering the public storm drain system shall undertake best management practices (BMPs) to minimize such pollutants, shall provide protection from accidental discharge of pollutants to the public storm drain system and comply with cleanup and notification requirements of this chapter. Such measures shall include the requirements imposed by federal, state, county, or local authorities. BMPs are site specific and are described in the documents "Storm Water Best Management Practice Handbook: Construction"; "Storm Water Best Management Practice Handbook: New Development and Redevelopment"; "Storm Water Best Management Practice Handbook: Industrial And Commercial"; "Storm Water Best Management Practice Handbook: Municipal"; or other guidance documents available from EPA and/or RWQCB. (Reedley Municipal Code, Section 8-5-1)

To support these and other storm drainage facilities the City has created and implemented an impact fee program (Reedley 2018b). The proposed subdivision would be subject to this development impact fee to ameliorate potential impacts to the stormwater drainage system. The development impact fee is charged and collected at the time a building permit is issued.

Due to the project's consistency with the 2030 General Plan land use and zoning, the impacts related to stormwater were discussed in the General Plan EIR under Impact HYD-1 (Reedley 2013a) and General Plan 2030 Policy CIR 3.10.17, required new developments would provide storm drainage facilities and pay storm drainage impact fees, consistent with the Storm Drain Master Plan, which would reduce potential impacts to less than significant. Project General Conditions on grading and drainage (Attachment 3, numbers 42-46) require consistency with the Storm Drain Master Plan.

The project site is not located in a 100-year flood hazard area (Federal Emergency Management Agency [FEMA] 2009), nor does it propose structures within such an area. Given its location and existing infrastructure, the project does not expose people or structures to a significant risk of flooding or inundation.

Therefore, no project-specific mitigation for hydrology and water quality impacts is required.

ENVIRONMENTAL ISSUE AREA	Where Impact Was Analyzed in the Reedley 2030 General Plan EIR	Do Proposed Changes Involve New or Substantially More Severe Significant Impacts?	Do Any New Circumstances Involve New or Substantially More Severe Significant Impacts?	Any Substantially Important New Information Requiring New Analysis or Verification?	Do Reedley 2030 General Plan EIR Mitigation Measures Address/Resolve New or More Severe Project Impacts?
XI. LAND USE AND PLANNING - Would the project:					
a) Physically divide an established community?	Section 2.14 Effects Found Not to be Significant	No	No	No	N/A
b) Cause a significant environmental impact due to a conflict with any applicable land use plan, policy, or regulation adopted for the purpose of avoiding or mitigating an environmental effect?	Section 2.14 Effects Found Not to be Significant	No	No	No	N/A

Setting

The project site is located within the boundaries of the Reedley 2030 General Plan, which was adopted in 2014. The proposed 2030 General Plan provides guidance on future development that would occur largely within agricultural areas that are currently undeveloped. Where development would occur within the developed portions of the City, that development would largely occur on vacant infill parcels. The proposed 2030 General Plan contains a range of policies that would promote compact, orderly growth.

Impact

Buildout of the subdivision project would have no impact on physically dividing an established community because it is a property with flat land and is contiguous on two sides to the existing City Limits. Implementation of the boundaries of the Reedley General Plan 2030 would not require major future infrastructure (i.e. highways) that could be perceived as a major barrier between existing developed uses or future developed uses.

The proposed project would not conflict with adopted plans, policies or regulations. The proposed 2030 General Plan was found to be consistent with the San Joaquin Valley Air Pollution Control District's air quality management plans, Fresno Council of Government's Regional Transportation Plan, and the Valley Blueprint (Reedley 2013a).

As identified in the Reedley 2030 General Plan, the General Plan Planned Land Use Designation for the property is Low Density Residential and High Density Residential. The proposed project would facilitate the future development of single-family and multi-family residences Therefore the proposed subdivision would be generally consistent with the General Plan Planned Land Use and Zoning District Consistency Matrix (General Plan 2030, Table 2-4, Page 30).

The project is consistent with a variety of General Plan Land Use Element goals and policies, including the following:

LU 2.4A	Preserve and enhance Reedley's unique character and achieve an optimal balance of residential, commercial, industrial, public, and open space land uses.
LU 2.5C	Facilitate orderly transition from rural/agricultural uses to urban land uses.
LU 2.7C	Preserve existing neighborhoods and create strong new neighborhoods that are well designed and maintained.
LU 2.7.6	Ensure that residential development occurs in areas that have sufficient infrastructure to accommodate the density of residential development being proposed.
LU 2.7.7	Residential development shall be designed in a manner so that new development is well connected to the surrounding area and to encourage pedestrian and bicycle transportation.

The project would be consistent by implementing the City's general plan and supporting orderly growth consistent with surrounding uses.

Therefore, no project-specific mitigation for land use impacts is required.

ENVIRONMENTAL ISSUE AREA	Where Impact Was Analyzed in the Reedley 2030 General Plan EIR	Do Proposed Changes Involve New or Substantially More Severe Significant Impacts?	Do Any New Circumstances Involve New or Substantially More Severe Significant Impacts?	Any Substantially Important New Information Requiring New Analysis or Verification?	Do Reedley 2030 General Plan EIR Mitigation Measures Address/Resolve New or More Severe Project Impacts?
XII. MINERAL RESOURCES -- Would the project:					
a) Result in the loss of availability of a known mineral resource that would be of value to the region and the residents of the state?	Section 2.14 Effects Found Not to be Significant	No	No	No	N/A
b) Result in the loss of availability of a locally-important mineral resource recovery site delineated on a local general plan, specific plan or other land use plan?	Section 2.14 Effects Found Not to be Significant	No	No	No	N/A

Impact

The Fresno County General Plan Update Background Report provides information on the location and types of mineral resources located in the County. The Background Report shows that there are no areas where adequate information indicates that significant mineral deposits are present, or where it is judged that a high likelihood for their presence exists (classified as Mineral Resource Zone MRZ-2) (Fresno County 2000). The City has not previously or currently designated important mineral resources recovery areas within or immediately adjacent to the City. Since the project would not preclude future mineral extraction in areas where significant mineral deposits occur and would not result in the exploration or mining of mineral resources, there would be no impact.

Therefore, no project-specific mitigation for mineral resource impacts is required.

ENVIRONMENTAL ISSUE AREA	Where Impact Was Analyzed in the Reedley 2030 General Plan EIR	Do Proposed Changes Involve New or Substantially More Severe Significant Impacts?	Do Any New Circumstances Involve New or Substantially More Severe Significant Impacts?	Any Substantially Important New Information Requiring New Analysis or Verification?	Do Reedley 2030 General Plan EIR Mitigation Measures Address/Resolve New or More Severe Project Impacts?
XIII. NOISE -- Would the project result in:					
a) Generation of a substantial temporary or permanent increase in ambient noise levels in the vicinity of the project in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies?	Impact N-1	No	No	No	N/A
b) Generation of excessive ground borne vibration or ground borne noise levels?	Impact N-2	No	No	No	N/A
c) For a project located within the vicinity of a private airstrip or an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project expose people residing or working in the project area to excessive noise levels?	Impact N-3	No	No	No	N/A

Setting

Noise is generally defined as “unwanted sound,” which is a subjective determination of measureable physical phenomena. Ambient noise levels are a major determinant of “quality of life.” Noise levels not only affect the utility and enjoyment of property, they directly affect property values and affect human health.

Noise is an important factor which can influence the quality of life in the City of Reedley. Such exposure to excessive noise levels can adversely affect human health. Therefore, it is important to recognize the interrelationship of the noise element to land use, housing, circulation and open space. The purpose of the City’s General Plan 2030 Noise Element is to identify noise sources that exist within the City and planned SOI. The Noise Element also establishes goals and policies to minimize potential adverse impacts from transportation and stationary noise to sensitive land uses such as residences, schools, churches and hospitals. The nearest noise-sensitive receptors to the project site are the single-family residences located directly adjacent to the project site to the south, east and to the north along portion of the northern project boundary. Additionally, the Kingdom Hall of Jehovah's Witness church is located along Frankwood Avenue directly north of the project boundary and constitutes an additional sensitive receptor.

The City Noise Element establishes a land use compatibility criterion of 60 dBA DNL for exterior noise levels in outdoor activity areas of new residential developments. Outdoor activity areas generally include backyards of single-family residences and patios and common open space areas in multi-family developments. The intent of the exterior noise level requirement is to provide an acceptable noise environment for outdoor activities and recreation. Furthermore, the Noise Element also requires that interior noise levels attributable to exterior noise sources not exceed 45 dBA DNL. The intent of the interior noise level standard is to provide an acceptable noise environment for indoor communication and sleep. Applicable Noise Element standards from the 2030 Reedley General Plan are shown below in Table 7 and Table 8.

Table 7 – Allowable City-Wide Transportation Source Noise Exposure

	Noise Sensitive Land Uses	New Transportation Noise Sources
Indoor	45	45
Outdoor	60	60

Source: Table 6.1.2-A of the 2030 Reedley General Plan
1. This table is applicable to noise sources created by either new development and/or new transportation projects.
2. Based on an evaluation of the existing condition and proposed project, the Community Development Director may allow exterior exposure up to 65 dB DNL where practical application of construction practices has been used to mitigate exterior noise exposure.

Table 8 – Allowable Stationary Source Noise Exposure

	Daytime (7:00 AM to 10:00 PM)	Nighttime (10:00 PM to 7 AM)
Hourly Leq, dBA	55	50
Maximum Level, dBA	70	65

Source: Table 6.1.2-B of the 2030 Reedley General Plan
1. As determined within outdoor activity areas of existing or planned noise-sensitive uses, if outdoor activity area locations are unknown, the allowable noise exposure shall be determined at the property line of the noise sensitive use.
2. Based on an evaluation of the existing condition and proposed project, the Community Development Director may allow exterior exposure up to 65 dB DNL where practical application of construction practices has been used to mitigate exterior noise exposure.

Impact

<u>Construction</u>

Construction of the proposed project would require noise-generating equipment and vehicles that would temporarily increase noise levels in the vicinity. Construction of the proposed project would generate noise associated with construction equipment and vehicle use; however, construction would be temporary and within the acceptable daily construction hours of 7:00 AM to 5:00 PM. The City therefore concludes that, even if construction-related exterior noise exposure in excess of 65 dB occurs, the impacts will be intermittent and less than significant.

Vibration

The use of construction equipment can cause ground vibrations that diminish in strength with distance from the source. Buildings founded on the soil in the vicinity of a construction site may be affected by these vibrations, with varying results ranging from no perceptible effects at the lowest levels, low rumbling sounds and perceptible vibrations at moderate levels, and slight damage at the highest levels. Typically ground vibration does not reach a level where it damages structures unless the structure is extremely fragile. Vibration source levels for typical construction equipment are shown in Table 9.

Table 9 – Vibration Source Levels for Typical Construction Equipment

Type of Equipment	Approximate Ground Velocity in Decibels at 25 feet (inch/second)
Large Bulldozer	87
Small Bulldozer	58
Loaded Trucks	86
Jackhammer	79
Source: FTA 2018	

If the vibration level at a sensitive land use (i.e., residential use) reaches a ground velocity of 85 decibels (VdB), most people would be strongly annoyed by the vibration (FTA 2018). Based upon the information provided in Table 5 above, vibration levels could reach up to 87 VdB for use of construction trucks and even higher with the use of large bulldozers or loaded trucks at sensitive uses located within 25 feet of the equipment. As discussed in the General Plan Draft PEIR, because construction activities are normally short-term in nature, it is possible that under limited conditions where high vibration generating equipment is used near residential developments, use of such equipment could be a source of short-term annoyance, but not likely a source of excessive long-term vibration impacts. As a result, due to the intermittent use of construction equipment, and general construction activity occurring further than 25 feet from the nearest residences, vibration impacts are less than significant.

Operation

The project is surrounded on two sides by existing residential development, which is not a significant noise generating use. The addition of residences would be similar uses to surrounding land uses and would not substantially increase existing noise levels. The project would however increase vehicle trips in the area. As listed in the Traffic Impact Analysis (TIA) prepared by JLB Traffic Engineering for the subdivision project, near-term traffic levels without the proposed project would generate 20,171 average daily trips. As discussed in the TIA, the subdivision project would generate a maximum of 987 average daily trips. In general, it takes a doubling of a noise generating source, in order to increase noise levels by 3 dBA, which is a perceptible increase. The subdivision project would increase total roadway volume by approximately five percent. Therefore, with project generated trips on the local roadway, there would not be a perceptible increase in vehicle noise, and residents in the area would not be subject to a significant increase in roadway noise. Therefore, the exposure to ambient noise levels or noise levels in excess of standards established in the local general plan or noise ordinance would be less than significant.

Aviation Related Noise

The closest airport to the project site is the Reedley Municipal Airport, approximately 3.2 miles north of the project site. According to the Fresno County Airport Land Use Commission's (ALUC) *Airport Land Use Compatibility Plan* (ALUCP), the project site is not located within any of the identified noise contours for the Reedley Municipal Airport. Therefore, the proposed project would not expose people, either residing or working in the area, to excessive noise levels from an airport or private airstrip.

Therefore, no project-specific mitigation for noise impacts is required.

ENVIRONMENTAL ISSUE AREA	Where Impact Was Analyzed in the Reedley 2030 General Plan EIR	Do Proposed Changes Involve New or Substantially More Severe Significant Impacts?	Do Any New Circumstances Involve New or Substantially More Severe Significant Impacts?	Any Substantially Important New Information Requiring New Analysis or Verification?	Do Reedley 2030 General Plan EIR Mitigation Measures Address/Resolve New or More Severe Project Impacts?
XIV. POPULATION AND HOUSING -- Would the project:					
a) Induce substantial unplanned population growth in an area, either directly (for example, by proposing new homes and businesses) or indirectly (for example, through extension of roads or other infrastructure)?	Section 2.14 Effects Found Not to be Significant	No	No	No	N/A
b) Displace substantial numbers of existing people or housing, necessitating the construction of replacement housing elsewhere?	Section 2.14 Effects Found Not to be Significant	No	No	No	N/A

Setting

On March 8, 2016, the City Council adopted the 2015-2023 Multi-Jurisdictional Housing Element. The Housing Element is intended to provide citizens, public officials, and the general public with an understanding of the housing needs in the community and set forth an integrated set of policies and programs aimed at the attainment of defined goals to meet those needs.

According to California Government Code Section 65581, it is the intent of the Legislature in enacting Housing Element Law:

(a) To assure that counties and cities recognize their responsibilities in contributing to the attainment of the State housing goal

(b) To assure that counties and cities will prepare and implement housing elements that, along with federal and state programs, will move toward attainment of the state housing goal

(c) To recognize that each locality is best capable of determining what efforts are required by it to contribute to the attainment of the state housing goal, provided such a determination is compatible with the state housing goal and regional housing needs

(d) To ensure that each local government cooperates with other local governments in order to address regional housing needs

The Housing Element was prepared pursuant to Sections 65580 through 65589 of the California Government Code and contains a statement of goals, policies, objectives and programs for the development of housing in the community. State housing law mandates that local governments adequately plan to meet the existing and projected housing needs of all economic segments of the community. The law acknowledges that, in order for the private market to adequately address housing needs and demand, local governments must adopt land use plans and regulatory systems that provide opportunities for, and do not unduly constrain, housing development.

On July 22, 2016, the City of Reedley received a letter from the HCD indicating that the City of Reedley 2015-2023 Housing Element meets the statutory requirements of State housing element law. The subdivision project would help the City of Reedley implement the goals outlined in the 2015-2023 Housing Element by providing housing opportunities for current and future Reedley residents.

The City of Reedley currently has a population of 26,666, and 7,212 housing units (DOF 2019). The average family size for the City of Reedley is 3.81 persons per household (DOF 2019). The City's population holding capacity under the 2030 General Plan would rise to over 71,000 persons, though the actual population growth projected by the City to occur to the year 2030 is much lower at approximately 47,369 persons (Reedley 2014a).

Impact

State law requires that the housing element be consistent with the other elements of the jurisdictions' general plan (Fresno County 2016). As a result, the 2015-2023 Housing Element reflects the land use pattern, planned development, and housing and population growth forecasts contained in the City's General Plan 2030. Because the City's current population with the additional estimated 481 people generated by the proposed project would not exceed the General Plan's 2019 population forecast, the proposed project would be consistent with the growth forecasts contained in the 2015-2023 Housing Element.

The project would provide for anticipated growth and the proposed development would be consistent with the planned land use designation. Properties within the vicinity of the subject territory have been developed and continue to develop at the intensity and scale designated by the General Plan 2030. Since the proposed project would not displace housing units or people or necessitate the construction of replacement housing elsewhere, there would be no impact.

Therefore, no project-specific mitigation for population and housing impacts is required.

ENVIRONMENTAL ISSUE AREA	Where Impact Was Analyzed in the Reedley 2030 General Plan EIR	Do Proposed Changes Involve New or Substantially More Severe Significant Impacts?	Do Any New Circumstances Involve New or Substantially More Severe Significant Impacts?	Any Substantially Important New Information Requiring New Analysis or Verification?	Do Reedley 2030 General Plan EIR Mitigation Measures Address/Resolve New or More Severe Project Impacts?
XV. PUBLIC SERVICES --					
a) Would the project result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times or other performance objectives for any of the public services:	Impact PS-1 to Impact PS-5	No	No	No	N/A
Fire protection?	Impact PS-1	No	No	No	N/A
Police protection?	Impact PS-2	No	No	No	N/A
Drainage and flood control?	Section 2.9 Hydrology and Water Quality	No	No	No	N/A
Parks?	Impact PS-4	No	No	No	N/A
Schools?	Impact PS-3	No	No	No	N/A
Other public services?	Impact PS-5	No	No	No	N/A

Impact

The proposed subdivision of the two parcels into 44 individual lots would provide for the development of up to 34 single family units and 92 multi-family units and thus induce population. Therefore, the project would add a small increment of service demand for fire protection, police services, schools, parks, wastewater treatment, drainage/flood control, libraries, and other public services.

Fire Services

Fire protection services are provided by the City of Reedley Fire Department (RFD). The typical response time by the RFD is five to eight minutes. The fire department receives funding through a voter approved public safety sales tax override, which supports staffing, facility maintenance and equipment purchase. The fire department also receives funding from development impact fees, which may be used for the purchase of land and construction of new facilities. The RFD provides protection service in the unincorporated areas in and around the study area, with aid provided by the Fresno County Fire Protection District. The City has an instant aid agreement with the County Fire District. Project conditions of approval and applying required development impact fees to the project would serve to mitigate any incremental impact caused by the project.

Police Services

Police protection services are provided by the Reedley City Police Department. The police department operates out of a station located at 843 G Street. The Fresno County Sheriff's Department provides service in the unincorporated areas of the County. The City has adopted a community facilities district policy whereby funds are paid by new residential, commercial, and industrial development projects to support police, fire, and parks and recreation services. Police services are also funded by a public approved public safety sales tax override. Project conditions of approval and applying required development impact fees to the project would serve to mitigate any incremental impact caused by the project.

Schools

The City of Reedley received a comment letter from the Kings Canyon Unified School District (KCUSD) on April 23, 2019, stating that the proposed project would generate 76 students in grades K-8 and 29 students in grades 9-12 for a total of 105 prospective students. The receiving schools are T.L. Reed K-9 School (1400 N. Frankwood Ave.) and Reedley High School (740 W. North Ave.). Both schools would exceed operational capacity as a result of the 105 prospective students. KCUSD would need to adjust attendance area boundaries and/or facilitate transfers to other schools within the District to alleviate the influx of students. In addition, KCUSD has acquired sites for a new high school and a new elementary school in the South Reedley area. Construction for these new facilities is anticipated in approximately four to five years. The KCUSD has notified the City of Reedley in this comment letter that a school facilities fee of $3.79 per square foot would apply to the subdivision development. Compliance with these impact fees would mitigate potential impacts to the KCUSD to a less than significant level.

Parks

In total, the City operates and manages about 72 acres of developed City-owned parks, trails and facilities. Of that total, approximately 68 acres are developed parks and trails. The City plans for parkland needs based on a standard of a total of four acres of parkland per 1,000 residents. Currently, the Community Services Department manages parklands that in total constitute about 2.75 acres of parkland per 1,000 residents. Service ratios would be maintained in accordance with the four acres per 1,000 residents with implementation of the project. In addition, project conditions of approval and applying required development impact fees to the project would serve to mitigate any incremental impact caused by the project.

Drainage and Flood Control

The proposed subdivision is required to connect to the water, sewage collection, wastewater treatment, and storm drainage systems. As discussed in Section X, *Hydrology and Water Quality*, the increase of additional service demand would be well within the available capacities of each of the public utility systems and thus less than significant.

Therefore, no project-specific mitigation for public service impacts is required. The proposed project would not result in new or substantially more severe impacts related to the provision of new or expanded public services.

ENVIRONMENTAL ISSUE AREA	Where Impact Was Analyzed in the Reedley 2030 General Plan EIR	Do Proposed Changes Involve New or Substantially More Severe Significant Impacts?	Do Any New Circumstances Involve New or Substantially More Severe Significant Impacts?	Any Substantially Important New Information Requiring New Analysis or Verification?	Do Reedley 2030 General Plan EIR Mitigation Measures Address/Resolve New or More Severe Project Impacts?
XVI. RECREATION --					
a) Would the project increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated?	Impact PS-4	No	No	No	N/A
b) Does the project include recreational facilities or require the construction or expansion of recreational facilities which might have an adverse physical effect on the environment?	Impact PS-4	No	No	No	N/A

Impact

As discussed in Section XIV, *Population and Housing,* the project would allow construction of new residential uses, which would increase the population of Reedley by approximately 481 persons, thereby incrementally increasing service demand for recreational facilities. The proposed project would not remove any existing recreational facility and new residents would use existing City recreational facilities and areas, including Reedley Sports Park, Camacho Park, and C.F. Mueller Park. As discussed in XV, *Public Services*, service ratios would be maintained in accordance with the four acres of parkland per 1,000 residents with implementation of the project. Project conditions of approval and required payment of development impact fees for the proposed project serve to mitigate any incremental impact caused by the project.

Therefore, no project-specific mitigation for recreation impacts is required. The proposed project would not result in an increase use of recreational facilities that would induce physical deterioration or require construction with a potential adverse effect on the environment when compared to what was analyzed in the 2030 General Plan EIR. Therefore, the project would not result in new or substantially more severe impacts to parks or recreational facilities.

ENVIRONMENTAL ISSUE AREA	Where Impact Was Analyzed in the Reedley 2030 General Plan EIR	Do Proposed Changes Involve New or Substantially More Severe Significant Impacts?	Do Any New Circumstances Involve New or Substantially More Severe Significant Impacts?	Any Substantially Important New Information Requiring New Analysis or Verification?	Do Reedley 2030 General Plan EIR Mitigation Measures Address/Resolve New or More Severe Project Impacts?
XVII**.** TRANSPORTATION -- Would the project:					
a) Conflict with a program, plan, ordinance or policy addressing the circulation system, including transit, roadway, bicycle and pedestrian facilities?	Impact T-1 to Impact T-5	No	No	No	N/A
b) Would the project conflict or be inconsistent with CEQA Guidelines section 15064.3, subdivision (b)?	Section 2.12 Traffic and Transportation	No	No	No	N/A
c) Substantially increase hazards due to a geometric design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)?	Impact T-2	No	No	No	N/A
d) Result in inadequate emergency access?	Impact T-4	No	No	No	N/A

Setting

Reedley's surface transportation system is composed of numerous city streets, which, in some cases, connect to county roads on the peripheral of the City. Other system modalities include public transit system, fixed route transit services, paratransit services, general aviation and freight rail services. Where service is available, public transportation is utilized primarily by a transit-dependent population; i.e., the elderly, students, low-income residents and the physically handicapped. These segments of the population generally have limited access to automobiles. Implementation of the Reedley General Plan Circulation Element would improve the existing regional transportation and circulation system.

The Circulation Element identifies a hierarchy of roads based upon their intended function and projected travel levels. The City's surface transportation system of streets and highways is based on a functional classification system providing four levels of service: major arterials, arterials, collectors, and local roads. The hierarchy of roadways is listed and briefly described below in Table 10.

Major Arterial roadways are typically designed with four through lanes, two transition/right-turn lanes and are divided by a raised median providing left-turn lanes. Major Arterial roadways are intended to provide a high capacity in selected high-volume corridors. Major arterial roadways are designed with required right-of-way, as described in the City of Reedley, Standard Plans and Specifications.

Table 10 – Roadway Classifications

Facility Type	Functional Emphasis
Freeway/Highway	Mobility with no direct land access and access limited to interchanges.
Expressway	Mobility with more frequent access to “arterial” but no direct land access.
Arterial	Mobility with access to “collectors”, some “local” streets and major traffic generators.
Collector	Connects “local” streets to “arterials”, also provides access to adjacent land uses; balances mobility and access. May be “major” or “minor” collector streets.
Local	Access to adjacent land uses only; no mobility function.
Alley	Access to adjacent land use only, no mobility function.
Source: Table 3-1 2030 Reedley General Plan	

Arterial roadways are typically designed with four through lanes and two shoulder/transition lanes and can be divided or undivided by a median. Arterial roadways provide connection to collector streets and access to major traffic generators. Arterial roadways are designed with required right-of-way, as described in the City of Reedley, Standard Plans and Specifications.

Collector roadways are typically designed with four through lanes and two parking/transition lanes and provide connection between arterial streets to local streets. Collector streets can provide some limited access to private properties. Collector roadways are designed with required right-of-way as described in the City of Reedley, Standard Plans and Specifications.

Local streets are typically designed for either industrial or residential carrying capacity. Local streets are intended exclusively to provide direct access to properties and designed to discourage through traffic between major streets. Typically designed for either industrial or residential carrying capacity, these street cross-sections can be found in the City of Reedley, Standard Plans and Specifications. However, local streets are typically not planned by the General Plan 2030 Update, Land Use and/or Circulation Elements, but existing local streets may be shown on exhibits for informational purposes.

The City has also developed surface transportation standards for alleys, frontage roads, secondary and emergency/maintenance access road standards. These standards can be found in the City of Reedley, Standard Plans and Specifications.

Level of Service

“Level of Service” (LOS) is a description of the ability of a street segment or intersection to accommodate levels of traffic demand. LOS is a qualitative measure of traffic operating conditions, whereby a letter grade “A” through “F” is assigned to an intersection or roadway segment representing progressively worsening traffic conditions (See Table 11). LOS A, typically represents unrestricted free flow of traffic and excellent comfort for motorists, while LOS F, which represents highly congested forced flow conditions where traffic exceeds the capacities of streets. The adopted LOS in the General Plan 2030, Circulation Element is LOS C, was adopted, and is used for the threshold of significance, since the intersections and segments of the project fall within the City of the Reedley SOI.

Table 11 – Level of Service Descriptions

			Intersections		
LOS	**Conditions**	**Description**	**Signalized**	**Unsignalized**	**All-Way Stop**
A	Free Flow	Very slight delay. Progression is very favorable, with turning movements easily made.	≤10.0	≤10.0	≤10.0
B	Stable Operation	Good progression and/or short cycle lengths. Vehicle platooned are formed. Many drivers begin to feel somewhat restricted within groups of vehicles.	>10 and ≤20.0	>10 and ≤15.0	>10 and ≤15.0
C	Stable Operation	Higher delays resulting from fair progression and/or longer cycle lengths. Back-ups may develop behind turning vehicles. The number of vehicles stopping is significant and drivers feel somewhat restricted.	>20 and ≤35.0	>15 and ≤25.0	>15 and ≤25.0
D	Approaching Unstable	The influence of congestion becomes more noticeable. Longer delays may result from some combination of unfavorable progression, long cycle lengths, or high volume-to-capacity ratios.	>35 and ≤55.0	>25 and ≤35.0	>25 and ≤35.0
E	Unstable Operations	Generally considered to be unacceptable to most drivers. Jammed conditions. Back-ups from other locations restrict or prevent movement. May also occur at high volume-to-capacity ratios.	>55 and ≤80.0	>35 and ≤50.0	>35 and ≤50.0
F	Forced Flow	Generally considered to be unacceptable to most drivers. Often occurs with over saturation. Jammed conditions. May also occur at high volume-to-capacity ratios. There are many individual cycle failures. Poor progression and long cycle lengths.	>80.0	>50.0	>50.0
Sources: City of Reedley General Plan 2030, Highway Capacity Manual 2000					

The City requires Traffic Impact Studies for new development projects which may cause an adverse effect based upon the number of vehicle trips generated by the project, location of the project relative to the existing circulation system, and actual or assumed level-of-service of surrounding streets or intersection. The General Plan policy is stated below:

CIR 3.2.28 Development resulting in any of the following shall be required, as part of the special permit approval process, to have a licensed engineer complete a traffic impacts study. The scope of that study shall be determined by the City Engineer and paid for by the developer.

(a) 500 vehicle trips per day; or
(b) 250 a.m. or p.m. peak hour trips; or
(c) 25 Percent increase to existing traffic conditions from the development project.

The proposed subdivision project exceeded the above policy threshold of 500 vehicles trip day. Therefore, pursuant to GPU Policy CIR 3.2.28, a Traffic Impact Study was prepared under the direction of the City Engineer. JLP Traffic Engineering, Inc. prepared the Vesting Tentative Tract No. 6267 Traffic Impact Analysis (TIA), dated February 2019 (Attachment 5). After consultation with the traffic consultant, the City Engineer shall have the authority, based upon his/her professional judgment, to apply, modify and incorporate mitigation measures to ensure the surface transportation systems operates at an acceptable LOS, as required by the Reedley General Plan Update 2030. The City's General Plan Goal CIR 3.2B: "Maintain a level of service (LOS) of "C" or better, as the established threshold of significance. An executive summary of the study is provided below:

Study Facilities

Existing intersection turning movements and segment volume counts were conducted at the following intersections and segments in September 2017, November 2017, September 2018 and November 2018 while schools in the vicinity were in session. All traffic counts, movement volumes and traffic controls are illustrated in the Traffic Impact Analysis (Attachment 5).

Intersections: The following intersections were analyzed in the TIA.

1. Reed Avenue / South Avenue
2. Frankwood Avenue / South Avenue
3. Reed Avenue / Parlier Avenue
4. Frankwood Avenue / Parlier Avenue
5. Frankwood Avenue / Cypress Avenue
6. Frankwood Avenue / Manning Avenue

Study Scenarios

The TIA analyzed four conditions, Existing, Near Term No Project, Near Term plus Project, and Cumulative Year 2040 plus Project. These are summarized briefly below.

Existing Traffic Conditions: This scenario evaluates the existing traffic conditions based on existing traffic volumes and roadway conditions from traffic counts and field surveys conducted in the year 2017 and 2018.

Near Term No Project: This scenario evaluates total traffic volumes and roadways conditions based on the assumption that all near term projects are fully built, and total volumes are based on the near-term related trips plus existing traffic conditions.

Near Term plus Project: This scenario is based on project only trips plus the near term no project conditions scenario.

Cumulative Year 2040 plus Project: This scenario evaluates traffic conditions based on conditions in year 2040 (see Attachment 5 for modeling assumptions) plus project generated trips.

Impact

Intersections

The results of the LOS intersection analysis along the street and highway system in the project area from the Existing scenario are reflected in **Table** 12. All intersections and segments currently operate at acceptable LOS conditions (LOS C or better).

Table 12 – Existing Intersection LOS Results

	AM Peak Hour	PM Peak Hour

Intersection	Intersection Control	Average Delay (sec/veh)	LOS	Average Delay (sec/veh)	LOS
Reed Ave. / South Ave.	One-Way Stop	19	C	15.7	C
Frankwood Ave. / South Ave.	All-Way Stop	9.8	A	8.6	A
Reed Ave. / Parlier Ave.	One-Way Stop	23	C	19.8	C
Frankwood Ave. / Parlier Ave.	All-Way Stop	16.4	C	11.6	B
Frankwood Ave. / Cypress Ave.	All-Way Stop	17.1	C	12	B
Frankwood Ave. / Manning Ave.	Signalized	34.8	C	29.7	C
Notes: LOS = Level of Service based on average delay on signalized intersections and All-Way STOP Controls LOS for two-way and one-way STOP controlled intersections are based on the worst approach/movement of the minor street.					

The results of the Near Term No Project conditions for intersections are shown in Table 13. The near-term project's trip generation would introduce 20,171 daily trips; with 1,926 AM Peak Hour trips and 2,022 PM Peak Hour Trips. Under Near Term No Project conditions, all intersections are projected to operate at acceptable LOS (LOS C or better) except for the One-way stop at Reed Ave./South Ave., One-way stop at Reed Ave./Parlier Ave., and Signalized at Frankwood Ave./Manning Ave.

Under this scenario, the intersections of Reed Ave. and South Ave., Reed Ave. and Parlier Ave., and Frankwood Ave. and Manning Ave. are projected to operate at an unacceptable LOS during one or both peak periods. To improve the LOS of these intersections, it is recommended that the following improvements be considered for implementation by the City on a project by project assessment as cumulative impacts develop.

<u>Existing Conditions Recommended Improvements</u>

Reed Avenue / South Avenue

- Implement an all-way stop control.

Reed Avenue / Parlier Avenue

- Add a southbound through lane with a receiving lane south of Parlier Avenue.

Frankwood Avenue / Manning Avenue

- Modify the eastbound through-right lane to a through lane;
- Add an eastbound right-turn lane;
- Modify the westbound through-right lane to a through lane; and
- Add a westbound right-turn lane.

Table 13 – Near Term No Project Intersection LOS Results

Intersection	Intersection Control	(7-9) AM Peak Hour		(4-6) PM Peak Hour	
		Average Delay	LOS	Average Delay	LOS
Reed Avenue / South Avenue	One-Way Stop	**28.2**	**D**	21.7	C
	All-Way Stop (Improved)	17.9	C	14.4	B
Frankwood Avenue / South Avenue	All-Way Stop	12.1	B	10.9	B
Reed Avenue / Parlier Avenue	One-Way Stop	**42.7**	**E**	**34.2**	**D**
	All-Way Stop (Improved)	16.2	C	15.5	C
Frankwood Avenue / Parlier Avenue	All-Way Stop	23.3	C	15.3	C
Frankwood Avenue / Cypress Avenue	All-Way Stop	22.2	C	15.4	C
Frankwood Avenue / Manning Avenue	Signalized	**43.6**	**D**	**38.6**	**D**
	Signalized (Improved)	35.0	C	29.7	C
Note: LOS = Level of Service based on average delay on signalized intersections and All-Way STOP Controls LOS for two-way and one-way STOP controlled intersections are based on the worst approach/					

This scenario evaluates total traffic volumes and roadway conditions based on the Near Term No Project Traffic Conditions. This scenario assumes that all Near Term Projects are fully built. The Near Term No Project traffic volumes were obtained by adding the Near Term related trips to the Existing Traffic Conditions scenario.

Table 14 – Project Only Trip Generation

Land Use (ITE Code)	Size/Unit	Rate	Total	AM Peak Hour	PM Peak Hour
Single Family Detached Housing (210)	34	9.44	321	25	34
Multi-Family Housing (Low-rise) (220)	91	7.32	666	42	51

The project, as proposed and at buildout, would generate a maximum of 987 daily trips, 67 AM peak hour trips and 85 peak hour trips. A summarized trip generation table is shown in Table 14.

The Near Term plus Project Traffic Conditions scenario assumes that existing roadway configurations and traffic controls will remain in place. The results of the LOS intersection analysis along the street and highway system in the project area from the Near Term plus Project scenario are reflected in Table 15.

Utilizing the project trip generation in conjunction with the Near Term No Project conditions, under the Near Term plus Project Conditions, all intersections would operate at acceptable LOS (LOS C or better) except for three intersections under existing conditions that currently operate below acceptable LOS. The intersections are: One-way stop at Reed Ave./South Ave., One-way stop at

Reed Ave./Parlier Ave., and Signalized at Frankwood Ave./Manning Ave. These results are shown in Table 15.

Table 15 – Near Term plus Project Intersection LOS Results

Intersection	Intersection Control	(7-9) AM Peak Hour		(4-6) PM Peak Hour	
		Average Delay (sec/veh)	LOS	Average Delay (sec/veh)	LOS
Reed Avenue / South Avenue	One-Way Stop	**28.7**	**D**	22.7	C
	All-Way Stop (Mitigated)	18.5	C	14.9	B
Frankwood Avenue / South Avenue	All-Way Stop	12.3	B	11.1	B
Reed Avenue / Parlier Avenue	One-Way Stop	**54.5**	**F**	**38.6**	**E**
	All-Way Stop (Mitigated)	16.8	C	15.8	C
Frankwood Avenue / Parlier Avenue	All-Way Stop	24.2	C	15.9	C
Frankwood Avenue / Cypress Avenue	All-Way Stop	22.5	C	15.6	C
Frankwood Avenue / Manning Avenue	Signalized	**43.6**	**D**	**38.8**	**D**
	Signalized (Mitigated)	34.5	C	29.8	C

Note: LOS = Level of Service based on average delay on signalized intersections and All-Way STOP Controls
LOS for two-way and one-way STOP controlled intersections are based on the worst approach/movement of the minor street.

Under this scenario, the intersections of Reed Avenue and South Avenue, Reed Avenue and Parlier Avenue and Frankwood Avenue and Manning Avenue are projected to operate at an unacceptable LOS during one or both peak periods. To improve the LOS of these intersections, it is recommended that the following improvements be considered for implementation by the City on a project by project assessment as cumulative impacts develop.

<u>Near Term plus Project Recommended Improvements</u>

Reed Avenue / South Avenue

- Implement an all-way stop control.

Reed Avenue / Parlier Avenue

- Add a southbound through lane with a receiving lane south of Parlier Avenue.

Frankwood Avenue / Manning Avenue

- Modify the eastbound through-right lane to a through lane;
- Add an eastbound right-turn lane;
- Modify the westbound through-right lane to a through lane; and
- Add a westbound right-turn lane

Based on the results and modeling in the Cumulative Year 2040 plus Project Conditions, all study intersections, with the exception of Reed Avenue and South Avenue, Reed Avenue and Parlier Avenue and Frankwood Avenue and Manning Avenue are projected to operate at an unacceptable LOS during both peak periods.

To improve the LOS at the intersections and segments projected to exceed LOS thresholds, the following improvements would need to be implemented and considered on a project by project basis. In order to address the Project's contribution to these impacts, the proposed Project would be required to pay its fair share contribution to the City's Transportation Impact Fee, as stipulated under Condition of Approval number 24 (see Attachment 3), to contribute to the costs of improvements that are identified for the Cumulative Year 2040 scenarios.

<u>Cumulative Year 2040 Plus Project Recommended Improvements</u>

Reed Avenue / South Avenue

- Modify the westbound left-right lane to a left-turn lane;
- Add a westbound right-turn lane;
- Add a southbound left-turn lane;
- Modify the southbound left-through lane to a through lane;
- Signalize the intersection with protective left-turn phasing on all approaches; and
- Modify the intersection to accommodate the added lane.

Reed Avenue / Parlier Avenue

- Option A: Roundabout
    - Add a southbound left-turn lane;
    - Modify the southbound left-through lane to a through lane; and
    - Modify the intersection to accommodate a two-lane roundabout.

- Option B: Traffic Signal
    - Add a southbound left-turn lane;
    - Modify the southbound left-through lane to a through lane;
    - Signalize the intersection with protective left-turn phasing on all approaches; and
    - Modify the intersection to accommodate the added lane.

Frankwood Avenue / Manning Avenue

- Modify the eastbound through-right-turn lane to a through lane;
- Add a through-right lane and a receiving lane east of Frankwood Avenue;
- Modify the westbound through-right lane to a through lane;
- Add a westbound through-right lane with a receiving lane west of Frankwood Avenue;
- Modify the traffic signal to accommodate the added lane geometrics.

These recommended improvements would result in acceptable LOS at the studied intersections and roadways segments. The Cumulative Year 2040 plus Project conditions are shown in Table 16 including the projected LOS with the recommended improvements.

Table 16 – Cumulative Year 2040 plus Project Intersection LOS Results

Intersection	*Intersection Control*	*(7-9) AM Peak Hour*		*(4-6) PM Peak Hour*	
		Average Delay (sec/veh)	*LOS*	*Average Delay (sec/veh)*	*LOS*
Reed Avenue / South Avenue	One-Way Stop	**>120.0**	**F**	**>120.0**	**F**
	All-Way Stop (Mitigated)	16.0	B	27.8	C
Frankwood Avenue / South Avenue	All-Way Stop	14.0	B	24.1	C
Reed Avenue / Parlier Avenue	One-Way Stop	**>120.0**	**F**	**>120.0**	**F**
	Roundabout (Mitigated)	10.9	B	8.7	A
	Signalized (Mitigated)	9.8	A	9.9	A
Frankwood Avenue / Parlier Avenue	All-Way Stop	18.9	C	16.6	C
Frankwood Avenue / Cypress Avenue	All-Way Stop	18.6	C	15.6	C
Frankwood Avenue / Manning Avenue	Signalized	**48.8**	**D**	**57.1**	**E**
	Signalized (Mitigated)	26.9	C	30.5	C
	Signalized (LOS D)	38.1	D	46.3	D

Note: LOS = Level of Service based on average delay on signalized intersections and All-Way STOP Controls
LOS for two-way and one-way STOP controlled intersections are based on the worst approach/movement of the minor street.

Alternative Cumulative Year 2040 Plus Project Recommended Improvements

Frankwood Avenue / Manning Avenue

- Modify the eastbound through-right lane to a through lane;
- Add an eastbound right-turn lane;
- Modify the westbound through-right lane to a through lane; and
- Add a westbound right-turn lane.

These additional recommended improvements would result in acceptable LOS at the studied intersections and roadways segments. The Cumulative Year 2040 plus Project conditions are shown in Table 16 including the projected LOS with the recommended improvements.

Table 17 – Queuing Analysis

ID	*Intersection*	*Existing Queue Storage Length (ft.)*		*Existing*		*Near Term No Project*		*Near Term plus Project*		*Cumulative Year 2040 plus Project*	
				AM	*PM*	*AM*	*PM*	*AM*	*PM*	*AM*	*PM*
1	Reed Avenue/ South Avenue	WB Left	*	*	*	*	*	*	*	163	148
		WB Right	*	*	*	*	*	*	*	94	102
		SB Left	*	*	*	*	*	*	*	95	191

3	Reed Avenue/ Parlier Avenue	WB Left	>300	83	78	68	57	69	64	104	97
		WB Right	160	51	54	49	49	53	55	58	55
		NB Right	150	0	0	0	0	0	0	0	81
		SB Left	*	*	*	*	*	*	*	84	80
4	Frankwood Avenue/ Parlier Avenue	EB Left	55	34	31	30	27	34	41	35	49
		EB Right	130	50	38	51	39	48	50	61	46
		WB Left	55	54	44	57	37	54	37	66	62
		WB Right	250	32	26	45	36	36	42	38	55
		NB Left	150	53	55	62	58	59	63	65	55
		NB Right	250	47	46	50	45	45	49	51	50
		SB Left	90	42	37	46	64	63	46	69	49
		SB Right	100	30	19	36	22	86	37	88	64
5	Frankwood Avenue/ Cypress Avenue	NB Left	110	58	42	53	47	64	45	46	47
		NB Right	110	45	47	50	54	45	51	44	47
		SB Left	100	37	39	27	41	42	45	33	42
		SB Right	100	30	28	27	30	29	31	30	32
6	Frankwood Avenue/ Manning Avenue	EB Left	100	159	158	150	166	121	186	161	162
		EB Right	*	*	*	21	26	35	17	*	*
		WB Left	100	157	142	170	92	158	147	165	130
		WB Right	*	*	*	140	234	192	152	*	*
		NB Left	85	86	74	120	128	111	70	99	132
		SB Left	115	72	88	87	142	108	118	88	136
		SB Right	60	131	76	119	84	156	106	110	119
Note: * = Does not exist or is not projected to exist											

Table 17 provides a queue length summary for left-turn and right-turn lanes for all traffic scenarios.

Based on the TIA, it is recommended that the storage capacity for the following intersections be considered for the Cumulative Year 2040 plus Project Traffic Conditions. For the remaining intersections, the existing or planned storage capacity would be sufficient to accommodate the maximum queue.

Reed Avenue / South Avenue

- Consider setting the storage capacity of the westbound left-turn lane to 175 feet.
- Consider setting the storage capacity of the westbound right-turn lane to 125 feet.
- Consider setting the storage capacity of the southbound left-turn lane to 200 feet.

Reed Avenue / Parlier Avenue

- Consider setting the storage capacity of the southbound left-turn lane to 100 feet.

Frankwood Avenue / Parlier Avenue

- Consider increasing the storage capacity of the westbound left-turn lane to 75 feet. This can be accommodated by restriping only.

Frankwood Avenue / Manning Avenue

- Consider increasing the storage capacity of the eastbound left-turn lane to 200 feet. This can be accommodated by restriping only.
- Consider increasing the storage capacity of the westbound left-turn lane to 175 feet. This can be accommodated by restriping only.
- Consider increasing the storage capacity of the northbound left-turn lane to 150 feet. This can be accommodated by restriping only.
- The existing storage capacity of the southbound left-turn lane is projected to exceed that available during the PM peak period under the Cumulative Year 2040 plus Project Traffic Conditions scenario. However, the storage capacity of this left-turn cannot be increased

without reducing the storage capacity of the northbound left-turn lane at the intersection of Frankwood Avenue and Palm Avenue. Therefore, it is recommended that this movement be monitored.
- Consider increasing the storage capacity of the southbound right-turn lane to 125 feet. This can be accommodated by restriping and prohibiting curbside parking for approximately 60 feet.

The 2030 General Plan EIR evaluated the City's roadway system via a General Plan TIA. Intersection Manning Avenue/Frankwood Avenue was projected to operate at below City LOS standards. The improvements recommended under the EIR included widening Manning Avenue to provide two thru lanes and the funding source would be from the 2014 FCOG RTP and through the Measure C Program (Reedley 2013a). The City's General Plan also identified other policy mitigation in order to avoid and reduce impacts on performance of the roadway system due to new development. These goals and policies include:

- CIR 3.2A: The City will design and maintain a fully integrated local transportation network that provides for the movement of people and goods in an orderly, safe, and efficient manner.
- CIR 3.2B: Maintain a level of service (LOS) of "C" or better.
- CIR 3.2C: Plan and develop a street and highway system so as to maximize its effectiveness while minimizing its cost of construction and maintenance.

Although not all intersections mentioned in the project-specific TIA were identified in the 2030 General Plan EIR to operate below LOS standards, the goals and policies identified above were provided as mitigation in addition to fair share funding and/or construction of new facilities that would reduce roadway impacts to less than significant. Therefore, the proposed project is consistent with traffic impacts identified in the 2030 General Plan EIR as well as the recommended improvements from the project-specific TIA.

<u>Fair-Share Responsibility</u>

As required by Condition of Approval number 24, the proposed project would be required to contribute its fair share costs of improvements that are identified for the Cumulative Year 2040 scenario *that are not presently covered by local and regional roadway impact fee programs or grant funding*. The intent of determining the equitable responsibility for the improvements identified above for the Cumulative Year 2040 scenario, is to provide a starting point for early discussions between the Applicant and the City to address traffic mitigation equitability and to calculate the equitable share for mitigating traffic impacts.

The formula used to calculate the equitable share responsibility to City of Reedley/Fresno County facilities is as follows:

Fair Share = (Project Only Traffic Volumes)/(Year 2040 Plus Project Traffic – Existing Traffic) x 100

Table 18 shows the Project's equitable fair share responsibility on a percentage basis for improvements to the City of Reedley as described above. The equitable fair share responsibility shown in Table 18 is the result of LOS enhancements related to capacity.

Table 18 – Project's Fair Share of Future Roadway Improvements

Intersection	Existing Traffic Volumes	Cumulative Year 2040 plus Project	Project Only Trips	Project's Fair Share

	(PM Peak)	Traffic Volumes (PM Peak)	(PM Peak)	(%)
Reed Ave. / South Ave.	775	1,595	15	1.83
Reed Ave. / Parlier Ave.	941	1,582	27	4.21
Frankwood Ave. / Manning Ave.	1,698	2,325	3	0.48

Note: Project Fair Share = ((Project Only Traffic Volumes) / (Year 2040 + Project Traffic Volumes - Existing Traffic Volumes)) x 100

As part of Condition of Approval number 24, the project applicant would pay its fair share costs for required intersection and segment improvements to address the project's contribution to identified cumulative intersection and segment level of service impacts identified in the 2030 General Plan EIR and the project level TIS. The City would calculate the fair share costs required for payment by the applicant for development of the project site. *Payment of the project's equitable fair share, in addition to payment of the local and regional impact fees, would satisfy the Project's traffic improvement requirements.* The fair share costs are for impacts identified in the 2030 General Plan EIR and consistent with policy CIR 3.2.30, and therefore considered less than significant.

Site Access

Based on the project site plan, access to and from the project site would be from three locations (one existing and two-planned street connections). From the western boundary, Frankwood Ave. would provide the main ingress/egress point to and from the project site. The other two streets are proposed connections to East Ave., north of the project site and Evergreen Ave., south of the project site. All access points would be required to be constructed per City of Reedley Standard Plans and Specifications. This would include providing adequate access/width for emergency response vehicles.

The TIA qualitatively analyzed the location of the proposed access points relative to the existing local roads and driveways in the project's vicinity. Based on the review, it recommended that the project incorporate the recommendations and improvements presented in more detail in the LOS and Queuing Analysis for the intersections mentioned in the recommendations under Table 17 and included as project conditions of approval (see Attachment 3, number 22). By incorporating the recommendations to have left-turn and right-turn storage lengths as indicated in the Queuing Analysis, on-site and off-site traffic operations and circulation would be improved to less than significant. These improvements would be consistent and funded through the 2030 General Plan EIR policy CIR 3.2.30 and Condition of Approval number 24.

Bicycle Impacts

Currently, Class II bike lanes exist in the vicinity of the proposed project site along Frankwood Avenue, Reed Avenue, Parlier Avenue and Manning Avenue. The City of Reedley 2010 Bicycle Transportation Plan recommends that Class II bike lanes be implemented along Parlier Avenue east of Reed Avenue and along Frankwood Avenue south of South Avenue. Furthermore, the City of Reedley 2010 Bicycle Transportation Plan recommends that Regional Bikeways be implemented along Reed Avenue between South Avenue and Manning Avenue. Therefore, it is recommended that the project implement Class II bike lanes along its frontage to Frankwood Avenue.

As a Condition of Approval for the project (see Attachment 3 Condition #22), the project applicant would include improvements to bicycle features. The incorporation of such improvements would be incorporated into project design and plans and submitted to the City of Reedley for approval during the project design phase.

Public Transit Impacts

The City of Reedley's Community Services Department runs an advance reservation van and an on-call door-to-door van service. The twelve-passenger vans operate Monday through Friday between the hours of 7:30 AM to 4:30 PM. These vans provide service to City Hall, the Post Office, the Community Medical Center, Adventist Medical Center Hospital and other locations within a two-mile radius of Reedley. The vans are also used to transport children from house to school.

Fresno County Rural Transit Agency (FCRTA) provides transit services for those communities not served by FAX or Clovis Stageline. Within the City of Reedley, FCRTA has set up Reedley Transit to provide local in city demand responsive services Monday through Friday from 7:00 AM to 4:30 PM and Saturdays from 8:00 AM to 4:30 PM. The FCRTA also has Dinuba Connection, Kingsburg-Reedley Inter-City Transit, Orange Cove Inter-City Transit and Sanger Express.

Dinuba Connection, also a Dinuba Area Regional Transit (DART) Route, runs in the vicinity of the project site and operates at one-hour intervals on weekdays. The nearest transit stop is located at the Adventist Medical Center Hospital on Cypress Avenue west of Frankwood Avenue. This route provides a direct connection to the Reedley College, Palm Village, Adventist Medical Center, Walmart and the Department Motor Vehicles in the City of Reedley and the Dinuba Vocational Center and Dinuba Library in the City of Dinuba.

Kingsburg-Reedley Inter-City Transit provides scheduled round-trip service between Kingsburg, Selma, Fowler, and Parlier to Reedley College Monday through Friday from 7:00 AM to 4:35 PM. Orange Cove Inter-City Transit provides scheduled round trip inter-city service through Orange Cove, Reedley, Parlier, Sanger and the Fresno-Clovis Metropolitan Area Monday through Friday from 7:00 AM to 5:28 PM. The stops within the City of Reedley are limited to the Reedley Shopping Center, the Reedley Community Center and the Reedley College. The stop at the Reedley Shopping Center is the closest to the project.

The project site would be located in area adequately serviced by public transit and would not conflict with existing stops/stations servicing the area. This impact would be less than significant.

Pedestrian Impacts

The TIA prepared for the project site analyzed potential pedestrian impacts and accessibility to schools based on the project site (Safe Routes to School). The TIA discussed the pedestrian network for students accessing Thomas Law Reed School (Grade K-8) and Reedley High School (Grades 9-12) when walking to school. The TIA discussed that concrete sidewalks exist along the entire stretch between the project site and the schools (JLB 2018). It was determined that students living within the proposed project would be able to walk, bike or be driven to school.

As such, the project would not need to provide additional pedestrian amenities as adequate pedestrian facilities in the area currently exist. This impact would be less than significant.

Therefore, the project would not result in new or substantially more severe impacts to circulation and congestion when compared to what was analyzed in the 2030 General Plan EIR as the TIA-recommended improvements for traffic were considered and consistent with the 2030 General Plan policies and goals and under City of Reedley requirements.

The 2030 General Plan Update EIR anticipated new development to occur within the project area. Prior to obtaining building permits, the City requires review of development plans including a circulation plan. The City of Reedley 2030 General Plan Circulation Element includes policies and actions specifically intended to calm traffic and walkability throughout the City. Implementation of these in combination with continued application of standard safety requirements and ongoing City programs, would generally improve overall safety conditions for pedestrians throughout the City. Therefore, the project would not result in new or substantial increases in traffic hazards in the City when compared to what was analyzed for the in the 2030 General Plan EIR.

ENVIRONMENTAL ISSUE AREA	Where Impact Was Analyzed in the Reedley 2030 General Plan EIR	Do Proposed Changes Involve New or Substantially More Severe Significant Impacts?	Do Any New Circumstances Involve New or Substantially More Severe Significant Impacts?	Any Substantially Important New Information Requiring New Analysis or Verification?	Do Reedley 2030 General Plan EIR Mitigation Measures Address/Resolve New or More Severe Project Impacts?
XVIII. TRIBAL CULTURAL RESOURCES -- Would the project:					
a) cause a substantial adverse change in the significance of a tribal cultural resource, defined in Public Resources Code section 21074 as either a site, feature, place, cultural landscape that is geographically defined in terms of the size and scope of the landscape, sacred place, or object with cultural value to a California Native American tribe, and that is:	N/A; New CEQA checklist item added subsequent to General Plan EIR	No	No	No	N/A
i) Listed or eligible for listing in the California Register of Historical Resources, or in a local register of historical resources as defined in Public Resources Code section 5020.1(k), or	N/A; New CEQA checklist item added subsequent to General Plan EIR	No	No	No	N/A

ENVIRONMENTAL ISSUE AREA	Where Impact Was Analyzed in the Reedley 2030 General Plan EIR	Do Proposed Changes Involve New or Substantially More Severe Significant Impacts?	Do Any New Circumstances Involve New or Substantially More Severe Significant Impacts?	Any Substantially Important New Information Requiring New Analysis or Verification?	Do Reedley 2030 General Plan EIR Mitigation Measures Address/Resolve New or More Severe Project Impacts?
ii) A resource determined by the lead agency, in its discretion and supported by substantial evidence, to be significant pursuant to criteria set forth in subdivision (c) of Public Resources Code Section 5024.1. In applying the criteria set forth in subdivision (c) of Public Resource Code Section 5024.1, the lead agency shall consider the significance of the resource to a California Native American tribe?	N/A; New CEQA checklist item added subsequent to General Plan EIR	No	No	No	N/A

Impact

Pursuant to Public Resources Code section 21080.3.1, a Formal Notification of Determination that this project is Complete and a Notice of Consultation Opportunity was delivered on April 10, 2019. Proof of Delivery was provided by the United States Postal Service indicating that the Notice was delivered on April 12, 2019. To the date of the preparation of this addendum, no request for consultation has been received by the City of Reedley. The project site is not listed or eligible for listing in the California Register of Historical Resources or in a local register of historic resources. After providing the opportunity for consultation and not receiving a request, the lead agency has determined that the project site is not a significant resource to a California Native American tribe. The project site is agricultural land bordered on two sides by existing urban uses. Since the subdivision project would not cause a substantial adverse change in the significance of a tribal cultural resource, this impact would be less than significant.

Therefore, no project-specific mitigation for tribal cultural resources is required.

ENVIRONMENTAL ISSUE AREA	Where Impact Was Analyzed in the Reedley 2030 General Plan EIR	Do Proposed Changes Involve New or Substantially More Severe Significant Impacts?	Do Any New Circumstances Involve New or Substantially More Severe Significant Impacts?	Any Substantially Important New Information Requiring New Analysis or Verification?	Do Reedley 2030 General Plan EIR Mitigation Measures Address/Resolve New or More Severe Project Impacts?
XIX. UTILITIES AND SERVICE SYSTEMS -- Would the project:					
a) Require or result in the relocation or construction of new or expanded water, wastewater treatment or storm water drainage, electric power, natural gas, or telecommunications facilities, the construction or relocation of which could cause significant environmental effects?	Impact UTIL-1 and Impact UTIL-2	No	No	No	N/A
b) Have sufficient water supplies available to serve the project and reasonably foreseeable future development during normal, dry and multiple dry years?	Impact UTIL-3	No	No	No	N/A
c) Result in a determination by the wastewater treatment provider which serves or may serve the project that it has adequate capacity to serve the project's projected demand in addition to the provider's existing commitments?	Impact UTIL-4	No	No	No	N/A
d) Generate solid waste in excess of State or local standards, or in excess of the capacity of local infrastructure, or otherwise impair the attainment of solid waste reduction goals?	Impact UTIL-4	No	No	No	N/A

ENVIRONMENTAL ISSUE AREA	Where Impact Was Analyzed in the Reedley 2030 General Plan EIR	Do Proposed Changes Involve New or Substantially More Severe Significant Impacts?	Do Any New Circumstances Involve New or Substantially More Severe Significant Impacts?	Any Substantially Important New Information Requiring New Analysis or Verification?	Do Reedley 2030 General Plan EIR Mitigation Measures Address/Resolve New or More Severe Project Impacts?
e) Comply with federal, state, and local management and reduction statutes and regulations related to solid waste?	Impact UTIL-4	No	No	No	N/A

Impact

The proposed subdivision project is required to connect to the City water, wastewater, and storm drainage systems. The small increment of additional service demand would be *de minimis* and well within the available capacities of each of the public utility systems.

As discussed under Section X, *Hydrology and Water Quality*, the City currently operates its own WWTP located at 1701 West Huntsman Avenue. The WWTP Phase 1 project was completed which expanded the plant's capacity to five million gallons per day (mgd) and constructed new percolation ponds. The WWTP has also been designed to accommodate future expansion to a total capacity of seven mgd. At total plant build-out, the WWTP could accommodate anticipated growth for the next 20 years. The WWTP is currently operating at approximately 2.3 mgd and contains three additional stormwater basins (Reedley 2016). The added wastewater treatment demand generated by the subdivision would be within the remaining available treatment capacity at the WWTP. The proposed project would not result in an exceedance of wastewater treatment requirements or necessitate the construction of new wastewater treatment facilities.

As discussed under Section X, *Hydrology and Water Quality*, the 2015 UWMP is based on the projected service area and land use scenario of the planned SOI envisioned by the City's General Plan. The 2015 UWMP identifies adequate water supplies for this projected service area and land use scenario, including the proposed project, through the planning horizon of the General Plan 2030.

Also discussed in Section X, *Hydrology and Water Quality*, the City's *Stormwater Management Implementation Plan* and the RMC Stormwater Management Section set forth governing regulations for implementing stormwater quality management strategies consistent with the General Construction Permit from the Central Valley Regional Water Quality Control Board. In addition, the City has created and implemented an impact fee program which would apply to the subdivision project to reduce potential impacts to the City's stormwater infrastructure. As determined in Section X, due to the project's consistency with the 2030 General Plan land use and zoning, the impacts related to stormwater were discussed in the General Plan EIR under Impact HYD-1 (Reedley 2013a) and General Plan 2030 Policy CIR 3.10.17, required new developments would provide storm drainage facilities and pay storm drainage impact fees, consistent with the Storm Drain Master Plan, which would reduce potential impacts to less than significant.

Development of the residential subdivision would generate construction waste upon development. The 34 single family residential units and approximately 92 multi-family units of the project would further generate municipal waste during operation. The waste generation of these developments is currently unknown; however, waste generated from these developments would be transported to a facility with available capacity for receiving the refuse. The closest landfill, the Waste Management Fresno Transfer Station located approximately 15 miles northwest of the project site, has an active operational status with 1,250 tons per day of allowable throughput (California Department of Resources Recycling and Recovery [CalRecycle] 2019). The subdivision development is not anticipated to contribute to an exceedance of the receiving facility's allowable daily throughput, and impacts would be less than significant.

Therefore, no project-specific mitigation for utilities and service system impacts is required.

ENVIRONMENTAL ISSUE AREA	Where Impact Was Analyzed in the Reedley 2030 General Plan EIR	Do Proposed Changes Involve New or Substantially More Severe Significant Impacts?	Do Any New Circumstances Involve New or Substantially More Severe Significant Impacts?	Any Substantially Important New Information Requiring New Analysis or Verification?	Do Reedley 2030 General Plan EIR Mitigation Measures Address/Resolve New or More Severe Project Impacts?
XX. WILDFIRE -- If located in or near state responsibility areas or lands classified as very high fire hazard severity zones, would the project:					
a) Substantially impair an adopted emergency response plan or emergency evacuation plan?	Impact HAZ-4	No	No	No	N/A
b) Due to slope, prevailing winds, and other factors, exacerbate wildfire risk, and thereby expose project occupants to, pollutant concentrations from a wildfire or the uncontrolled spread of a wildfire?	N/A; New CEQA checklist item added subsequent to General Plan EIR	No	No	No	N/A
c) Require the installation or maintenance of associated infrastructure (such as roads, fuel breaks, emergency water source, power lines or other utilities) that may exacerbate fire risk or that may result in temporary or ongoing impacts to the environment?	N/A; New CEQA checklist item added subsequent to General Plan EIR	No	No	No	N/A
d) Expose people or structures to significant risks, including downslope or downstream flooding or landslides, as a result of runoff, post-fire slope instability, or drainage changes?	N/A; New CEQA checklist item added subsequent to General Plan EIR	No	No	No	N/A

Impact

The City's emergency operations plan has recently been updated to reflect response plans for a range of emergency situations that are relevant to conditions in the Reedley area. Development of the site would not differ substantially in terms of its character or types of emergency situations that could arise from it; therefore, the potential impact of impairing implementation or physically interfering with an adopted emergency response plan or emergency evacuation plan would be less than significant.

There are no wildland areas near the project site, therefore the project would have no impact related to exposing people or structures to a significant risk of loss, injury or death involving wildland fires. Impacts with regard to hazards and hazardous materials would be less than significant.

All existing and future development within the City would be required to adhere to City standards and regulations prior to obtaining building permits. No additional installation or maintenance of associated infrastructure that would occur without City review, therefore no fire risks, temporary or ongoing, impacts to the environment would occur.

Nor would the project expose people or structures to significant risks, including downslope or downstream flooding or landslides, as a result of runoff, post-fire slope instability, or drainage changes. Impacts related to slope instability and flooding are discussed in Section X, Hydrology and Water Quality. Impacts would be less than significant.

As discussed in the PEIR, there are no known active faults within the vicinity of the project. Although no active faults have been mapped across the project site, seismic events caused by active and potentially active faults in the region could result in seismic ground shaking on-site. A seismic hazard cannot be completely ruled out; however, effects can be minimized by implementing requirements specified in the California Building Code (CBC). Compliance with existing building standards and GPU goals and policies would minimize potential safety hazards from seismic ground shaking and potential ground failure/liquefaction, and ensure impacts associated with the project would be less than significant. Additionally, since the project site, like the entire City of Reedley, is located on the level San Joaquin Valley floor, risks from landslides would generally be minimal and potential impacts on new development would remain less than significant.

ENVIRONMENTAL ISSUE AREA	Where Impact Was Analyzed in the Reedley 2030 General Plan EIR	Do Proposed Changes Involve New or Substantially More Severe Significant Impacts?	Do Any New Circumstances Involve New or Substantially More Severe Significant Impacts?	Any Substantially Important New Information Requiring New Analysis or Verification?	Do Reedley 2030 General Plan EIR Mitigation Measures Address/Resolve New or More Severe Project Impacts?
XVIII. MANDATORY FINDINGS OF SIGNIFICANCE --					
a) Does the project have the potential to substantially degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, substantially reduce the number or restrict the range of a rare or endangered plant or animal or eliminate important examples of the major periods of California history or prehistory?	Impact BIO-1 through Impact BIO-4	No	No	No	N/A
b) Does the project have impacts that are individually limited, but cumulatively considerable? ("Cumulatively considerable" means that the incremental effects of a project are considerable when viewed in connection with the effects of past projects, the effects of other current projects, and the effects of probable future projects)?	Section 3.0 Cumulative Impacts	No	No	No	N/A

ENVIRONMENTAL ISSUE AREA	Where Impact Was Analyzed in the Reedley 2030 General Plan EIR	Do Proposed Changes Involve New or Substantially More Severe Significant Impacts?	Do Any New Circumstances Involve New or Substantially More Severe Significant Impacts?	Any Substantially Important New Information Requiring New Analysis or Verification?	Do Reedley 2030 General Plan EIR Mitigation Measures Address/Resolve New or More Severe Project Impacts?
c) Does the project have environmental effects which will cause substantial adverse effects on human beings, either directly or indirectly?	Sections 4.1 through 4.15	No	No	No	N/A

a) The proposed project does not have the potential to substantially degrade the quality of the environment. Compliance with all the mitigation measures identified in Exhibit B would ensure that project implementation would not substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, or reduce the number or restrict the range of a rare or endangered plant or animal. In addition, the project would not contribute significantly to greenhouse gas emissions or increase energy consumption. Implementation of the project would not eliminate important examples of the major periods of California history or pre-history. Therefore, the anticipated project-related impacts are less than significant with incorporation of the mitigation measures included in Exhibit B.

b) The potential for adverse cumulative effects were considered in the response to each question in Sections I through XVIII of this Addendum. In addition to project specific impacts, this evaluation considered the project's potential for incremental effects that are cumulatively considerable. No impacts were identified in this Addendum that are cumulatively considerable. As a result of this evaluation, there is no substantial evidence that, after mitigation, there are cumulative effects associated with this project. Therefore, this project has been determined not to have cumulatively considerable impacts.

c) In the evaluation of environmental impacts in this Addendum, the potential for adverse direct or indirect impacts to human beings were considered in the response to certain questions in Sections III. *Air Quality*, VII. *Geology & Soils*, IX. *Hazards & Hazardous Materials*, X. *Hydrology and Water Quality*, XI. *Land Use*, XIII. *Noise*, XIV. *Population & Housing*, XV. *Public Services*, XVII. *Transportation & Circulation*, and XIX. *Utilities and Service Systems*. As a result of this evaluation, there is no substantial evidence that there are adverse effects to human beings associated with this project that cannot be mitigated to less than significant levels by mitigation established in the PEIR. Therefore, the project has been determined not to cause substantial adverse effects on human beings, either directly or indirectly.

In summary, given the preceding analysis, conditions of approval applied to the project and Program Environmental Impact Report (SCH No. 2010031106), Mitigation Monitoring Checklist, being incorporated into Vesting Tentative Subdivision Map No. 6267 it may be concluded that the proposed development project:

- Would not have environmental impacts which will cause substantial adverse effects on human beings, either directly nor indirectly.

- Would not have the potential to degrade the quality of the environment, substantially reduce the habitat of a fish/wildlife or native plant species (or cause their population to drop below self-sustaining levels), does not threaten to eliminate a native plant or animal community, and does not threaten or restrict the range of a rare or endangered plant or animal.

- Would not eliminate important examples of elements of California history or prehistory.

- Would not have impacts which would be cumulatively considerable even though individually limited.

Therefore, there are no mandatory findings of significance and no new or more severe environmental impacts beyond those disclosed in the Final EIR would occur as a result of the proposed project with the additional mitigation proposed. The City has reviewed and considered the information contained in this Addendum in its consideration of the Final EIR and finds the preparation of a subsequent EIR is not necessary.

Attachments, Exhibits, and References

Attachments:

1. Aerial Photo of the subject property

2. Vesting Tentative Subdivision Map No. 6267 (Fino Estates)

3. Engineering Department Memorandum dated August 8, 2019: Vesting Tentative Subdivision Map No. 6267 Conditions of Approval

4. Caleemod and Energy Output Files

5. Tentative Tract 6267 Traffic Impact Analysis prepared by JLB Traffic Engineering, Inc. dated February 15, 2019

Exhibits:

Exhibit A: City of Reedley, General Plan Land Use Map (As adopted by City Council Resolution No. 2014-18)

Exhibit B: Mitigation Monitoring Checklist for Final Environmental Impact Report (SCH No. 2010031106) & Reedley General Plan Update 2030, dated February 18, 2014.

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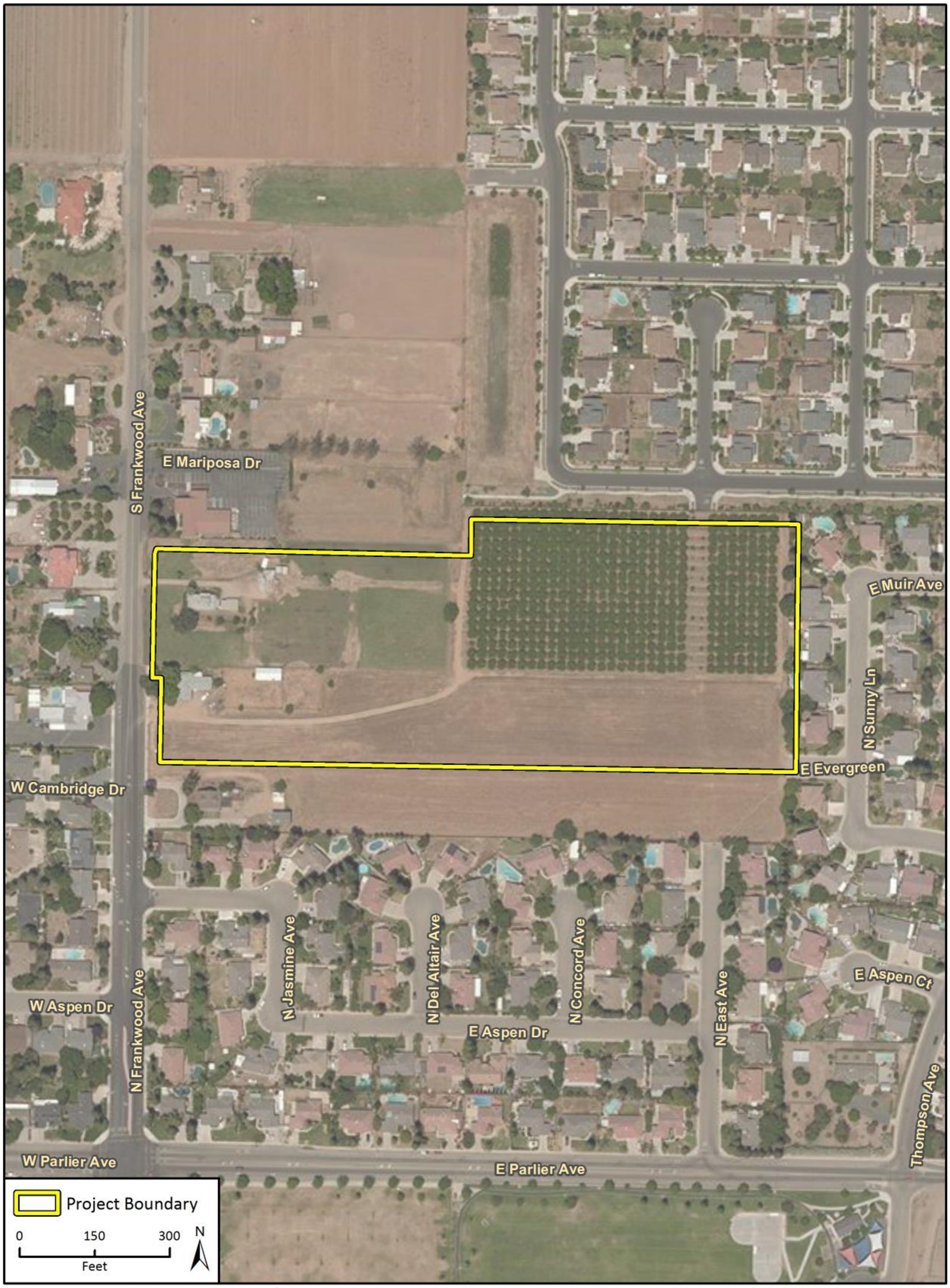
Attachment 1

Aerial photo of subject property



Imagery provided by Microsoft Bing and its licensors © 2019.

Fig 1 Aerial View

Attachment 2

Vesting Tentative Subdivision Map No. 6267 (Fino Estates)

LEGAL DESCRIPTION

PARCEL 1: Assessor's Parcel No: 363-090-061

The North one-half of Lot 35 and the North one-half of Lot 37 of Merritt Colony No. 2, according to the map thereof recorded in Book 3 Page 37 of Record of Surveys, F.C.R.

EXCEPTING THEREFROM the North 75 feet of the North one-half of said Lot 35.

PARCEL 2: Assessor's Parcel No: 363-090-083

The North half of the following described property:

The South half of Lot 35, and the South half of the North half of Lot 37, Merritt Colony No. 2, according to the map thereof recorded in Book 3 Page 37 of Record of Surveys, F.C.R.

EXCEPTING THEREFROM that portion in the Grant Deed to the City of Reedley, a Municipal Corporation, recorded March 20, 2009, Instrument No. 2009-0037619, Official Records.

VESTING TENTATIVE TRACT MAP NO. 6267, FINO ESTATES

Owner: FRANCA M. LELAND AND MARGARET J. DOHERTY, AS SUCCESSOR TRUSTEES OF THE FINO 1994 REVOCABLE LIVING TRUST
4629 MARINE DRIVE PLACE
BREMERTON, WA 98312
PH. (559) 696-7285

Engineer: LANE ENGINEERS, INC.
979 N. BLACKSTONE STREET
TULARE, CA 93274
PH. (559) 688-5263

JANUARY, 2019

RECEIVED
APR 1 2019
CITY OF REEDLEY
COMMUNITY DEVELOPMENT DEPT.

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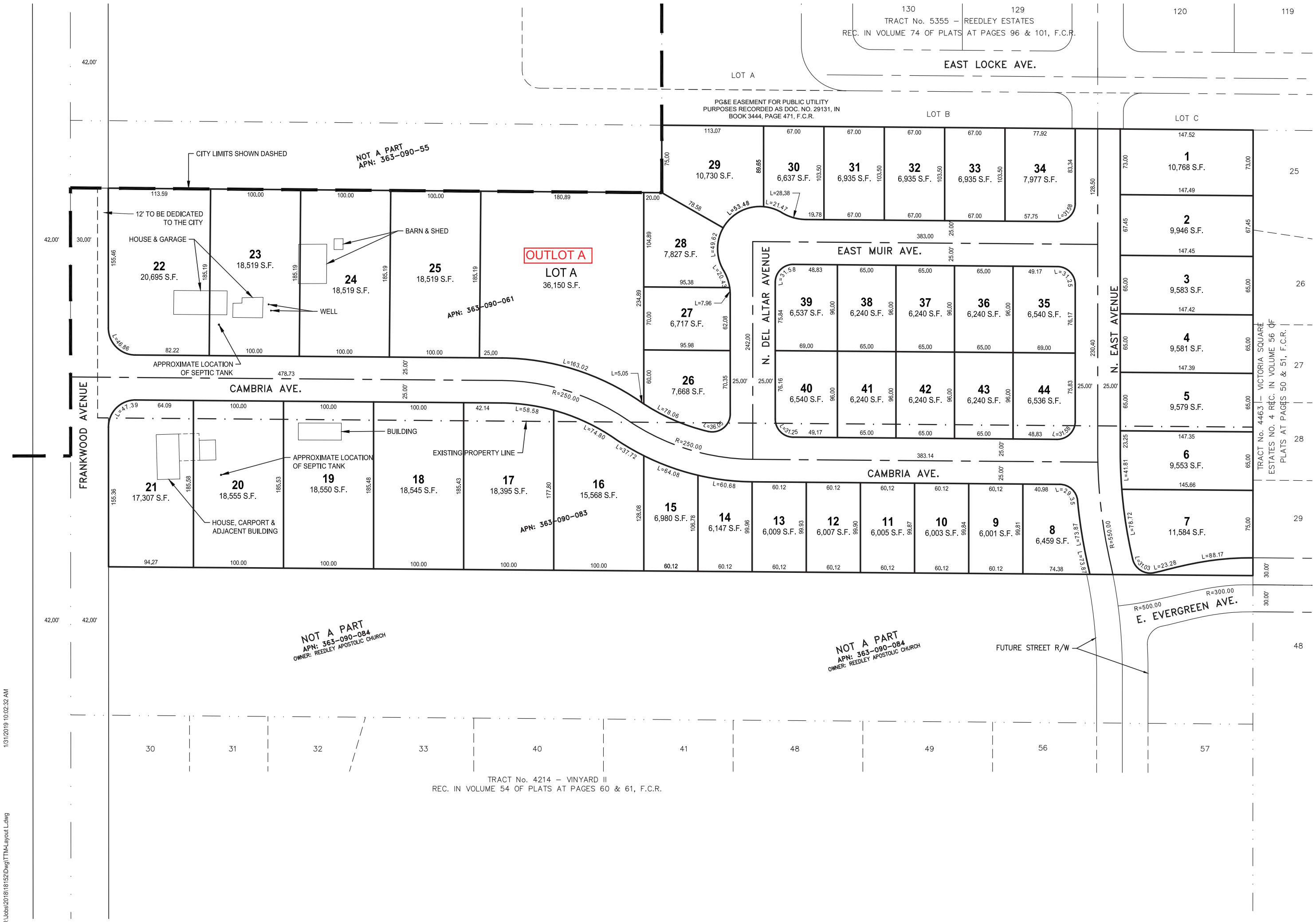
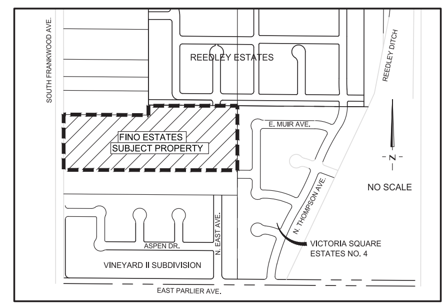
SCALE: 1" = 80'



SITE DATA

A.P.N.	363-090-061 & 083
GROSS SITE AREA	±13.51 Acres
EXISTING ZONING	RM-2 & R-1-6
PROPOSED ZONING	RM-2 & R-1-6
EXISTING USE	AGRICULTURE/RESIDENTIAL
PROPOSED USE	SFR RESIDENTIAL/MFR RESIDENTIAL
FLOOD ZONE	"X"
ELECTRIC	PG&E
CABLE TELEVISION	COMCAST
TELEPHONE	PACIFIC BELL
WATER	CITY OF REEDLEY
GAS	PG&E
SEWER	CITY OF REEDLEY
STORM	CITY OF REEDLEY
SOLID WASTE	CITY OF REEDLEY

NOTE:
LOT A SHALL BE DEDICATED TO THE CITY OF REEDLEY FOR A STORM BASIN AREA.



VICINITY MAP

NOTE:
IT IS THE INTENTION OF THE SUBDIVIDER TO FILE MULTIPLE FINAL SUBDIVISION MAPS ON THIS TENTATIVE MAP.

34 SINGLE FAMILY RESIDENTIAL LOTS (Lots 1-7, 8-15, 26-44)
10 MULTIPLE FAMILY RESIDENTIAL LOTS (Lots 16-25)
NET SFR DENSITY = 5.87 LOTS / ACRE
MIN. SFR LOT SIZE = 6,001 S.F.
MAX. SFR LOT SIZE = 11,584 S.F.

LAYOUT "L"

SHEET 1 OF 1

JOB NO. 18152

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Attachment 3

Engineering Department Memorandum dated August 8, 2019: Vesting Tentative Subdivision Map No. 6267 Conditions of Approval

MEMORANDUM

Engineering Department
1733 Ninth Street, Reedley, CA 93654
637-4200, Ext. 221

Date: August 8, 2019

To: Ellen Moore, Associate Planner

From: John S. Robertson, P.E., City Engineer

Re: Engineering Department Conditions of Approval for Vesting Tentative Subdivision Map No. 6267 (APNs 363-090-64 & 363-090-83)

General Conditions

1. All public improvements shall comply with the Reedley Municipal Code, the Standard Plans and Specifications of the City of Reedley and any addendums thereto. Public improvement plans shall be prepared by the Developer's engineer, for review and approval by the City Engineer. Construction within off-site City streets, easements, alleys, and other City rights-of-way shall be subject to the encroachment permit issued by the Engineering Department.

2. Abandoned water and sewer services shall be capped at the mains in accordance with City of Reedley standards and policies. All proposed service abandonments are to be verified and completed in the presence of the City's Engineering or Public Works staff.

3. The Developer shall abandon (removal of a portion of the casing and proper capping as per City Standard Plan W-11) any existing water wells within the boundary of the development according to standards and regulations as specified in Section 4-4-1 through 4-4-15 of the Reedley Municipal Code and Section 14.081160 of the Fresno County Code. The Community Development Department-Building Division must verify either the nonexistence of such wells or the appropriate abandonment of an existing well prior to the issuance of building permits.

   If required to abandon an onsite well, a demolition permit shall be obtained from the Building Official prior to the removal of any existing structures. All septic tanks, dry wells or seepage pits shall be pumped and filled. Inspection shall be made by the City Building Official prior to covering. Relative compaction of ninety percent (90%) is required for fill areas outside of existing or proposed City rights-of-way. All areas within existing and/or proposed City rights-of-way, relative compaction of ninety-five percent (95%) is required. Water supply wells shall be destroyed by a State Licensed C-57 Contractor in accordance with the requirements herein. A permit must be obtained from the Building Division before destroying any well. These above requirements shall be noted on the subdivision construction improvement plans.

4. The Developer shall remove any and all underground storage tank(s) existing on the property in accordance with the requirements of the County of Fresno Health Department and other applicable agencies. The Building Official must verify either the nonexistence of such tanks

or the appropriate abandonment and/or removal, and provided with the copies of the Health Department certification prior to the issuance of building permits.

5. The Developer shall file a preliminary soil analysis and report, as required by Section 17953 of the Health and Safety Code, with the City Engineer. The City Engineer shall have the authority to require Developer to take such corrective action or make such improvements as the City Engineer may determine necessary to prevent structural defects.

   The soil classification report must be submitted to the Building Official for approval for the building pads prior to the issuance of a building permit(s). Such report shall address soil bearing capacity, effects of moisture variation on soil bearing capacity, compressibility and expansiveness. No grading shall commence until a soil engineering report is submitted and approved by the City and a grading permit is obtained from the City of Reedley Building Official. All grades and property stakes (corners) shall be in place prior to obtaining building permits.

6. Developer's engineer shall establish his vertical control for this project to City (NAV88) Datum. Vertical control for this project shall be from City of Reedley Bench Mark No. BM 22G03, TM = 353.58 (NAV88) [TM = 352.77, Bates - for reference only], chiseled SQ. TC AT END of C&G, WLY SIDE of FRANKWOOD NEAR NORTHERLY CITY LIMITS. All control points shall be approved by the City's contract City Surveyor, DJ Johnson Land Surveying (559) 275-4900.

7. With the submittal of construction improvement plans for this project, the Developer's engineer shall deliver the following to the City Engineer:

   Civil 3D 2017 file of the subdivision construction improvement plans drawn to City's Horizontal datum, NAD83(2007NSRS) Zone 4.

   Four (4) bond sets of the project civil improvement construction plans, and shall include a digital copy on CD of the complete project plans, to include civil improvement construction and grading & drainage plans which shall include public utilities improvement plans if applicable.

8. Prior to the issuance of a Notice of Completion and/or Certificate of Occupancy, Developer's engineer shall deliver a digital file (Civil-3D 2017 format) of the projects "As-Built" civil plans to the City Engineer and note any changes in grade or other corrections made to the approved plans during construction for review and approval by the City Engineer.

9. All buildings and structures shall be located outside of existing or proposed easements.

10. Consistent with the requirements of the federal Clean Water Act, Developer shall file a Notice of Intent to comply with the terms of the general discharge of storm water associated with construction activity (SWRCB Order No. 2009-0009-DWQ NPDES No. CAS000002) with the disturbance of more than one acre by this project.

11. If applicable, the Developer shall also comply with the Regional Water Quality Control Board Central Valley Region Order No. 5-00-175 construction activity requirements for all

water discharges into the City's storm drain collection system, resulting from, but not limited to, pressure testing, leakage testing and disinfecting

12. With the first submittal to the City, the developer shall prepare an estimated cost of the offsite improvements, based on prevailing wages per California requirements, within the street rights-of-way and/or easements.

13. With the first submittal of the development construction improvement plans, a plan check fee in the amount of $650.00 will be due. The applicant will be responsible for the payment of any additional fees above $650 the City incurs should the City be required to use outside consultants for the review of the construction improvement plans.

14. The calculation of inspection fees is predicated on the cost of all public improvements. The inspection fee for water, sewer, storm drain and similar public improvement requirements shall be paid with the issuance of a building permit.

    Inspection charge shall be 4 ½% of the first $10,000 plus 3% of the amount over $10,000 of an approved engineer's cost estimate.

15. All Development Impact Fees shall be paid at the time of building permit issuance in accordance with Reedley City Council Resolution No. 2015-030, adopted April 14, 2015. Developer may elect to defer development impact fees per current City Policies. If so, please contact Ellen Moore in the Planning Division.

16. All of the conditions of approval must be complied prior to the final inspection and/or the issuance of a "Certificate of Occupancy" by the Building Official.

17. Any and all work performed in the City of Reedley Rights of Way shall be warrantied for a period of 12 months from the date of installation.

18. Developer/property owner shall provide written consent to the City of Reedley for inclusion of the property within Vesting Tentative Map No. 6267 into the Landscaping and Lighting Maintenance District No. 1 to provide for maintenance of the landscaping within the City right of way and street lights located throughout the project. The assessment shall be a proportionate share of the City Engineer's estimated cost for the District. A Landscape and Lighting formation fee in the amount of $1,425.00 in accordance with the City of Reedley Master Fee Schedule dated, April 7, 2016 shall be paid with the signed Landscape and Lighting Maintenance District No. 1, Petition and Written Consent (to be provided by the Engineering Department)

Streets

19. All street structural sections shall be constructed, at a minimum, per City Standard detail ST-1. The applicant shall submit street structural section pavement calculations with the first submittal of improvement plans. Structural sections shall include r-value tests taken from soils where streets are to be placed. A map showing the location of the borings and results of the r-values shall be included with the calculations.

20. Construction within street rights-of-way shall be done with proper signing for construction and maintenance work zones in accordance with the State of California Manual of Traffic

Controls and Work Area Traffic Control Handbook requirements. All work shall be in conformance with OSHA and other safety hazard prevention requirements.

All paving, repaving, and patching shall be done to the satisfaction of the City Engineer. The travel-way surface shall be restored to provide a safe travel-way within the City streets and/or alley area. A fog or slurry seal shall be required to provide continuity for re-paved areas with original street cross-section. All proposed trench patches within City streets shall be patched as per City Standard Plan ST-46, Section “A” Detail.

21. All streets within the limits of the development shall be fully constructed to current City & ADA standards including sidewalk, curb, gutter, valley gutter, and permanent asphalt concrete paving and street name, advisory and regulatory signs and street lights as directed by the City Engineer. Existing broken or not to grade (ADA non-compliant) curbs, gutters, sidewalk and driveway approaches within the limits of this project shall be removed by the developer and reconstructed to City standards.

22. Frankwood Avenue shall be constructed within the limits of the project per Standard Drawing ST-2 Arterial or Collector w/2-way left turn lane in center. Dedicate enough right of way to obtain 42 feet from the section line for street right of way purposes. Frankwood Avenue shall be striped as a two 12’ lane roadway, with a 12’ two-way turn lane, 6-foot bike lane and 8 foot shoulder.

    The applicant shall be responsible to add, adjust, modify, or remove any pavement or striping which may be necessary to transition the proposed pavement to the existing geometry north of the project property line. The transition will be per Caltrans Highway Design Manual Topic 206 Pavement Transitions.

23. Interior streets shall be constructed per City ST-3 local residential with monolithic sidewalk.

24. The Development shall contribute its fair share portion of future roadway improvements at the intersections identified on Table VIII of the Traffic Impact Study prepared for Fino Estates dated February 15, 2019. In order to determine the fair share amounts that will be paid to the City, the Developer shall provide estimated construction costs for the proposed improvements at each of the intersections described in the traffic study. The approved construction costs used in conjunction with the projects fair shares identified in Table VIII will be used to determine the amounts to be paid by the Development for these future projects.

General Utilities

25. All Pacific Gas & Electric (PG&E) utility lines and transformers shall be undergrounded in accordance with the Reedley Municipal Code Section11-5-11(G) on the east side of Frankwood Avenue within the limits of the project. The undergrounding shall only extend beyond such boundaries determined as necessary by the utility service provider. Also, the Developer shall coordinate with PG&E to ensure that all utility boxes and other facilities are installed in accordance with PG&E and City policies and standards.

26. Public utility plans and common trench utility plans for gas, electric, telephone and cable TV shall be prepared by the Developer’s public utility engineer and submitted with the subdivision improvement plans for review and comment by the City Engineer.

27. Ingress/egress rights shall be provided to the City for its employees and equipment to enter upon the property for the purpose of inspections related to water, sewer system maintenance and refuse collection as applicable.

28. The Developer shall install fire hydrants per City Standard Drawings W-1 and W-2. The number of hydrants and their locations shall be reviewed and approved by the City Engineer and Fire Chief.

29. The Developer's contractor must apply for a Fire hydrant Encroachment Permit Application and hydrant meter from the Public Works Department prior to any usage of water. Water trucks or water wagons must have appropriate air gap or Reduced Pressure Backflow prevention devices.

Sewer

30. Sanitary sewer facilities and services shall be installed in accordance with the Standard Specifications and Plans of the City of Reedley.

31. The Development's proposed sewer services for Lots 16 to 25 and Lot A shall tie into the 12 inch sewer main in Frankwood Avenue. The required size of the proposed sewer lines shall be confirmed with the City Engineer.

32. The Development's proposed sewer services for Lots 1 to 15 and Lots 26 to 44 shall tie into the 12 inch sewer main currently located in an easement in the North East Avenue alignment. The required size of the proposed sewer lines shall be confirmed with the City Engineer.

33. If the applicant wishes to deviate from required conditions 31 and 32, the applicant shall submit a routing plan for approval by the City Engineer. These efforts shall be done at the applicant's cost. It may be necessary to analyze the requested modifications based on the City's approved Integrated Master Plan.

34. Any private sewer facilities located within the subject property(s) shall be removed.

Water

35. Water distribution facilities and services shall be installed in accordance with the Standard Plans and Specifications of the City of Reedley.

36. In accordance with City ordinances and resolutions, the Developer shall install water service assemblies with water meter, box and reduced pressure backflow preventor within the City right-of-way per City Standard Plan W-5 and W-7 and Specifications of the City of Reedley and any amendments thereto as directed by the City Engineer. Water service(s) shall be installed at the time of issuance of building permit(s). The size and location of proposed water service(s) shall be noted on the construction improvement plans.

37. On site water system shall be sized and designed so as to meet development demands as approved by the City of Reedley Fire Chief and City Engineer.

38. Backflow preventers shall be tested and certified prior to the utilization of water. The owner shall have the proposed backflow preventer tested (repaired if required) by a certified backflow plumber on a yearly basis at their expense and the results submitted to City of Reedley Public Works Department.

39. All connections to the existing City of Reedley water system must be made in the presence of a City employee authorized by the Public Works Department to inspect water connections. All connections must be cleaned and disinfected to the satisfaction of the City of Reedley. In the event a City employee is not present to witness the connection, all connection operations must be terminated and the contractor or developer will be required to show proof that the proper cleaning and disinfection procedures were taken to the satisfaction of the City Engineer. Otherwise, remedial action such as flushing, cleaning of lines by polyurethane pigs, or other actions may be required by the City Engineer.

40. The Developer shall connect to the 10 inch water main on the west side of Frankwood Avenue.

41. The Developer shall connect the 8 inch water main currently located in an easement in the North East Avenue alignment.

42. Upon permit issuance from the City of Reedley, the necessary water meter(s) for the project shall be purchased and ordered from the City of Reedley. Larger sized water meters may require an extended lead time. The water meter(s) and anti-siphon device must be installed on each service line prior to utilization of water for any reason from the water service lines. An anti-siphon device is not necessary where a backflow preventer is required.

Grading & Drainage

43. Developer shall submit to the City Engineer for his review and approval a grading and drainage plan prepared by a registered civil engineer employed by the Developer for site drainage grades in accordance with applicable standards. Drainage from this development shall be in accordance with the City's Master Storm Drainage Plan for this area.

44. The Developer's engineer shall provide a certified statement stating that all grades shown on the approved construction improvement plans have been constructed to grade. Any discrepancies in grade shall be noted and corrections made on "AS BUILT" plans for review and approval by the City Engineer.

45. The Developer shall incorporate dust and erosion control measures into the construction phase of the project. The City Engineer shall review and approve said measures prior to the issuance of building permits. Developer's contractor shall take all reasonable precautions to prevent silt and other sedimentation from entering the City of Reedley's storm drainage and sewer systems. Such precautions should generally conform to "California Storm Water Best Management Practice Handbooks" prepared by California Stormwater Quality Association (CASQA). Such precautions shall be noted or shown on the off-site and on-site construction improvements plans and are subject to the approval of the City Engineer. The developer shall make all reasonable efforts to incorporate post-construction storm water control measures into the final design of the project.

46. The City's Storm Drain Master plan places all runoff from this project site to drain north to a future basin to be located north of South Avenue. At this time all on-site surface drainage shall be designed to be retained within the proposed development. The Developer shall work with the City Engineering and Public Works Departments to determine the required sized basin.

47. No on-site surface drainage shall be allowed to drain onto adjacent property.

Z:\EngDept\DeptFiles\DEVELOPMENT PROJECTS\TTM\Tract No. 6267 Fino Estates

PETITION AND WRITTEN CONSENT
(INCLUDING WAIVER)

REQUESTING COMMENCEMENT OF PROCEEDINGS UNDER THE LANDSCAPING AND LIGHTING ACT OF 1972 TO ANNEX CERTAIN TERRITORY TO LANDSCAPING AND LIGHTING MAINTENANCE DISTRICT No. 1

To the Council of the City of Reedley
c/o the City Clerk of the City of Reedley
Reedley City Hall
1717 Ninth Street
Reedley, California 93654

Re: Vesting Tentative Tract Map No. 6267
Assessor's Parcel No.'s 363-090-61, 363-090-83

Members of the City Council:

The undersigned is the duly authorized representative of the owner of all the territory of real property located in Assessor's Parcel No. 365-131-21, Reedley, California, described on Exhibit A-1 and shown by the map in Exhibit B-1 (the Parcel), which exhibits are attached to and made part of this petition. The owner hereby petitions and requests that you commence proceedings pursuant to the Landscaping and Lighting Act of 1972 (Part 2, Division 15, of the California Streets & Highways Code) (the Act) to annex and add all the territory in the Parcel to the City s existing Landscaping and Lighting Maintenance District No.1 (LLMD No. 1), and to levy on the annexed territory the annual assessments levied within LLMD No. 1 for the maintenance and operation of landscaping facilities.

The owner further petitions and requests that the Council proceed as quickly as possible with all proceedings necessary to accomplish such annexation and levy. In that regard, to the extent allowed by law, **the owner hereby expressly waives all notices, procedures and requirements otherwise required under Section 22608 and Article 1 (commencing with Section 22585) of the Act, California Government Code Sections 53750 through 53753.5 or any other provision of law, including without limitation adoption of any resolutions, filing of any engineer's report, giving of any notices, holding any hearings and right of majority protest**, and expressly consents to the annexation and levy without completion of or compliance with notices, procedures or requirements.

In consideration for the Council conducting the annexation and levy proceedings herein requested, the owner will immediately execute and deliver to the City any documents the City deems necessary to accomplish the annexation and levy proceedings and to further evidence the consent and waivers in this letter, including but not limited to assessment ballots and receipts for notice.

Also in consideration for the Council conducting such annexation and levy proceedings, the owner agrees to remain the sole owner of all real property in such Parcels and to not transfer title to any such real property to any other person or entity until completion of the proceedings.

Respectfully submitted by:

PROPERTY OWNER(S):

APNs 363-090-61 & 363-090-83
Franca M. Leland and Margaret J. Doherty,
as successor Trustees of the Fino 1994 Revocable Living Trust

By: ______________________________
Franca M. Leland

Title: ____________________________

Date: ____________________________

By: ______________________________
Margaret J. Doherty

Title: ____________________________

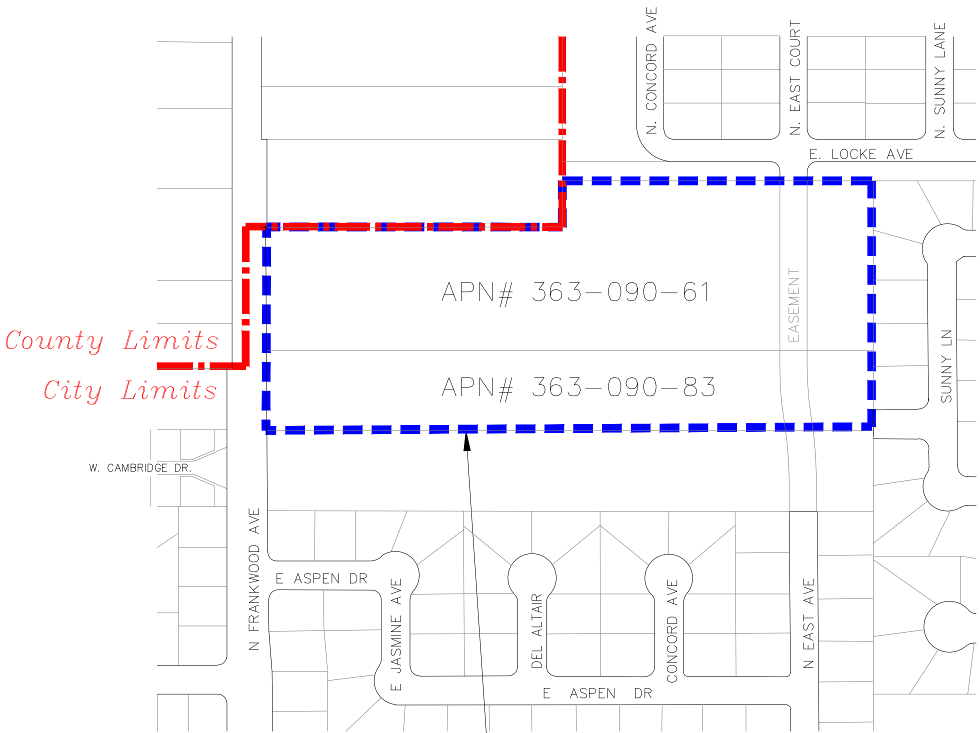
Date: ____________________________

EXHIBIT A
LEGAL DESCRIPTION

For APN: 363-090-61 and 363-090-83

APN: 363-090-61
The North 1/2 of Lot 35 and the North 1/2 of the North 1/2 of Lot 37 of Merritt Colony No. 2, in the City of Reedley, County
of Fresno, State of California, according to the map thereof recorded in Book 3, Page 37 of Record of Surveys, in the
office of the County Recorder of said County.
EXCEPTING THEREFROM the North 75 feet of the North 1/2 of the North 1/2 of said Lot 35.

APN: 363-090-83
The North half of the following described property:
The South half of Lot 35, and the South half of the North half of Lot 37, Merritt Colony No. 2, in the City of Reedley, County
of Fresno, State of California, according to the map thereof recorded in Book 3, page 37 of Record of Surveys, in the office
of the County Recorder of said County.
EXCEPTING THEREFROM that portion in the Grant Deed to the City of Reedley, a Municipal Corporation, recorded
March 20, 2009, Instrument No. 2009-0037619, Official Records.



PROPOSED BOUNDARY OF AREA TO BE ANNEXED INTO CITY OF REEDLEY'S LANDSCAPE AND LIGHTING MAINTENANCE DISTRICT NO. 1

NORTH

SCALE: NTS

CITY OF REEDLEY
ENGINEERING DEPARTMENT
1733 NINTH STREET
REEDLEY, CA 93654
PHONE (559)637-4200

EXHIBIT 'B'-1

DIAGRAM OF APN 363-090-61 & 83 (TTM 6267, FINO ESTATES)
LANDSCAPE AND LIGHTING MAINTENANCE DISTRICT NO. 1

DATE: MAY 7, 2019	DRWN BY: LT	SHEET NO. 1 OF 1

Attachment 4

Caleemod and Energy Output Files

VTSM 6267_Reedley
Fresno County, Annual

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Apartments Low Rise	169.00	Dwelling Unit	5.81	169,000.00	483
Single Family Housing	34.00	Dwelling Unit	7.66	61,200.00	97

1.2 Other Project Characteristics

Urbanization Urban **Wind Speed (m/s)** 2.2 **Precipitation Freq (Days)** 45

Climate Zone 3 **Operational Year** 2020

Utility Company Pacific Gas & Electric Company

CO2 Intensity (lb/MWhr) 641.35 **CH4 Intensity (lb/MWhr)** 0.029 **N2O Intensity (lb/MWhr)** 0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics -

Land Use - Per client information, site plans

Architectural Coating - SJVAPCD Rule 4601, Architectural Coating

Vehicle Trips - Adjusted to reflect 987 daily trips total per TIA (JLB Traffic Engineering, Inc.)

Area Coating - SJVAPCD Rule 4601, Architectural Coating.

Table Name	Column Name	Default Value	New Value
tblArchitecturalCoating	EF_Nonresidential_Interior	150.00	100.00
tblArchitecturalCoating	EF_Residential_Interior	150.00	100.00
tblAreaCoating	Area_EF_Residential_Interior	150	100
tblLandUse	LotAcreage	10.56	5.81
tblLandUse	LotAcreage	11.04	7.66
tblVehicleTrips	ST_TR	7.16	7.32
tblVehicleTrips	ST_TR	9.91	9.44
tblVehicleTrips	SU_TR	6.07	7.32
tblVehicleTrips	SU_TR	8.62	9.44
tblVehicleTrips	WD_TR	6.59	7.32
tblVehicleTrips	WD_TR	9.52	9.44
tblWoodstoves	NumberCatalytic	5.81	0.00
tblWoodstoves	NumberCatalytic	7.66	0.00
tblWoodstoves	NumberNoncatalytic	5.81	0.00
tblWoodstoves	NumberNoncatalytic	7.66	0.00

2.0 Emissions Summary

2.1 Overall Construction

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2019	0.2419	2.2861	1.6349	3.1300e-003	0.2686	0.1131	0.3817	0.1165	0.1052	0.2218	0.0000	279.7503	279.7503	0.0660	0.0000	281.3996
2020	1.4680	2.6932	2.5637	5.2200e-003	0.1415	0.1381	0.2796	0.0380	0.1298	0.1677	0.0000	461.5343	461.5343	0.0823	0.0000	463.5914
2021	0.4871	4.7800e-003	7.5000e-003	1.0000e-005	6.5000e-004	2.9000e-004	9.3000e-004	1.7000e-004	2.9000e-004	4.6000e-004	0.0000	1.3072	1.3072	7.0000e-005	0.0000	1.3089
Maximum	**1.4680**	**2.6932**	**2.5637**	**5.2200e-003**	**0.2686**	**0.1381**	**0.3817**	**0.1165**	**0.1298**	**0.2218**	**0.0000**	**461.5343**	**461.5343**	**0.0823**	**0.0000**	**463.5914**

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2019	0.2419	2.2861	1.6349	3.1300e-003	0.2686	0.1131	0.3817	0.1165	0.1052	0.2218	0.0000	279.7501	279.7501	0.0660	0.0000	281.3993
2020	1.4680	2.6932	2.5637	5.2200e-003	0.1415	0.1381	0.2796	0.0380	0.1298	0.1677	0.0000	461.5340	461.5340	0.0823	0.0000	463.5911
2021	0.4871	4.7800e-003	7.5000e-003	1.0000e-005	6.5000e-004	2.9000e-004	9.3000e-004	1.7000e-004	2.9000e-004	4.6000e-004	0.0000	1.3072	1.3072	7.0000e-005	0.0000	1.3089
Maximum	**1.4680**	**2.6932**	**2.5637**	**5.2200e-003**	**0.2686**	**0.1381**	**0.3817**	**0.1165**	**0.1298**	**0.2218**	**0.0000**	**461.5340**	**461.5340**	**0.0823**	**0.0000**	**463.5911**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Quarter	Start Date	End Date	Maximum Unmitigated ROG + NOX (tons/quarter)	Maximum Mitigated ROG + NOX (tons/quarter)
1	7-1-2019	9-30-2019	1.6062	1.6062
2	10-1-2019	12-31-2019	0.9081	0.9081
3	1-1-2020	3-31-2020	0.8165	0.8165
4	4-1-2020	6-30-2020	0.8150	0.8150
5	7-1-2020	9-30-2020	0.8239	0.8239
6	10-1-2020	12-31-2020	1.7228	1.7228
7	1-1-2021	3-31-2021	0.4685	0.4685
		Highest	1.7228	1.7228

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	1.1160	0.0934	1.5446	5.6000e-004		0.0145	0.0145		0.0145	0.0145	0.0000	90.4033	90.4033	4.0900e-003	1.6100e-003	90.9859
Energy	0.0177	0.1511	0.0643	9.6000e-004		0.0122	0.0122		0.0122	0.0122	0.0000	491.5447	491.5447	0.0177	6.1700e-003	493.8248
Mobile	0.6543	7.7928	6.4763	0.0309	1.7499	0.0365	1.7864	0.4718	0.0346	0.5064	0.0000	2,876.3934	2,876.3934	0.2844	0.0000	2,883.5033
Waste						0.0000	0.0000		0.0000	0.0000	22.8690	0.0000	22.8690	1.3515	0.0000	56.6569
Water						0.0000	0.0000		0.0000	0.0000	4.1961	29.3097	33.5058	0.4323	0.0105	47.4277
Total	**1.7880**	**8.0373**	**8.0852**	**0.0324**	**1.7499**	**0.0631**	**1.8130**	**0.4718**	**0.0613**	**0.5331**	**27.0650**	**3,487.6511**	**3,514.7161**	**2.0900**	**0.0182**	**3,572.3985**

2.2 Overall Operational

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	1.1160	0.0934	1.5446	5.6000e-004		0.0145	0.0145		0.0145	0.0145	0.0000	90.4033	90.4033	4.0900e-003	1.6100e-003	90.9859
Energy	0.0177	0.1511	0.0643	9.6000e-004		0.0122	0.0122		0.0122	0.0122	0.0000	491.5447	491.5447	0.0177	6.1700e-003	493.8248
Mobile	0.6543	7.7928	6.4763	0.0309	1.7499	0.0365	1.7864	0.4718	0.0346	0.5064	0.0000	2,876.3934	2,876.3934	0.2844	0.0000	2,883.5033
Waste						0.0000	0.0000		0.0000	0.0000	22.8690	0.0000	22.8690	1.3515	0.0000	56.6569
Water						0.0000	0.0000		0.0000	0.0000	4.1961	29.3097	33.5058	0.4323	0.0105	47.4277
Total	**1.7880**	**8.0373**	**8.0852**	**0.0324**	**1.7499**	**0.0631**	**1.8130**	**0.4718**	**0.0613**	**0.5331**	**27.0650**	**3,487.6511**	**3,514.7161**	**2.0900**	**0.0182**	**3,572.3985**

	ROG	**NOx**	**CO**	**SO2**	**Fugitive PM10**	**Exhaust PM10**	**PM10 Total**	**Fugitive PM2.5**	**Exhaust PM2.5**	**PM2.5 Total**	**Bio- CO2**	**NBio-CO2**	**Total CO2**	**CH4**	**N20**	**CO2e**
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Demolition	Demolition	7/1/2019	7/26/2019	5	20	
2	Site Preparation	Site Preparation	7/27/2019	8/9/2019	5	10	
3	Grading	Grading	8/10/2019	9/20/2019	5	30	
4	Building Construction	Building Construction	9/21/2019	11/13/2020	5	300	
5	Paving	Paving	11/14/2020	12/11/2020	5	20	
6	Architectural Coating	Architectural Coating	12/12/2020	1/8/2021	5	20	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 75

Acres of Paving: 0

Residential Indoor: 466,155; Residential Outdoor: 155,385; Non-Residential Indoor: 0; Non-Residential Outdoor: 0; Striped Parking Area: 0 (Architectural Coating – sqft)

<u>OffRoad Equipment</u>

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Demolition	Concrete/Industrial Saws	1	8.00	81	0.73
Demolition	Excavators	3	8.00	158	0.38
Demolition	Rubber Tired Dozers	2	8.00	247	0.40
Site Preparation	Rubber Tired Dozers	3	8.00	247	0.40
Site Preparation	Tractors/Loaders/Backhoes	4	8.00	97	0.37
Grading	Excavators	2	8.00	158	0.38
Grading	Graders	1	8.00	187	0.41
Grading	Rubber Tired Dozers	1	8.00	247	0.40
Grading	Scrapers	2	8.00	367	0.48
Grading	Tractors/Loaders/Backhoes	2	8.00	97	0.37
Building Construction	Cranes	1	7.00	231	0.29
Building Construction	Forklifts	3	8.00	89	0.20
Building Construction	Generator Sets	1	8.00	84	0.74
Building Construction	Tractors/Loaders/Backhoes	3	7.00	97	0.37
Building Construction	Welders	1	8.00	46	0.45
Paving	Pavers	2	8.00	130	0.42
Paving	Paving Equipment	2	8.00	132	0.36
Paving	Rollers	2	8.00	80	0.38
Architectural Coating	Air Compressors	1	6.00	78	0.48

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Demolition	6	15.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Site Preparation	7	18.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Grading	8	20.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	9	134.00	22.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Paving	6	15.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating	1	27.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

3.2 Demolition - 2019

<u>Unmitigated Construction On-Site</u>

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0351	0.3578	0.2206	3.9000e-004		0.0180	0.0180		0.0167	0.0167	0.0000	34.6263	34.6263	9.6300e-003	0.0000	34.8672
Total	**0.0351**	**0.3578**	**0.2206**	**3.9000e-004**		**0.0180**	**0.0180**		**0.0167**	**0.0167**	**0.0000**	**34.6263**	**34.6263**	**9.6300e-003**	**0.0000**	**34.8672**

3.2 Demolition - 2019

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	7.1000e-004	4.7000e-004	4.6700e-003	1.0000e-005	1.2000e-003	1.0000e-005	1.2100e-003	3.2000e-004	1.0000e-005	3.3000e-004	0.0000	1.0712	1.0712	3.0000e-005	0.0000	1.0720
Total	**7.1000e-004**	**4.7000e-004**	**4.6700e-003**	**1.0000e-005**	**1.2000e-003**	**1.0000e-005**	**1.2100e-003**	**3.2000e-004**	**1.0000e-005**	**3.3000e-004**	**0.0000**	**1.0712**	**1.0712**	**3.0000e-005**	**0.0000**	**1.0720**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0351	0.3578	0.2206	3.9000e-004		0.0180	0.0180		0.0167	0.0167	0.0000	34.6263	34.6263	9.6300e-003	0.0000	34.8671
Total	**0.0351**	**0.3578**	**0.2206**	**3.9000e-004**		**0.0180**	**0.0180**		**0.0167**	**0.0167**	**0.0000**	**34.6263**	**34.6263**	**9.6300e-003**	**0.0000**	**34.8671**

3.2 Demolition - 2019

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	7.1000e-004	4.7000e-004	4.6700e-003	1.0000e-005	1.2000e-003	1.0000e-005	1.2100e-003	3.2000e-004	1.0000e-005	3.3000e-004	0.0000	1.0712	1.0712	3.0000e-005	0.0000	1.0720
Total	**7.1000e-004**	**4.7000e-004**	**4.6700e-003**	**1.0000e-005**	**1.2000e-003**	**1.0000e-005**	**1.2100e-003**	**3.2000e-004**	**1.0000e-005**	**3.3000e-004**	**0.0000**	**1.0712**	**1.0712**	**3.0000e-005**	**0.0000**	**1.0720**

3.3 Site Preparation - 2019

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0903	0.0000	0.0903	0.0497	0.0000	0.0497	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0217	0.2279	0.1103	1.9000e-004		0.0120	0.0120		0.0110	0.0110	0.0000	17.0843	17.0843	5.4100e-003	0.0000	17.2195
Total	**0.0217**	**0.2279**	**0.1103**	**1.9000e-004**	**0.0903**	**0.0120**	**0.1023**	**0.0497**	**0.0110**	**0.0607**	**0.0000**	**17.0843**	**17.0843**	**5.4100e-003**	**0.0000**	**17.2195**

3.3 Site Preparation - 2019

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	4.3000e-004	2.8000e-004	2.8000e-003	1.0000e-005	7.2000e-004	0.0000	7.2000e-004	1.9000e-004	0.0000	2.0000e-004	0.0000	0.6427	0.6427	2.0000e-005	0.0000	0.6432
Total	**4.3000e-004**	**2.8000e-004**	**2.8000e-003**	**1.0000e-005**	**7.2000e-004**	**0.0000**	**7.2000e-004**	**1.9000e-004**	**0.0000**	**2.0000e-004**	**0.0000**	**0.6427**	**0.6427**	**2.0000e-005**	**0.0000**	**0.6432**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0903	0.0000	0.0903	0.0497	0.0000	0.0497	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0217	0.2279	0.1103	1.9000e-004		0.0120	0.0120		0.0110	0.0110	0.0000	17.0843	17.0843	5.4100e-003	0.0000	17.2195
Total	**0.0217**	**0.2279**	**0.1103**	**1.9000e-004**	**0.0903**	**0.0120**	**0.1023**	**0.0497**	**0.0110**	**0.0607**	**0.0000**	**17.0843**	**17.0843**	**5.4100e-003**	**0.0000**	**17.2195**

3.3 Site Preparation - 2019

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	4.3000e-004	2.8000e-004	2.8000e-003	1.0000e-005	7.2000e-004	0.0000	7.2000e-004	1.9000e-004	0.0000	2.0000e-004	0.0000	0.6427	0.6427	2.0000e-005	0.0000	0.6432
Total	**4.3000e-004**	**2.8000e-004**	**2.8000e-003**	**1.0000e-005**	**7.2000e-004**	**0.0000**	**7.2000e-004**	**1.9000e-004**	**0.0000**	**2.0000e-004**	**0.0000**	**0.6427**	**0.6427**	**2.0000e-005**	**0.0000**	**0.6432**

3.4 Grading - 2019

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.1301	0.0000	0.1301	0.0540	0.0000	0.0540	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0711	0.8178	0.5007	9.3000e-004		0.0357	0.0357		0.0329	0.0329	0.0000	83.5520	83.5520	0.0264	0.0000	84.2129
Total	**0.0711**	**0.8178**	**0.5007**	**9.3000e-004**	**0.1301**	**0.0357**	**0.1658**	**0.0540**	**0.0329**	**0.0868**	**0.0000**	**83.5520**	**83.5520**	**0.0264**	**0.0000**	**84.2129**

3.4 Grading - 2019

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.4200e-003	9.3000e-004	9.3500e-003	2.0000e-005	2.4000e-003	2.0000e-005	2.4100e-003	6.4000e-004	1.0000e-005	6.5000e-004	0.0000	2.1424	2.1424	6.0000e-005	0.0000	2.1440
Total	**1.4200e-003**	**9.3000e-004**	**9.3500e-003**	**2.0000e-005**	**2.4000e-003**	**2.0000e-005**	**2.4100e-003**	**6.4000e-004**	**1.0000e-005**	**6.5000e-004**	**0.0000**	**2.1424**	**2.1424**	**6.0000e-005**	**0.0000**	**2.1440**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.1301	0.0000	0.1301	0.0540	0.0000	0.0540	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0711	0.8178	0.5007	9.3000e-004		0.0357	0.0357		0.0329	0.0329	0.0000	83.5519	83.5519	0.0264	0.0000	84.2128
Total	**0.0711**	**0.8178**	**0.5007**	**9.3000e-004**	**0.1301**	**0.0357**	**0.1658**	**0.0540**	**0.0329**	**0.0868**	**0.0000**	**83.5519**	**83.5519**	**0.0264**	**0.0000**	**84.2128**

3.4 Grading - 2019

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.4200e-003	9.3000e-004	9.3500e-003	2.0000e-005	2.4000e-003	2.0000e-005	2.4100e-003	6.4000e-004	1.0000e-005	6.5000e-004	0.0000	2.1424	2.1424	6.0000e-005	0.0000	2.1440
Total	**1.4200e-003**	**9.3000e-004**	**9.3500e-003**	**2.0000e-005**	**2.4000e-003**	**2.0000e-005**	**2.4100e-003**	**6.4000e-004**	**1.0000e-005**	**6.5000e-004**	**0.0000**	**2.1424**	**2.1424**	**6.0000e-005**	**0.0000**	**2.1440**

3.5 Building Construction - 2019

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0850	0.7588	0.6179	9.7000e-004		0.0464	0.0464		0.0437	0.0437	0.0000	84.6375	84.6375	0.0206	0.0000	85.1530
Total	**0.0850**	**0.7588**	**0.6179**	**9.7000e-004**		**0.0464**	**0.0464**		**0.0437**	**0.0437**	**0.0000**	**84.6375**	**84.6375**	**0.0206**	**0.0000**	**85.1530**

3.5 Building Construction - 2019

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	3.6500e-003	0.1071	0.0183	2.3000e-004	5.2500e-003	7.8000e-004	6.0300e-003	1.5200e-003	7.4000e-004	2.2600e-003	0.0000	21.5442	21.5442	2.7400e-003	0.0000	21.6126
Worker	0.0228	0.0150	0.1503	3.8000e-004	0.0386	2.6000e-004	0.0388	0.0103	2.4000e-004	0.0105	0.0000	34.4497	34.4497	1.0300e-003	0.0000	34.4753
Total	**0.0264**	**0.1221**	**0.1686**	**6.1000e-004**	**0.0438**	**1.0400e-003**	**0.0449**	**0.0118**	**9.8000e-004**	**0.0128**	**0.0000**	**55.9938**	**55.9938**	**3.7700e-003**	**0.0000**	**56.0879**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0850	0.7588	0.6179	9.7000e-004		0.0464	0.0464		0.0437	0.0437	0.0000	84.6374	84.6374	0.0206	0.0000	85.1529
Total	**0.0850**	**0.7588**	**0.6179**	**9.7000e-004**		**0.0464**	**0.0464**		**0.0437**	**0.0437**	**0.0000**	**84.6374**	**84.6374**	**0.0206**	**0.0000**	**85.1529**

3.5 Building Construction - 2019

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	3.6500e-003	0.1071	0.0183	2.3000e-004	5.2500e-003	7.8000e-004	6.0300e-003	1.5200e-003	7.4000e-004	2.2600e-003	0.0000	21.5442	21.5442	2.7400e-003	0.0000	21.6126
Worker	0.0228	0.0150	0.1503	3.8000e-004	0.0386	2.6000e-004	0.0388	0.0103	2.4000e-004	0.0105	0.0000	34.4497	34.4497	1.0300e-003	0.0000	34.4753
Total	**0.0264**	**0.1221**	**0.1686**	**6.1000e-004**	**0.0438**	**1.0400e-003**	**0.0449**	**0.0118**	**9.8000e-004**	**0.0128**	**0.0000**	**55.9938**	**55.9938**	**3.7700e-003**	**0.0000**	**56.0879**

3.5 Building Construction - 2020

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.2417	2.1872	1.9207	3.0700e-003		0.1273	0.1273		0.1197	0.1197	0.0000	264.0354	264.0354	0.0644	0.0000	265.6458
Total	**0.2417**	**2.1872**	**1.9207**	**3.0700e-003**		**0.1273**	**0.1273**		**0.1197**	**0.1197**	**0.0000**	**264.0354**	**264.0354**	**0.0644**	**0.0000**	**265.6458**

3.5 Building Construction - 2020

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	9.3700e-003	0.3108	0.0496	7.1000e-004	0.0166	1.6500e-003	0.0183	4.8000e-003	1.5800e-003	6.3800e-003	0.0000	67.6372	67.6372	8.3600e-003	0.0000	67.8462
Worker	0.0659	0.0418	0.4246	1.1700e-003	0.1221	7.9000e-004	0.1229	0.0325	7.2000e-004	0.0332	0.0000	105.7006	105.7006	2.8300e-003	0.0000	105.7714
Total	**0.0753**	**0.3526**	**0.4742**	**1.8800e-003**	**0.1388**	**2.4400e-003**	**0.1412**	**0.0373**	**2.3000e-003**	**0.0396**	**0.0000**	**173.3377**	**173.3377**	**0.0112**	**0.0000**	**173.6175**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.2417	2.1872	1.9207	3.0700e-003		0.1273	0.1273		0.1197	0.1197	0.0000	264.0351	264.0351	0.0644	0.0000	265.6455
Total	**0.2417**	**2.1872**	**1.9207**	**3.0700e-003**		**0.1273**	**0.1273**		**0.1197**	**0.1197**	**0.0000**	**264.0351**	**264.0351**	**0.0644**	**0.0000**	**265.6455**

3.5 Building Construction - 2020

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	9.3700e-003	0.3108	0.0496	7.1000e-004	0.0166	1.6500e-003	0.0183	4.8000e-003	1.5800e-003	6.3800e-003	0.0000	67.6372	67.6372	8.3600e-003	0.0000	67.8462
Worker	0.0659	0.0418	0.4246	1.1700e-003	0.1221	7.9000e-004	0.1229	0.0325	7.2000e-004	0.0332	0.0000	105.7006	105.7006	2.8300e-003	0.0000	105.7714
Total	**0.0753**	**0.3526**	**0.4742**	**1.8800e-003**	**0.1388**	**2.4400e-003**	**0.1412**	**0.0373**	**2.3000e-003**	**0.0396**	**0.0000**	**173.3377**	**173.3377**	**0.0112**	**0.0000**	**173.6175**

3.6 Paving - 2020

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0136	0.1407	0.1465	2.3000e-004		7.5300e-003	7.5300e-003		6.9300e-003	6.9300e-003	0.0000	20.0282	20.0282	6.4800e-003	0.0000	20.1902
Paving	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0136**	**0.1407**	**0.1465**	**2.3000e-004**		**7.5300e-003**	**7.5300e-003**		**6.9300e-003**	**6.9300e-003**	**0.0000**	**20.0282**	**20.0282**	**6.4800e-003**	**0.0000**	**20.1902**

3.6 Paving - 2020

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	6.5000e-004	4.1000e-004	4.1700e-003	1.0000e-005	1.2000e-003	1.0000e-005	1.2100e-003	3.2000e-004	1.0000e-005	3.3000e-004	0.0000	1.0379	1.0379	3.0000e-005	0.0000	1.0386
Total	**6.5000e-004**	**4.1000e-004**	**4.1700e-003**	**1.0000e-005**	**1.2000e-003**	**1.0000e-005**	**1.2100e-003**	**3.2000e-004**	**1.0000e-005**	**3.3000e-004**	**0.0000**	**1.0379**	**1.0379**	**3.0000e-005**	**0.0000**	**1.0386**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0136	0.1407	0.1465	2.3000e-004		7.5300e-003	7.5300e-003		6.9300e-003	6.9300e-003	0.0000	20.0282	20.0282	6.4800e-003	0.0000	20.1901
Paving	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0136**	**0.1407**	**0.1465**	**2.3000e-004**		**7.5300e-003**	**7.5300e-003**		**6.9300e-003**	**6.9300e-003**	**0.0000**	**20.0282**	**20.0282**	**6.4800e-003**	**0.0000**	**20.1901**

3.6 Paving - 2020

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	6.5000e-004	4.1000e-004	4.1700e-003	1.0000e-005	1.2000e-003	1.0000e-005	1.2100e-003	3.2000e-004	1.0000e-005	3.3000e-004	0.0000	1.0379	1.0379	3.0000e-005	0.0000	1.0386
Total	**6.5000e-004**	**4.1000e-004**	**4.1700e-003**	**1.0000e-005**	**1.2000e-003**	**1.0000e-005**	**1.2100e-003**	**3.2000e-004**	**1.0000e-005**	**3.3000e-004**	**0.0000**	**1.0379**	**1.0379**	**3.0000e-005**	**0.0000**	**1.0386**

3.7 Architectural Coating - 2020

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating	1.1343					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	1.7000e-003	0.0118	0.0128	2.0000e-005		7.8000e-004	7.8000e-004		7.8000e-004	7.8000e-004	0.0000	1.7873	1.7873	1.4000e-004	0.0000	1.7907
Total	**1.1360**	**0.0118**	**0.0128**	**2.0000e-005**		**7.8000e-004**	**7.8000e-004**		**7.8000e-004**	**7.8000e-004**	**0.0000**	**1.7873**	**1.7873**	**1.4000e-004**	**0.0000**	**1.7907**

3.7 Architectural Coating - 2020

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	8.2000e-004	5.2000e-004	5.2500e-003	1.0000e-005	1.5100e-003	1.0000e-005	1.5200e-003	4.0000e-004	1.0000e-005	4.1000e-004	0.0000	1.3078	1.3078	4.0000e-005	0.0000	1.3086
Total	**8.2000e-004**	**5.2000e-004**	**5.2500e-003**	**1.0000e-005**	**1.5100e-003**	**1.0000e-005**	**1.5200e-003**	**4.0000e-004**	**1.0000e-005**	**4.1000e-004**	**0.0000**	**1.3078**	**1.3078**	**4.0000e-005**	**0.0000**	**1.3086**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating	1.1343					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	1.7000e-003	0.0118	0.0128	2.0000e-005		7.8000e-004	7.8000e-004		7.8000e-004	7.8000e-004	0.0000	1.7873	1.7873	1.4000e-004	0.0000	1.7907
Total	**1.1360**	**0.0118**	**0.0128**	**2.0000e-005**		**7.8000e-004**	**7.8000e-004**		**7.8000e-004**	**7.8000e-004**	**0.0000**	**1.7873**	**1.7873**	**1.4000e-004**	**0.0000**	**1.7907**

3.7 Architectural Coating - 2020

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	8.2000e-004	5.2000e-004	5.2500e-003	1.0000e-005	1.5100e-003	1.0000e-005	1.5200e-003	4.0000e-004	1.0000e-005	4.1000e-004	0.0000	1.3078	1.3078	4.0000e-005	0.0000	1.3086
Total	**8.2000e-004**	**5.2000e-004**	**5.2500e-003**	**1.0000e-005**	**1.5100e-003**	**1.0000e-005**	**1.5200e-003**	**4.0000e-004**	**1.0000e-005**	**4.1000e-004**	**0.0000**	**1.3078**	**1.3078**	**4.0000e-005**	**0.0000**	**1.3086**

3.7 Architectural Coating - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating	0.4861					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	6.6000e-004	4.5800e-003	5.4500e-003	1.0000e-005		2.8000e-004	2.8000e-004		2.8000e-004	2.8000e-004	0.0000	0.7660	0.7660	5.0000e-005	0.0000	0.7673
Total	**0.4868**	**4.5800e-003**	**5.4500e-003**	**1.0000e-005**		**2.8000e-004**	**2.8000e-004**		**2.8000e-004**	**2.8000e-004**	**0.0000**	**0.7660**	**0.7660**	**5.0000e-005**	**0.0000**	**0.7673**

3.7 Architectural Coating - 2021

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	3.2000e-004	2.0000e-004	2.0400e-003	1.0000e-005	6.5000e-004	0.0000	6.5000e-004	1.7000e-004	0.0000	1.8000e-004	0.0000	0.5413	0.5413	1.0000e-005	0.0000	0.5416
Total	**3.2000e-004**	**2.0000e-004**	**2.0400e-003**	**1.0000e-005**	**6.5000e-004**	**0.0000**	**6.5000e-004**	**1.7000e-004**	**0.0000**	**1.8000e-004**	**0.0000**	**0.5413**	**0.5413**	**1.0000e-005**	**0.0000**	**0.5416**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating	0.4861					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	6.6000e-004	4.5800e-003	5.4500e-003	1.0000e-005		2.8000e-004	2.8000e-004		2.8000e-004	2.8000e-004	0.0000	0.7660	0.7660	5.0000e-005	0.0000	0.7673
Total	**0.4868**	**4.5800e-003**	**5.4500e-003**	**1.0000e-005**		**2.8000e-004**	**2.8000e-004**		**2.8000e-004**	**2.8000e-004**	**0.0000**	**0.7660**	**0.7660**	**5.0000e-005**	**0.0000**	**0.7673**

3.7 Architectural Coating - 2021

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	3.2000e-004	2.0000e-004	2.0400e-003	1.0000e-005	6.5000e-004	0.0000	6.5000e-004	1.7000e-004	0.0000	1.8000e-004	0.0000	0.5413	0.5413	1.0000e-005	0.0000	0.5416
Total	**3.2000e-004**	**2.0000e-004**	**2.0400e-003**	**1.0000e-005**	**6.5000e-004**	**0.0000**	**6.5000e-004**	**1.7000e-004**	**0.0000**	**1.8000e-004**	**0.0000**	**0.5413**	**0.5413**	**1.0000e-005**	**0.0000**	**0.5416**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	0.6543	7.7928	6.4763	0.0309	1.7499	0.0365	1.7864	0.4718	0.0346	0.5064	0.0000	2,876.393 4	2,876.393 4	0.2844	0.0000	2,883.503 3
Unmitigated	0.6543	7.7928	6.4763	0.0309	1.7499	0.0365	1.7864	0.4718	0.0346	0.5064	0.0000	2,876.393 4	2,876.393 4	0.2844	0.0000	2,883.503 3

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Apartments Low Rise	1,237.08	1,237.08	1237.08	3,624,236	3,624,236
Single Family Housing	320.96	320.96	320.96	940,307	940,307
Total	1,558.04	1,558.04	1,558.04	4,564,542	4,564,542

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
Apartments Low Rise	10.80	7.30	7.50	48.40	15.90	35.70	86	11	3
Single Family Housing	10.80	7.30	7.50	48.40	15.90	35.70	86	11	3

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
Apartments Low Rise	0.481390	0.032808	0.168621	0.127212	0.018382	0.004997	0.032622	0.122881	0.002369	0.001675	0.005261	0.001115	0.000667
Single Family Housing	0.481390	0.032808	0.168621	0.127212	0.018382	0.004997	0.032622	0.122881	0.002369	0.001675	0.005261	0.001115	0.000667

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Electricity Mitigated						0.0000	0.0000		0.0000	0.0000	0.0000	316.6182	316.6182	0.0143	2.9600e-003	317.8588
Electricity Unmitigated						0.0000	0.0000		0.0000	0.0000	0.0000	316.6182	316.6182	0.0143	2.9600e-003	317.8588
NaturalGas Mitigated	0.0177	0.1511	0.0643	9.6000e-004		0.0122	0.0122		0.0122	0.0122	0.0000	174.9266	174.9266	3.3500e-003	3.2100e-003	175.9661
NaturalGas Unmitigated	0.0177	0.1511	0.0643	9.6000e-004		0.0122	0.0122		0.0122	0.0122	0.0000	174.9266	174.9266	3.3500e-003	3.2100e-003	175.9661

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
Apartments Low Rise	2.38906e+006	0.0129	0.1101	0.0468	7.0000e-004		8.9000e-003	8.9000e-003		8.9000e-003	8.9000e-003	0.0000	127.4894	127.4894	2.4400e-003	2.3400e-003	128.2470
Single Family Housing	888938	4.7900e-003	0.0410	0.0174	2.6000e-004		3.3100e-003	3.3100e-003		3.3100e-003	3.3100e-003	0.0000	47.4371	47.4371	9.1000e-004	8.7000e-004	47.7190
Total		**0.0177**	**0.1510**	**0.0643**	**9.6000e-004**		**0.0122**	**0.0122**		**0.0122**	**0.0122**	**0.0000**	**174.9266**	**174.9266**	**3.3500e-003**	**3.2100e-003**	**175.9661**

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
Apartments Low Rise	2.38906e+006	0.0129	0.1101	0.0468	7.0000e-004		8.9000e-003	8.9000e-003		8.9000e-003	8.9000e-003	0.0000	127.4894	127.4894	2.4400e-003	2.3400e-003	128.2470
Single Family Housing	888938	4.7900e-003	0.0410	0.0174	2.6000e-004		3.3100e-003	3.3100e-003		3.3100e-003	3.3100e-003	0.0000	47.4371	47.4371	9.1000e-004	8.7000e-004	47.7190
Total		**0.0177**	**0.1510**	**0.0643**	**9.6000e-004**		**0.0122**	**0.0122**		**0.0122**	**0.0122**	**0.0000**	**174.9266**	**174.9266**	**3.3500e-003**	**3.2100e-003**	**175.9661**

5.3 Energy by Land Use - Electricity

Unmitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Apartments Low Rise	790501	229.9658	0.0104	2.1500e-003	230.8668
Single Family Housing	297865	86.6524	3.9200e-003	8.1000e-004	86.9919
Total		**316.6182**	**0.0143**	**2.9600e-003**	**317.8588**

Mitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Apartments Low Rise	790501	229.9658	0.0104	2.1500e-003	230.8668
Single Family Housing	297865	86.6524	3.9200e-003	8.1000e-004	86.9919
Total		**316.6182**	**0.0143**	**2.9600e-003**	**317.8588**

6.0 Area Detail

6.1 Mitigation Measures Area

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	1.1160	0.0934	1.5446	5.6000e-004		0.0145	0.0145		0.0145	0.0145	0.0000	90.4033	90.4033	4.0900e-003	1.6100e-003	90.9859
Unmitigated	1.1160	0.0934	1.5446	5.6000e-004		0.0145	0.0145		0.0145	0.0145	0.0000	90.4033	90.4033	4.0900e-003	1.6100e-003	90.9859

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	0.1621					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.8991					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Hearth	8.8900e-003	0.0759	0.0323	4.8000e-004		6.1400e-003	6.1400e-003		6.1400e-003	6.1400e-003	0.0000	87.9411	87.9411	1.6900e-003	1.6100e-003	88.4637
Landscaping	0.0461	0.0175	1.5123	8.0000e-005		8.3200e-003	8.3200e-003		8.3200e-003	8.3200e-003	0.0000	2.4622	2.4622	2.4000e-003	0.0000	2.5222
Total	**1.1160**	**0.0934**	**1.5446**	**5.6000e-004**		**0.0145**	**0.0145**		**0.0145**	**0.0145**	**0.0000**	**90.4033**	**90.4033**	**4.0900e-003**	**1.6100e-003**	**90.9859**

6.2 Area by SubCategory

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	0.1621					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.8991					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Hearth	8.8900e-003	0.0759	0.0323	4.8000e-004		6.1400e-003	6.1400e-003		6.1400e-003	6.1400e-003	0.0000	87.9411	87.9411	1.6900e-003	1.6100e-003	88.4637
Landscaping	0.0461	0.0175	1.5123	8.0000e-005		8.3200e-003	8.3200e-003		8.3200e-003	8.3200e-003	0.0000	2.4622	2.4622	2.4000e-003	0.0000	2.5222
Total	**1.1160**	**0.0934**	**1.5446**	**5.6000e-004**		**0.0145**	**0.0145**		**0.0145**	**0.0145**	**0.0000**	**90.4033**	**90.4033**	**4.0900e-003**	**1.6100e-003**	**90.9859**

7.0 Water Detail

7.1 Mitigation Measures Water

	Total CO2	CH4	N2O	CO2e
Category	MT/yr			
Mitigated	33.5058	0.4323	0.0105	47.4277
Unmitigated	33.5058	0.4323	0.0105	47.4277

7.2 Water by Land Use

Unmitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Apartments Low Rise	11.011 / 6.94174	27.8940	0.3599	8.7000e-003	39.4841
Single Family Housing	2.21524 / 1.39656	5.6118	0.0724	1.7500e-003	7.9436
Total		**33.5058**	**0.4323**	**0.0105**	**47.4277**

7.2 Water by Land Use

Mitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Apartments Low Rise	11.011 / 6.94174	27.8940	0.3599	8.7000e-003	39.4841
Single Family Housing	2.21524 / 1.39656	5.6118	0.0724	1.7500e-003	7.9436
Total		**33.5058**	**0.4323**	**0.0105**	**47.4277**

8.0 Waste Detail

8.1 Mitigation Measures Waste

Category/Year

	Total CO2	CH4	N2O	CO2e
	MT/yr			
Mitigated	22.8690	1.3515	0.0000	56.6569
Unmitigated	22.8690	1.3515	0.0000	56.6569

8.2 Waste by Land Use

Unmitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Apartments Low Rise	77.74	15.7805	0.9326	0.0000	39.0956
Single Family Housing	34.92	7.0884	0.4189	0.0000	17.5613
Total		**22.8690**	**1.3515**	**0.0000**	**56.6569**

Mitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Apartments Low Rise	77.74	15.7805	0.9326	0.0000	39.0956
Single Family Housing	34.92	7.0884	0.4189	0.0000	17.5613
Total		**22.8690**	**1.3515**	**0.0000**	**56.6569**

9.0 Operational Offroad

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

Equipment Type	Number	Hours/Day	Hours/Year	Horse Power	Load Factor	Fuel Type

Boilers

Equipment Type	Number	Heat Input/Day	Heat Input/Year	Boiler Rating	Fuel Type

User Defined Equipment

Equipment Type	Number

11.0 Vegetation

Energy Unit Conversion Sheet

Gasoline

Gallons (gal.)	26.00	Barrels (bbl.)	1.00	Btu	1.00
26.00	gal.	42.00	gal.	0.00	gal.
0.03	Thousand gallons	0.04	Thousand gallons	0.00	Thousand gallons
0.00	Million gallons	0.00	Million gallons	0.00	Million gallons
0.62	bbl.	1.00	bbl.	0.02	bbl.
0.00	Thousand bbl.	0.00	Thousand bbl.	0.00	Thousand bbl.
0.00	Million bbl.	0.00	Million bbl.	0.00	Million bbl.
30.70	U.S. Therms	49.59	U.S. Therms	0.00	U.S. Therms
2854440.85	British thermal units (Btu)	4611019.83	British thermal units (Btu)	1.00	British thermal units (Btu)
2.85	Million Btu (MMBtu)	4.61	Million Btu (MMBtu)	0.00	Million Btu (MMBtu)

Diesel

Gallons (gal.)	2,615.00	Barrels (bbl.)	1.00	Btu	1.00
2,615.00	gal.	42.00	gal.	0.00	gal.
2.62	Thousand gallons	0.04	Thousand gallons	0.00	Thousand gallons
0.00	Million gallons	0.00	Million gallons	0.00	Million gallons
62.26	bbl.	1.00	bbl.	0.02	bbl.
0.06	Thousand bbl.	0.00	Thousand bbl.	0.00	Thousand bbl.
0.00	Million bbl.	0.00	Million bbl.	0.00	Million bbl.
3,584.96	U.S. Therms	57.58	U.S. Therms	0.00	U.S. Therms
333,307,900.00	British thermal units (Btu)	5,353,320.00	British thermal units (Btu)	1.00	British thermal units (Btu)
333.31	Million Btu (MMBtu)	5.35	Million Btu (MMBtu)	0.00	Million Btu (MMBtu)

Electricity

Kilowatt-Hours (kWh)	1.00	U.S. Therm	1.00	Btu	1.00
1.00	Kilowatt-Hours	27.25	Kilowatt-Hours	0.00	Kilowatt-Hours
0.00	Megawatt-Hours	0.03	Megawatt-Hours	0.00	Megawatt-Hours
0.00	Gigawatt-Hours	0.00	Gigawatt-Hours	0.00	Gigawatt-Hours
0.04	U.S. Therms	1.00	U.S. Therms	0.00	U.S. Therms
3,412.00	British thermal units (Btu)	92,974.00	British thermal units (Btu)	1.00	British thermal units (Btu)
0.00	Million Btu (MMBtu)	0.09	Million Btu (MMBtu)	0.00	Million Btu (MMBtu)

Natural Gas

Thousand Cubic Feet (Mcf)	1.00	U.S. Therm	1.00	Btu	1.00
1,000.00	Cubic Feet (cf)	89.66	Cubic Feet (cf)	0.00	Cubic Feet (cf)
1.00	Thousand Cubic Feet (Mcf)	0.09	Thousand Cubic Feet (Mcf)	0.00	Thousand Cubic Feet (Mcf)
0.00	Million Cubic Feet (MMcf)	0.00	Million Cubic Feet (MMcf)	0.00	Million Cubic Feet (MMcf)
11.15	U.S. Therms	1.00	U.S. Therms	0.00	U.S. Therms
1,037,000.00	British thermal units (Btu)	92,974.00	British thermal units (Btu)	1.00	British thermal units (Btu)
1.04	Million Btu (MMBtu)	0.09	Million Btu (MMBtu)	0.00	Million Btu (MMBtu)

Sources:

U.S. Energy Information Administration (EIA). May 2017. "Frequently Asked Questions: What are Ccf, Mcf, Btu, and therms? How do I convert natural gas prices in dollars per Ccf or Mcf to dollars per Btu or therm?" https://www.eia.gov/tools/faqs/faq.php?id=45&t=8. (accessed February 5, 2018).

Schremp, Gordon. 2017. Senior Fuels Specialist, California Energy Commission. Personal communication via phone and email regarding fuel consumption in California by County and by source with Lance Park, Associate Planner, Rincon Consultants, Inc. August 22, 2017.

Attachment 5

Tentative Tract 6267 Traffic Impact Analysis prepared by JLB Traffic Engineering, Inc. dated February 15, 2019

Draft Traffic Impact Analysis

Fino Estates

Located on the Northeast Quadrant of Frankwood Avenue and Parlier Avenue

In the City of Reedley, California

Prepared for:

Fino Estates
22403 Huntsman Avenue
Dinuba, CA 93618

February 15, 2019

Project No. 014-005

JLB Traffic Engineering, Inc.

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JLB Traffic Engineering, Inc.

Traffic Engineering, Transportation Planning, & Parking Solutions

Draft Traffic Impact Analysis

For Fino Estates Located on the Northeast Quadrant of Frankwood Avenue and Parlier Avenue

In the City of Reedley, CA

February 15, 2019

This Draft Traffic Impact Analysis Report has been prepared under the direction of a licensed Traffic Engineer. The licensed Traffic Engineer attests to the technical information contained therein, and has judged the qualifications of any technical specialists providing engineering data from which recommendations, conclusions, and decisions are based.

Prepared by:

____

Jose Luis Benavides, PE, TE

President

REGISTERED PROFESSIONAL ENGINEER
JOSE LUIS BENAVIDES
No.T 2328
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Introduction and Summary

Introduction

This report describes a Traffic Impact Analysis (TIA) prepared by JLB Traffic Engineering, Inc. (JLB) for the proposed Fino Estates (Project) located in the City of Reedley. The proposed Project will construct 34 single-family residential units and up to 91 multi-family residential units on a 13.51-acre site located on the northeast quadrant of Frankwood Avenue and Parlier Avenue. Based on information provided to JLB, the Project is consistent with the City of Reedley 2030 General Plan. Figure 1 shows the location of the proposed Project site relative to the surrounding roadway network.

The purpose of this TIA is to evaluate the potential traffic impacts, identify short-term roadway and circulation needs, determine potential mitigation measures and identify any critical traffic issues that should be addressed in the on-going planning process. The study primarily focused on evaluating traffic conditions at study intersections and segments that may potentially be impacted by the proposed Project. The scope of work was prepared via consultation with City of Reedley, County of Fresno and Caltrans staff.

Summary

The potential traffic impacts of the proposed project were evaluated in accordance with the standards set forth by the level of service (LOS) policies of the City of Reedley.

Existing Traffic Conditions

- At present, all study intersections operate at an acceptable LOS during both peak periods.

Near Term No Project Traffic Conditions

- Near Term Projects are estimated to generate 20,171 daily trips, 1,936 AM peak hour trips and 2,022 PM peak hour trips.
- Under this scenario, the intersections of Reed Avenue and South Avenue, Reed Avenue and Parlier Avenue and Frankwood Avenue and Manning Avenue are projected to operate at an unacceptable LOS during one or both peak periods. To improve the LOS of these intersections, it is recommended that various measures, such as the modification of traffic control mechanisms and addition of lanes, be implemented. Additional details as to the recommended lane geometrics and traffic controls for these intersections under this scenario are presented later in this report.

Near Term plus Project Traffic Conditions

- A review of the Project driveways to be constructed indicates that the new access point is located at a point that minimizes traffic operational impacts to the existing roadway network which include but are not limited to Frankwood Avenue and Parlier Avenue.
- At buildout, the proposed Project is estimated to generate a maximum of 987 daily trips, 67 AM peak hour trips and 85 PM peak hour trips.
- It is recommended that the Project implement Class II bike lanes along its frontage to Frankwood Avenue.

- Under this scenario, the intersections of Reed Avenue and South Avenue, Reed Avenue and Parlier Avenue and Frankwood Avenue and Manning Avenue are projected to operate at an unacceptable LOS during one or both peak periods. To improve the LOS of these intersections, it is recommended that various measures, such as the modification of traffic control mechanisms and addition of lanes, be implemented. Additional details as to the recommended lane geometrics and traffic controls for these intersections under this scenario are presented later in this report.

Cumulative Year 2040 plus Project Traffic Conditions

- Under this scenario, the intersections of Reed Avenue and South Avenue, Reed Avenue and Parlier Avenue and Frankwood Avenue and Manning Avenue are projected to operate at an unacceptable LOS during both peak periods. To improve the LOS of these intersections, it is recommended that various measures, such as the modification of traffic control mechanisms and addition of lanes, be implemented. Additional details as to the recommended lane geometrics and traffic controls for these intersections under this scenario are presented later in this report.

Queuing Analysis

- It is recommended that the City of Reedley consider left-turn and right-turn storage lengths as indicated in the Queuing Analysis.

Project's Equitable Fair Share

- It is recommended that the Project contribute its equitable Fair Share as presented in Table VIII.

TIA Scope of Work

The study focused on evaluating traffic conditions at study intersections that may potentially be impacted by the proposed Project. On October 31, 2018, a Draft Scope of Work for the preparation of a TIA for this Project was provided to the City of Reedley, County of Fresno and Caltrans for their review and comment. Any comments to the proposed Scope of Work were to be provided by November 21, 2018.

On Thursday, November 1, 2018, Caltrans responded and approved the Draft Scope of Work as presented. Similarly, on Monday, November 19, 2018, the City of Reedley responded and approved the Draft Scope of Work as presented. JLB followed up with the County of Fresno via phone and email on a few occasions and received no response on the Draft Scope of Work. Therefore, it was assumed that the Draft Scope of Work was acceptable to the County of Fresno as they did not provide comments.

The Draft Scope of Work and comments received from the lead agency and responsible agencies are contained in Appendix A.

Study Facilities

The existing intersection turning movement volume counts were conducted at the study intersections in September 2017, November 2017, September 2018 and November 2018 while schools in the vicinity of the proposed Project were in session. The intersection turning movement volume counts included pedestrian volumes. The traffic counts for the existing study intersections are contained in Appendix B. The existing turning movement volumes, intersection geometrics and traffic controls are illustrated in Figure 2.

Intersections

1. Reed Avenue / South Avenue
2. Frankwood Avenue / South Avenue
3. Reed Avenue / Parlier Avenue
4. Frankwood Avenue / Parlier Avenue
5. Frankwood Avenue / Cypress Avenue
6. Frankwood Avenue / Manning Avenue

Study Scenarios

Existing Traffic Conditions

This scenario evaluates the Existing Traffic Conditions based on existing traffic volumes and roadway conditions from traffic counts and field surveys conducted in late 2017 and late 2018.

Near Term No Project Traffic Conditions

This scenario evaluates total traffic volumes and roadway conditions based on the Near Term No Project Traffic Conditions. This scenario assumes that all Near Term Projects all fully built. The Near Term No Project traffic volumes were obtained by adding the Near Term related trips to the Existing Traffic Conditions scenario.

Near Term plus Project Traffic Conditions

This scenario evaluates total traffic volumes and roadway conditions based on the Near Term plus Project Traffic Conditions. The Near Term plus Project traffic volumes were obtained by adding the Project Only Trips to the Near Term No Project Traffic Conditions scenario. The Project Only Trips to the study intersections were developed based on existing travel patterns, the Fresno COG Project Select Zone, the existing roadway network, engineering judgement, existing residential and commercial densities and the City of Reedley 2030 General Plan Circulation Element in the vicinity of the Project. The Fresno COG Models for the Project Select Zone are contained in Appendix C.

Cumulative Year 2040 plus Project Traffic Conditions

This scenario evaluates total traffic volumes and roadway conditions based on the Cumulative Year 2040 plus Project Traffic Conditions. As the Fresno COG regional model for 2040 still needs some work, JLB utilized the Base Year 2018 and the Cumulative Year 2035 Fresno COG modeling to determine the increment in traffic volumes. Furthermore, JLB utilized the Base Year 2018 and Cumulative Year 2035 volumes along Frankwood Avenue adjacent to the proposed Project site to determine the annual growth rate of 2.7 percent. This growth rate was used to expand the increment volumes by five (5) years to arrive at the Cumulative Year 2040 plus Project traffic volumes. The Fresno COG traffic model runs are contained in Appendix C.

Level of Service Analysis Methodology

Level of Service (LOS) is a qualitative index of the performance of an element of the transportation system. LOS is a rating scale running from “A” to “F”, with “A” indicating no congestion of any kind and “F” indicating unacceptable congestion and delays. LOS in this study describes the operating conditions for signalized and unsignalized intersections.

The *Highway Capacity Manual* (HCM) 6th Edition is the standard reference published by the Transportation Research Board and contains the specific criteria and methods to be used in assessing LOS. U-turn movements were analyzed using HCM 2000 methodologies and would yield more accurate results for the reason that HCM 6th Edition methodologies do not allow the analysis of U-turns. Synchro software was used to define LOS in this study. Details regarding these calculations are included in Appendix D.

Criteria of Significance

The City of Reedley 2030 General Plan has established LOS C as the acceptable level of traffic congestion on most major streets. Therefore, the LOS C threshold was utilized to evaluate the potential significance of LOS impacts to City of Reedley roadway facilities.

The County of Fresno has established LOS C as the acceptable level of traffic congestion on county roads and streets that fall entirely outside the Sphere of Influence (SOI) of a City. For those areas that fall within the SOI of a City, the LOS criteria of the City are the criteria of significance used in this report. LOS C is used to evaluate the potential significance of LOS impacts to Fresno County intersections and segments that fall outside the City of Reedley SOI. In this case, all study intersections and segments fall within the City of Reedley SOI. Therefore, the City of Reedley LOS thresholds was utilized.

Caltrans endeavors to maintain a target LOS at the transition between LOS C and D on State highway facilities consistent with the Caltrans Guide for the Preparation of Traffic Impact Studies dated December 2002. However, Caltrans acknowledges that this may not always be feasible and recommends that the lead agency consult with Caltrans to determine the appropriate target LOS. In this TIA however, all study facilities fall within the City of Reedley. Therefore, the City of Reedley LOS thresholds were utilized.

Operational Analysis Assumptions and Defaults

The following operational analysis values, assumptions and defaults were used in this study to ensure a consistent analysis of LOS among the various scenarios.

- Yellow time consistent with the California Manual on Uniform Traffic Control Devices (CA MUTCD) based on approach speeds
- All-red clearance intervals of 1.0 second for all phases
- Walk intervals of 7.0 seconds
- Flashing Don’t Walk based on 3.5 feet/second walking speed with yellow plus all-red clearance subtracted and 2.0 seconds added
- All new or modified signals utilize protective left-turn phasing
- A 3 % heavy vehicle factor on Reed Avenue, South Avenue, Frankwood Avenue and Manning Avenue
- An average of 3 pedestrian calls per hour at signalized intersections
- At existing intersections, the observed Peak Hour Factor (PHF) is utilized in the Existing, Near Term No Project and Near Term plus Project Traffic Conditions scenarios
- For the Cumulative Year 2040 scenario, the following PHFs were utilized to reflect school traffic operations and an increase in future traffic volumes. As roadways start to reach their saturated flow rates, PHFs tend to increase to 0.90 or higher. The PHFs were established based on historical traffic counts collected by JLB for intersections in proximity of school sites.
    - For the intersections of Frankwood Avenue and Parlier Avenue, Frankwood Avenue and Cypress Avenue and Frankwood Avenue and Manning Avenue, the following PHFs were utilized;
        - A PHF of 0.86, or the existing PHF if higher, is utilized during the AM peak.
        - A PHF of 0.90, or the existing PHF if higher, is utilized during the PM peak.
    - A PHF of 0.92, or the existing PHF if higher, is utilized for all other intersections.

Existing Traffic Conditions

Roadway Network

The Project site and surrounding study area are illustrated in Figure 1. Important roadways serving the Project site are discussed below.

Reed Avenue is an existing north-south two-lane roadway in the vicinity of the proposed Project site. In this area, Reed Avenue is a two-lane undivided major arterial between South Avenue and Kip Patrick Drive, a two-lane major arterial divided by a two-way left-turn lane between Kip Patrick Drive and Manning Avenue, a two- to three-lane arterial between Manning Avenue and I Street, a two-lane undivided collector between I Street and 11th Street, a two-lane undivided arterial between 11th Street and Olson Avenue, and a four-lane undivided arterial between Olson Avenue and the Lilac Avenue alignment. The City of Reedley 2030 General Plan Circulation Element designates Reed Avenue as a four-lane major arterial from a point south of Adams Avenue to Manning Avenue, an arterial between Manning Avenue and I Street, a four-lane collector between I Street and 11th Street, and a four-lane arterial between 11th Street and Floral Avenue through the City of Reedley SOI.

South Avenue is an existing east-west two-lane undivided roadway in the vicinity of the proposed Project site. In this area, South Avenue is a two-lane undivided major arterial between Reed Avenue and Columbia Avenue. The City of Reedley 2030 General Plan Circulation Element designates South Avenue as a four-lane major arterial between Reed Avenue and Buttonwillow Avenue and a four-lane arterial between Buttonwillow Avenue and Englehart Avenue through the City of Reedley SOI.

Frankwood Avenue is an existing north-south two-lane roadway adjacent to the proposed Project site. In this area, Frankwood Avenue is a two-lane arterial between South Avenue and approximately 1,000 feet north of Parlier Avenue, a two-lane arterial divided by a two-way left-turn lane between approximately 1,000 feet north of Parlier Avenue and Parlier Avenue, a two-lane divided arterial between Parlier Avenue and Manning Avenue, a two-lane collector between Manning Avenue and approximately 300 feet south of North Avenue, and a two-lane undivided arterial between I Street and Curtis Avenue, a two-lane divided arterial between Curtis Avenue and Davis Avenue, and a two-lane undivided arterial between Davis Avenue and Lilac Avenue. The City of Reedley 2030 General Plan Circulation Element designates Frankwood Avenue as a four-lane arterial from a point south of Adams Avenue to Manning Avenue, a two-lane collector between Manning Avenue and approximately 300 feet south of North Avenue, and a four-lane arterial between I Street and Floral Avenue through the City of Reedley SOI.

Parlier Avenue is an existing east-west two-lane undivided collector in the vicinity of the proposed Project site. In this area, Parlier Avenue is a two-lane undivided collector between Reed Avenue and Frankwood Avenue, a two-lane collector divided by a two-way left-turn lane between Frankwood Avenue and Thompson Avenue, and a two-lane undivided collector between Thompson Avenue and Buttonwillow Avenue. Truck traffic is prohibited on Parlier Avenue through the City of Reedley SOI. The City of Reedley 2030 General Plan Circulation Element designates Parlier Avenue as two-lane collector east of Reed Avenue through the City of Reedley SOI.

Cypress Avenue is an existing east-west two-lane undivided local roadway in the vicinity of the proposed Project site. In this area, Cypress Avenue exists between Hollywood Drive and Steven Avenue. The City of Reedley 2030 General Plan Circulation Element designates Cypress Avenue as a local street between Hollywood Avenue and Steven Avenue.

Manning Avenue is an existing east-west two-lane roadway divided by at two-way left-turn lane in the vicinity of the proposed Project site. In this area, Manning Avenue is a four-lane divided major arterial between Lac Jac Avenue and I Street, a four-lane divided arterial between I Street and Reed Avenue, a predominantly two-lane major arterial divided by a two-way left-turn lane between Reed Avenue and Buttonwillow Avenue, and a two-lane undivided major arterial east Buttonwillow Avenue. The City of Reedley 2030 General Plan Circulation Element designates Manning Avenue as a four-lane major arterial through the City of Reedley SOI.

Traffic Signal Warrants

Peak hour traffic signal warrants, as appropriate, were prepared for the Existing Traffic Conditions scenario. These warrants are found in Appendix I. The effects of right-turning traffic from the minor approach onto the major approach were taken into account using engineering judgment pursuant to the CA MUTCD guidelines for the preparation of traffic signal warrants. Under this scenario, none of the unsignalized intersections satisfy the peak hour signal warrant.

Results of Existing Level of Service Analysis

Figure 2 illustrates the Existing turning movement volumes, intersection geometrics and traffic controls. LOS worksheets for the Existing Traffic Conditions scenario are provided in Appendix E. Table I presents a summary of the Existing peak hour LOS at the study intersections.

At present, all study intersections operate at an acceptable LOS during both peak periods.

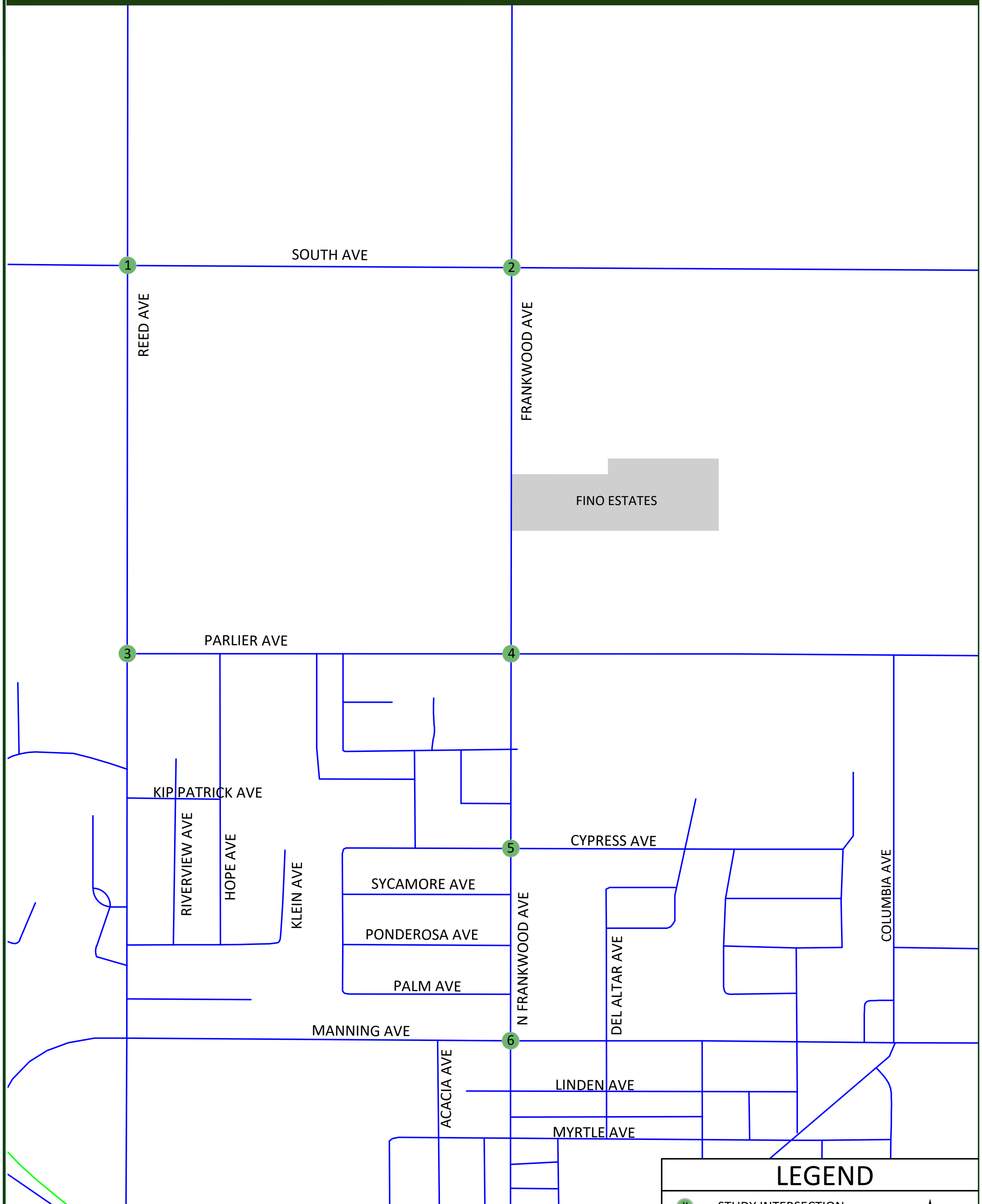
Table I: Existing Intersection LOS Results

ID	Intersection	Intersection Control	(7-9) AM Peak Hour		(4-6) PM Peak Hour	
			Average Delay (sec/veh)	LOS	Average Delay (sec/veh)	LOS
1	Reed Avenue / South Avenue	One-Way Stop	19.0	C	15.7	C
2	Frankwood Avenue / South Avenue	All-Way Stop	9.8	A	8.6	A
3	Reed Avenue / Parlier Avenue	One-Way Stop	23.0	C	19.8	C
4	Frankwood Avenue / Parlier Avenue	All-Way Stop	16.4	C	11.6	B
5	Frankwood Avenue / Cypress Avenue	All-Way Stop	17.1	C	12.0	B
6	Frankwood Avenue / Manning Avenue	Signalized	34.8	C	29.7	C

Note: LOS = Level of Service based on average delay on signalized intersections and All-Way STOP Controls
LOS for two-way and one-way STOP controlled intersections are based on the worst approach/movement of the minor street.

Fino Estates - City of Reedley
Vicinity Map

Figure 1



LEGEND

= STUDY INTERSECTION

Not To Scale

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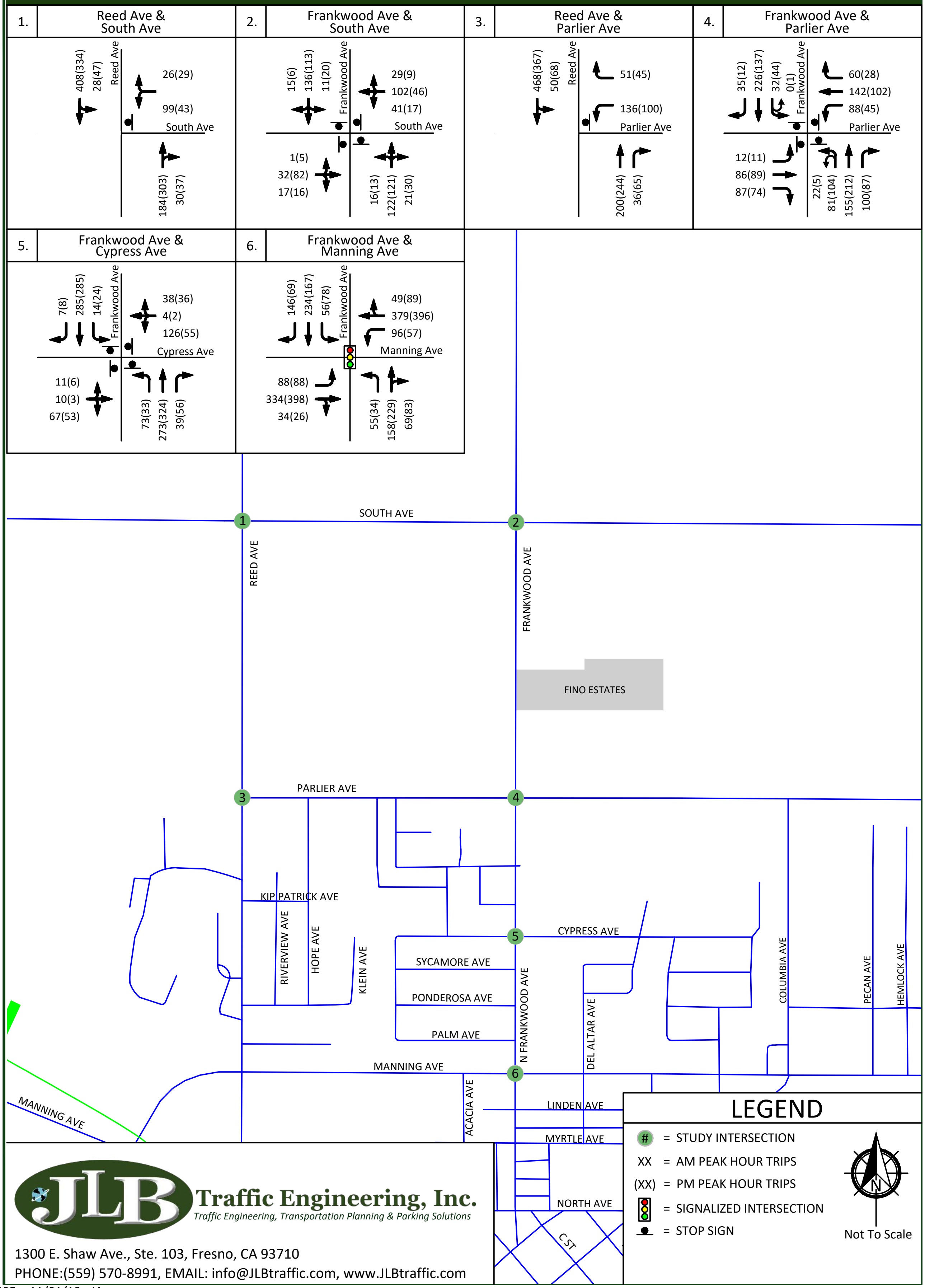
Fino Estates - City of Reedley
Existing - Traffic Volumes, Geometrics and Controls

Figure 2



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014-005 - 11/01/18 - JA

Near Term No Project Traffic Conditions

Description of Approved and Pipeline Projects

Approved and pipeline projects consist of developments that are either under construction, built but not fully occupied, are not built but have final site development review approval, or for which the lead agency or responsible agencies have knowledge of. JLB conducted a site reconnaissance of the surrounding area to confirm the Near Term Projects. Subsequently, it was agreed that the Near Term Projects listed in Table II were approved, near approval, or in the pipeline within the proximity of the Project site.

Table II lists the trips that are anticipated to be added to the streets and highways from Near Term Projects. At buildout, the Near Term Projects are estimated to generate 20,171 daily trips, 1,936 AM peak hour trips and 2,022 PM peak hour trips. Figure 3 illustrates the location of the approved, near approval, or pipeline projects and their combined trip assignment to the study intersections under this scenario.

Table II: Near Term Projects' Trip Generation

Approved Project Location	*Approved or Pipeline Project Name*	*Daily Trips*	*AM Peak Hour*	*PM Peak Hour*
A	TT 5263[1]	151	12	16
B	TT 6206[1]	425	33	45
C	TT 6178[1]	2,649	142	273
D	TT 6196[2]	1,520	119	159
E	TT 6229[2]	1,756	138	184
F	El Valle Apartments[1]	146	9	11
G	Kings River Village[3]	8,789	409	587
H	Reedley Family Apartments[1]	234	15	18
I	SRHS & SRES[2]	3,561	978	638
J	United Health Centers Medical Clinic[1]	661	53	66
K	Trailside Terrace[1]	279	18	25
Total Approved and Pipeline Project Trips		**20,171**	**1,926**	**2,022**

Note: 1 = Trip Generation prepared by JLB Traffic Engineering, Inc. based on readily available information
2 = Trip Generation based on JLB Traffic Engineering, Inc. Traffic Impact Analysis
3 = Trip Generation based on 4-Creeks Traffic Impact Study

Traffic Signal Warrants

Peak hour traffic signal warrants, as appropriate, were prepared for the Near Term No Project Traffic Conditions scenario. These warrants are found in Appendix I. The effects of right-turning traffic from the minor approach onto the major approach were taken into account using engineering judgment pursuant to CA MUTCD guidelines for the preparation of traffic signal warrants. Under this scenario, the intersection of Reed Avenue and South Avenue is projected to satisfy the peak hour signal warrant during the AM peak period only. Based on the signal warrant and engineering judgement, signalization of this intersection is not recommended. It is worth noting that the CA MUTCD states "satisfaction of a signal warrant or warrants shall not in itself require the installation of a traffic signal." Therefore, it is recommended that prior to the installation of a traffic signal, investigation of CA MUTCD warrants 4 and 7, as applicable, be conducted for this intersection.

Results of Near Term No Project Level of Service Analysis

The Near Term No Project Traffic Conditions scenario assumes that existing roadway geometrics and traffic controls will remain in place. Figure 4 illustrates the Near Term No Project turning movement volumes, intersection geometrics and traffic controls. LOS worksheets for the Near Term No Project Traffic Conditions scenario are provided in Appendix F. Table III presents a summary of the Near Term No Project peak hour LOS at the study intersections.

Under this scenario, the intersections of Reed Avenue and South Avenue, Reed Avenue and Parlier Avenue and Frankwood Avenue and Manning Avenue are projected to operate at an unacceptable LOS during one or both peak periods. To improve the LOS of these intersections, it is recommended that the following improvements be considered for implementation by the City on a project by project assessment as cumulative impacts develop.

- Reed Avenue / South Avenue
  - Implement an all-way stop control.
- Reed Avenue / Parlier Avenue
  - Add a southbound through lane with a receiving lane south of Parlier Avenue.
- Frankwood Avenue / Manning Avenue
  - Modify the eastbound through-right lane to a through lane;
  - Add an eastbound right-turn lane;
  - Modify the westbound through-right lane to a through lane; and
  - Add a westbound right-turn lane.

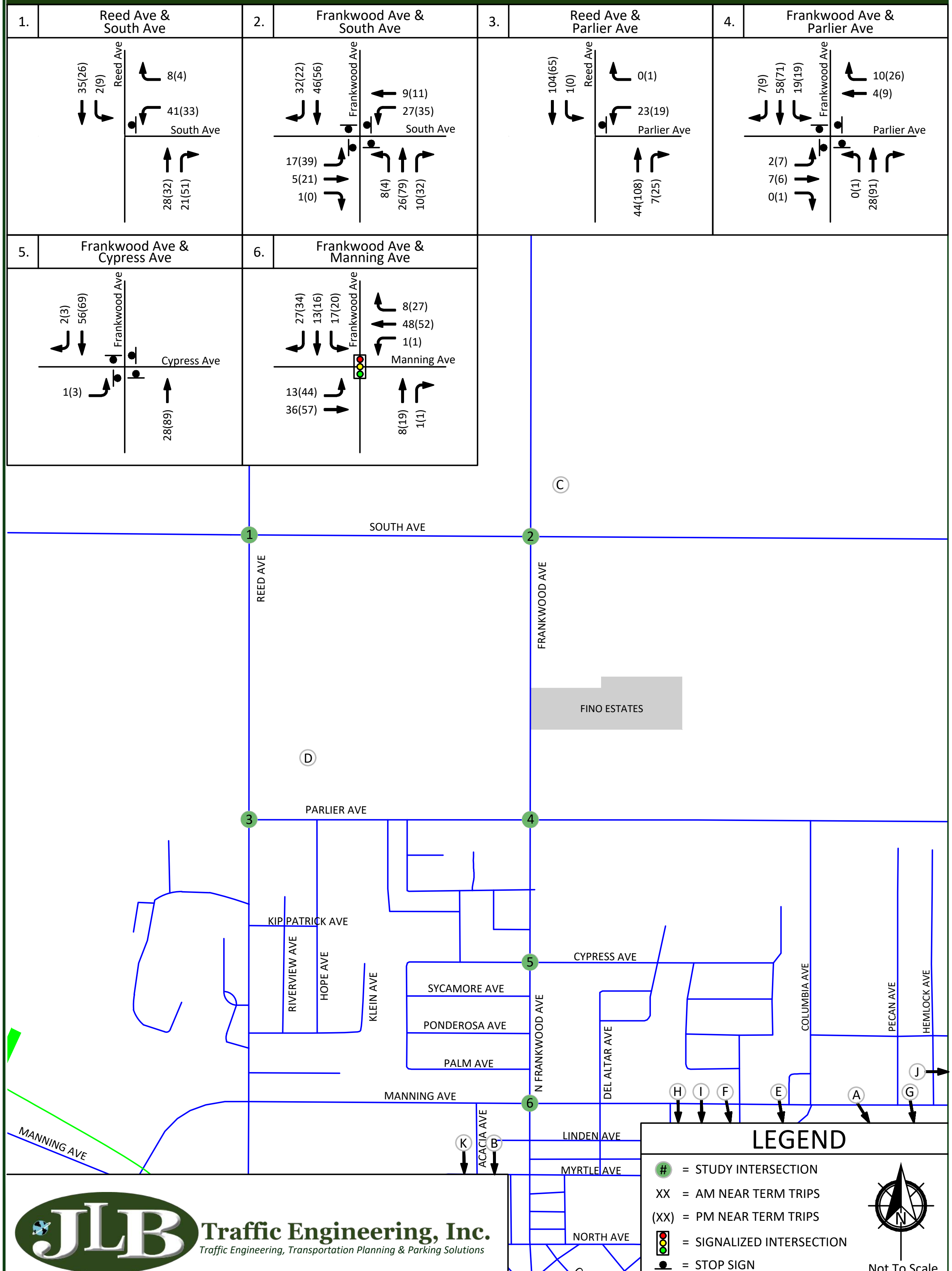
Table III: Near Term No Project Intersection LOS Results

ID	*Intersection*	*Intersection Control*	*(7-9) AM Peak Hour*		*(4-6) PM Peak Hour*	
			Average Delay (sec/veh)	*LOS*	*Average Delay (sec/veh)*	*LOS*
1	Reed Avenue / South Avenue	One-Way Stop	**28.2**	**D**	21.7	C
		All-Way Stop (Improved)	17.9	C	14.4	B
2	Frankwood Avenue / South Avenue	All-Way Stop	12.1	B	10.9	B
3	Reed Avenue / Parlier Avenue	One-Way Stop	**42.7**	**E**	**34.2**	**D**
		All-Way Stop (Improved)	16.2	C	15.5	C
4	Frankwood Avenue / Parlier Avenue	All-Way Stop	23.3	C	15.3	C
5	Frankwood Avenue / Cypress Avenue	All-Way Stop	22.2	C	15.4	C
6	Frankwood Avenue / Manning Avenue	Signalized	**43.6**	**D**	**38.6**	**D**
		Signalized (Improved)	35.0	C	29.7	C

Note: LOS = Level of Service based on average delay on signalized intersections and All-Way STOP Controls
LOS for two-way and one-way STOP controlled intersections are based on the worst approach/movement of the minor street.

Fino Estates - City of Reedley
Near Term Projects' Trip Assignment

Figure 3



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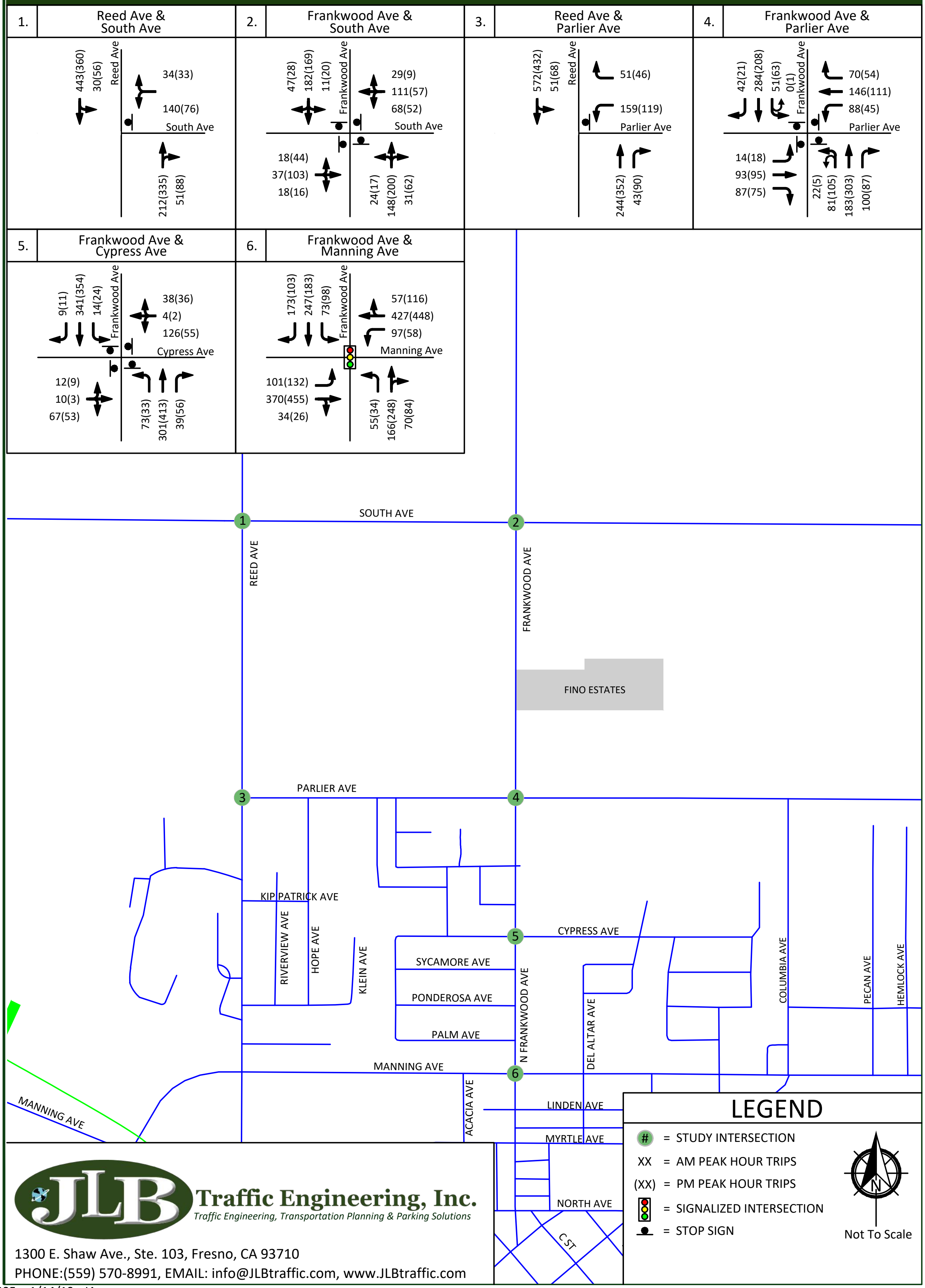
Fino Estates - City of Reedley

Near Term No Project - Traffic Volumes, Geometrics and Controls

Figure 4



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Near Term plus Project Traffic Conditions

Project Description

The proposed Project will construct 34 single-family residential units and up to 91 multi-family residential units on a 13.51-acre site located on the northeast quadrant of Frankwood Avenue and Parlier Avenue. Based on information provided to JLB, the Project is consistent with the City of Reedley 2030 General Plan. Figure 5 illustrates the Project Site Plan.

Project Access

Based on the Project site plan, access to and from the Project site will be from a four (4) points. The Project proposes to add a full access point to the east side of Frankwood Avenue approximately 1,000 feet north of Parlier Avenue. The Project will also be accessible from East Avenue, Thompson Avenue, Sunny Lane and Concord Avenue.

JLB qualitatively analyzed the location of the proposed access points relative to the existing local roads and driveways in the Project's vicinity. A review of the Project driveways to be constructed indicates that the new access point is located at a point that minimizes traffic operational impacts to the existing roadway network which include but are not limited to Frankwood Avenue and Parlier Avenue.

Trip Generation

Trip generation rates for the proposed Project were obtained from the 10th Edition of the Trip Generation Manual published by the Institute of Transportation Engineers (ITE). Table IV presents the trip generation for the proposed Project with trip generation rates for Single-Family Detached Housing and Multi-Family Housing (Low-Rise). At buildout, the proposed Project is estimated to generate a maximum of 987 daily trips, 67 AM peak hour trips and 85 PM peak hour trips.

Table IV: Project Only Trip Generation

Land Use (ITE Code)	*Size*	*Unit*	*Daily*		*AM Peak Hour*						*PM Peak Hour*					
			Rate	*Total*	*Trip Rate*	*In*	*Out*	*In*	*Out*	*Total*	*Trip Rate*	*In*	*Out*	*In*	*Out*	*Total*
						%						*%*				
Single-Family Detached Housing (210)	34	d.u.	9.44	321	0.74	25	75	6	19	25	0.99	63	37	21	13	34
Multi-Family Housing (Low-Rise) (220)	91	d.u.	7.32	666	0.46	23	77	10	32	42	0.56	63	37	32	19	51
Total Project Trips				**987**				**16**	**51**	**67**				**53**	**32**	**85**

Note: d.u. = Dwelling Units

Trip Distribution

The Project Only Trips to the study intersections were developed based on existing travel patterns, the Fresno COG Project Select Zone, the existing roadway network, engineering judgement, existing residential and commercial densities, and the City of Reedley 2030 General Plan Circulation Element in the vicinity of the Project. Figure 6 illustrates the Project Only Trips to the study intersections under the Near Term plus Project Traffic Conditions scenario.

Bikeways

Currently, Class II bike lanes exist in the vicinity of the proposed Project site along Frankwood Avenue, Reed Avenue, Parlier Avenue and Manning Avenue. The City of Reedley 2010 Bicycle Transportation Plan recommends that Class II bike lanes be implemented along Parlier Avenue east of Reed Avenue and along Frankwood Avenue south of South Avenue. Furthermore, the City of Reedley 2010 Bicycle Transportation recommends that Regional Bikeways be implemented along Reed Avenue between South Avenue and Manning Avenue. Therefore, it is recommended that the Project implement Class II bike lanes along its frontage to Frankwood Avenue.

Transit

The City of Reedley's Community Services Department runs an advance reservation van and an on-call door-to-door van service. The twelve-passenger vans operate Monday through Friday between the hours of 7:30 AM to 4:30 PM. These vans provide service to City Hall, the Post Office, the Community Medical Center, Adventist Medical Center Hospital and other locations within a two-mile radius of Reedley. The vans are also used to transport children from house to school.

Fresno County Rural Transit Agency (FCRTA) provides transit services for those communities not served by FAX or Clovis Stageline. Within the City of Reedley, FCRTA has set up Reedley Transit to provide local in-city demand responsive services Monday through Friday from 7:00 AM to 4:30 PM and Saturdays from 8:00 AM to 4:30 PM. The FCRTA also has Dinuba Connection, Kingsburg-Reedley Inter-City Transit, Orange Cove Inter-City Transit and Sanger Express.

Dinuba Connection, also a Dinuba Area Regional Transit (DART) Route, runs in the vicinity of the Project site and operates at one-hour intervals on weekdays. The nearest transit stop is located at the Adventist Medical Center Hospital on Cypress Avenue west of Frankwood Avenue. This route provides a direct connection to the Reedley College, Palm Village, Adventist Medical Center, Walmart and the Department Motor Vehicles in the City of Reedley and the Dinuba Vocational Center and Dinuba Library in the City of Dinuba.

Kingsburg-Reedley Inter-City Transit provides scheduled round-trip service between Kingsburg, Selma, Fowler, and Parlier to Reedley College Monday through Friday from 7:00 AM to 4:35 PM.

Orange Cove Inter-City Transit provides scheduled round trip inter-city service through Orange Cove, Reedley, Parlier, Sanger and the Fresno-Clovis Metropolitan Area Monday through Friday from 7:00 AM to 5:28 PM. The stops within the City of Reedley are limited to the Reedley Shopping Center, the Reedley Community Center and the Reedley College. The stop at the Reedley Shopping Center is the closest to the Project.

Safe Routes to School

K through 12th grade students from the Project will be served by the Kings Canyon Unified School District. The Kings Canyon Unified School District provides transportation for students who live in excess of an established radius zone. The zone is a radius of 0.8 miles for grades K through 3rd, 1.0 mile for grades 4th through 5th and 2.5 miles for grades 6th through 12th.

Based on the attendance area boundaries at the time of the preparation of this TIA, elementary and middle school students would attend Thomas Law Reed Elementary School located on the northeast corner of Cypress Avenue and Frankwood Avenue. Thomas Law Reed Elementary School is located 0.30 and 0.50 miles from the nearest and farthest future home on the Project site. Therefore, it is anticipated that elementary and middle school students in Kindergarten through 8th grade will need to walk, bike or be driven to school.

The most direct path from the Project to the Thomas Law Reed Elementary School campus would begin from the westmost extension of the Project. Students may proceed to head south along the east side of Frankwood Avenue toward the intersection of Frankwood Avenue and Parlier Avenue. The intersection of Frankwood Avenue and Parlier Avenue is controlled by an all-way stop and contains marked crosswalks on all approaches. Students may proceed to cross Parlier Avenue along the east side of Frankwood Avenue and continue heading south until reaching a campus entrance. At present, concrete walkways exist along the entire stretch between the proposed Project site and the elementary school.

Based on the attendance area boundaries at the time of the preparation of this TIA, high school students would attend Reedley High School located on the northeast corner of Reed Avenue and North Avenue. Reedley High School is located approximately 0.94 and 1.14 miles from the nearest and farthest future home on the Project site. Therefore, it is anticipated that high school students will need to walk, bike or be driven to school.

The most direct path from the Project to the Reedley High School campus would begin from the westmost extension of the Project. Students may proceed to head south along the east side of Frankwood Avenue toward the intersection of Frankwood Avenue and Parlier Avenue. The intersection of Frankwood Avenue and Parlier Avenue is controlled by an all-way stop and contains marked crosswalks on all approaches. Students may proceed to cross Parlier Avenue along the east side of Frankwood Avenue and continue heading south toward the intersection of Frankwood Avenue and Cypress Avenue. The intersection of Frankwood Avenue and Cypress Avenue is controlled by an all-way stop and contains marked crosswalks on all approaches. Students may proceed to cross Cypress Avenue along the east side of Frankwood Avenue and continue heading south toward the intersection of Frankwood Avenue and Manning Avenue. The intersection of Frankwood Avenue and Manning Avenue is signalized and contains marked crosswalks on all approaches. Students may proceed to cross Manning Avenue along the east side of Frankwood Avenue and continue heading south toward the intersection of Frankwood Avenue and North Avenue. The intersection of Frankwood Avenue and North Avenue is controlled by an all-way stop and contains marked crosswalks on all approaches. Students may proceed to cross Frankwood Avenue along the north side of North Avenue and continue heading west until reaching a campus entrance. At present, concrete walkways exist along the entire stretch between the proposed Project site and the high school.

Traffic Signal Warrants

Peak hour traffic signal warrants, as appropriate, were prepared for the Near Term plus Project Traffic Conditions scenario. These warrants are found in Appendix I. The effects of right-turning traffic from the minor approach onto the major approach were taken into account using engineering judgment pursuant to CA MUTCD guidelines for the preparation of traffic signal warrants. Under this scenario, the intersection of Reed Avenue and South Avenue is projected to satisfy the peak hour signal warrant during the AM peak period only. Based on the signal warrant and engineering judgement, signalization of this intersection is not recommended. It is worth noting that the CA MUTCD states “satisfaction of a signal warrant or warrants shall not in itself require the installation of a traffic signal.” Therefore, it is recommended that prior to the installation of a traffic signal, investigation of CA MUTCD warrants 4 and 7, as applicable, be conducted for this intersection.

Results of Near Term plus Project Level of Service Analysis

The Near Term plus Project Traffic Conditions scenario assumes that existing roadway geometrics and traffic controls will remain in place. Figure 7 illustrates the Near Term plus Project turning movement volumes, intersection geometrics and traffic controls. LOS worksheets for the Near Term plus Project Traffic Conditions scenario are provided in Appendix G. Table V presents a summary of the Near Term plus Project peak hour LOS at the study intersections.

Under this scenario, the intersections of Reed Avenue and South Avenue, Reed Avenue and Parlier Avenue and Frankwood Avenue and Manning Avenue are projected to operate at an unacceptable LOS during one or both peak periods. To improve the LOS of these intersections, it is recommended that the following improvements be considered for implementation by the City on a project by project assessment as cumulative impacts develop.

- Reed Avenue / South Avenue
  - Implement an all-way stop control.
- Reed Avenue / Parlier Avenue
  - Add a southbound through lane with a receiving lane south of Parlier Avenue.
- Frankwood Avenue / Manning Avenue
  - Modify the eastbound through-right lane to a through lane;
  - Add an eastbound right-turn lane;
  - Modify the westbound through-right lane to a through lane; and
  - Add a westbound right-turn lane.

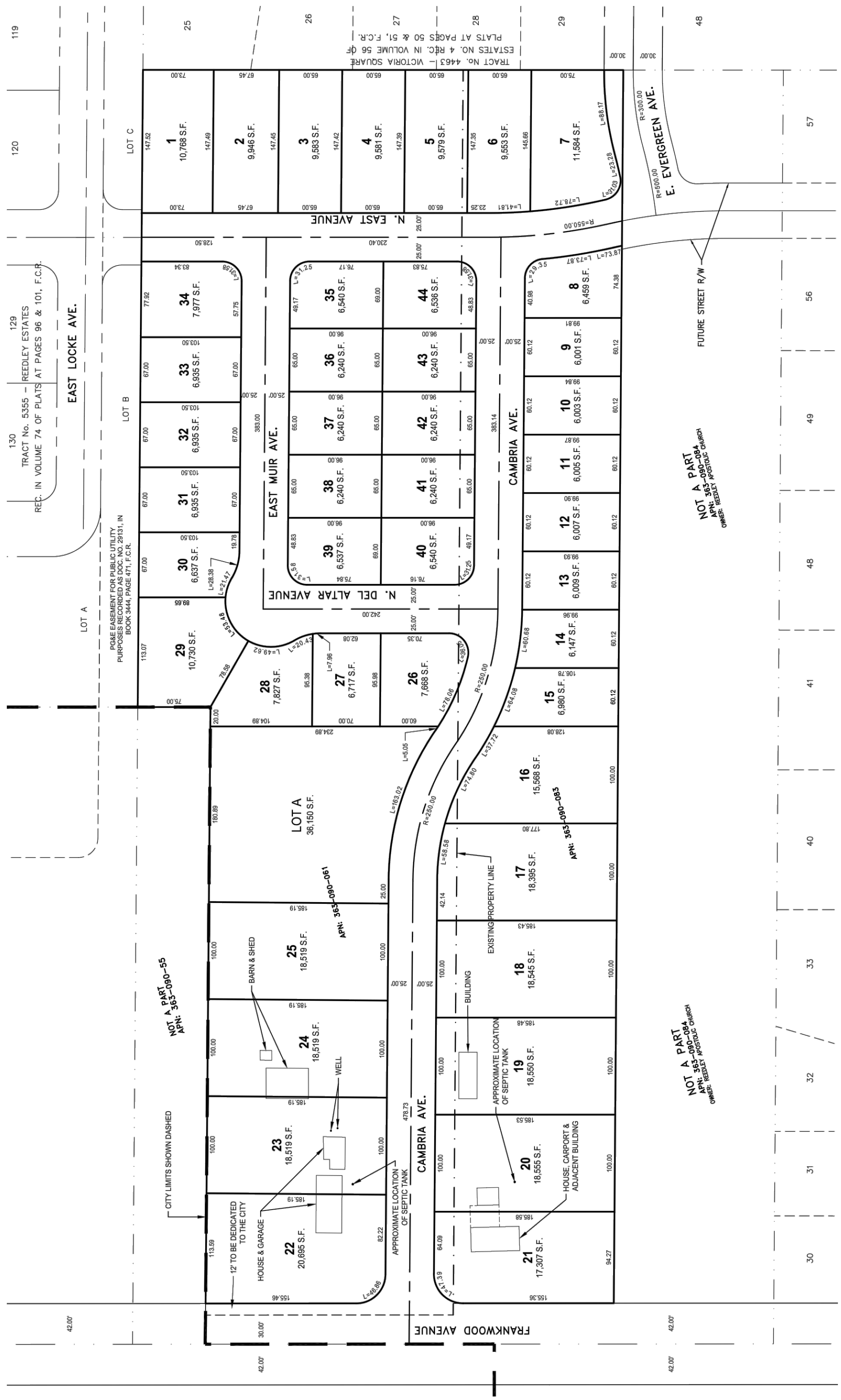
Table V: Near Term plus Project Intersection LOS Results

ID	Intersection	Intersection Control	(7-9) AM Peak Hour		(4-6) PM Peak Hour	
			Average Delay (sec/veh)	LOS	Average Delay (sec/veh)	LOS
1	Reed Avenue / South Avenue	One-Way Stop	**28.7**	**D**	22.7	C
		All-Way Stop (Mitigated)	18.5	C	14.9	B
2	Frankwood Avenue / South Avenue	All-Way Stop	12.3	B	11.1	B
3	Reed Avenue / Parlier Avenue	One-Way Stop	**54.5**	**F**	**38.6**	**E**
		All-Way Stop (Mitigated)	16.8	C	15.8	C
4	Frankwood Avenue / Parlier Avenue	All-Way Stop	24.2	C	15.9	C
5	Frankwood Avenue / Cypress Avenue	All-Way Stop	22.5	C	15.6	C
6	Frankwood Avenue / Manning Avenue	Signalized	**43.6**	**D**	**38.8**	**D**
		Signalized (Mitigated)	34.5	C	29.8	C

Note: LOS = Level of Service based on average delay on signalized intersections and All-Way STOP Controls
LOS for two-way and one-way STOP controlled intersections are based on the worst approach/movement of the minor street.

Fino Estates - City of Reedley
Project Site Plan

Figure 5



Not To Scale

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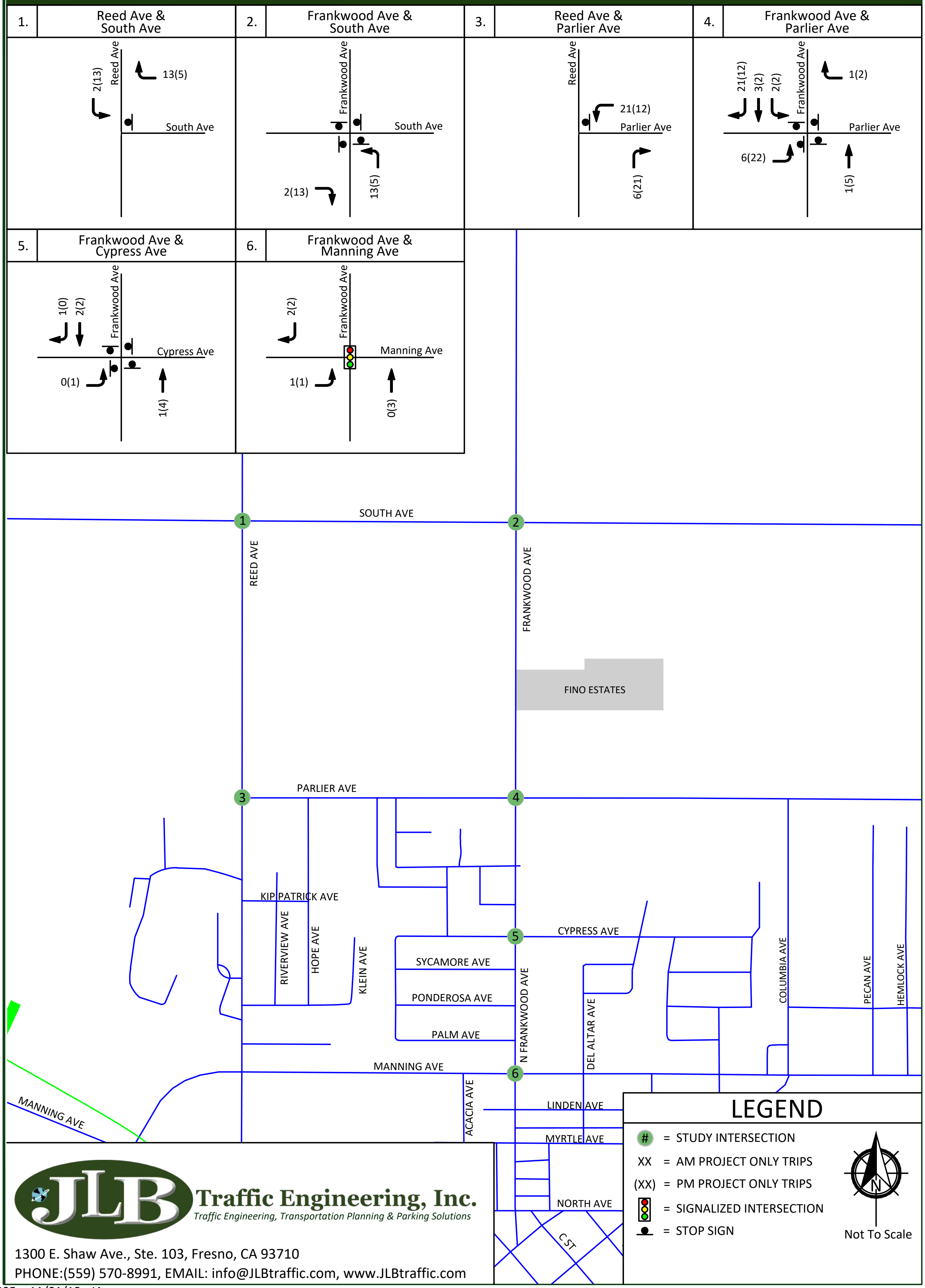
Fino Estates - City of Reedley
Project Only Trips

Figure 6



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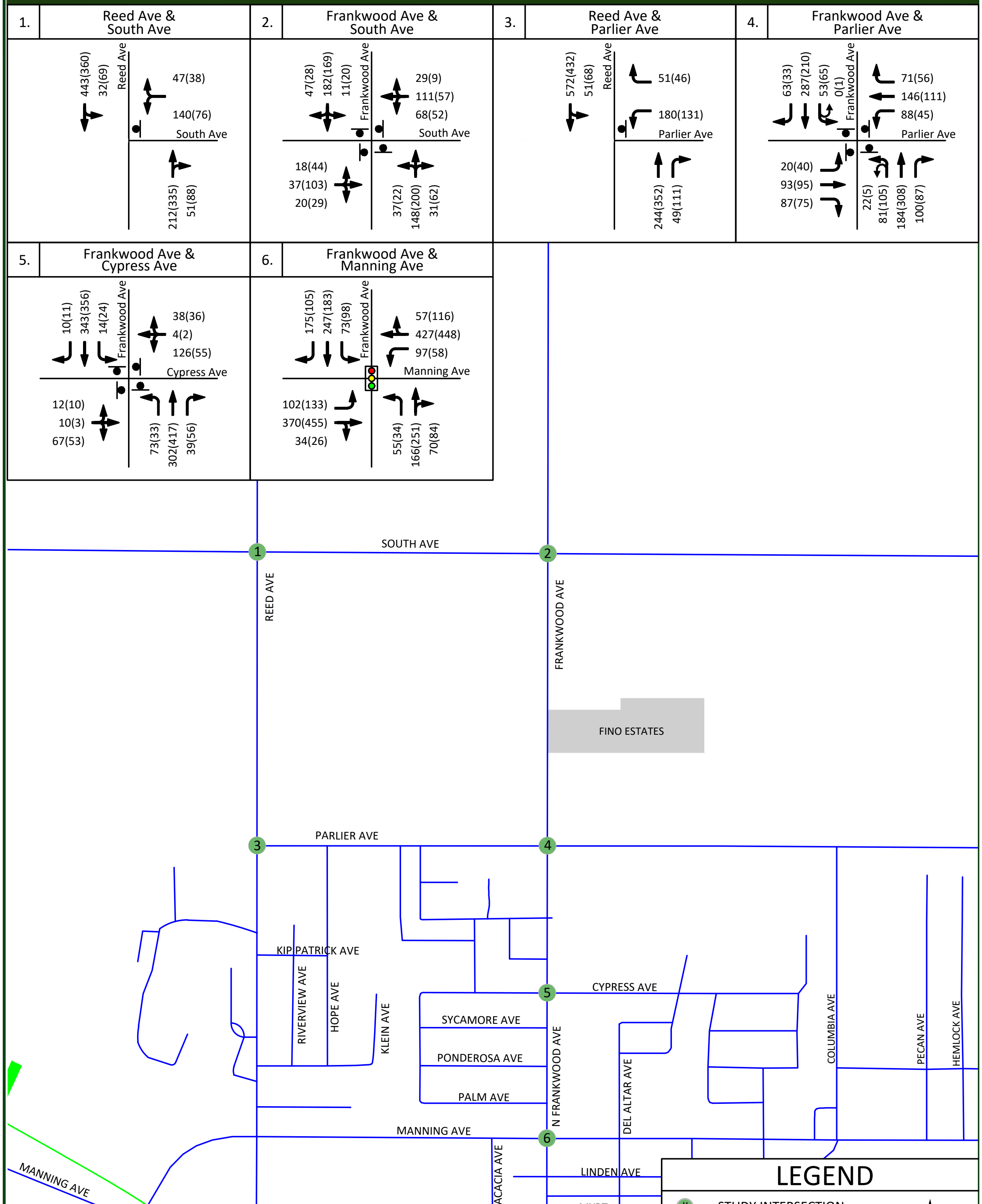
Fino Estates - City of Reedley
Near Term plus Project - Traffic Volumes, Geometrics and Controls

Figure 7



LEGEND

- # = STUDY INTERSECTION
- XX = AM PEAK HOUR TRIPS
- (XX) = PM PEAK HOUR TRIPS
- = SIGNALIZED INTERSECTION
- = STOP SIGN

N

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Cumulative Year 2040 plus Project Traffic Conditions

Traffic Signal Warrants

Peak hour traffic signal warrants, as appropriate, were prepared for the Cumulative Year 2040 plus Project Traffic Conditions scenario. These warrants are found in Appendix I. The effects of right-turning traffic from the minor approach onto the major approach were taken into account using engineering judgment pursuant to CA MUTCD guidelines for the preparation of traffic signal warrants. Under this scenario, the intersection of Frankwood Avenue and Parlier Avenue is projected to satisfy the peak hour signal warrant during the AM peak period only while the intersections of Reed Avenue and South Avenue, Frankwood Avenue and South Avenue and Reed Avenue and Parlier Avenue are projected to satisfy the peak hour signal warrant during both peak periods. Based on the signal warrants and engineering judgement, signalization of the intersections of Reed Avenue and South Avenue and Reed Avenue and Parlier Avenue is recommended. However, a roundabout at the intersection of Reed Avenue and Parlier Avenue is also projected to provide an acceptable LOS and thus both a roundabout and a traffic signal were analyzed under this scenario for this intersection. Furthermore, signalization of the intersections of Frankwood Avenue and South Avenue and Frankwood Avenue and Parlier Avenue is not recommended, especially since these intersections are projected to operate at an acceptable LOS during both peak periods. It is worth noting that the CA MUTCD states “satisfaction of a signal warrant or warrants shall not in itself require the installation of a traffic signal.” Therefore, it is recommended that prior to the installation of a traffic signal, investigation of CA MUTCD warrants 4 and 7, as applicable, be conducted for these intersections.

Results of Cumulative Year 2040 plus Project Level of Service Analysis

The Cumulative Year 2040 plus Project Traffic Conditions scenario assumes that existing roadway geometrics and traffic controls will remain in place. Figure 8 illustrates the Cumulative Year 2040 plus Project total turning movement volumes, intersection geometrics and traffic controls. LOS worksheets for the Cumulative Year 2040 plus Project Traffic Conditions scenario are provided in Appendix H. Table VI presents a summary of the Cumulative Year 2040 plus Project peak hour LOS at the study intersections.

Under this scenario, the intersections of Reed Avenue and South Avenue, Reed Avenue and Parlier Avenue and Frankwood Avenue and Manning Avenue are projected to operate at an unacceptable LOS during both peak periods. For the intersection of Reed Avenue and Parlier Avenue, two options for improvement were considered. Option A consists of installing a roundabout, while Option B consists of installing a traffic signal. As can be seen from Table VI, both options provide for an acceptable LOS at the intersection of Reed Avenue and Parlier Avenue. Option A would provide for a more aesthetic intersection, but would require obtaining considerably more right-of-way and construction funds when compared to Option B. Option B would be less costly, but would not be as eye-appealing when compared to Option A. In this specific case, JLB recommends the implementation of Option B (signalized intersection) for the reason that it provides lower delay during the AM peak. The recommended improvements for each option along with the recommended improvements to improve the LOS at the intersections projected to exceed their LOS threshold are described below. It is recommended that the following improvements be considered for implementation by the City on a project by project assessment as cumulative impacts develop.

- Reed Avenue / South Avenue
  - Modify the westbound left-right lane to a left-turn lane;
  - Add a westbound right-turn lane;
  - Add a southbound left-turn lane;
  - Modify the southbound left-through lane to a through lane;
  - Signalize the intersection with protective left-turn phasing on all approaches; and
  - Modify the intersection to accommodate the added lane.
- Reed Avenue / Parlier Avenue
  - Option A: Roundabout
    - Add a southbound left-turn lane;
    - Modify the southbound left-through lane to a through lane; and
    - Modify the intersection to accommodate a two-lane roundabout.
  - Option B: Traffic Signal
    - Add a southbound left-turn lane;
    - Modify the southbound left-through lane to a through lane;
    - Signalize the intersection with protective left-turn phasing on all approaches; and
    - Modify the intersection to accommodate the added lane.
- Frankwood Avenue / Manning Avenue
  - Modify the eastbound through-right-turn lane to a through lane;
  - Add a through-right lane and a receiving lane east of Frankwood Avenue;
  - Modify the westbound through-right lane to a through lane;
  - Add a westbound through-right lane with a receiving lane west of Frankwood Avenue;
  - Modify the traffic signal to accommodate the added lane geometrics.

While the City of Reedley is planning to construct Manning Avenue as a four-lane major arterial through the City's SOI, it is JLB's recommendation that the City reconsider its plan for Manning Avenue between Reed Avenue and Sunset Avenue and establish LOS D for this segment of Manning Avenue while retaining LOS C for the majority of its remaining major streets as part of its next general plan update. If the City established LOS D as the criteria of significance for Manning Avenue between Reed Avenue and Sunset Avenue, Manning Avenue could remain a two-lane major arterial divided by a two-way left-turn lane with 5- foot bike lanes and 8-foot on-street parking. By retaining the bike lanes and on-street parking, the City will provide its residents the opportunity to continue utilizing alternative modes of transportation, promote healthier environment as well as provide residents along this segment of Manning Avenue to utilize on-street parking. Therefore, if LOS D is used as the criteria of significance for this intersection, it is recommended that the following improvements be implemented.

- Frankwood Avenue / Manning Avenue
  - Modify the eastbound through-right lane to a through lane;
  - Add an eastbound right-turn lane;
  - Modify the westbound through-right lane to a through lane; and
  - Add a westbound right-turn lane.

Table VI: Cumulative Year 2040 plus Project Intersection LOS Results

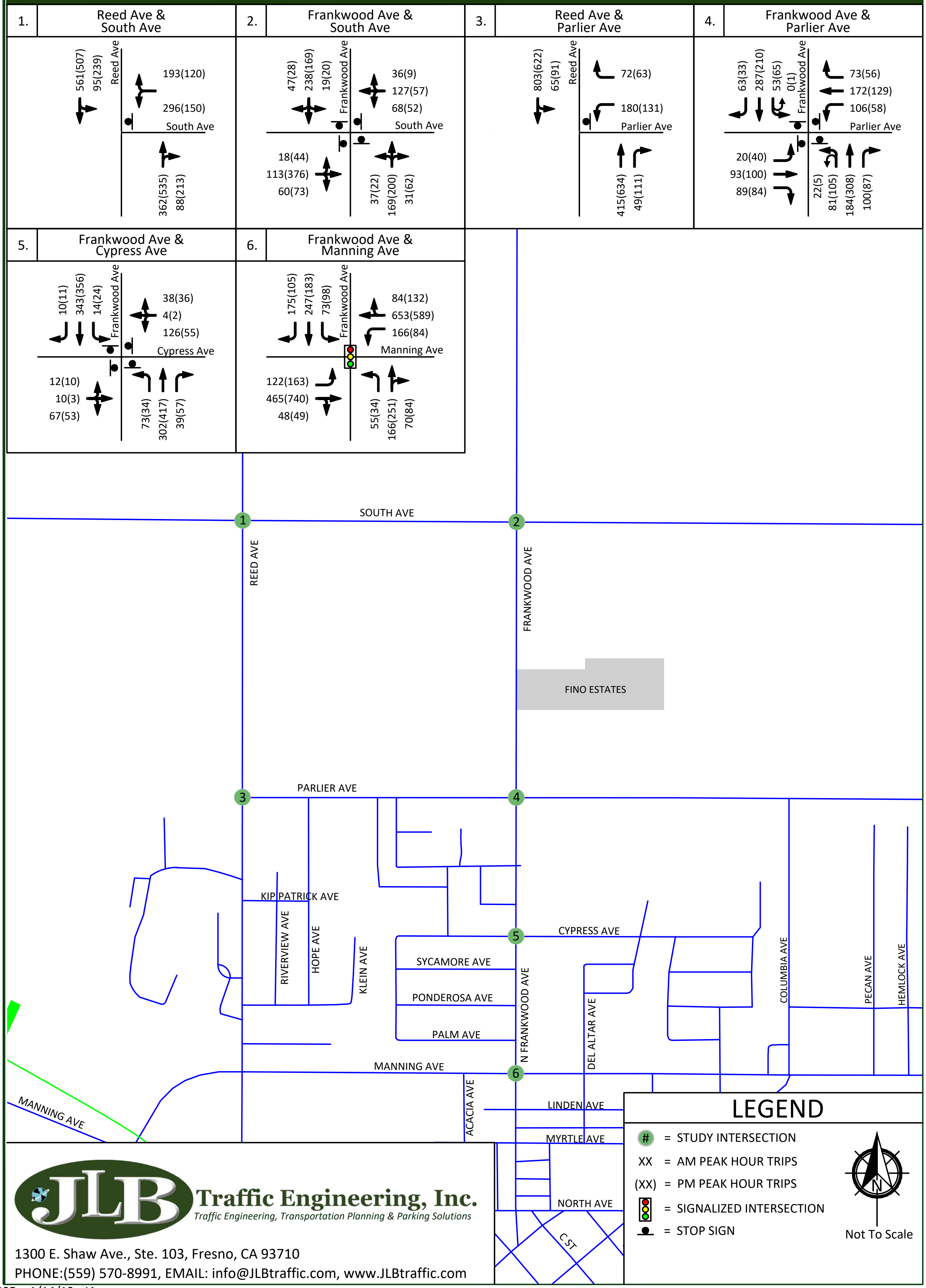
ID	Intersection	Intersection Control	(7-9) AM Peak Hour		(4-6) PM Peak Hour	
			Average Delay (sec/veh)	LOS	Average Delay (sec/veh)	LOS
1	Reed Avenue / South Avenue	One-Way Stop	**>120.0**	**F**	**>120.0**	**F**
		All-Way Stop (Mitigated)	16.0	B	27.8	C
2	Frankwood Avenue / South Avenue	All-Way Stop	14.0	B	24.1	C
3	Reed Avenue / Parlier Avenue	One-Way Stop	**>120.0**	**F**	**>120.0**	**F**
		Roundabout (Mitigated)	10.9	B	8.7	A
		Signalized (Mitigated)	9.8	A	9.9	A
4	Frankwood Avenue / Parlier Avenue	All-Way Stop	18.9	C	16.6	C
5	Frankwood Avenue / Cypress Avenue	All-Way Stop	18.6	C	15.6	C
6	Frankwood Avenue / Manning Avenue	Signalized	**48.8**	**D**	**57.1**	**E**
		Signalized (Mitigated)	26.9	C	30.5	C
		Signalized (LOS D)	38.1	D	46.3	D

Note: LOS = Level of Service based on average delay on signalized intersections and All-Way STOP Controls
LOS for two-way and one-way STOP controlled intersections are based on the worst approach/movement of the minor street.

Fino Estates - City of Reedley

Figure 8

Cumulative Year 2040 plus Project - Traffic Volumes, Geometrics and Controls



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Queuing Analysis

Table VII provides a queue length summary for left-turn and right-turn lanes at the study intersections under all study scenarios. The queuing analyses for the study intersections are contained in the LOS worksheets for the respective scenarios. Appendix D contains the methodologies used to evaluate these intersections.

Queuing analyses were completed using SimTraffic output information. Synchro provides both 50th and 95th percentile maximum queue lengths (in feet). According to the Synchro manual, "the 50th percentile maximum queue is the maximum back of queue on a typical cycle and the 95th percentile queue is the maximum back of queue with 95th percentile volumes." The queues shown on Table VII are the 95th percentile queue lengths for the respective lane movements.

The Highway Design Manual (HDM) provides guidance for determining deceleration lengths for the left-turn and right-turn lanes based on design speeds. Per the HDM criteria, "tapers for right-turn lanes are usually un-necessary since the main line traffic need not be shifted laterally to provide space for the right-turn lane. If, in some rare instances, a lateral shift were needed, the approach taper would use the same formula as for a left-turn lane." Therefore, a bay taper length pursuant to the Caltrans HDM would need to be added, as necessary, to the recommended storage lengths presented below.

Based on the Synchro output files and traffic engineering judgement, it is recommended that the storage capacity for the following be considered for the Cumulative Year 2040 plus Project Traffic Conditions. At the remaining approaches to the study intersections, the existing or planned storage capacity will be sufficient to accommodate the maximum queue.

- Reed Avenue / South Avenue
    - Consider setting the storage capacity of the westbound left-turn lane to 175 feet.
    - Consider setting the storage capacity of the westbound right-turn lane to 125 feet.
    - Consider setting the storage capacity of the southbound left-turn lane to 200 feet.
- Reed Avenue / Parlier Avenue
    - Consider setting the storage capacity of the southbound left-turn lane to 100 feet.
- Frankwood Avenue / Parlier Avenue
    - Consider increasing the storage capacity of the westbound left-turn lane to 75 feet. This can be accommodated by restriping only.

- Frankwood Avenue / Manning Avenue
  - Consider increasing the storage capacity of the eastbound left-turn lane to 200 feet. This can be accommodated by restriping only.
  - Consider increasing the storage capacity of the westbound left-turn lane to 175 feet. This can be accommodated by restriping only.
  - Consider increasing the storage capacity of the northbound left-turn lane to 150 feet. This can be accommodated by restriping only.
  - The existing storage capacity of the southbound left-turn lane is projected to exceed that available during the PM peak period under the Cumulative Year 2040 plus Project Traffic Conditions scenario. However, the storage capacity of this left-turn cannot be increased without reducing the storage capacity of the northbound left-turn lane at the intersection of Frankwood Avenue and Palm Avenue. Therefore, it is recommended that this movement be monitored.
  - Consider increasing the storage capacity of the southbound right-turn lane to 125 feet. This can be accommodated by restriping and prohibiting curbside parking for approximately 60 feet.

Table VII: Queuing Analysis

ID	Intersection	Existing Queue Storage Length (ft.)		Existing		Near Term No Project		Near Term plus Project		Cumulative Year 2040 plus Project	
				AM	PM	AM	PM	AM	PM	AM	PM
1	Reed Avenue / South Avenue	WB Left	*	*	*	*	*	*	*	163	148
		WB Right	*	*	*	*	*	*	*	94	102
		SB Left	*	*	*	*	*	*	*	95	191
3	Reed Avenue / Parlier Avenue	WB Left	>300	83	78	68	57	69	64	104	97
		WB Right	160	51	54	49	49	53	55	58	55
		NB Right	150	0	0	0	0	0	0	0	81
		SB Left	*	*	*	*	*	*	*	84	80
4	Frankwood Avenue / Parlier Avenue	EB Left	55	34	31	30	27	34	41	35	49
		EB Right	130	50	38	51	39	48	50	61	46
		WB Left	55	54	44	57	37	54	37	66	62
		WB Right	250	32	26	45	36	36	42	38	55
		NB Left	150	53	55	62	58	59	63	65	55
		NB Right	250	47	46	50	45	45	49	51	50
		SB Left	90	42	37	46	64	63	46	69	49
		SB Right	100	30	19	36	22	86	37	88	64
5	Frankwood Avenue / Cypress Avenue	NB Left	110	58	42	53	47	64	45	46	47
		NB Right	110	45	47	50	54	45	51	44	47
		SB Left	100	37	39	27	41	42	45	33	42
		SB Right	100	30	28	27	30	29	31	30	32
6	Frankwood Avenue / Manning Avenue	EB Left	100	159	158	150	166	121	186	161	162
		EB Right	*	*	*	21	26	35	17	*	*
		WB Left	100	157	142	170	92	158	147	165	130
		WB Right	*	*	*	140	234	192	152	*	*
		NB Left	85	86	74	120	128	111	70	99	132
		SB Left	115	72	88	87	142	108	118	88	136
		SB Right	60	131	76	119	84	156	106	110	119

Note: * = Does not exist or is not projected to exist

Project's Pro-Rata Fair Share of Future Transportation Improvements

The Project's equitable fair share percentage impacts to future improvements that are not fully funded by existing impact fee programs or grant funding are provided in Table VIII. The Project's equitable fair share percentage impacts were calculated pursuant to the Caltrans guidelines for the Preparation of Traffic Impact Studies. The Project's pro-rata fair shares were calculated utilizing the Existing volumes, Project Only Trips, and the Cumulative Year 2040 plus Project volumes. Figure 2 illustrates the Existing volumes, Figure 6 illustrates the Project Only Trips, and Figure 8 illustrates the Cumulative Year 2040 plus Project traffic volumes. Since the critical peak period for the study facilities was determined to be during the AM peak, the AM peak volumes are utilized to determine the Project's pro-rata fair share.

It is recommended that the Project contribute its equitable fair share as listed in Table VIII for the future improvements necessary to maintain an acceptable LOS or turn lane storage capacity. However, fair share contributions should only be made for those facilities, or portion thereof, currently not funded by the responsible agencies' roadway impact fee program(s) or grant funding, as appropriate. For those improvements not presently covered by local and regional roadway impact fee programs or grant funding, it is recommended that the Project contribute its equitable fair share. Payment of the Project's equitable fair share, in addition to the local and regional impact fee programs would satisfy the Project's traffic mitigation measures.

This study does not provide construction costs for the recommended mitigation measures; therefore, if the recommended mitigation measures are implemented, it is recommended that the developer work with the City of Reedley, and/or responsible agency, to develop the estimated construction costs.

Table VIII: Project's Fair Share of Future Roadway Improvements

ID	*Intersection*	*Existing Traffic Volumes (AM Peak)*	*Cumulative Year 2040 plus Project Traffic Volumes (AM Peak)*	*Project Only Trips (AM Peak)*	*Project's Fair Share (%)*
1	Reed Avenue / South Avenue	775	1,595	15	1.83%
3	Reed Avenue / Parlier Avenue	941	1,583	27	4.21%
6	Frankwood Avenue / Manning Avenue	1,698	2,325	3	0.48%

Note: Project Fair Share = ((Project Only Traffic Volumes) / (Year 2040 + Project Traffic Volumes - Existing Traffic Volumes)) x 100

Conclusions and Recommendations

Conclusions and recommendations regarding the proposed Project Components are presented below.

Existing Traffic Conditions

- At present, all study intersections operate at an acceptable LOS during both peak periods.

Near Term No Project Traffic Conditions

- Near Term Projects are estimated to generate 20,171 daily trips, 1,936 AM peak hour trips and 2,022 PM peak hour trips.
- Under this scenario, the intersections of Reed Avenue and South Avenue, Reed Avenue and Parlier Avenue and Frankwood Avenue and Manning Avenue are projected to operate at an unacceptable LOS during one or both peak periods. To improve the LOS of these intersections, it is recommended that the following improvements be considered for implementation by the City on a project by project assessment as cumulative impacts develop.
  - Reed Avenue / South Avenue
    - Implement an all-way stop control.
  - Reed Avenue / Parlier Avenue
    - Add a southbound through lane with a receiving lane south of Parlier Avenue.
  - Frankwood Avenue / Manning Avenue
    - Modify the eastbound through-right lane to a through lane;
    - Add an eastbound right-turn lane;
    - Modify the westbound through-right lane to a through lane; and
    - Add a westbound right-turn lane.

Near Term plus Project Traffic Conditions

- A review of the Project driveways to be constructed indicates that the new access point is located at a point that minimizes traffic operational impacts to the existing roadway network which include but are not limited to Frankwood Avenue and Parlier Avenue.
- At buildout, the proposed Project is estimated to generate a maximum of 987 daily trips, 67 AM peak hour trips and 85 PM peak hour trips.
- It is recommended that the Project implement Class II bike lanes along its frontage to Frankwood Avenue.
- Under this scenario, the intersections of Reed Avenue and South Avenue, Reed Avenue and Parlier Avenue and Frankwood Avenue and Manning Avenue are projected to operate at an unacceptable LOS during one or both peak periods. To improve the LOS of these intersections, it is recommended that the following improvements be considered for implementation by the City on a project by project assessment as cumulative impacts develop.
  - Reed Avenue / South Avenue
    - Implement an all-way stop control.
  - Reed Avenue / Parlier Avenue
    - Add a southbound through lane with a receiving lane south of Parlier Avenue.

- Frankwood Avenue / Manning Avenue
  - Modify the eastbound through-right lane to a through lane;
  - Add an eastbound right-turn lane;
  - Modify the westbound through-right lane to a through lane; and
  - Add a westbound right-turn lane.

Cumulative Year 2040 plus Project Traffic Conditions

- Under this scenario, the intersections of Reed Avenue and South Avenue, Reed Avenue and Parlier Avenue and Frankwood Avenue and Manning Avenue are projected to operate at an unacceptable LOS during both peak periods. For the intersection of Reed Avenue and Parlier Avenue, two options for improvement were considered. Option A consists of installing a roundabout, while Option B consists of installing a traffic signal. Both options provide for an acceptable LOS at the intersection of Reed Avenue and Parlier Avenue. Option A would provide for a more aesthetic intersection, but would require obtaining considerably more right-of-way and construction funds when compared to Option B. Option B would be less costly, but would not be as eye-appealing when compared to Option A. In this specific case, JLB recommends the implementation of Option B (signalized intersection) for the reason that it provides lower delay during the AM peak. The recommended improvements for each option along with the recommended improvements to improve the LOS at the intersections projected to exceed their LOS threshold are described below. It is recommended that the following improvements be considered for implementation by the City on a project by project assessment as cumulative impacts develop.
  - Reed Avenue / South Avenue
    - Modify the westbound left-right lane to a left-turn lane;
    - Add a westbound right-turn lane;
    - Add a southbound left-turn lane;
    - Modify the southbound left-through lane to a through lane;
    - Signalize the intersection with protective left-turn phasing on all approaches; and
    - Modify the intersection to accommodate the added lane.
  - Reed Avenue / Parlier Avenue
    - Option A: Roundabout
      - Add a southbound left-turn lane;
      - Modify the southbound left-through lane to a through lane; and
      - Modify the intersection to accommodate a two-lane roundabout.
    - Option B: Traffic Signal
      - Add a southbound left-turn lane;
      - Modify the southbound left-through lane to a through lane;
      - Signalize the intersection with protective left-turn phasing on all approaches; and
      - Modify the intersection to accommodate the added lane.

- Frankwood Avenue / Manning Avenue
  - Modify the eastbound through-right-turn lane to a through lane;
  - Add a through-right lane and a receiving lane east of Frankwood Avenue;
  - Modify the westbound through-right lane to a through lane;
  - Add a westbound through-right lane with a receiving lane west of Frankwood Avenue;
  - Modify the traffic signal to accommodate the added lane geometrics.
- While the City of Reedley is planning to construct Manning Avenue as a four-lane major arterial through the City's SOI, it is JLB's recommendation that the City reconsider its plan for Manning Avenue between Reed Avenue and Sunset Avenue and establish LOS D for this segment of Manning Avenue while retaining LOS C for the majority of its remaining major streets as part of its next general plan update. If the City established LOS D as the criteria of significance for Manning Avenue between Reed Avenue and Sunset Avenue, Manning Avenue could remain a two-lane major arterial divided by a two-way left-turn lane with 5- foot bike lanes and 8-foot on-street parking. By retaining the bike lanes and on-street parking, the City will provide its residents the opportunity to continue utilizing alternative modes of transportation, promote healthier environment as well as provide residents along this segment of Manning Avenue to utilize on-street parking. Therefore, if LOS D is use as the criteria of significance for this intersection, it is recommended that the following improvements be implemented.
  - Frankwood Avenue / Manning Avenue
    - Modify the eastbound through-right lane to a through lane;
    - Add an eastbound right-turn lane;
    - Modify the westbound through-right lane to a through lane; and
    - Add a westbound right-turn lane.

Queuing Analysis

- It is recommended that the City of Reedley consider left-turn and right-turn storage lengths as indicated in the Queuing Analysis.

Project's Equitable Fair Share

- It is recommended that the Project contribute its equitable Fair Share as presented in Table VIII.

Study Participants

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Susana Maciel, EIT	Engineer I/II
Javier Rios	Engineer I/II
Jove Alcazar	Engineer I/II
Dennis Wynn	Sr. Engineering Technician
Veronica Benavides	Clerical

Persons Consulted:

John Robertson, PE	City of Reedley
Rob Terry, MPA AICP	City of Reedley
David Padilla	Caltrans, District 6
Harpreet Kooner	County of Fresno
Kai Han	Fresno COG
Lang Yu	Fresno COG
Lee Fino	Fino Estates

References

1. *Trip Generation, 10th Edition*, Washington D.C., Institute of Transportation Engineers, 2017.
2. *Guide for the Preparation of Traffic Impact Studies*, Caltrans, dated December 2002.
3. City of Reedley, *General Plan 2030.*
4. *2014 California Manual on Uniform Traffic Control Devices*, Caltrans, November 7, 2014.

Appendix A: Scope of Work

October 31, 2018

Mr. John S. Robertson, P.E.
City Engineer
City of Reedley
1717 9th Street
Reedley, CA 93654

Via Email Only: john.robertson@reedley.ca.gov

Subject: ***Proposed Draft Scope of Work for the Preparation of a Traffic Impact Analysis for Fino Estates at the Northeast Quadrant of Frankwood Avenue and Parlier Avenue in the City of Reedley (JLB Project 014-005)***

Dear Mr. Robertson,

JLB Traffic Engineering, Inc. (JLB) hereby submits this Draft Scope of Work for the preparation of a Traffic Impact Analysis for the above referenced Project in the City of Reedley. The Project proposes to develop Fino Estates (Project) with 34 single family units and up to 91 multifamily residential units on 13.51 acres. The Project is generally located at the northeast quadrant of Frankwood Avenue and Parlier Avenue in the City of Reedley. Based on information provided to JLB, the Project is consistent with the City of Reedley General Plan. An aerial of the project vicinity and the project site plan are shown in Exhibits A and B respectively. The purpose of this TIA is to evaluate the potential on and off-site traffic impacts, identify short-term roadway and circulation needs, determine potential mitigation measures, and identify any critical traffic issues that should be addressed in the on-going planning process. In order to evaluate the on and off-site traffic impacts of the proposed project, JLB proposes the following draft scope of work.

Scope of Work

- Request a Fresno Council of Governments (Fresno COG) traffic forecast model run for the Project (Select Zone Analysis) which will include the Project and the streets to be analyzed. The Fresno COG traffic forecasting model will be used to forecast traffic volumes for the Base Year and Cumulative Year 2035 plus Project scenarios. To derive the Cumulative Year 2040 traffic volumes, JLB will utilize the projected annual growth rate in traffic between the Base Year 2018 and Cumulative Year 2035 Fresno COG models to expand the 2035 cumulative year traffic volumes for five (5) years.
- JLB will evaluate existing and forecast levels of service (LOS) at the study intersection(s). JLB will use HCM 6 or HCM 2000 methodologies within Synchro as appropriate to perform this analysis for the a.m. and p.m. peak hours. JLB will identify the causes of poor LOS.
- Evaluate onsite circulation and provide recommendations as necessary to improve circulation to the site and within the project site.
- As necessary, obtain recent (less than 18 months) or schedule and conduct new traffic counts at the study facility (ies).
- Perform a site visit to observe existing traffic conditions, especially during the a.m. and p.m. peak hours. Existing roadway conditions, including geometrics and traffic controls, will be verified.

- Forecast trip distribution based on turn count information, input from Fresno COG staff, proposed school boundaries, and knowledge of the existing and planned circulation network in the vicinity of the project.
- Prepare California Manual on Uniform Traffic Control Devices (CA MUTCD) peak hour signal warrants for un-signalized study intersections.
- JLB will conduct a qualitative safe routes to school evaluation from the Project site to the K-12 school(s) which would most likely serve the Project on opening day.
- JLB will qualitatively analyze existing and planned transit routes in the project's vicinity.
- JLB will qualitatively analyze existing and planned bikeways in the project's vicinity.

Study Scenarios:

1. Existing traffic conditions with needed improvements (if any);
2. Near Term No Project traffic conditions with proposed improvement measures (if any);
3. Near Term plus Project traffic conditions with proposed mitigation measures (if any); and
4. Cumulative Year 2040 plus Project traffic conditions with proposed mitigation measures (if any).

Weekday peak hours to be analyzed:

1. 7 - 9 AM Peak Period
2. 4 - 6 PM Peak Period

Study Intersections:

1. South Avenue / Reed Avenue
2. South Avenue / Frankwood Avenue
3. Parlier Avenue / Reed Avenue
4. Parlier Avenue / Frankwood Avenue
5. Cypress Avenue / Frankwood Avenue
6. Manning Avenue / Frankwood Avenue

Queuing analysis is included in the proposed scope of work for the study intersection(s) listed above under all study scenarios. This analysis will be utilized to recommend minimum storage lengths for left and right turn lanes at all study intersections.

Study Segments:

1. None

Project Only Trip Assignment to the Following State Facilities:

1. None

Access to the Project

Based on the latest Project Site Plan, access to and from the Project site will be from three points. A full access point will be located at the east side of Frankwood Avenue north of Parlier Avenue. Two additional full access points will be located at the north end of the Project along North East Avenue which will connect northerly to South Avenue through residential streets, and another at the south end of the Project along North East Avenue with a future street connecting southerly to Parlier Avenue.

Additional Project details are found on Exhibit B.

Trip Generation

Trip generation rates for the proposed Project were obtained from the 10th Edition of the Trip Generation Manual published by the Institute of Transportation Engineers (ITE). Table I presents the trip generation for the proposed Project with trip generation rates for Single-Family Detached Housing and Multifamily Low-Rise Housing. At buildout, the proposed Project is estimated to generate a maximum of 987 daily trips, 67 AM peak hour trips and 85 PM peak hour trips.

Table I: Project Only Trip Generation

Land Use (ITE Code)	*Size*	*Unit*	*Daily*		*AM Peak Hour*						*PM Peak Hour*					
			Rate	*Total*	*Trip Rate*	*In %*	*Out %*	*In*	*Out*	*Total*	*Trip Rate*	*In %*	*Out %*	*In*	*Out*	*Total*
Single-Family Detached Housing (210)	34	d.u.	9.44	321	0.74	25	75	6	19	25	0.99	63	37	21	13	34
Multifamily Housing (Low Rise) (220)	91	d.u.	7.32	666	0.46	23	77	10	32	42	0.56	63	37	32	19	51
Total Project Trips				**987**				**16**	**51**	**67**				**53**	**32**	**85**

Note: d.u. = Dwelling Units

Near Term Projects to be Included

JLB is working with the City of Reedley Engineering and Planning staff to identify Near Term Projects in the vicinity of the proposed Project. The Near Term Projects would then be included under the Near Term plus Project analysis. At this point, the proposed Near Term Projects to be included in the Near Term plus Project analysis are the following:

1. Tentative Tract Map 5263 — NWQ of North Avenue and Buttonwillow Avenue
2. Tentative Tract Map 6206 — NWQ of Olson Avenue and Frankwood Avenue
3. Tentative Tract Map 6178 — NEQ of South Avenue and Frankwood Avenue
4. Tentative Tract Map 6196 — NEQ of Reed Avenue and Parlier Avenue
5. El Valle Apartments — NWQ of Dinuba Avenue and Hemlock Avenue
6. Kings River Village — SEQ of Dinuba Avenue and Buttonwillow Avenue
7. Reedley Family Apartments — SEQ of Dinuba Avenue and Frankwood Avenue
8. High School, Elementary School and Joint Use Facility — NEQ of Floral Avenue and Frankwood Avenue
9. United Health Centers Medical Clinic — NEQ of Manning Avenue and Buttonwillow Avenue
10. Trailside Terrace — SEQ of North Avenue and Reed Avenue
11. Tentative Tract Map 6229 — SEQ of Springfield Avenue and Buttonwillow Avenue

JLB will also include in the Near Term No Project and Near Term plus Project scenarios any additional Near Term Projects provided to us by the City of Reedley or other responsible agencies. These would include Near Term Projects the City of Reedley, County of Fresno, or Caltrans has knowledge of and for which it is anticipated that said Project(s) is/are projected to be whole or partially built by the Year 2020, and for which the City of Reedley, County of Fresno and Caltrans, as appropriate, provides JLB with Near Term Project details. Near Term Project details include Project description, location, proposed land uses with breakdowns and type of residential units and amount of square footages for non-residential uses.

The above scope of work is based on our understanding of this project and our experience with similar Traffic Impact Analysis projects. In the absence of comments by November 21, 2018, it will be assumed that the above scope of work is acceptable to the agency (ies) that have not submitted any comments to the proposed TIA scope of work. If you have any questions or require additional information, please contact me at (559) 570-8991 or by email at jbenavides@JLBtraffic.com.

Sincerely,

Jose Luis Benavides, P.E., T.E.
President

cc: Harpreet Kooner, County of Fresno
David Padilla, Caltrans

Z:\01 Projects\014 Reedley\014-005 Fino Estates TIA\Draft Scope of Work\L10312018 Draft Scope of Work.docx

Exhibit A – Aerial

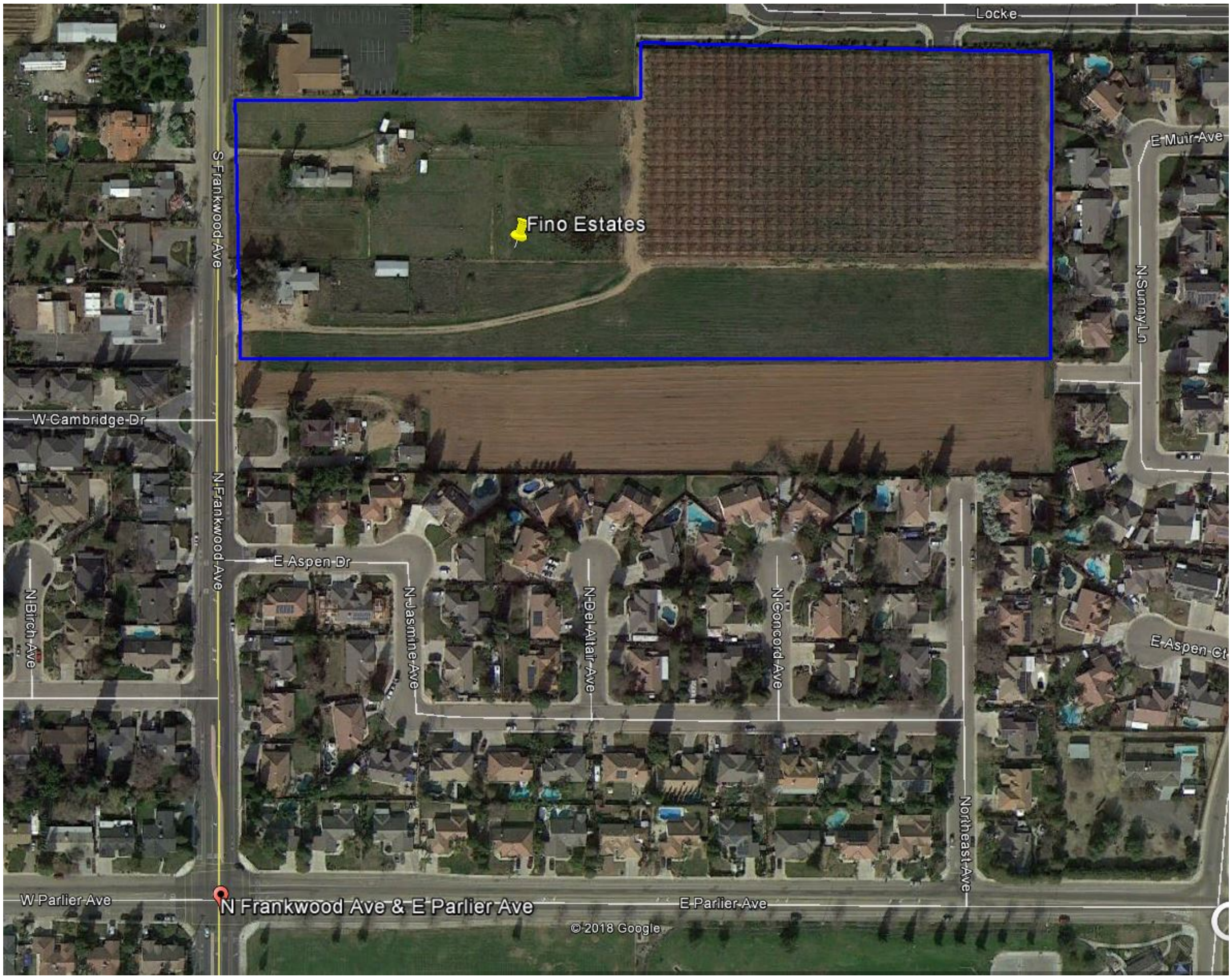
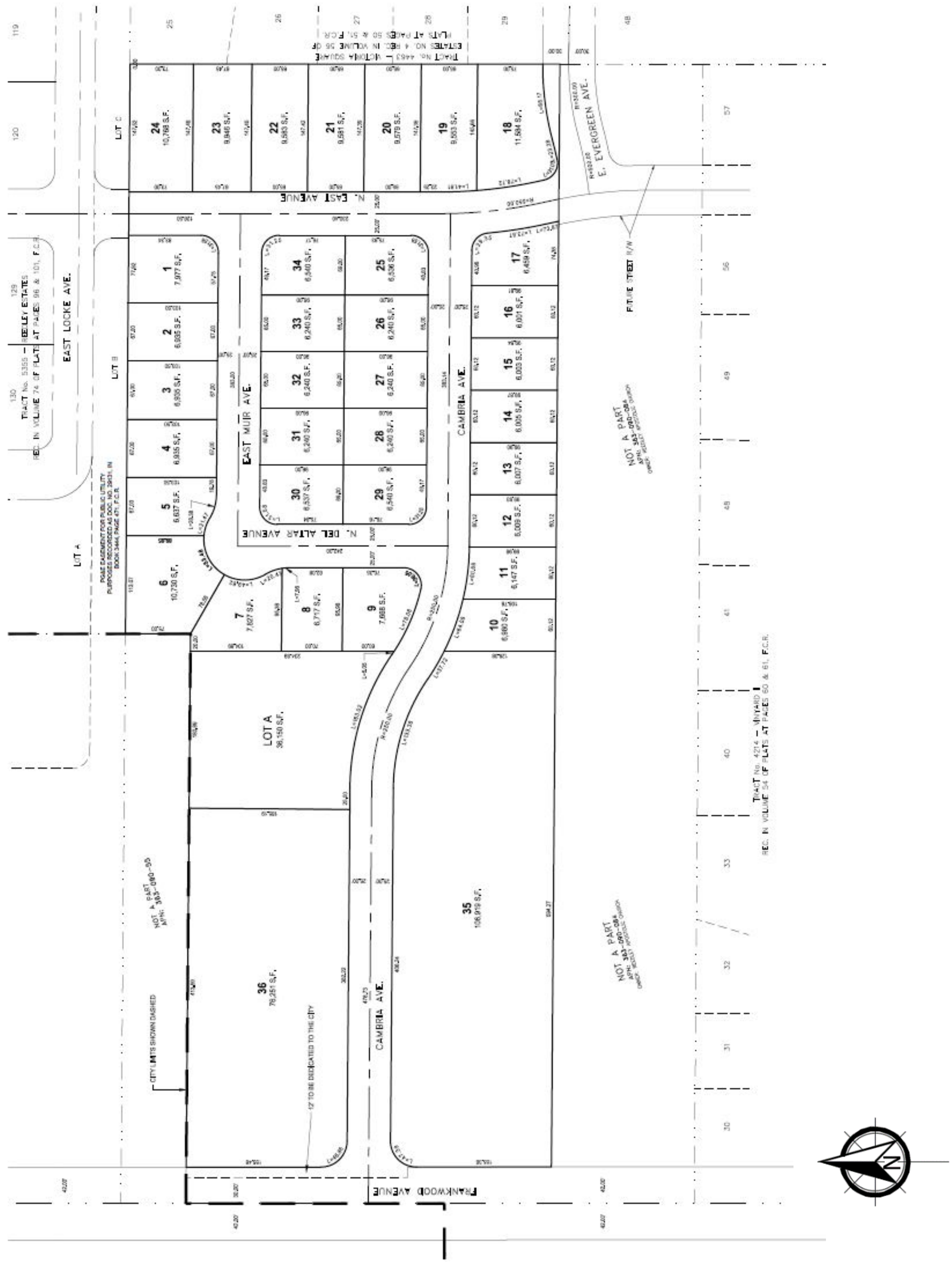


Exhibit B – Project Site Plan



Jose Benavides

From: Padilla, Dave@DOT <dave.padilla@dot.ca.gov>
Sent: Thursday, November 1, 2018 7:52 AM
To: Jove Alcazar; john.robertson@reedley.ca.gov
Cc: Jose Benavides; HKooner@co.fresno.ca.us; Navarro, Michael@DOT
Subject: RE: Fino Estates TIA Draft Scope of Work

Good Morning Jove,

Thank you for allowing us to review the SOW, we have no concerns.

Sincerely,

David Padilla, Associate Transportation Planner
Office of Planning & Local Assistance
1352 W. Olive Avenue
Fresno, CA 93778-2616
Office: (559) 444-2493, Fax: (559) 445-5875
District 6

From: Jove Alcazar [mailto:jalcazar@jlbtraffic.com]
Sent: Wednesday, October 31, 2018 3:57 PM
To: john.robertson@reedley.ca.gov
Cc: Jose Benavides <jbenavides@jlbtraffic.com>; HKooner@co.fresno.ca.us; Padilla, Dave@DOT <dave.padilla@dot.ca.gov>
Subject: Fino Estates TIA Draft Scope of Work

Good afternoon John,

Attached you will find a proposed TIA draft scope of work for a project in the City of Reedley. The scope of work was based on our understanding of this project and our experience with similar Traffic Impact Analysis projects. In the absence of comments by November 21, 2018, it will be assumed that the above scope of work is acceptable to the agency (ies) that have not submitted any comments to the proposed TIA scope of work.

Sincerely,
Jove Alcazar
Engineer I/II

JLB Traffic Engineering, Inc.

Traffic Engineering, Transportation Planning and Parking Solutions
Certified Disadvantaged Business Enterprise (DBE) and Small Business Enterprise (SBE)

1300 E. Shaw Ave., Ste. 103
Fresno, CA 93710
Direct: (559) 317-6254
Office: (559) 570-8991
www.JLBtraffic.com

Jose Benavides

From: Robertson, John <John.Robertson@reedley.ca.gov>
Sent: Monday, November 19, 2018 10:58 AM
To: Jove Alcazar
Cc: Jose Benavides; HKooner@co.fresno.ca.us; dave_padilla@dot.ca.gov; Moore, Ellen
Subject: RE: Fino Estates TIA Draft Scope of Work

Jove,

The scope of work is acceptable to the City of Reedley.

John S. Robertson P.E.
City of Reedley – City Engineer

From: Jove Alcazar <jalcazar@jlbtraffic.com>
Sent: Wednesday, October 31, 2018 3:57 PM
To: Robertson, John <John.Robertson@reedley.ca.gov>
Cc: Jose Benavides <jbenavides@jlbtraffic.com>; HKooner@co.fresno.ca.us; dave_padilla@dot.ca.gov
Subject: Fino Estates TIA Draft Scope of Work

Good afternoon John,

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Sincerely,
Jove Alcazar
Engineer I/II

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Spam
Phish/Fraud

Not spam
Forget previous vote

Appendix B: Traffic Counts

Metro Traffic Data Inc.
310 N. Irwin Street - Suite 20
Hanford, CA 93230

800-975-6938 Phone/Fax
www.metrotrafficdata.com

Turning Movement Report

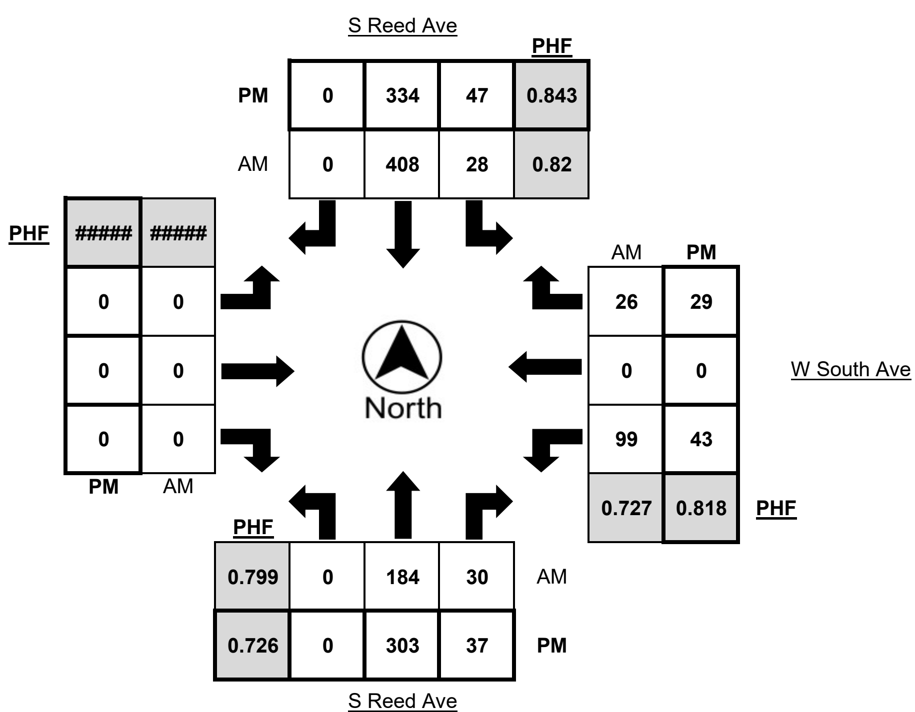
LOCATION South Ave @ Reed Ave
LATITUDE 36.618733°
COUNTY Fresno
LONGITUDE -119.457701°
COLLECTION DATE Tuesday, November 14, 2017
WEATHER Clear

	Northbound				Southbound				Eastbound				Westbound			
Time	**Left**	**Thru**	**Right**	**Trucks**	**Left**	**Thru**	**Right**	**Trucks**	**Left**	**Thru**	**Right**	**Trucks**	**Left**	**Thru**	**Right**	**Trucks**
7:00 AM - 7:15 AM	0	55	8	4	2	66	0	12	0	0	0	0	14	0	10	5
7:15 AM - 7:30 AM	0	42	6	3	6	98	0	4	0	0	0	0	17	0	8	3
7:30 AM - 7:45 AM	0	60	7	10	10	107	0	5	0	0	0	0	22	0	3	2
7:45 AM - 8:00 AM	0	38	11	7	6	127	0	3	0	0	0	0	36	0	7	3
8:00 AM - 8:15 AM	0	44	6	3	6	76	0	12	0	0	0	0	24	0	8	2
8:15 AM - 8:30 AM	0	46	7	6	13	75	0	9	0	0	0	0	16	0	5	2
8:30 AM - 8:45 AM	0	46	9	7	6	62	0	3	0	0	0	0	11	0	5	3
8:45 AM - 9:00 AM	0	39	5	6	8	91	0	4	0	0	0	0	13	0	4	1
TOTAL	**0**	**370**	**59**	**46**	**57**	**702**	**0**	**52**	**0**	**0**	**0**	**0**	**153**	**0**	**50**	**21**

	Northbound				Southbound				Eastbound				Westbound			
Time	**Left**	**Thru**	**Right**	**Trucks**	**Left**	**Thru**	**Right**	**Trucks**	**Left**	**Thru**	**Right**	**Trucks**	**Left**	**Thru**	**Right**	**Trucks**
4:00 PM - 4:15 PM	0	78	13	1	10	70	0	3	0	0	0	0	5	0	7	1
4:15 PM - 4:30 PM	0	65	9	3	8	70	0	2	0	0	0	0	8	0	7	1
4:30 PM - 4:45 PM	0	70	4	3	8	74	0	0	0	0	0	0	12	0	10	1
4:45 PM - 5:00 PM	0	100	17	2	12	74	0	4	0	0	0	0	7	0	6	0
5:00 PM - 5:15 PM	0	73	9	0	12	88	0	2	0	0	0	0	10	0	5	0
5:15 PM - 5:30 PM	0	60	7	1	15	98	0	3	0	0	0	0	14	0	8	0
5:30 PM - 5:45 PM	0	47	7	1	8	93	0	3	0	0	0	0	13	0	2	1
5:45 PM - 6:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL	**0**	**493**	**66**	**11**	**73**	**567**	**0**	**17**	**0**	**0**	**0**	**0**	**69**	**0**	**45**	**4**

	Northbound				Southbound				Eastbound				Westbound			
PEAK HOUR	**Left**	**Thru**	**Right**	**Trucks**	**Left**	**Thru**	**Right**	**Trucks**	**Left**	**Thru**	**Right**	**Trucks**	**Left**	**Thru**	**Right**	**Trucks**
7:15 AM - 8:15 AM	0	184	30	23	28	408	0	24	0	0	0	0	99	0	26	10
4:30 PM - 5:30 PM	0	303	37	6	47	334	0	9	0	0	0	0	43	0	29	1

	PHF	**Trucks**
AM	0.861	7.4%
PM	0.918	2.0%



Metro Traffic Data Inc.
310 N. Irwin Street - Suite 20
Hanford, CA 93230

800-975-6938 Phone/Fax
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Turning Movement Report

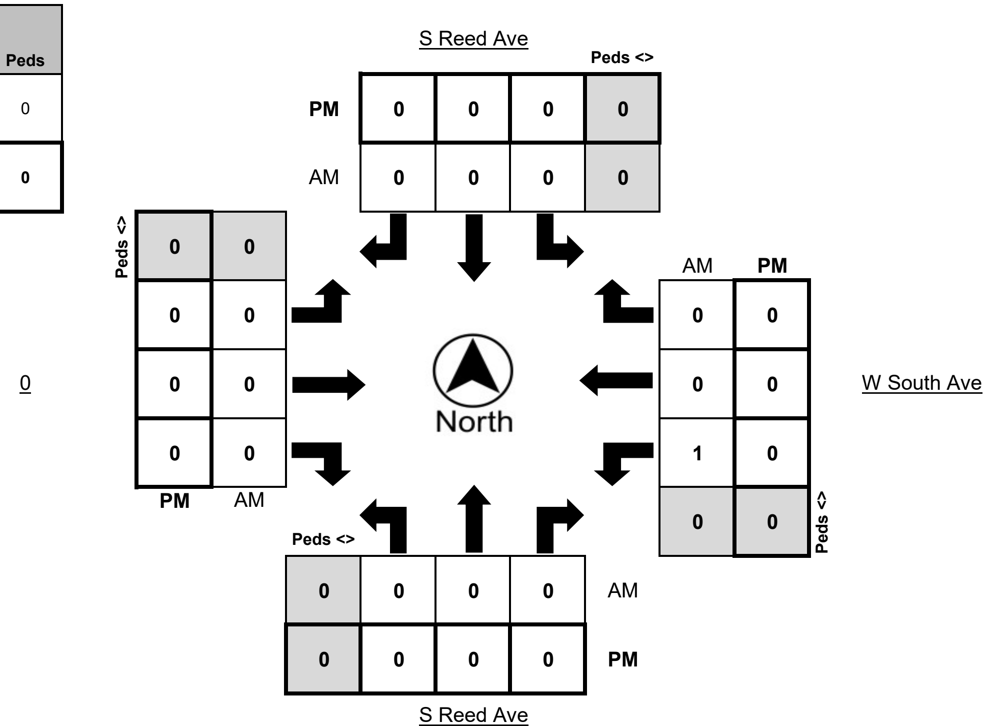
LOCATION South Ave @ Reed Ave
LATITUDE 36.618733°
COUNTY Fresno
LONGITUDE -119.457701°
COLLECTION DATE Tuesday, November 14, 2017
WEATHER Clear

	Northbound Bikes			N.Leg	Southbound Bikes			S.Leg	Eastbound Bikes			E.Leg	Westbound Bikes			W.Leg
Time	**Left**	**Thru**	**Right**	**Peds**	**Left**	**Thru**	**Right**	**Peds**	**Left**	**Thru**	**Right**	**Peds**	**Left**	**Thru**	**Right**	**Peds**
7:00 AM - 7:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:15 AM - 7:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:30 AM - 7:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0
7:45 AM - 8:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:00 AM - 8:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:15 AM - 8:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:30 AM - 8:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:45 AM - 9:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**0**	**0**	**0**

	Northbound Bikes			N.Leg	Southbound Bikes			S.Leg	Eastbound Bikes			E.Leg	Westbound Bikes			W.Leg
Time	**Left**	**Thru**	**Right**	**Peds**	**Left**	**Thru**	**Right**	**Peds**	**Left**	**Thru**	**Right**	**Peds**	**Left**	**Thru**	**Right**	**Peds**
4:00 PM - 4:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:15 PM - 4:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:30 PM - 4:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:45 PM - 5:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:00 PM - 5:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:15 PM - 5:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:30 PM - 5:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:45 PM - 6:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**

	Northbound Bikes			N.Leg	Southbound Bikes			S.Leg	Eastbound Bikes			E.Leg	Westbound Bikes			W.Leg
PEAK HOUR	**Left**	**Thru**	**Right**	**Peds**	**Left**	**Thru**	**Right**	**Peds**	**Left**	**Thru**	**Right**	**Peds**	**Left**	**Thru**	**Right**	**Peds**
7:15 AM - 8:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0
4:30 PM - 5:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

	Bikes	Peds
AM Peak Total	1	0
PM Peak Total	**0**	**0**



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Turning Movement Report

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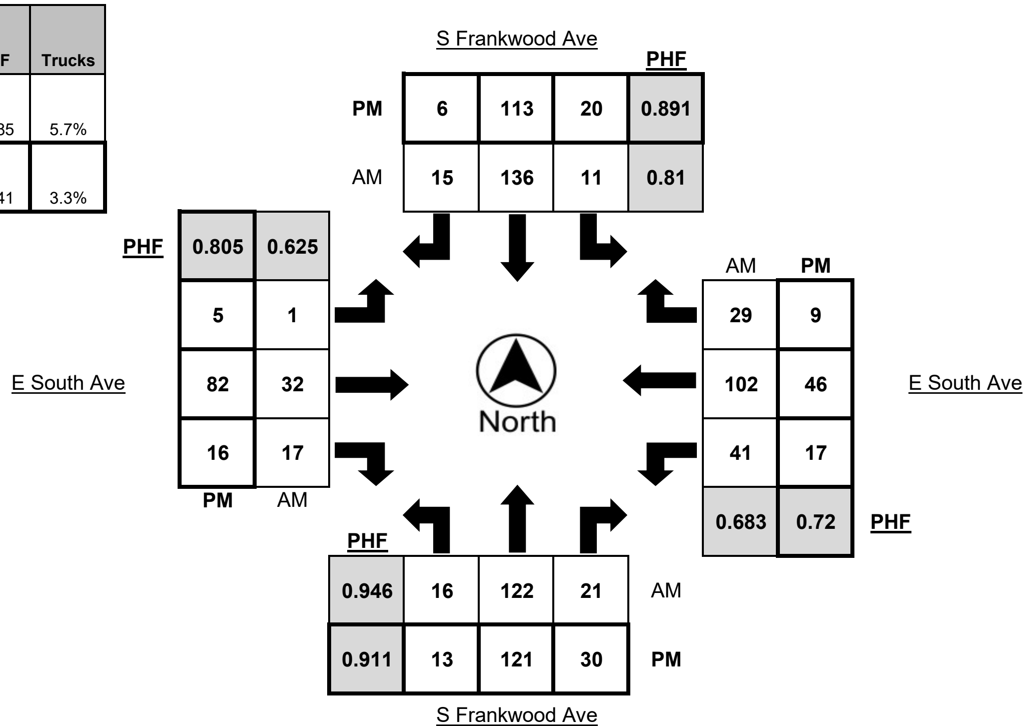
LATITUDE 36.618714°
COUNTY Fresno
LONGITUDE -119.448751°
COLLECTION DATE Tuesday, November 14, 2017
WEATHER Clear

	Northbound				Southbound				Eastbound				Westbound			
Time	**Left**	**Thru**	**Right**	**Trucks**	**Left**	**Thru**	**Right**	**Trucks**	**Left**	**Thru**	**Right**	**Trucks**	**Left**	**Thru**	**Right**	**Trucks**
7:00 AM - 7:15 AM	5	21	6	3	1	12	3	0	1	10	1	3	7	11	3	2
7:15 AM - 7:30 AM	4	30	5	1	0	24	2	4	0	8	3	1	6	14	15	3
7:30 AM - 7:45 AM	6	28	3	1	4	42	4	1	0	6	2	0	8	23	5	1
7:45 AM - 8:00 AM	2	36	4	3	4	40	4	1	1	12	7	1	20	35	8	3
8:00 AM - 8:15 AM	4	28	9	2	3	30	5	3	0	6	5	3	7	30	1	3
8:15 AM - 8:30 AM	6	24	4	2	7	8	2	0	2	13	4	2	7	19	5	3
8:30 AM - 8:45 AM	1	11	1	0	1	16	1	0	1	10	2	1	5	10	1	3
8:45 AM - 9:00 AM	0	19	3	0	1	15	0	0	1	9	4	3	10	19	2	1
TOTAL	**28**	**197**	**35**	**12**	**21**	**187**	**21**	**9**	**6**	**74**	**28**	**14**	**70**	**161**	**40**	**19**

	Northbound				Southbound				Eastbound				Westbound			
Time	**Left**	**Thru**	**Right**	**Trucks**	**Left**	**Thru**	**Right**	**Trucks**	**Left**	**Thru**	**Right**	**Trucks**	**Left**	**Thru**	**Right**	**Trucks**
4:00 PM - 4:15 PM	1	20	7	2	9	27	0	0	1	23	5	1	6	8	4	1
4:15 PM - 4:30 PM	2	21	11	1	4	20	1	0	0	17	3	0	3	7	3	0
4:30 PM - 4:45 PM	2	28	8	1	7	31	1	1	1	17	2	2	7	17	1	1
4:45 PM - 5:00 PM	3	31	6	0	9	27	3	2	3	25	4	3	3	9	4	0
5:00 PM - 5:15 PM	5	34	6	1	1	32	0	1	1	25	3	1	3	7	1	0
5:15 PM - 5:30 PM	3	28	10	1	3	23	2	1	0	15	7	1	4	13	3	0
5:30 PM - 5:45 PM	2	18	4	0	3	22	1	0	0	15	1	1	8	12	1	1
5:45 PM - 6:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL	**18**	**180**	**52**	**6**	**36**	**182**	**8**	**5**	**6**	**137**	**25**	**9**	**34**	**73**	**17**	**3**

	Northbound				Southbound				Eastbound				Westbound			
PEAK HOUR	**Left**	**Thru**	**Right**	**Trucks**	**Left**	**Thru**	**Right**	**Trucks**	**Left**	**Thru**	**Right**	**Trucks**	**Left**	**Thru**	**Right**	**Trucks**
7:15 AM - 8:15 AM	16	122	21	7	11	136	15	9	1	32	17	5	41	102	29	10
4:30 PM - 5:30 PM	13	121	30	3	20	113	6	5	5	82	16	7	17	46	9	1

	PHF	Trucks
AM	0.785	5.7%
PM	0.941	3.3%



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Turning Movement Report

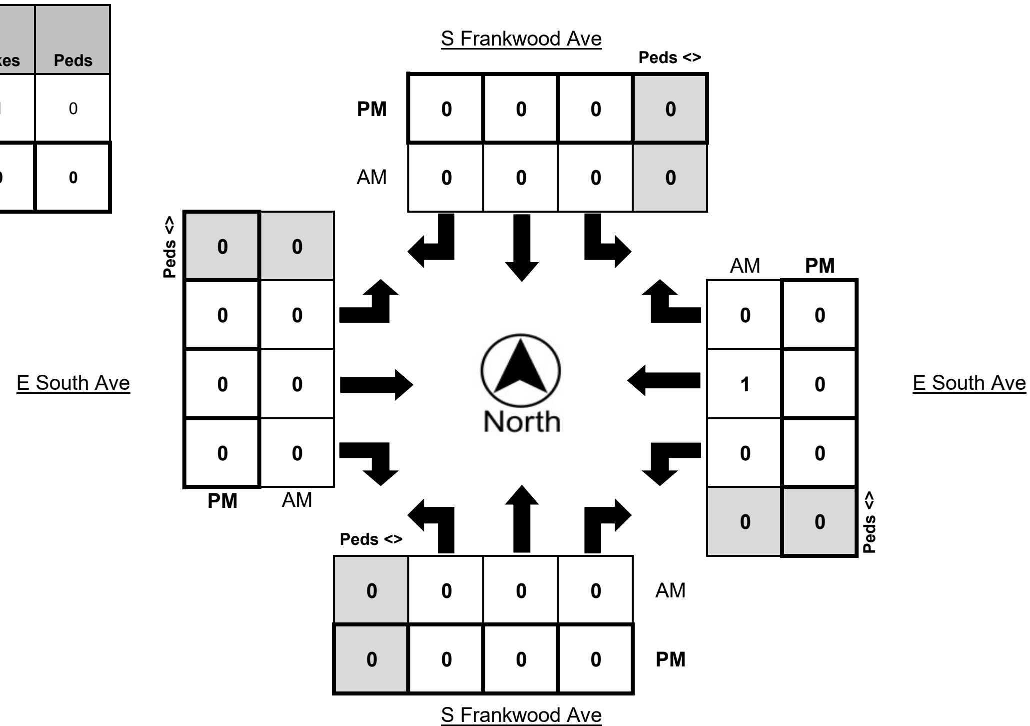
LOCATION	Frankwood Ave @ South Ave	**LATITUDE**	36.618714°
COUNTY	Fresno	**LONGITUDE**	-119.448751°
COLLECTION DATE	Tuesday, November 14, 2017	**WEATHER**	Clear

	Northbound Bikes			N.Leg	Southbound Bikes			S.Leg	Eastbound Bikes			E.Leg	Westbound Bikes			W.Leg
Time	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds
7:00 AM - 7:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:15 AM - 7:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:30 AM - 7:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0
7:45 AM - 8:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:00 AM - 8:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:15 AM - 8:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:30 AM - 8:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0
8:45 AM - 9:00 AM	0	0	0	1	0	0	0	0	0	0	0	1	0	0	0	0
TOTAL	**0**	**0**	**0**	**1**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**0**	**2**	**0**	**0**

	Northbound Bikes			N.Leg	Southbound Bikes			S.Leg	Eastbound Bikes			E.Leg	Westbound Bikes			W.Leg
Time	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds
4:00 PM - 4:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:15 PM - 4:30 PM	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0
4:30 PM - 4:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:45 PM - 5:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:00 PM - 5:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:15 PM - 5:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:30 PM - 5:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:45 PM - 6:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL	**0**	**0**	**1**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**

	Northbound Bikes			N.Leg	Southbound Bikes			S.Leg	Eastbound Bikes			E.Leg	Westbound Bikes			W.Leg
PEAK HOUR	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds
7:15 AM - 8:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0
4:30 PM - 5:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

	Bikes	Peds
AM Peak Total	1	0
PM Peak Total	**0**	**0**



National Data & Surveying Services

Reed Ave & Parlier Ave

Peak Hour Turning Movement Count

ID: 17-8081-002
City: Reedley

Day: Tuesday
Date: 09/19/2017

	PEAK HOURS	COUNT PERIODS
AM	07:00 AM - 08:00 AM	07:00 AM - 09:00 AM
NOON	NONE	NONE
PM	05:00 PM - 06:00 PM	04:00 PM - 06:00 PM

CONTROL: 1-Way Stop (WB)

	AM	NOON	PM
TEV	941	0	889
PHF	0.89		0.87

Reed Ave — SOUTHBOUND

	Right	Thru	Left	U-Turn	Out
AM	0	468	50	0	251
NOON	0	0	0	0	0
PM	0	367	68	0	289
Lanes	0	1	0	0	

Parlier Ave — WESTBOUND

	Lanes	PM	NOON	AM
Right	0.5	45	0	51
Thru	0.5	0	0	0
Left	0	98	0	136
U-Turn	0	2	0	0
Out		135	0	86

Parlier Ave — EASTBOUND

	AM	NOON	PM	Lanes
Out	0	0	0	
U-Turn	0	0	0	0
Left	0	0	0	0
Thru	0	0	0	0
Right	0	0	0	0

Reed Ave — NORTHBOUND

	Out	U-Turn	Left	Thru	Right
Lanes		0	0	1	1
PM	465	0	0	244	65
NOON	0	0	0	0	0
AM	604	0	0	200	36

Bikes (AM)

Approach	Left	Thru	Right
Southbound	0	1	0
Westbound	0	0	0
Eastbound	0	0	0
Northbound	0	0	0

Bikes (NOON)

Approach	Left	Thru	Right
Southbound	N/A	N/A	N/A
Westbound	N/A	N/A	N/A
Eastbound	N/A	N/A	N/A
Northbound	N/A	N/A	N/A

Bikes (PM)

Approach	Left	Thru	Right
Southbound	0	0	0
Westbound	1	0	0
Eastbound	0	0	0
Northbound	2	0	0

Total Vehicles (AM)

Approach	Left	Thru	Right
Southbound	50	468	0
Westbound	136	0	51
Eastbound	0	0	0
Northbound	0	200	36

Total Vehicles (NOON)

Approach	Left	Thru	Right
Southbound	N/A	N/A	N/A
Westbound	N/A	N/A	N/A
Eastbound	N/A	N/A	N/A
Northbound	N/A	N/A	N/A

Total Vehicles (PM)

Approach	Left	Thru	Right
Southbound	68	367	0
Westbound	98	0	45
Eastbound	0	0	0
Northbound	0	244	65

Pedestrians (Crosswalks)

Crosswalk	Direction	AM	NOON	PM
North	Eastbound	2	0	0
North	Westbound	0	0	0
South	Eastbound	1	0	0
South	Westbound	2	0	0
West	Southbound	0	0	0
West	Northbound	0	0	0
East	Southbound	0	0	0
East	Northbound	0	0	0
NW diagonal		0	0	0
NE diagonal		0	0	0
SW diagonal		0	0	0
SE diagonal		0	0	0

National Data & Surveying Services

Intersection Turning Movement Count

Location: Reed Ave & Parlier Ave
City: Reedley
Control: 1-Way Stop (WB)

Project ID: 17-8081-002
Date: 9/19/2017

Total

NS/EW Streets:	Reed Ave				Reed Ave				Parlier Ave				Parlier Ave				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	0	1	1	0	0	1	0	0	0	0	0	0	0	0.5	0.5	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
7:00 AM	0	51	3	0	11	91	0	0	0	0	0	0	23	0	9	0	188
7:15 AM	0	56	9	0	5	117	0	0	0	0	0	0	27	0	15	0	229
7:30 AM	0	50	12	0	17	127	0	0	0	0	0	0	43	0	10	0	259
7:45 AM	0	43	12	0	17	133	0	0	0	0	0	0	43	0	17	0	265
8:00 AM	0	48	16	0	11	73	0	0	0	0	0	0	22	0	13	0	183
8:15 AM	0	40	13	0	9	75	0	0	0	0	0	0	20	0	7	0	164
8:30 AM	0	20	5	0	13	72	0	0	0	0	0	0	12	0	2	0	124
8:45 AM	0	50	16	0	12	72	0	0	0	0	0	0	24	0	5	0	179
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	0	358	86	0	95	760	0	0	0	0	0	0	214	0	78	0	1591
APPROACH %'s :	0.00%	80.63%	19.37%	0.00%	11.11%	88.89%	0.00%	0.00%					73.29%	0.00%	26.71%	0.00%	
PEAK HR :	07:00 AM - 08:00 AM																TOTAL
PEAK HR VOL :	0	200	36	0	50	468	0	0	0	0	0	0	136	0	51	0	941
PEAK HR FACTOR :	0.000	0.893	0.750	0.000	0.735	0.880	0.000	0.000	0.000	0.000	0.000	0.000	0.791	0.000	0.750	0.000	0.888
	0.908				0.863								0.779				

PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	0	1	1	0	0	1	0	0	0	0	0	0	0	0.5	0.5	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
4:00 PM	0	75	25	0	13	71	0	0	0	0	0	0	19	0	6	0	209
4:15 PM	0	57	16	0	12	57	0	0	0	0	0	0	13	0	11	0	166
4:30 PM	0	56	18	0	24	93	0	0	0	0	0	0	18	0	6	1	216
4:45 PM	0	52	19	0	21	79	0	0	0	0	0	0	13	0	6	0	190
5:00 PM	0	82	15	0	22	61	0	0	0	0	0	0	16	0	17	2	215
5:15 PM	0	56	19	0	18	87	0	0	0	0	0	0	26	0	11	0	217
5:30 PM	0	54	15	0	15	87	0	0	0	0	0	0	23	0	7	0	201
5:45 PM	0	52	16	0	13	132	0	0	0	0	0	0	33	0	10	0	256
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	0	484	143	0	138	667	0	0	0	0	0	0	161	0	74	3	1670
APPROACH %'s :	0.00%	77.19%	22.81%	0.00%	17.14%	82.86%	0.00%	0.00%					67.65%	0.00%	31.09%	1.26%	
PEAK HR :	05:00 PM - 06:00 PM																TOTAL
PEAK HR VOL :	0	244	65	0	68	367	0	0	0	0	0	0	98	0	45	2	889
PEAK HR FACTOR :	0.000	0.744	0.855	0.000	0.773	0.695	0.000	0.000	0.000	0.000	0.000	0.000	0.742	0.000	0.662	0.250	0.868
	0.796				0.750								0.843				

Prepared by National Data & Surveying Services

Frankwood Ave & Parlier Ave

Peak Hour Turning Movement Count

ID: 17-8081-004
City: Reedley

Day: Tuesday
Date: 09/19/2017

	PEAK HOURS	COUNT PERIODS
AM	07:15 AM - 08:15 AM	07:00 AM - 09:00 AM
NOON	NONE	NONE
PM	05:00 PM - 06:00 PM	04:00 PM - 06:00 PM

Frankwood Ave – SOUTHBOUND

	Right	Thru	Left	U-Turn	Departing
AM	35	226	32	0	227
NOON	0	0	0	0	0
PM	12	137	44	1	252
Lanes	1	1	1	0	

Parlier Ave – EASTBOUND

	AM	NOON	PM	Lanes
Departing	258	0	218	
U-Turn	0	0	0	0
Left	12	0	11	1
Thru	86	0	89	1
Right	87	0	74	1

Parlier Ave – WESTBOUND

	PM	NOON	AM	Lanes
Right	28	0	60	1
Thru	102	0	142	1
Left	45	0	88	1
U-Turn	0	0	0	0
Departing	220	0	218	

Frankwood Ave – NORTHBOUND

	Departing	U-Turn	Left	Thru	Right
Lanes		0	1	1	1
PM	261	5	104	212	87
NOON	0	0	0	0	0
AM	423	22	81	155	100

CONTROL

4-Way Stop

	AM	NOON	PM
TEV	1126	0	951
PHF	0.77		0.91

Bikes (AM)

	Left	Thru	Right
Southbound	0	0	0
Eastbound	1	0	0
Westbound	3	0	0
Northbound	0	0	0

Bikes (NOON)

	Left	Thru	Right
Southbound	N/A	N/A	N/A
Eastbound	N/A	N/A	N/A
Westbound	N/A	N/A	N/A
Northbound	N/A	N/A	N/A

Bikes (PM)

	Left	Thru	Right
Southbound	0	1	0
Eastbound	0	0	0
Westbound	0	0	0
Northbound	1	0	3

Pedestrians (Crosswalks)

Crosswalk	Direction	AM	NOON	PM
North	westbound	2	0	0
North	eastbound	0	0	0
West	southbound	4	0	1
West	northbound	0	0	0
East	southbound	6	0	2
East	northbound	0	0	0
South	eastbound	1	0	1
South	westbound	5	0	1
NW diagonal		0	0	0
NE diagonal		0	0	0
SW diagonal		0	0	0
SE diagonal		0	0	0

Total Vehicles (AM)

	Left	Thru	Right
Southbound	32	226	35
Eastbound	12	86	87
Westbound	88	142	60
Northbound	81	155	100

Total Vehicles (NOON)

	Left	Thru	Right
Southbound	N/A	N/A	N/A
Eastbound	N/A	N/A	N/A
Westbound	N/A	N/A	N/A
Northbound	N/A	N/A	N/A

Total Vehicles (PM)

	Left	Thru	Right
Southbound	44	137	12
Eastbound	11	89	74
Westbound	45	102	28
Northbound	104	212	87

National Data & Surveying Services

Intersection Turning Movement Count

Location: Frankwood Ave & Parlier Ave
City: Reedley
Control: 4-Way Stop

Project ID: 17-8081-004
Date: 9/19/2017

Total

NS/EW Streets:	Frankwood Ave				Frankwood Ave				Parlier Ave				Parlier Ave				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	1	1	1	0	1	1	1	0	1	1	1	0	1	1	1	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
7:00 AM	12	37	9	0	1	22	8	0	3	10	10	0	12	23	4	0	151
7:15 AM	7	33	9	2	4	46	6	0	3	15	17	0	25	23	10	0	200
7:30 AM	22	38	35	10	11	75	9	0	7	24	29	0	27	42	21	0	350
7:45 AM	27	40	39	7	8	67	13	0	1	27	34	0	29	55	20	0	367
8:00 AM	25	44	17	3	9	38	7	0	1	20	7	0	7	22	9	0	209
8:15 AM	7	32	5	1	4	26	3	0	1	10	8	0	10	26	4	0	137
8:30 AM	8	20	10	0	3	18	5	0	2	13	8	0	9	17	7	0	120
8:45 AM	7	18	14	1	3	23	6	0	3	13	13	0	12	20	8	0	141
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	115	262	138	24	43	315	57	0	21	132	126	0	131	228	83	0	1675
APPROACH %'s :	21.34%	48.61%	25.60%	4.45%	10.36%	75.90%	13.73%	0.00%	7.53%	47.31%	45.16%	0.00%	29.64%	51.58%	18.78%	0.00%	
PEAK HR :	07:15 AM - 08:15 AM																TOTAL
PEAK HR VOL :	81	155	100	22	32	226	35	0	12	86	87	0	88	142	60	0	1126
PEAK HR FACTOR :	0.750	0.881	0.641	0.550	0.727	0.753	0.673	0.000	0.429	0.796	0.640	0.000	0.759	0.645	0.714	0.000	0.767
	0.792				0.771				0.746				0.697				

PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	1	1	1	0	1	1	1	0	1	1	1	0	1	1	1	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
4:00 PM	15	43	19	1	6	29	7	0	7	23	14	0	10	15	5	0	194
4:15 PM	15	40	18	2	6	25	1	0	4	23	10	0	8	15	1	0	168
4:30 PM	11	63	16	1	13	37	6	0	5	33	17	0	11	16	7	0	236
4:45 PM	15	48	9	1	6	34	7	0	8	29	12	0	9	24	7	0	209
5:00 PM	33	64	22	4	11	34	4	0	5	28	22	0	7	17	9	0	260
5:15 PM	27	54	21	0	11	32	2	0	4	23	18	0	13	27	6	0	238
5:30 PM	18	57	24	0	8	32	2	1	0	16	16	0	7	25	8	0	214
5:45 PM	26	37	20	1	14	39	4	0	2	22	18	0	18	33	5	0	239
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	160	406	149	10	75	262	33	1	35	197	127	0	83	172	48	0	1758
APPROACH %'s :	22.07%	56.00%	20.55%	1.38%	20.22%	70.62%	8.89%	0.27%	9.75%	54.87%	35.38%	0.00%	27.39%	56.77%	15.84%	0.00%	
PEAK HR :	05:00 PM - 06:00 PM																TOTAL
PEAK HR VOL :	104	212	87	5	44	137	12	1	11	89	74	0	45	102	28	0	951
PEAK HR FACTOR :	0.788	0.828	0.906	0.313	0.786	0.878	0.750	0.250	0.550	0.795	0.841	0.000	0.625	0.773	0.778	0.000	0.914
	0.829				0.851				0.791				0.781				

JLB Traffic Engineering, Inc.

1300 E. Shaw Ave., Ste. 103
Fresno, CA 93710
(559) 570-8991
Traffic Engineering, Transportation Planning & Parking Solutions
www.JLBtraffic.com

File Name : Frankwood at Cypress 11082018
Site Code : 00000000
Start Date : 11/8/2018
Page No : 1

Groups Printed- Unshifted

	FRANKWOOD Southbound					CYPRESS Westbound					FRANKWOOD Northbound					CYPRESS 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	Int. Total
07:00 AM	2	43	1	1	47	7	0	5	0	12	11	43	2	0	56	0	0	4	0	4	119
07:15 AM	4	75	2	0	81	10	0	9	0	19	18	56	5	8	87	4	2	15	3	24	211
07:30 AM	3	90	1	6	100	43	0	9	3	55	14	74	12	5	105	6	2	28	0	36	296
07:45 AM	4	77	2	0	83	58	4	17	7	86	20	74	17	8	119	1	5	13	3	22	310
Total	13	285	6	7	311	118	4	40	10	172	63	247	36	21	367	11	9	60	6	86	936
08:00 AM	3	43	2	0	48	15	0	3	1	19	21	69	5	0	95	0	1	11	0	12	174
08:15 AM	1	43	1	0	45	7	0	0	0	7	13	44	1	0	58	0	0	10	0	10	120
08:30 AM	0	40	2	0	42	9	0	2	0	11	14	39	2	0	55	0	0	12	0	12	120
08:45 AM	0	51	4	1	56	1	0	2	0	3	11	42	2	0	55	2	1	9	0	12	126
Total	4	177	9	1	191	32	0	7	1	40	59	194	10	0	263	2	2	42	0	46	540
******																					
04:00 PM	5	51	1	1	58	17	2	3	0	22	5	77	10	0	92	2	0	22	0	24	196
04:15 PM	3	68	0	1	72	4	2	1	1	8	10	70	8	0	88	3	0	14	0	17	185
04:30 PM	8	68	2	0	78	9	0	9	1	19	13	67	13	0	93	1	0	16	0	17	207
04:45 PM	12	43	1	3	59	16	1	10	7	34	8	68	22	0	98	1	0	14	0	15	206
Total	28	230	4	5	267	46	5	23	9	83	36	282	53	0	371	7	0	66	0	73	794
05:00 PM	10	59	2	0	71	19	1	14	3	37	10	75	25	0	110	1	1	12	1	15	233
05:15 PM	3	71	3	0	77	10	0	10	0	20	8	78	14	0	100	1	1	13	0	15	212
05:30 PM	6	69	1	0	76	15	0	3	0	18	8	96	10	0	114	2	1	14	0	17	225
05:45 PM	5	86	2	6	99	11	1	9	6	27	7	75	7	2	91	2	0	14	0	16	233
Total	24	285	8	6	323	55	2	36	9	102	33	324	56	2	415	6	3	53	1	63	903
Grand Total	69	977	27	19	1092	251	11	106	29	397	191	1047	155	23	1416	26	14	221	7	268	3173
Apprch %	6.3	89.5	2.5	1.7		63.2	2.8	26.7	7.3		13.5	73.9	10.9	1.6		9.7	5.2	82.5	2.6		
Total %	2.2	30.8	0.9	0.6	34.4	7.9	0.3	3.3	0.9	12.5	6	33	4.9	0.7	44.6	0.8	0.4	7	0.2	8.4	

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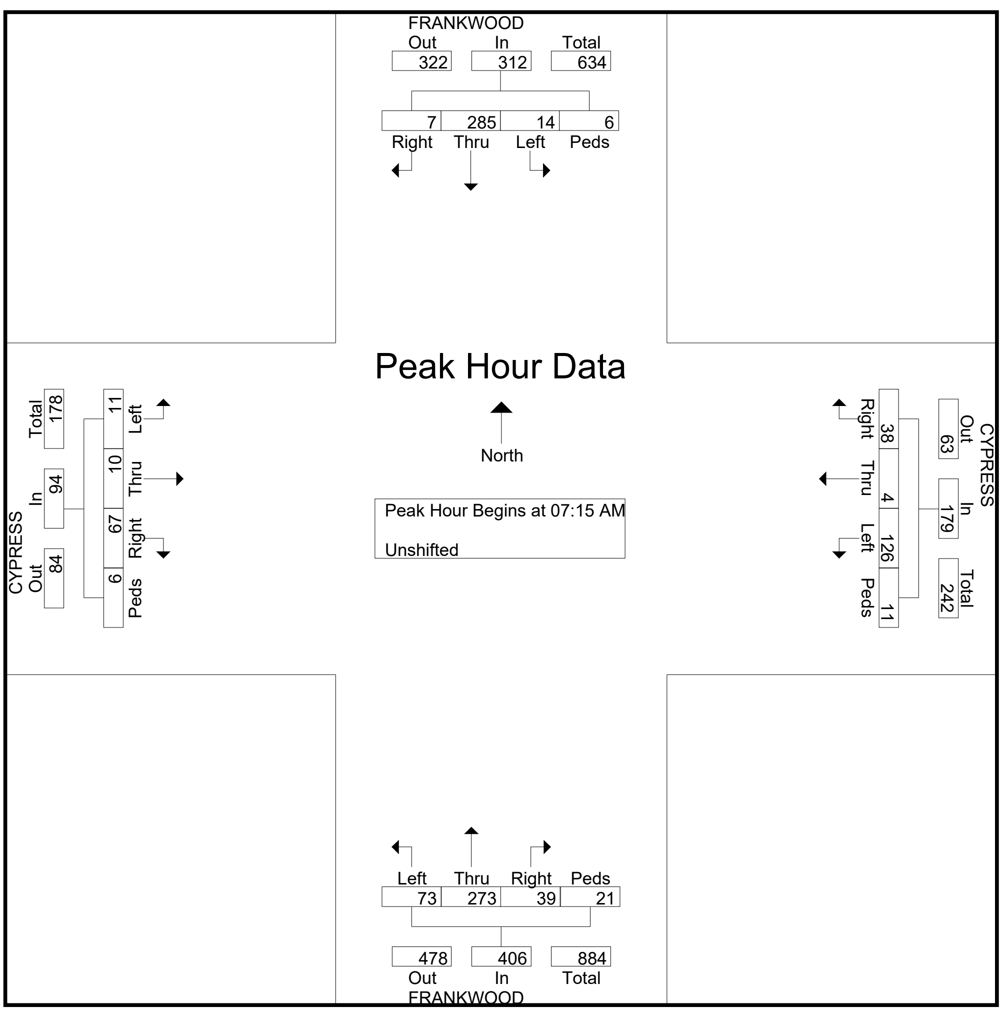
File Name : Frankwood at Cypress 11082018
Site Code : 00000000
Start Date : 11/8/2018
Page No : 2

	FRANKWOOD Southbound					CYPRESS Westbound					FRANKWOOD Northbound					CYPRESS 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	Int. Total
Peak Hour Analysis From 07:00 AM to 11:45 AM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 07:15 AM																					
07:15 AM	**4**	75	**2**	0	81	10	0	9	0	19	18	56	5	**8**	87	4	2	15	**3**	24	211
07:30 AM	3	**90**	1	**6**	**100**	43	0	9	3	55	14	**74**	12	5	105	**6**	2	**28**	0	**36**	296
07:45 AM	4	77	2	0	83	**58**	**4**	**17**	**7**	**86**	20	74	**17**	8	**119**	1	**5**	13	3	22	**310**
08:00 AM	3	43	2	0	48	15	0	3	1	19	**21**	69	5	0	95	0	1	11	0	12	174
Total Volume	14	285	7	6	312	126	4	38	11	179	73	273	39	21	406	11	10	67	6	94	991
% App. Total	4.5	91.3	2.2	1.9		70.4	2.2	21.2	6.1		18	67.2	9.6	5.2		11.7	10.6	71.3	6.4		
PHF	.875	.792	.875	.250	.780	.543	.250	.559	.393	.520	.869	.922	.574	.656	.853	.458	.500	.598	.500	.653	.799



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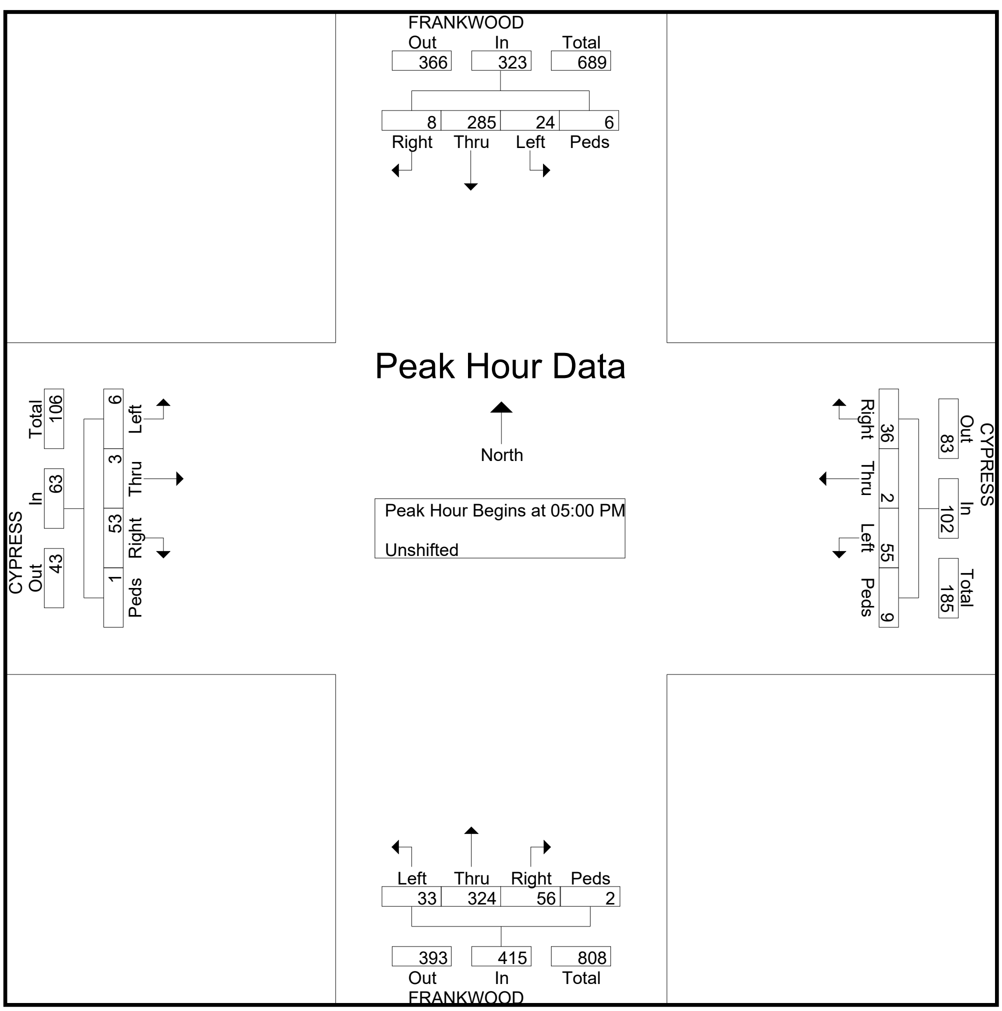
File Name : Frankwood at Cypress 11082018
Site Code : 00000000
Start Date : 11/8/2018

	FRANKWOOD Southbound					CYPRESS Westbound					FRANKWOOD Northbound					CYPRESS 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	Int. Total
Peak Hour Analysis From 12:00 PM to 05:45 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 05:00 PM																					
05:00 PM	**10**	59	2	0	71	**19**	**1**	**14**	3	**37**	**10**	75	**25**	0	110	1	**1**	12	**1**	15	**233**
05:15 PM	3	71	**3**	0	77	10	0	10	0	20	8	78	14	0	100	1	1	13	0	15	212
05:30 PM	6	69	1	0	76	15	0	3	0	18	8	**96**	10	0	**114**	**2**	1	**14**	0	**17**	225
05:45 PM	5	**86**	2	**6**	**99**	11	1	9	**6**	27	7	75	7	**2**	91	2	0	14	0	16	233
Total Volume	24	285	8	6	323	55	2	36	9	102	33	324	56	2	415	6	3	53	1	63	903
% App. Total	7.4	88.2	2.5	1.9		53.9	2	35.3	8.8		8	78.1	13.5	0.5		9.5	4.8	84.1	1.6		
PHF	.600	.828	.667	.250	.816	.724	.500	.643	.375	.689	.825	.844	.560	.250	.910	.750	.750	.946	.250	.926	.969



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File Name : Frankwood at Manning
Site Code : 00000000
Start Date : 12/11/2018
Page No : 1

Groups Printed- Unshifted

	FRANKWOOD Southbound					MANNING Westbound					FRANKWOOD Northbound					MANNING 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	Int. Total
07:00 AM	9	34	13	0	56	4	60	3	0	67	2	21	5	0	28	10	46	1	0	57	208
07:15 AM	10	39	23	0	72	12	79	10	2	103	9	29	10	0	48	10	41	1	3	55	278
07:30 AM	15	91	39	3	148	25	108	13	1	147	17	49	27	3	96	28	88	8	2	126	517
07:45 AM	23	72	64	6	165	47	125	14	0	186	22	51	19	2	94	34	128	14	2	178	623
Total	57	236	139	9	441	88	372	40	3	503	50	150	61	5	266	82	303	24	7	416	1626
08:00 AM	8	32	20	1	61	12	67	12	1	92	7	29	13	1	50	16	77	11	0	104	307
08:15 AM	7	26	8	0	41	4	54	4	0	62	4	34	6	0	44	9	70	2	0	81	228
08:30 AM	5	24	11	0	40	3	76	10	0	89	5	17	5	0	27	15	60	1	1	77	233
08:45 AM	10	24	9	0	43	8	77	11	0	96	2	13	7	0	22	11	60	8	1	80	241
Total	30	106	48	1	185	27	274	37	1	339	18	93	31	1	143	51	267	22	2	342	1009
*** BREAK ***																					
04:00 PM	25	38	14	1	78	13	89	13	0	115	7	30	17	0	54	15	99	10	1	125	372
04:15 PM	15	29	13	0	57	14	99	16	2	131	9	37	23	0	69	12	130	12	0	154	411
04:30 PM	20	37	24	1	82	9	84	14	1	108	7	48	18	0	73	21	124	5	0	150	413
04:45 PM	11	40	12	0	63	9	99	21	0	129	1	58	14	4	77	18	128	9	1	156	425
Total	71	144	63	2	280	45	371	64	3	483	24	173	72	4	273	66	481	36	2	585	1621
05:00 PM	26	39	18	2	85	17	98	19	0	134	11	66	25	6	108	22	104	5	0	131	458
05:15 PM	18	47	26	0	91	21	103	24	2	150	4	47	26	8	85	23	101	7	1	132	458
05:30 PM	22	40	14	0	76	9	82	19	1	111	10	61	11	9	91	24	76	7	1	108	386
05:45 PM	12	41	11	8	72	10	113	27	3	153	9	55	21	21	106	19	117	7	0	143	474
Total	78	167	69	10	324	57	396	89	6	548	34	229	83	44	390	88	398	26	2	514	1776
Grand Total	236	653	319	22	1230	217	1413	230	13	1873	126	645	247	54	1072	287	1449	108	13	1857	6032
Apprch %	19.2	53.1	25.9	1.8		11.6	75.4	12.3	0.7		11.8	60.2	23	5		15.5	78	5.8	0.7		
Total %	3.9	10.8	5.3	0.4	20.4	3.6	23.4	3.8	0.2	31.1	2.1	10.7	4.1	0.9	17.8	4.8	24	1.8	0.2	30.8	

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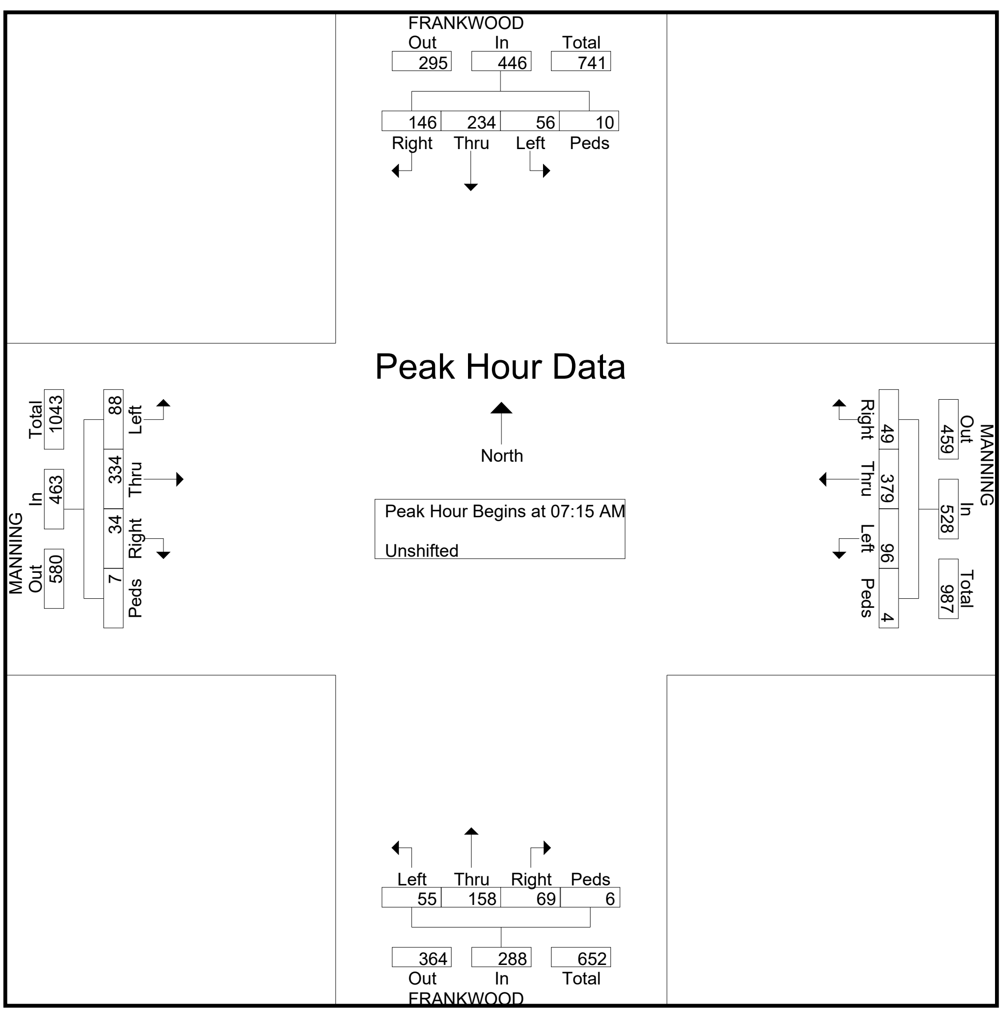
File Name : Frankwood at Manning
Site Code : 00000000
Start Date : 12/11/2018

	FRANKWOOD Southbound					MANNING Westbound					FRANKWOOD Northbound					MANNING 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	Int. Total
Peak Hour Analysis From 07:00 AM to 11:45 AM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 07:15 AM																					
07:15 AM	10	39	23	0	72	12	79	10	**2**	103	9	29	10	0	48	10	41	1	**3**	55	278
07:30 AM	15	**91**	39	3	148	25	108	13	1	147	17	49	**27**	**3**	**96**	28	88	8	2	126	517
07:45 AM	**23**	72	**64**	**6**	**165**	**47**	**125**	**14**	0	**186**	**22**	**51**	19	2	94	**34**	**128**	**14**	2	**178**	**623**
08:00 AM	8	32	20	1	61	12	67	12	1	92	7	29	13	1	50	16	77	11	0	104	307
Total Volume	56	234	146	10	446	96	379	49	4	528	55	158	69	6	288	88	334	34	7	463	1725
% App. Total	12.6	52.5	32.7	2.2		18.2	71.8	9.3	0.8		19.1	54.9	24	2.1		19	72.1	7.3	1.5		
PHF	.609	.643	.570	.417	.676	.511	.758	.875	.500	.710	.625	.775	.639	.500	.750	.647	.652	.607	.583	.650	.692



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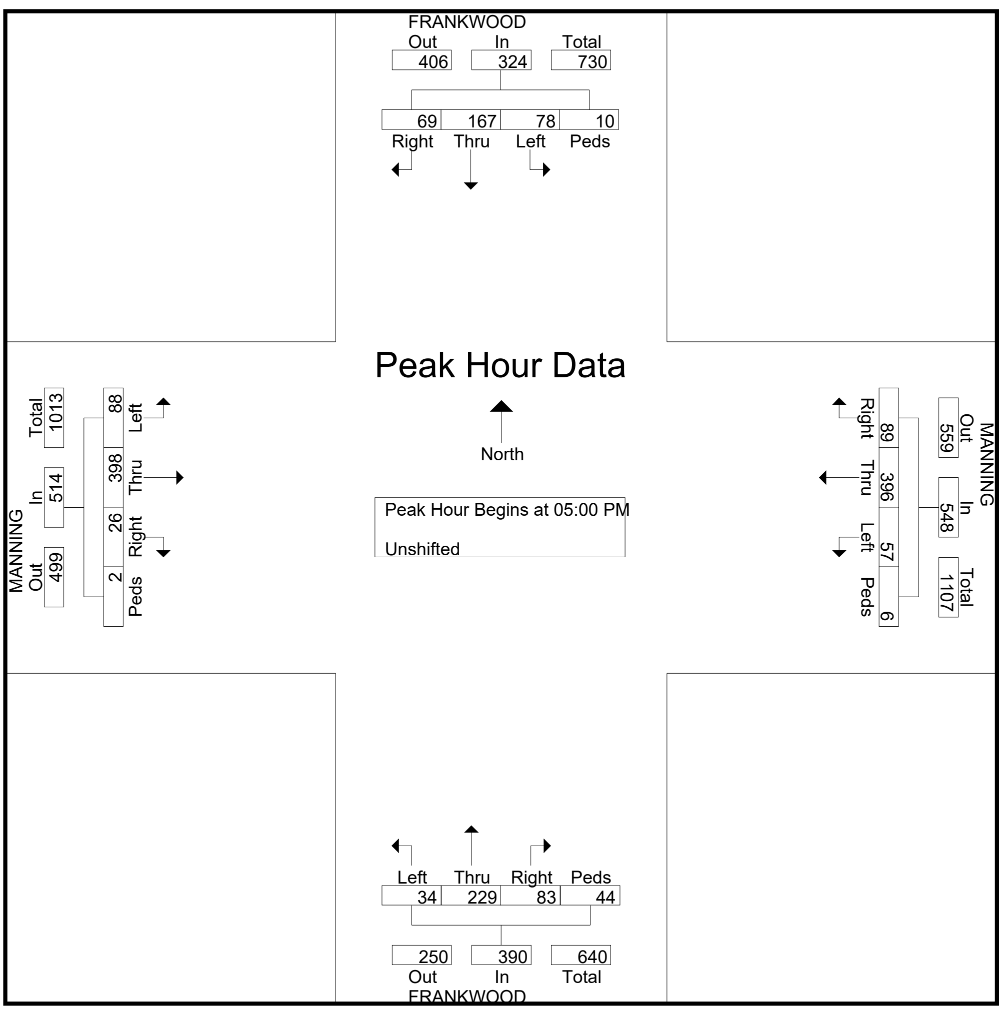
File Name : Frankwood at Manning
Site Code : 00000000
Start Date : 12/11/2018

	FRANKWOOD Southbound					MANNING Westbound					FRANKWOOD Northbound					MANNING 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	Int. Total
Peak Hour Analysis From 12:00 PM to 05:45 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 05:00 PM																					
05:00 PM	**26**	39	18	2	85	17	98	19	0	134	**11**	**66**	25	6	**108**	22	104	5	0	131	458
05:15 PM	18	**47**	**26**	0	**91**	**21**	103	24	2	150	4	47	**26**	8	85	23	101	**7**	**1**	132	458
05:30 PM	22	40	14	0	76	9	82	19	1	111	10	61	11	9	91	**24**	76	7	1	108	386
05:45 PM	12	41	11	**8**	72	10	**113**	**27**	**3**	**153**	9	55	21	**21**	106	19	**117**	7	0	**143**	**474**
Total Volume	78	167	69	10	324	57	396	89	6	548	34	229	83	44	390	88	398	26	2	514	1776
% App. Total	24.1	51.5	21.3	3.1		10.4	72.3	16.2	1.1		8.7	58.7	21.3	11.3		17.1	77.4	5.1	0.4		
PHF	.750	.888	.663	.313	.890	.679	.876	.824	.500	.895	.773	.867	.798	.524	.903	.917	.850	.929	.500	.899	.937



Appendix C: Traffic Modeling

November 1st, 2018

Kai Han, TE
Council of Fresno County Governments
2035 Tulare Street, Suite 201
Fresno, CA 93721

Via E-mail Only: khan@fresnocog.org

Subject: Traffic Modeling Request for the Preparation of a Traffic Impact Analysis of Fino Estates at the Northeast Quadrant of Frankwood Avenue and Parlier Avenue in the City of Reedley (JLB Project 014-005)

Dear Mr. Han,

JLB Traffic Engineering, Inc. (JLB) hereby requests traffic modeling for the Project described below. The Project proposes to develop Fino Estates (Project) with 34 single family units and up to 91 multifamily residential units on 13.51 acres. The Project is generally located at the northeast quadrant of Frankwood Avenue and Parlier Avenue in the City of Reedley. Based on information provided to JLB, the Project is consistent with the City of Reedley General Plan. An aerial of the project vicinity and the project site plan are shown in Exhibits A and B respectively.

The purpose of this TIA is to evaluate the potential on- and off-site traffic impacts, identify short-term roadway and circulation needs, determine potential mitigation measures and identify any critical traffic issues that should be addressed in the on-going planning process.

Scenarios:

The following scenarios are requested:

1. Base Year 2018 (with TAZ modifications)
2. Cumulative Year 2035 plus Project Select Zone (with TAZ modifications)
3. Differences between model runs 2 and 1 above

Changes and/or additions to the Model Network or TAZ's

JLB reviewed the Fresno COG model network for the Base Year 2018 and Cumulative Year 2035. Based on this review, JLB requests the following link and TAZ Network modifications. Details on the requested Link and TAZ modifications for Base Year 2018 and Cumulative Year 2035 are illustrated in Exhibit C.

LINK and TAZ MODIFICATIONS (For Base Year 2018 Scenario only):

1. Modify Reed Avenue north of Manning Avenue to set it to one lane in each direction.
2. Modify Manning Avenue between Reed Avenue and Columbia Avenue to set it to one lane in each direction

LINK and TAZ MODIFICATIONS (For Base Year 2018 Scenario and Cumulative Year 2035 plus Project Select Zone Scenarios):

1. Create Cypress Avenue between Parlier Avenue and Manning Avenue. Cypress Avenue shall extend approximately 600 feet east and west of Frankwood Avenue.
    a. Classification: Local Collector
    b. Lanes: One lane in each direction
    c. Speed: 25 MPH
2. TAZ 577 shall have its eastern TAZ connector to the western terminus of Cypress Avenue.
3. TAZ 578 shall have its western TAZ connector to the eastern terminus of Cypress Avenue.
4. Create TAZ A generally located to the northeast corner of Parlier Avenue and Frankwood Avenue. TAZ A shall have TAZ connectors to South Avenue, Frankwood Avenue, and Parlier Avenue.
5. Modify Frankwood Avenue to set it to one lane in each direction.

Project Only Trip Generation (For Cumulative Year 2035 plus Project Select Zone Scenario Only):

Table I presents the trip generation for the proposed Project pursuant to the 10th Edition of the Trip Generation Manual with trip generation rates for Single-Family Detached Housing and Multifamily Housing (Low Rise). At build-out, the Project within TAZ A is estimated to generate a maximum of 987 daily trips, 67 AM peak hour trips and 85 PM peak hour trips.

Table I: Project Only Trip Generation

Land Use (ITE Code)	*Size*	*Unit*	*Daily*		*AM Peak Hour*						*PM Peak Hour*					
			Rate	*Total*	*Trip Rate*	*In %*	*Out %*	*In*	*Out*	*Total*	*Trip Rate*	*In %*	*Out %*	*In*	*Out*	*Total*
Single-Family Detached Housing (210)	34	d.u.	9.44	321	0.74	25	75	6	19	25	0.99	63	37	21	13	34
Multifamily Housing (Low Rise) (220)	91	d.u.	7.32	666	0.46	23	77	10	32	42	0.56	63	37	32	19	51
Total Project Trips				**987**				**16**	**51**	**67**				**53**	**32**	**85**

Note: ***d.u. = Dwelling Units***

Access to the Project

Based on the latest Project Site Plan, access to and from the Project site will be from three points. A full access point will be located at the east side of Frankwood Avenue north of Parlier Avenue. Two additional full access points will be located at the eastern portion of the Project and will connect to East Avenue which will connect northerly to South Avenue through residential streets, and another at the south end southerly to Parlier Avenue. Additional Project details are found on Exhibit B.

Please invoice JLB Traffic Engineering, Inc. and reference JLB Project No. 014-005 on the invoice. If you have any questions or require additional information, please do not hesitate to contact me by phone at (559) 317-6243 or by e-mail at amiao@JLBtraffic.com.

Sincerely,

Alan Miao, EIT
Engineer I/II

cc: Jose Benavides, JLB Traffic Engineering, Inc.
Lang Yu, Fresno Council of Governments

Z:\01 Projects\014 Reedley\014-005 Fino Estates TIA\Modeling\L10312018 Model Request.docx

Exhibit A – Aerial

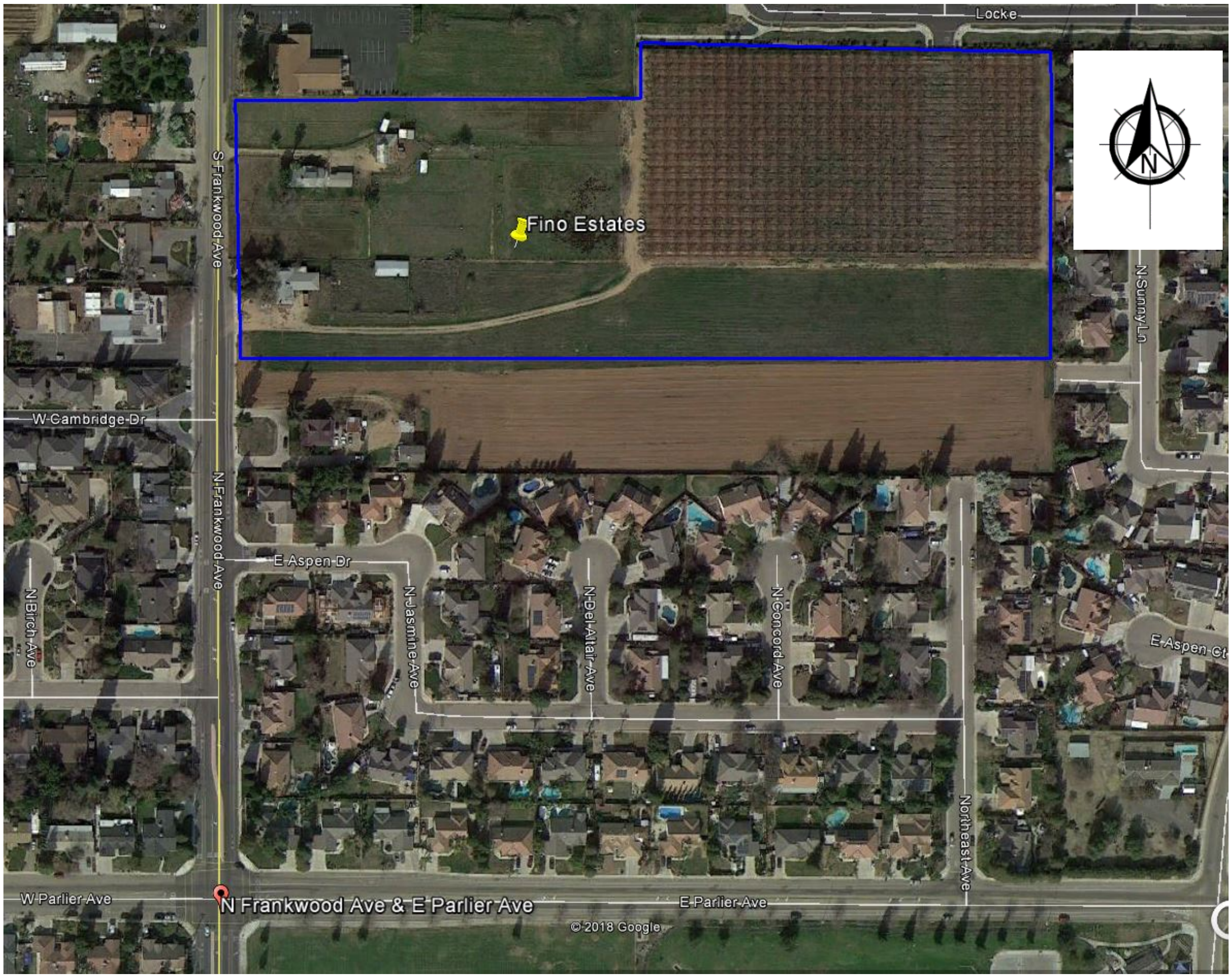


Exhibit B – Project Site Plan

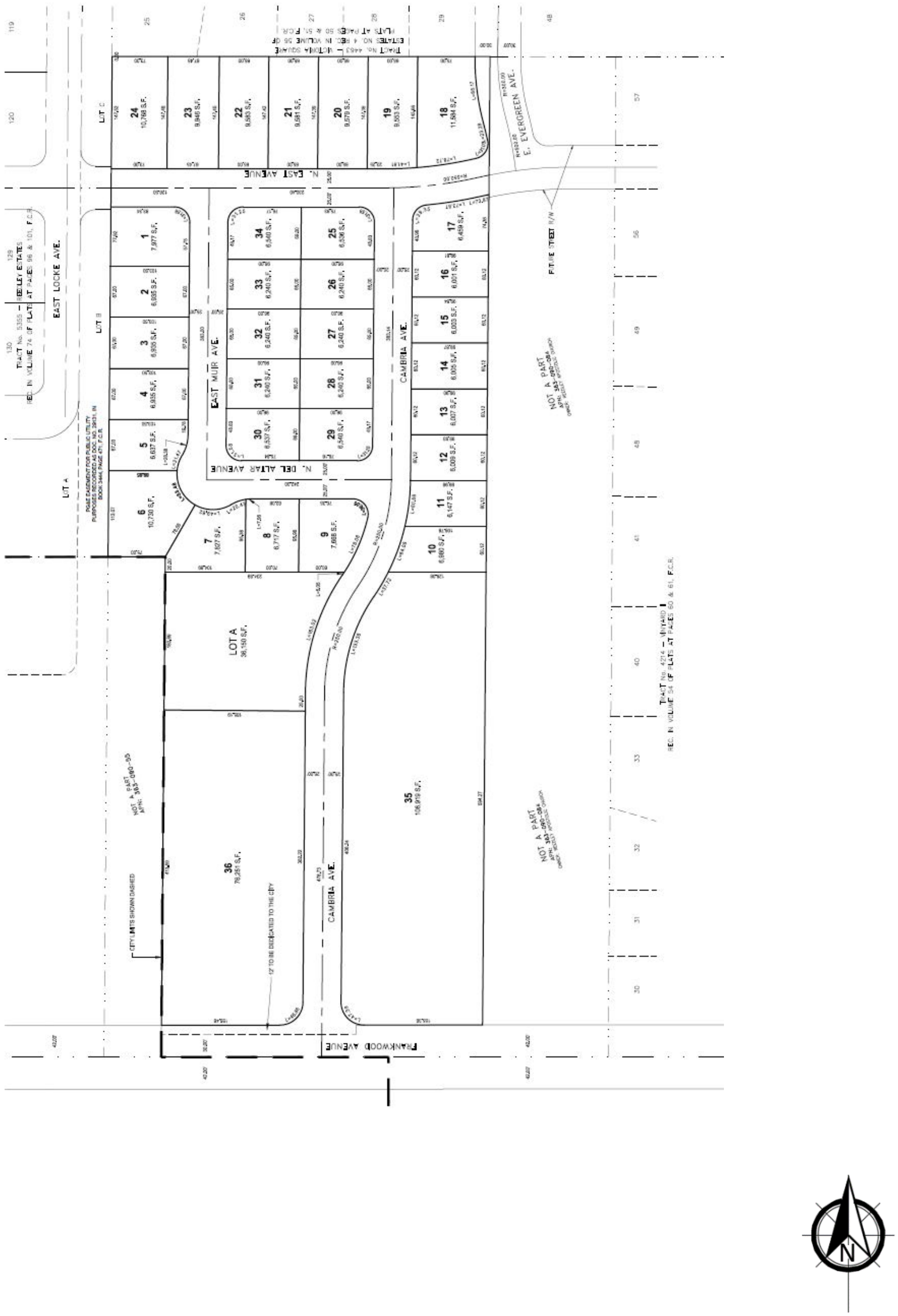
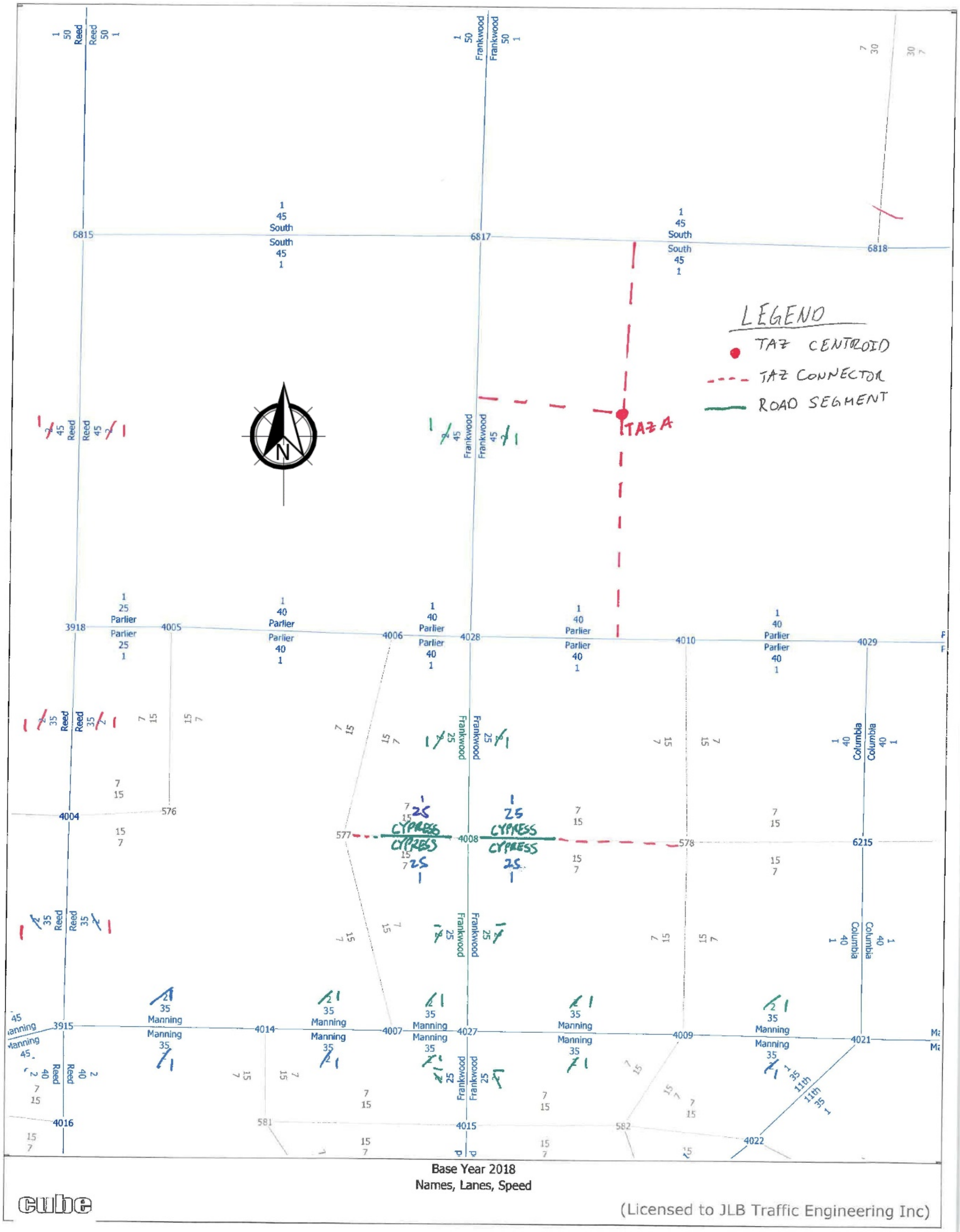
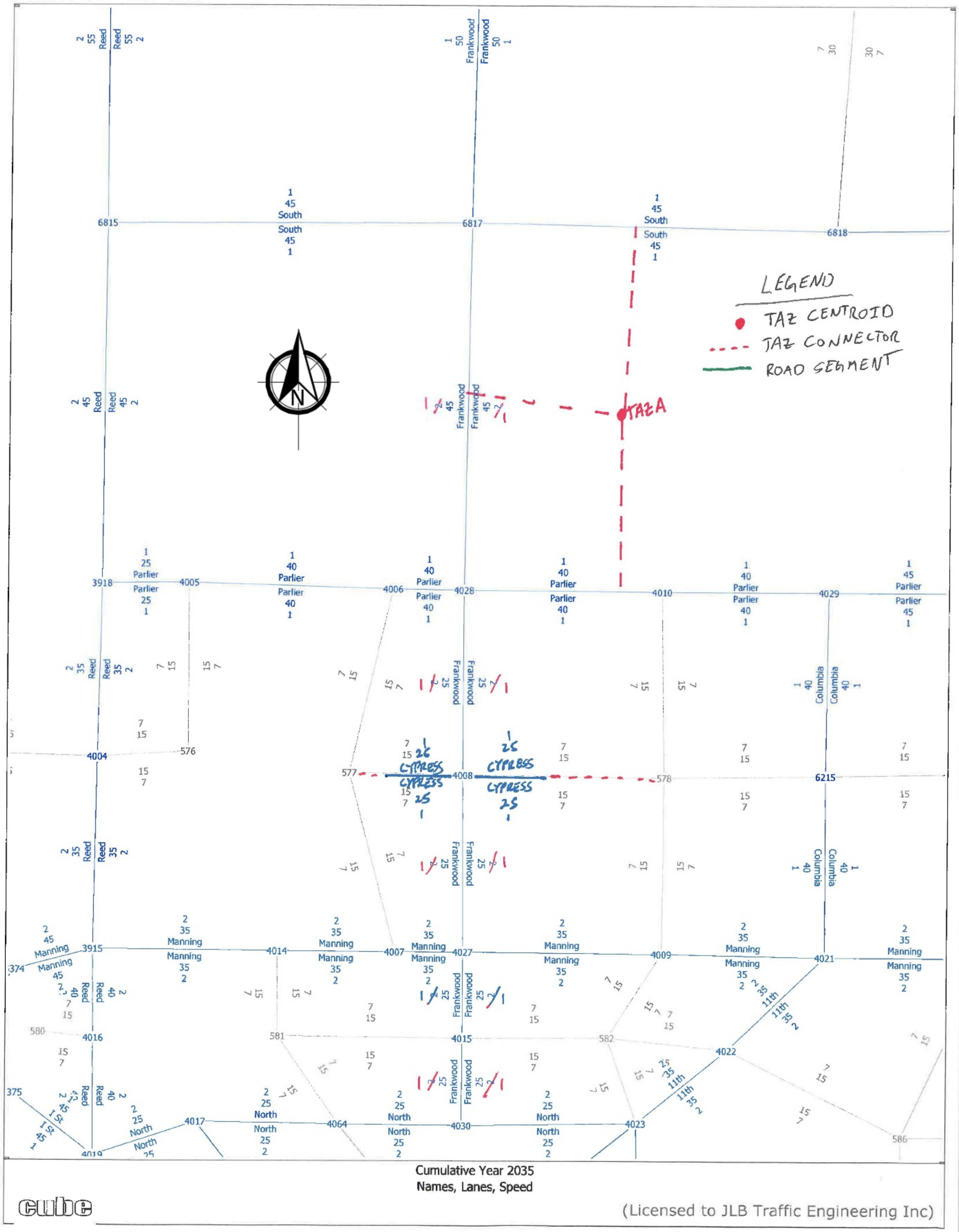
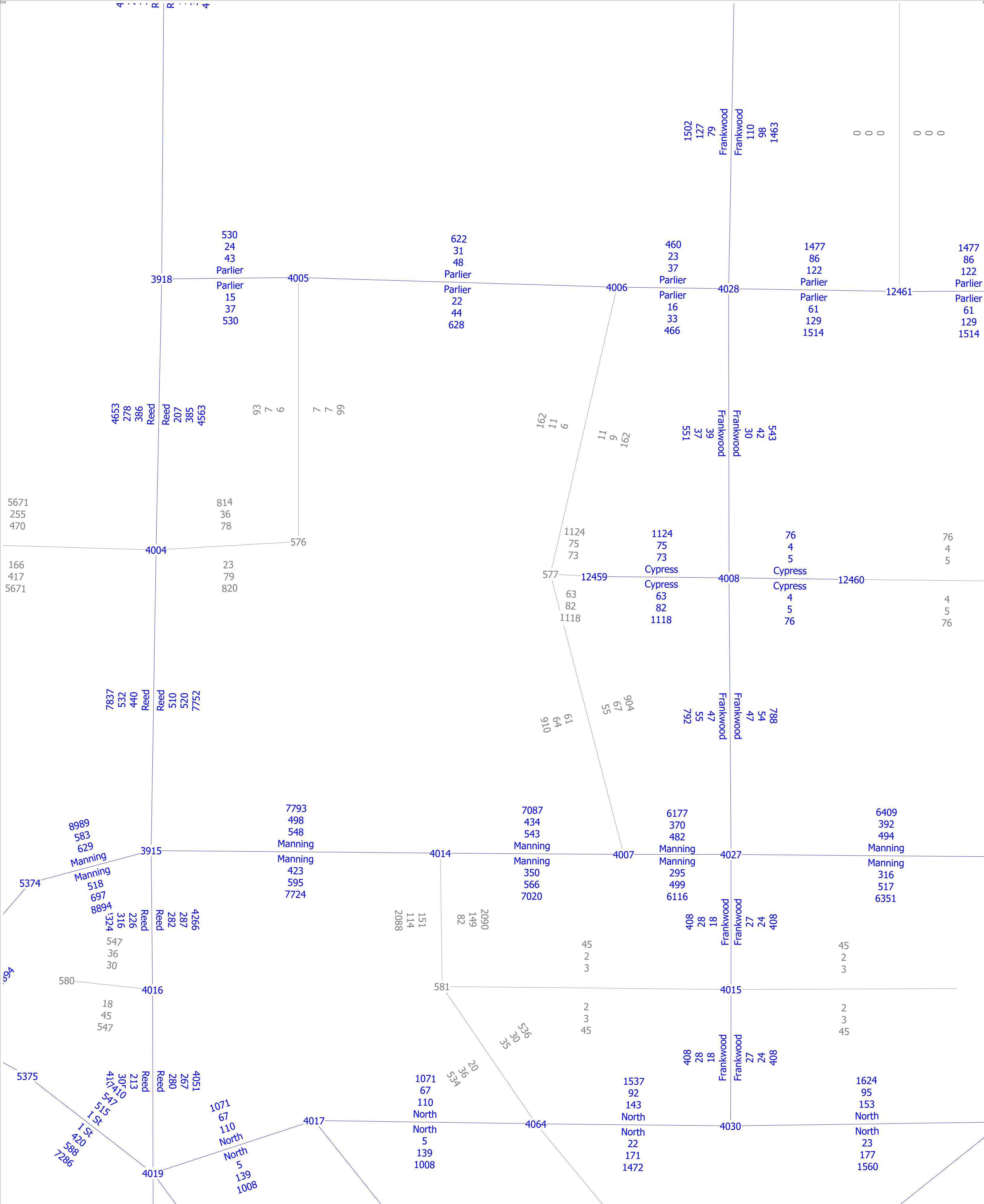


Exhibit C – Model TAZ Modifications

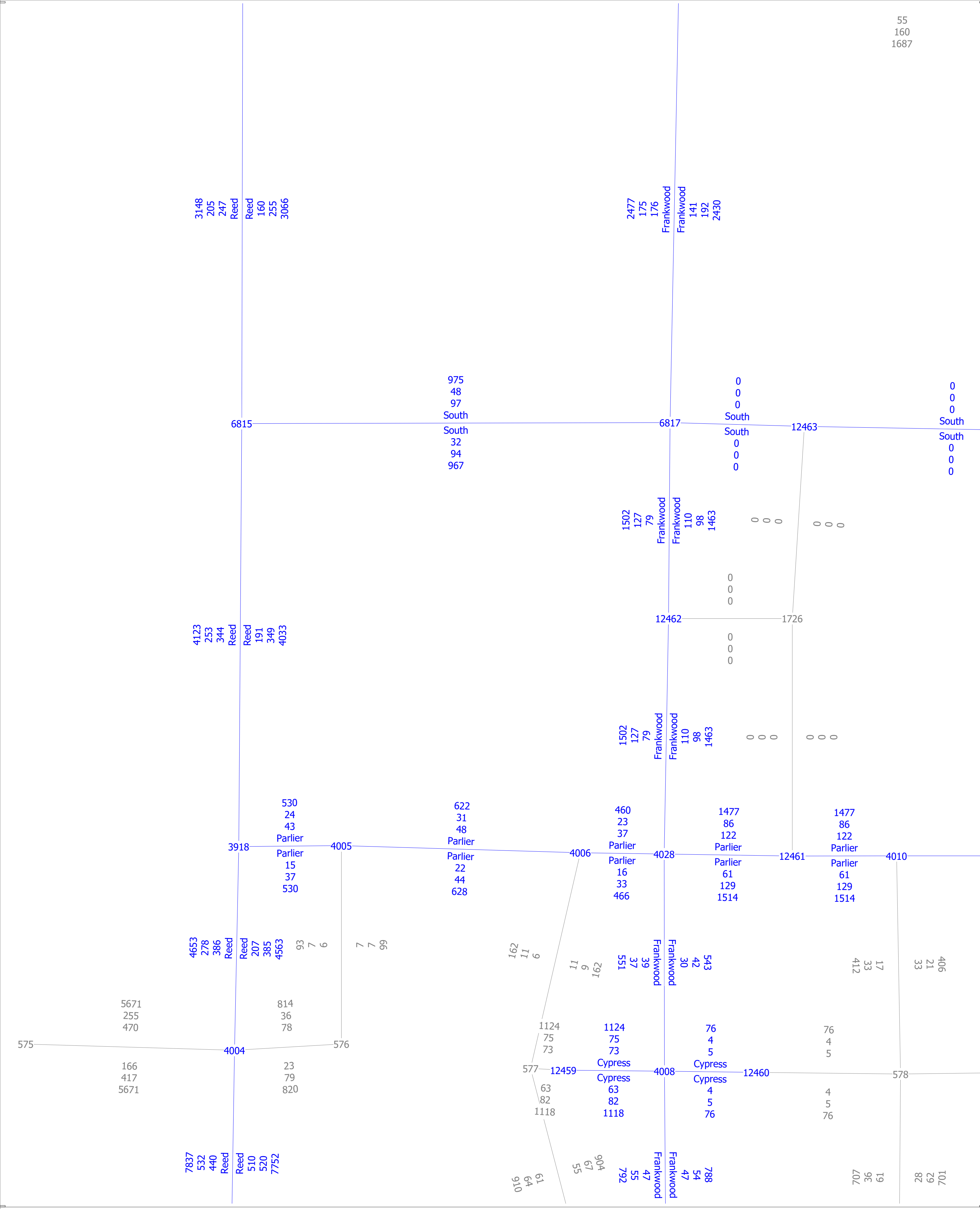



LEGEND
TAZ CENTROID
TAZ CONNECTOR
ROAD SEGMENT
TAZ A
South
Parlier
Manning
North
Reed
Frankwood
Columbia
11th
CYPRESS
Cumulative Year 2035
Names, Lanes, Speed
cube
(Licensed to JLB Traffic Engineering Inc)



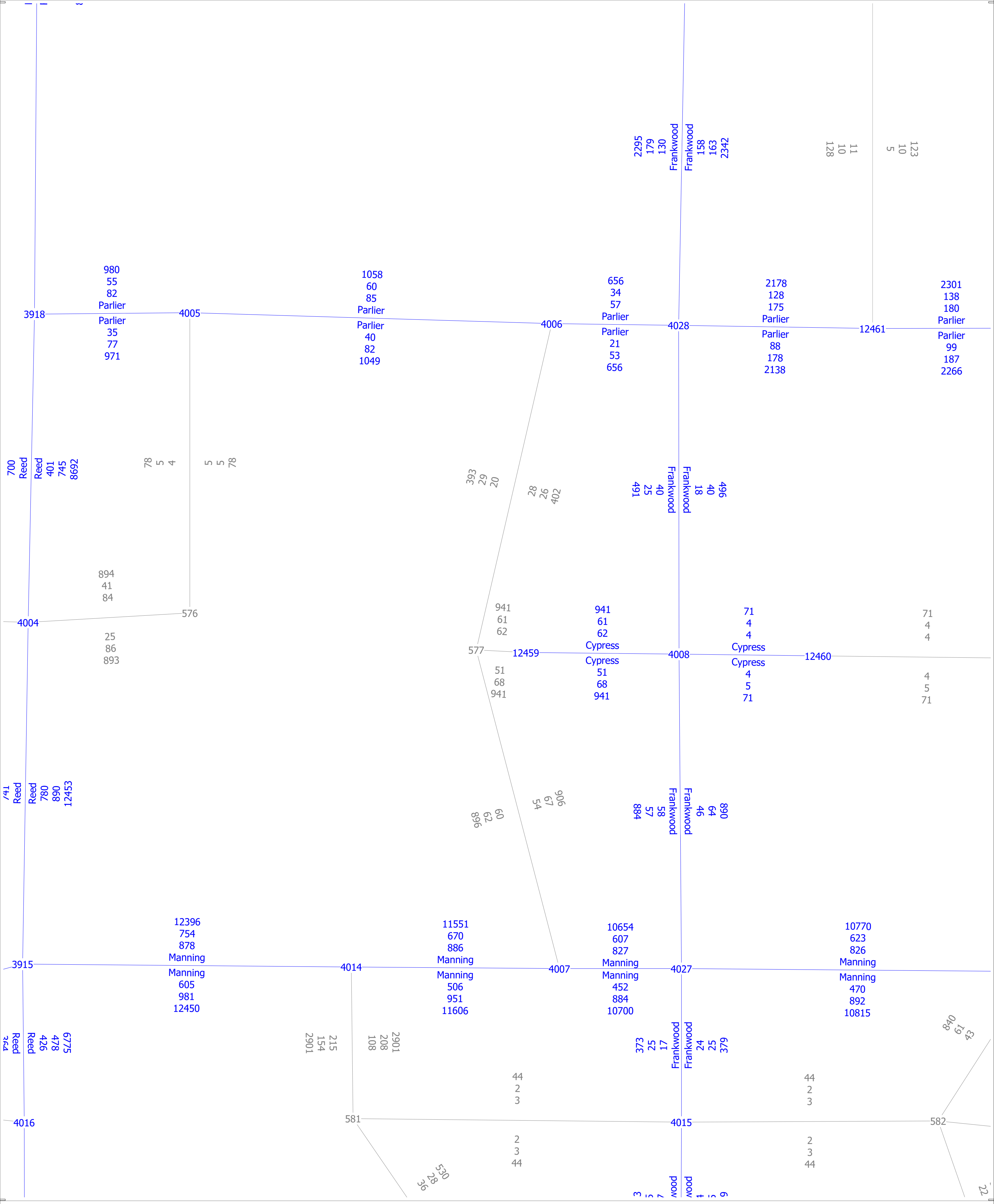
Base Year 2018

AM, PM, Daily Volumes



Base Year 2018

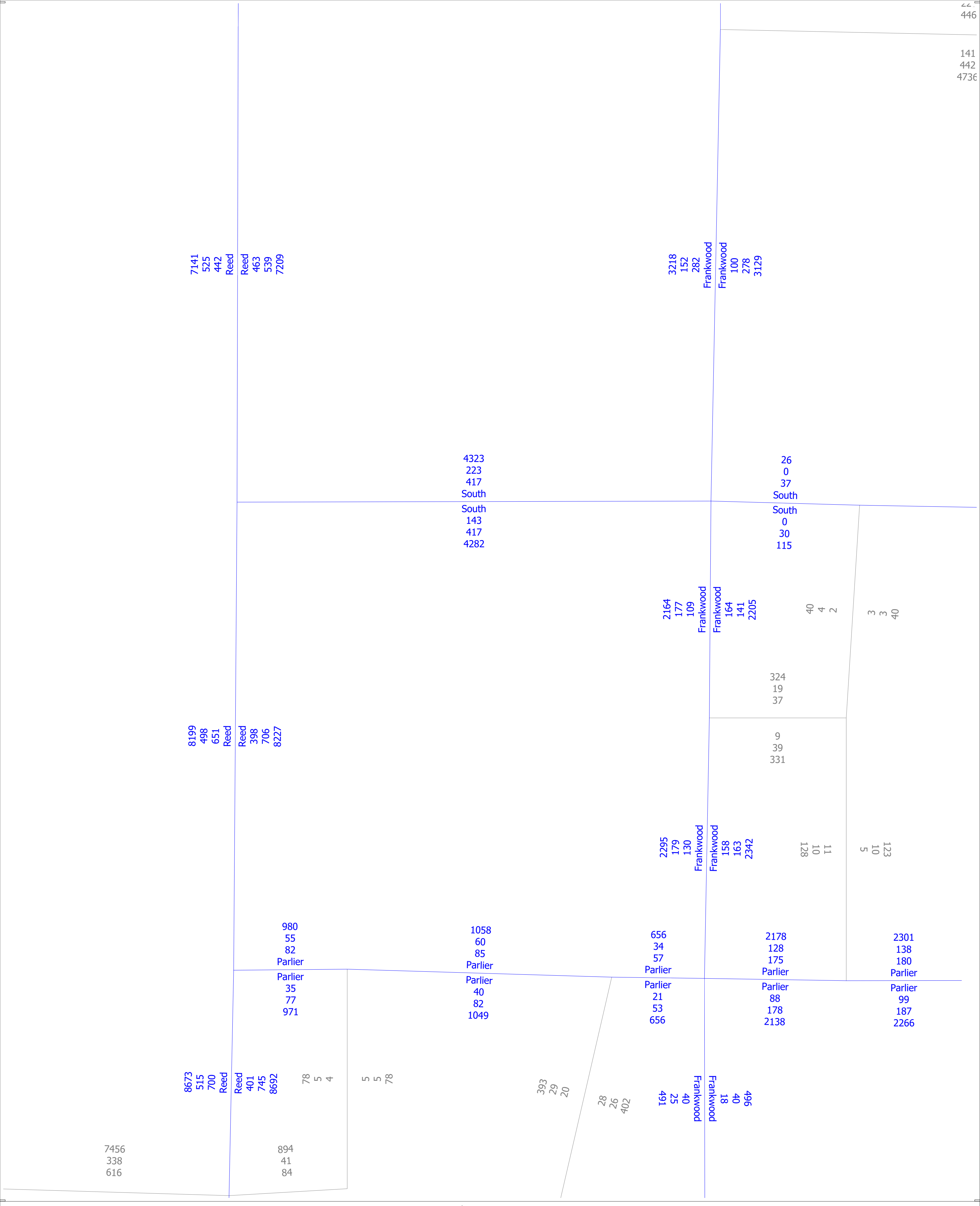
AM, PM, Daily Volumes



Cumulative Year 2035
AM, PM, Daily Volumes

cube

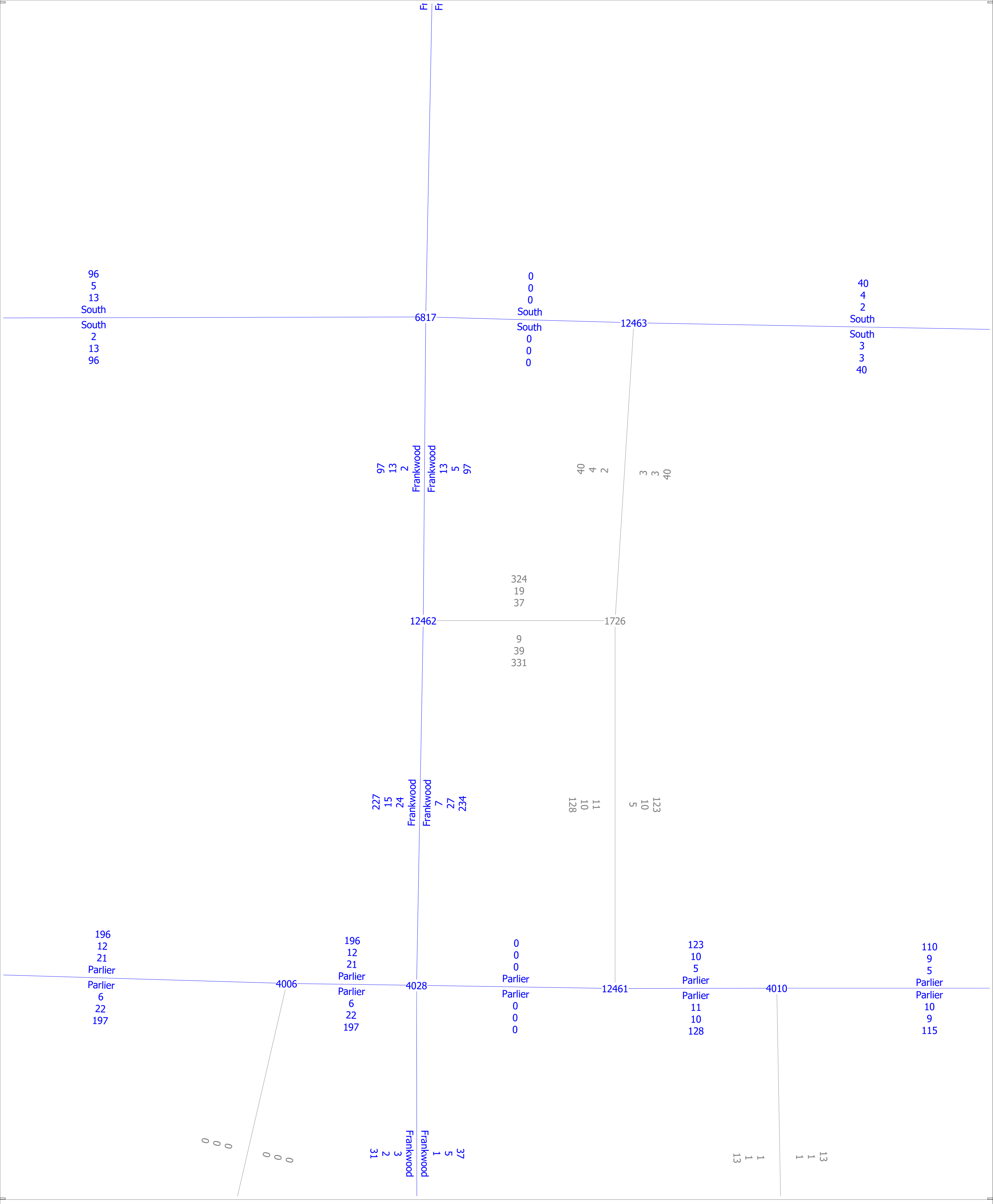
(Licensed to JLB Traffic Engineering Inc)



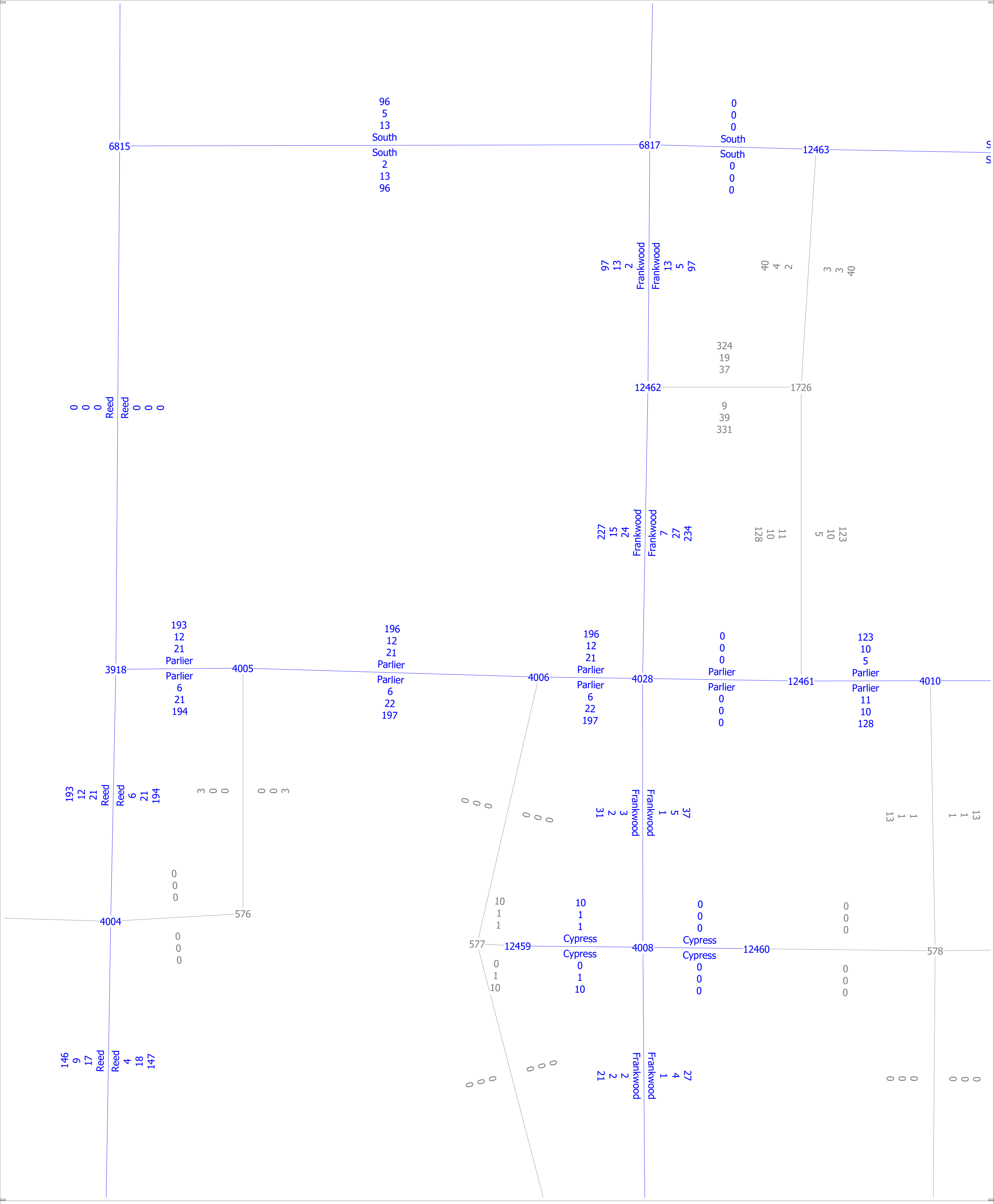
Cumulative Year 2035
AM, PM, Daily Volumes

cube

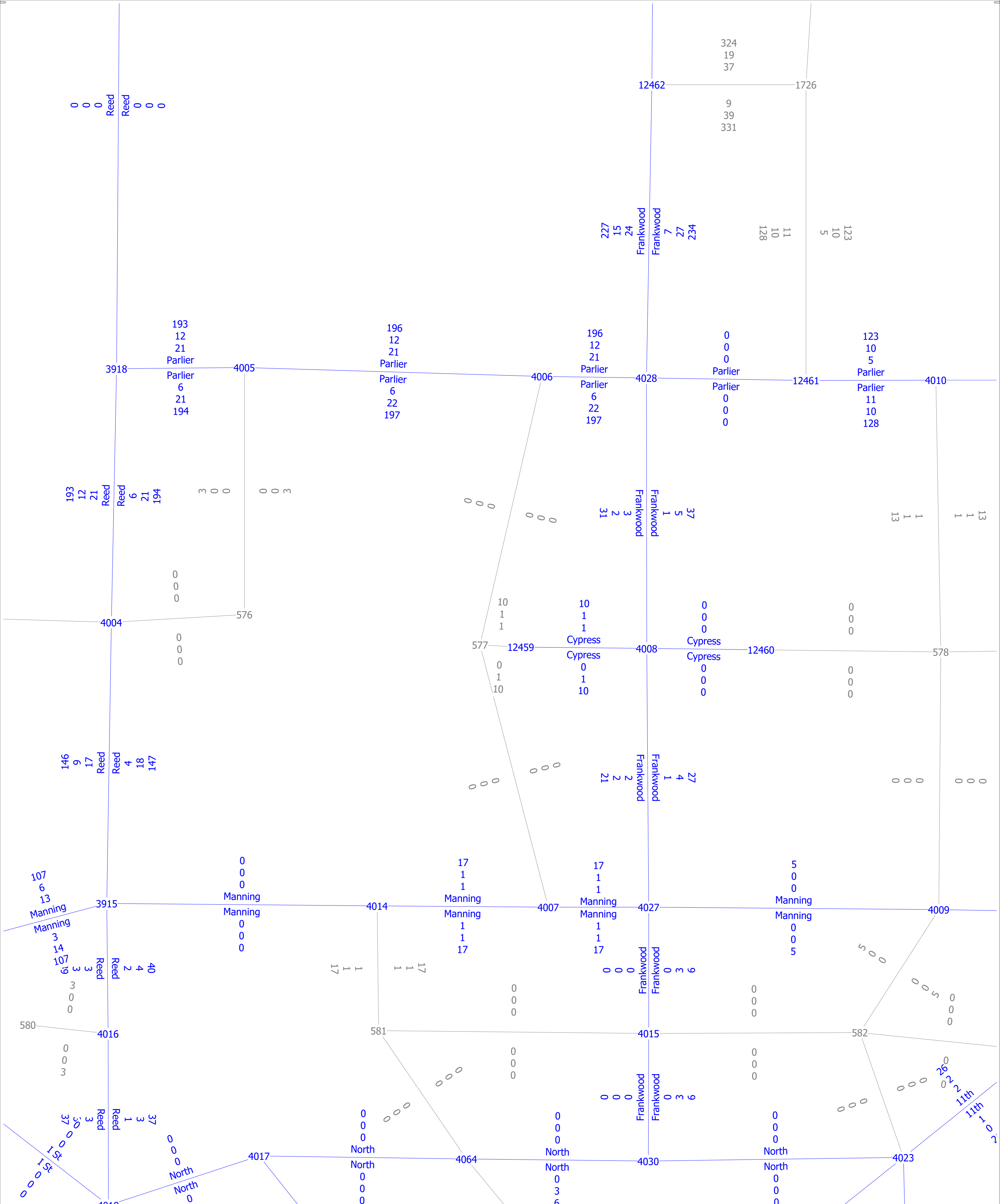
(Licensed to JLB Traffic Engineering Inc)



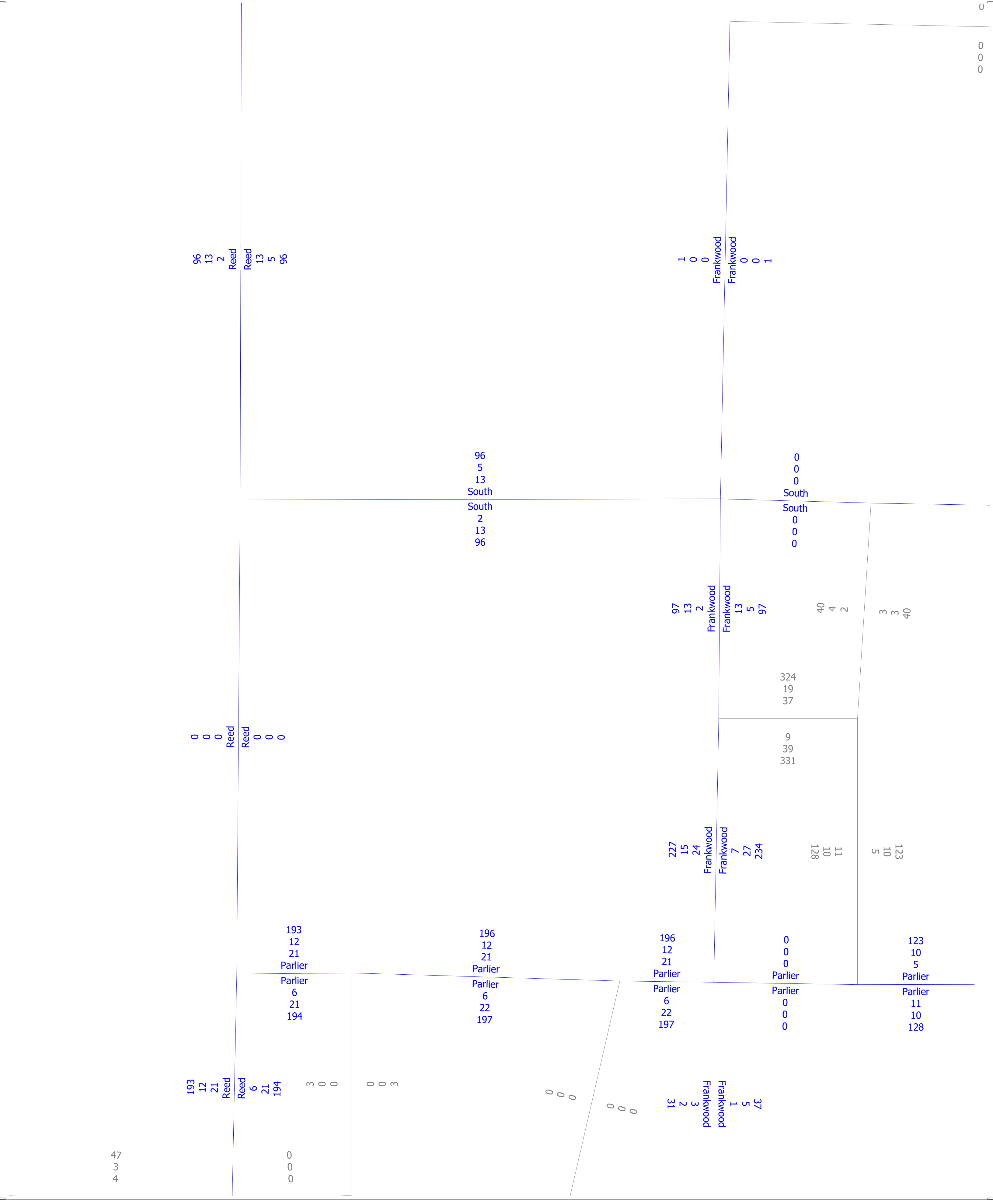
Cumulative Year 2035
AM, PM, Daily Volumes
Select Zone



Cumulative Year 2035
AM, PM, Daily Volumes
Select Zone



Cumulative Year 2035
AM, PM, Daily Volumes
Select Zone



Cumulative Year 2035
AM, PM, Daily Volumes
Select Zone

Appendix D: Methodology

Levels of Service Methodology

The description and procedures for calculating capacity and level of service (LOS) are found in the Transportation Research Board, Highway Capacity Manual (HCM). The HCM 2010 represents the research on capacity and quality of service for transportation facilities.

Quality of service requires quantitative measures to characterize operational conditions within a traffic stream. Level of service is a quality measure describing operational conditions within a traffic stream, generally in terms of such service measures as speed and travel time, freedom to maneuver, traffic interruptions, comfort and convenience.

Six levels of service are defined for each type of facility that has analysis procedures available. Letters designate each level of service (LOS), from A to F, with LOS A representing the best operating conditions and LOS F the worst. Each LOS represents a range of operating conditions and the driver's perception of these conditions. Safety is not included in the measures that establish a LOS.

Urban Streets (Automobile Mode)

The term "urban streets" refers to urban arterials and collectors, including those in downtown areas. Arterial streets are roads that primarily serve longer through trips. However, providing access to abutting commercial and residential land uses is also an important function of arterials. Collector streets provide both land access and traffic circulation within residential, commercial and industrial areas. Their access function is more important than that of arterials, and unlike arterials their operation is not always dominated by traffic signals. Downtown streets are signalized facilities that often resemble arterials. They not only move through traffic but also provide access to local businesses for passenger cars, transit buses, and trucks. Pedestrian conflicts and lane obstructions created by stopping or standing taxicabs, buses, trucks and parking vehicles that cause turbulence in the traffic flow are typical of downtown streets.

Flow Characteristics

The speed of vehicles on urban streets is influenced by three main factors, street environment, interaction among vehicles and traffic control.

The street environment includes the geometric characteristics of the facility, the character of roadside activity, and adjacent land uses. Thus, the environment reflects the number and width of lanes, type of median, driveway/access point density, spacing between signalized intersections, existence of parking, level of pedestrian and bicyclist activity and speed limit.

The interaction among vehicles is determined by traffic density, the proportion of trucks and buses, and turning movements. This interaction affects the operation of vehicles at intersections and, to a lesser extent, between signals.

Traffic controls (including signals and signs) forces a portion of all vehicles to slow or stop. The delays and speed changes caused by traffic control devices reduce vehicle speeds; however, such controls are needed to establish right-of-way.

Levels of Service (automobile Mode)

The average travel speed for through vehicles along an urban street is the determinant of the operating level of service (LOS). The travel speed along a segment, section or entire length of an urban street is dependent on the running speed between signalized intersections and the amount of control delay incurred at signalized intersections.

LOS A describes primarily free-flow operation. Vehicles are completely unimpeded in their ability to maneuver within the traffic stream. Control delay at signalized intersections is minimal. Travel speeds exceed 85 of the base free flow speed (FFS).

LOS B describes reasonably unimpeded operation. The ability to maneuver within the traffic stream is only slightly restricted and control delay at the boundary intersections is not significant. The travel speed is between 67 and 85 percent of the base FFS.

LOS C describes stable operations. The ability to maneuver and change lanes in midblock location may be more restricted than at LOS B. Longer queues at the boundary intersections may contribute to lower travel speeds. The travel speed is between 50 and 67 percent of the base FFS.

LOS D indicates a less stable condition in which small increases in flow may cause substantial increases in delay and decreases in travel speed. This operation may be due to adverse signal progression, high volumes, inappropriate signal timing, at the boundary intersections. The travel speed is between 40 and 50 percent of the base FFS.

LOS E is characterized unstable operation and significant delay. Such operations may be due to some combination of adverse progression, high volume, and inappropriate signal timing at the boundary intersections. The travel speed is between 30 and 40 percent of the base FFS.

LOS F is characterized by street flow at extremely low speed. Congestion is likely occurring at the boundary intersections, as indicated by high delay and extensive queuing. The travel speed is 30 percent or less of the base FFS.

Table A-1: Urban Street Levels of Service (Automobile Mode)

Travel Speed as a Percentage of Base Free-Flow Speed (%)	LOS by Critical Volume-to-Capacity Ratio[a]	
	≤1.0	>1.0
>85	A	F
>67 to 85	B	F
>50 to 67	C	F
>40 to 50	D	F
>30 to 40	E	F
≤30	F	F

a = The Critical volume-to-capacity ratio is based on consideration of the through movement-to-capacity ratio at each boundary intersection in the subject direction of travel. The critical volume-to-capacity ratio is the largest ratio of those considered.
Source: Highway Capacity Manual 2010, Exhibit 16-4. Urban Street LOS Criteria (Automobile Mode)

Intersection Levels of Service

One of the more important elements limiting, and often interrupting the flow of traffic on a highway is the intersection. Flow on an interrupted facility is usually dominated by points of fixed operation such as traffic signals, stop and yield signs.

Signalized Intersections – Performance Measures

For signalized intersections the performance measures include automobile volume-to-capacity ratio, automobile delay, queue storage length, ratio of pedestrian delay, pedestrian circulation area, pedestrian perception score, bicycle delay, and bicycle perception score. LOS is also considered a performance measure. For the automobile mode average control delay per vehicle per approach is determined for the peak hour. A weighted average of control delay per vehicle is then determined for the intersection. A LOS designation is given to the weighted average control delay to better describe the level of operation. A description of LOS for signalized intersections is found in Table A-2.

Table A-2: Signalized Intersection Level of Service Description (Automobile Mode)

Level of Service	Description	Average Control Delay (seconds per vehicle)
A	Operations with a control delay of 10 seconds/vehicle or less and a volume-to-capacity ratio no greater than 1.0. This level is typically assigned when volume-to-capacity ratio is and either progression is exceptionally favorable or the cycle length is very short. If it's due to favorable progression, most vehicles arrive during the green indication and travel through the intersection without stopping.	≤10
B	Operations with control delay between 10.1 to 20.0 seconds/vehicle and a volume-to-capacity ratio no greater than 1.0. This level is typically assigned when the volume-to-capacity ratio is low and either progression is highly favorable or the cycle length is short. More vehicles stop than with LOS A.	>10.0 to 20.0
C	Operations with average control delays between 20.1 to 35.0 seconds/vehicle and a volume-to-capacity ratio no greater than 1.0. This level is typically assigned when the volume-to-capacity ratio no greater than 1.0. This level is typically assigned when progression is favorable or the cycle length is moderate. Individual cycle failures (i.e., one or more queued vehicles are not able to depart as a result of insufficient capacity during the cycle) may begin to appear at this level. The number of vehicles stopping is significant, although many vehicles still pass through the intersection without stopping.	>20 to 35
D	Operations with control delay between 35.1 to 55.0 seconds/vehicle and a volume-to-capacity ratio no greater than 1.0. This level is typically assigned when the volume-to-capacity ratio is high and either progression is ineffective or the cycle length is long. Many vehicles stop, and i ndividual cycle failures are noticeable.	>35 to 55
E	Operations with control delay between 55.1 to 80.0 seconds/vehicle and a volume-to-capacity ratio no greater than 1.0. This level is typically assigned when the volume-to-capacity ratio is high, progression is unfavorable, and the cycle length is long. Individual cycle failures are frequent.	>55 to 80
F	Operations with unacceptable control delay exceeding 80.0 seconds/vehicle and a volume-to-capacity ratio greater than 1.0. This level is typically assigned when the volume-to-capacity ratio is very high, progression is very poor, and the cycle length is long. Most cycles fail to clear the queue.	>80

Source: Highway Capacity Manual 2010

Unsignalized Intersections

The HCM 2010 procedures use control delay as a measure of effectiveness to determine level of service. Delay is a measure of driver discomfort, frustration, fuel consumption, and increased travel time. The delay experienced by a motorist is made up of a number of factors that relate to control, traffic and incidents. Total delay is the difference between the travel time actually experienced and the reference travel time that would result during base conditions, i. e., in the absence of traffic control, geometric delay, any incidents, and any other vehicles. Control delay is the increased time of travel for a vehicle approaching and passing through an unsignalized intersection, compared with a free-flow vehicle if it were not required to slow or stop at the intersection.

All-Way Stop Controlled Intersections

All-way stop controlled intersections is a form of traffic controls in which all approaches to an intersection are required to stop. Similar to signalized intersections, at all-way stop controlled intersections the average control delay per vehicle per approach is determined for the peak hour. A weighted average of control delay per vehicle is then determined for the intersection as a whole. In other words the delay measured for all-way stop controlled intersections is a measure of the average delay for all vehicles passing through the intersection during the peak hour. A LOS designation is given to the weighted average control delay to better describe the level of operation.

Two-Way Stop Controlled Intersections

Two-way stop controlled (TWSC) intersections in which stop signs are used to assign the right-of-way, are the most prevalent type of intersection in the United States. At TWSC intersections the stop-controlled approaches are referred as the minor street approaches and can be either public streets or private driveways. The approaches that are not controlled by stop signs are referred to as the major street approaches.

The capacity of movements subject to delay are determined using the "critical gap" method of capacity analysis. Expected average control delay based on movement volume and movement capacity is calculated. A LOS for TWSC intersection is determined by the computed or measured control delay for each minor movement. LOS is not defined for the intersection as a whole for three main reasons: (a) major-street through vehicles are assumed to experience zero delay; (b) the disproportionate number of major-street through vehicles at the typical TWSC intersection skews the weighted average of all movements, resulting in a very low overall average delay from all vehicles; and (c) the resulting low delay can mask important LOS deficiencies for minor movements. Table A-3 provides a description of LOS at unsignalized intersections.

Table A-3: Unsignalized Intersection Level of Service Description (Automobile Mode)

Control Delay (seconds per vehicle)	**LOS by Volume-to-Capacity Ratio**	
	v/c ≤ 1.0	**v/c > 1.0**
≤10	A	F
>10 to 15	B	F
>15 to 25	C	F
>25 to 35	D	F
>35 to 50	E	F
>50	F	F

Source: HCM 2010 Exhibit 19-1.

Appendix E: Existing Traffic Conditions

Intersection						
Int Delay, s/veh	3.3					
Movement	**WBL**	**WBR**	**NBT**	**NBR**	**SBL**	**SBT**
Lane Configurations						
Traffic Vol, veh/h	99	26	184	30	28	408
Future Vol, veh/h	99	26	184	30	28	408
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	86	86	86	86	86	86
Heavy Vehicles, %	3	3	3	3	3	3
Mvmt Flow	115	30	214	35	33	474
Major/Minor	**Minor1**		**Major1**		**Major2**	
Conflicting Flow All	772	232	0	0	249	0
Stage 1	232	-	-	-	-	-
Stage 2	540	-	-	-	-	-
Critical Hdwy	6.43	6.23	-	-	4.13	-
Critical Hdwy Stg 1	5.43	-	-	-	-	-
Critical Hdwy Stg 2	5.43	-	-	-	-	-
Follow-up Hdwy	3.527	3.327	-	-	2.227	-
Pot Cap-1 Maneuver	366	805	-	-	1311	-
Stage 1	804	-	-	-	-	-
Stage 2	582	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	354	805	-	-	1311	-
Mov Cap-2 Maneuver	354	-	-	-	-	-
Stage 1	777	-	-	-	-	-
Stage 2	582	-	-	-	-	-
Approach	**WB**		**NB**		**SB**	
HCM Control Delay, s	19		0		0.5	
HCM LOS	C					
Minor Lane/Major Mvmt		**NBT**	**NBR**	**WBLn1**	**SBL**	**SBT**
Capacity (veh/h)		-	-	401	1311	-
HCM Lane V/C Ratio		-	-	0.362	0.025	-
HCM Control Delay (s)		-	-	19	7.8	0
HCM Lane LOS		-	-	C	A	A
HCM 95th %tile Q(veh)		-	-	1.6	0.1	-

Intersection	
Intersection Delay, s/veh	9.8
Intersection LOS	A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		✣			✣			✣			✣	
Traffic Vol, veh/h	1	32	17	41	102	29	16	122	21	11	136	15
Future Vol, veh/h	1	32	17	41	102	29	16	122	21	11	136	15
Peak Hour Factor	0.79	0.79	0.79	0.79	0.79	0.79	0.79	0.79	0.79	0.79	0.79	0.79
Heavy Vehicles, %	3	3	3	3	3	3	3	3	3	3	3	3
Mvmt Flow	1	41	22	52	129	37	20	154	27	14	172	19
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay	8.6	10.1	9.7	9.8
HCM LOS	A	B	A	A

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	10%	2%	24%	7%
Vol Thru, %	77%	64%	59%	84%
Vol Right, %	13%	34%	17%	9%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	159	50	172	162
LT Vol	16	1	41	11
Through Vol	122	32	102	136
RT Vol	21	17	29	15
Lane Flow Rate	201	63	218	205
Geometry Grp	1	1	1	1
Degree of Util (X)	0.271	0.088	0.299	0.277
Departure Headway (Hd)	4.849	5.026	4.95	4.86
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	735	705	721	734
Service Time	2.917	3.113	3.02	2.928
HCM Lane V/C Ratio	0.273	0.089	0.302	0.279
HCM Control Delay	9.7	8.6	10.1	9.8
HCM Lane LOS	A	A	B	A
HCM 95th-tile Q	1.1	0.3	1.3	1.1

Intersection	
Int Delay, s/veh	5.2

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	136	51	200	36	50	468
Future Vol, veh/h	136	51	200	36	50	468
Conflicting Peds, #/hr	1	2	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	Free	-	None
Storage Length	0	160	-	150	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	89	89	89	89	89	89
Heavy Vehicles, %	1	1	3	1	1	3
Mvmt Flow	153	57	225	40	56	526

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	864	227	0	-	225	0
Stage 1	225	-	-	-	-	-
Stage 2	639	-	-	-	-	-
Critical Hdwy	6.41	6.21	-	-	4.11	-
Critical Hdwy Stg 1	5.41	-	-	-	-	-
Critical Hdwy Stg 2	5.41	-	-	-	-	-
Follow-up Hdwy	3.509	3.309	-	-	2.209	-
Pot Cap-1 Maneuver	326	815	-	0	1350	-
Stage 1	815	-	-	0	-	-
Stage 2	528	-	-	0	-	-
Platoon blocked, %			-			-
Mov Cap-1 Maneuver	306	813	-	-	1350	-
Mov Cap-2 Maneuver	306	-	-	-	-	-
Stage 1	767	-	-	-	-	-
Stage 2	527	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	23	0	0.8
HCM LOS	C		

Minor Lane/Major Mvmt	NBT	WBLn1	WBLn2	SBL	SBT
Capacity (veh/h)	-	306	813	1350	-
HCM Lane V/C Ratio	-	0.499	0.07	0.042	-
HCM Control Delay (s)	-	27.9	9.8	7.8	0
HCM Lane LOS	-	D	A	A	A
HCM 95th %tile Q(veh)	-	2.6	0.2	0.1	-

Intersection	
Intersection Delay, s/veh	16.4
Intersection LOS	C

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBL	SBT
Lane Configurations												
Traffic Vol, veh/h	12	86	87	88	142	60	22	81	155	100	32	226
Future Vol, veh/h	12	86	87	88	142	60	22	81	155	100	32	226
Peak Hour Factor	0.77	0.77	0.77	0.77	0.77	0.77	0.77	0.77	0.77	0.77	0.77	0.77
Heavy Vehicles, %	1	1	1	1	1	1	1	1	3	1	1	3
Mvmt Flow	16	112	113	114	184	78	29	105	201	130	42	294
Number of Lanes	1	1	1	1	1	1	0	1	1	1	1	1

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	3	3	3	3
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	3	3	3	3
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	3	3	3	3
HCM Control Delay	13.5	14.8	14.9	21.6
HCM LOS	B	B	B	C

Lane	NBLn1	NBLn2	NBLn3	EBLn1	EBLn2	EBLn3	WBLn1	WBLn2	WBLn3	SBLn1	SBLn2
Vol Left, %	100%	0%	0%	100%	0%	0%	100%	0%	0%	100%	0%
Vol Thru, %	0%	100%	0%	0%	100%	0%	0%	100%	0%	0%	100%
Vol Right, %	0%	0%	100%	0%	0%	100%	0%	0%	100%	0%	0%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	103	155	100	12	86	87	88	142	60	32	226
LT Vol	103	0	0	12	0	0	88	0	0	32	0
Through Vol	0	155	0	0	86	0	0	142	0	0	226
RT Vol	0	0	100	0	0	87	0	0	60	0	0
Lane Flow Rate	134	201	130	16	112	113	114	184	78	42	294
Geometry Grp	8	8	8	8	8	8	8	8	8	8	8
Degree of Util (X)	0.309	0.437	0.258	0.039	0.261	0.242	0.272	0.413	0.159	0.098	0.651
Departure Headway (Hd)	8.323	7.823	7.157	8.922	8.422	7.722	8.554	8.054	7.354	8.454	7.988
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cap	431	459	500	400	426	463	419	446	485	423	452
Service Time	6.094	5.594	4.928	6.704	6.204	5.504	6.328	5.828	5.128	6.226	5.76
HCM Lane V/C Ratio	0.311	0.438	0.26	0.04	0.263	0.244	0.272	0.413	0.161	0.099	0.65
HCM Control Delay	14.8	16.6	12.4	12.1	14.2	13	14.5	16.4	11.5	12.2	24.6
HCM Lane LOS	B	C	B	B	B	B	B	C	B	B	C
HCM 95th-tile Q	1.3	2.2	1	0.1	1	0.9	1.1	2	0.6	0.3	4.5

Intersection	
Intersection Delay, s/veh	
Intersection LOS	

Movement	SBR
Lane Configurations	
Traffic Vol, veh/h	35
Future Vol, veh/h	35
Peak Hour Factor	0.77
Heavy Vehicles, %	1
Mvmt Flow	45
Number of Lanes	1

Approach	
Opposing Approach	
Opposing Lanes	
Conflicting Approach Left	
Conflicting Lanes Left	
Conflicting Approach Right	
Conflicting Lanes Right	
HCM Control Delay	
HCM LOS	

Intersection	
Intersection Delay, s/veh	17.1
Intersection LOS	C

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	11	10	67	126	4	38	73	273	39	14	285	7
Future Vol, veh/h	11	10	67	126	4	38	73	273	39	14	285	7
Peak Hour Factor	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80
Heavy Vehicles, %	1	1	1	1	1	1	1	3	1	1	3	1
Mvmt Flow	14	13	84	158	5	48	91	341	49	18	356	9
Number of Lanes	0	1	0	0	1	0	1	1	1	1	1	1

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	3	3
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	3	3	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	3	3	1	1
HCM Control Delay	11.7	15.6	16.5	20.1
HCM LOS	B	C	C	C

Lane	NBLn1	NBLn2	NBLn3	EBLn1	WBLn1	SBLn1	SBLn2	SBLn3
Vol Left, %	100%	0%	0%	12%	75%	100%	0%	0%
Vol Thru, %	0%	100%	0%	11%	2%	0%	100%	0%
Vol Right, %	0%	0%	100%	76%	23%	0%	0%	100%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	73	273	39	88	168	14	285	7
LT Vol	73	0	0	11	126	14	0	0
Through Vol	0	273	0	10	4	0	285	0
RT Vol	0	0	39	67	38	0	0	7
Lane Flow Rate	91	341	49	110	210	18	356	9
Geometry Grp	7	7	7	7	7	7	7	7
Degree of Util (X)	0.176	0.614	0.078	0.215	0.43	0.034	0.653	0.014
Departure Headway (Hd)	6.955	6.478	5.727	7.022	7.371	7.072	6.595	5.844
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cap	518	560	628	510	489	508	549	615
Service Time	4.667	4.19	3.439	4.773	5.116	4.786	4.309	3.557
HCM Lane V/C Ratio	0.176	0.609	0.078	0.216	0.429	0.035	0.648	0.015
HCM Control Delay	11.1	19	8.9	11.7	15.6	10	20.9	8.6
HCM Lane LOS	B	C	A	B	C	A	C	A
HCM 95th-tile Q	0.6	4.1	0.3	0.8	2.1	0.1	4.7	0

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	88	334	34	96	379	49	55	158	69	56	234	146
Future Volume (veh/h)	88	334	34	96	379	49	55	158	69	56	234	146
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		0.99	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
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	128	484	49	139	549	71	80	229	100	81	339	212
Peak Hour Factor	0.69	0.69	0.69	0.69	0.69	0.69	0.69	0.69	0.69	0.69	0.69	0.69
Percent Heavy Veh, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	160	614	62	173	599	78	102	301	132	105	456	379
Arrive On Green	0.09	0.37	0.37	0.10	0.37	0.37	0.06	0.25	0.25	0.06	0.25	0.25
Sat Flow, veh/h	1767	1656	168	1767	1609	208	1767	1219	533	1767	1856	1541
Grp Volume(v), veh/h	128	0	533	139	0	620	80	0	329	81	339	212
Grp Sat Flow(s),veh/h/ln	1767	0	1823	1767	0	1817	1767	0	1752	1767	1856	1541
Q Serve(g_s), s	5.5	0.0	20.1	6.0	0.0	25.1	3.5	0.0	13.5	3.5	13.0	6.7
Cycle Q Clear(g_c), s	5.5	0.0	20.1	6.0	0.0	25.1	3.5	0.0	13.5	3.5	13.0	6.7
Prop In Lane	1.00		0.09	1.00		0.11	1.00		0.30	1.00		1.00
Lane Grp Cap(c), veh/h	160	0	676	173	0	677	102	0	433	105	456	379
V/C Ratio(X)	0.80	0.00	0.79	0.80	0.00	0.92	0.78	0.00	0.76	0.77	0.74	0.56
Avail Cap(c_a), veh/h	167	0	722	192	0	745	119	0	657	114	677	562
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	0.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	34.5	0.0	21.6	34.1	0.0	23.1	35.9	0.0	27.0	35.8	26.9	13.3
Incr Delay (d2), s/veh	22.6	0.0	5.5	19.8	0.0	15.2	24.6	0.0	2.8	25.2	2.4	1.3
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	3.3	0.0	8.9	3.4	0.0	12.6	2.2	0.0	5.8	2.2	5.7	3.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	57.1	0.0	27.2	53.9	0.0	38.3	60.5	0.0	29.8	61.1	29.3	14.6
LnGrp LOS	E	A	C	D	A	D	E	A	C	E	C	B
Approach Vol, veh/h		661			759			409			632	
Approach Delay, s/veh		33.0			41.2			35.8			28.4	
Approach LOS		C			D			D			C	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	9.2	23.1	11.8	33.3	8.7	23.6	11.6	33.4
Change Period (Y+Rc), s	4.6	* 4	* 4.2	4.6	* 4.2	4.6	4.6	* 4.6
Max Green Setting (Gmax), s	5.0	* 29	* 8.4	30.6	* 5.2	28.2	7.3	* 32
Max Q Clear Time (g_c+I1), s	7.5	15.5	8.0	22.1	5.5	15.0	7.5	27.1
Green Ext Time (p_c), s	0.0	1.7	0.0	2.2	0.0	2.3	0.0	1.7

Intersection Summary	
HCM 6th Ctrl Delay	34.8
HCM 6th LOS	C

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Intersection	
Int Delay, s/veh	1.9

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	43	29	303	37	47	334
Future Vol, veh/h	43	29	303	37	47	334
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	3	3	3	3	3	3
Mvmt Flow	47	32	329	40	51	363

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	814	349	0	0	369	0
Stage 1	349	-	-	-	-	-
Stage 2	465	-	-	-	-	-
Critical Hdwy	6.43	6.23	-	-	4.13	-
Critical Hdwy Stg 1	5.43	-	-	-	-	-
Critical Hdwy Stg 2	5.43	-	-	-	-	-
Follow-up Hdwy	3.527	3.327	-	-	2.227	-
Pot Cap-1 Maneuver	346	692	-	-	1184	-
Stage 1	712	-	-	-	-	-
Stage 2	630	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	327	692	-	-	1184	-
Mov Cap-2 Maneuver	327	-	-	-	-	-
Stage 1	674	-	-	-	-	-
Stage 2	630	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	15.7	0	1
HCM LOS	C		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	415	1184	-
HCM Lane V/C Ratio	-	-	0.189	0.043	-
HCM Control Delay (s)	-	-	15.7	8.2	0
HCM Lane LOS	-	-	C	A	A
HCM 95th %tile Q(veh)	-	-	0.7	0.1	-

Intersection	
Intersection Delay, s/veh	8.6
Intersection LOS	A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	5	82	16	17	46	9	13	121	30	20	113	6
Future Vol, veh/h	5	82	16	17	46	9	13	121	30	20	113	6
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Heavy Vehicles, %	3	3	3	3	3	3	3	3	3	3	3	3
Mvmt Flow	5	87	17	18	49	10	14	129	32	21	120	6
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay	8.5	8.4	8.8	8.7
HCM LOS	A	A	A	A

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	8%	5%	24%	14%
Vol Thru, %	74%	80%	64%	81%
Vol Right, %	18%	16%	12%	4%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	164	103	72	139
LT Vol	13	5	17	20
Through Vol	121	82	46	113
RT Vol	30	16	9	6
Lane Flow Rate	174	110	77	148
Geometry Grp	1	1	1	1
Degree of Util (X)	0.217	0.143	0.102	0.189
Departure Headway (Hd)	4.476	4.704	4.801	4.599
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	801	760	745	779
Service Time	2.507	2.742	2.841	2.631
HCM Lane V/C Ratio	0.217	0.145	0.103	0.19
HCM Control Delay	8.8	8.5	8.4	8.7
HCM Lane LOS	A	A	A	A
HCM 95th-tile Q	0.8	0.5	0.3	0.7

Intersection	
Int Delay, s/veh	4.1

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	100	45	244	65	68	367
Future Vol, veh/h	100	45	244	65	68	367
Conflicting Peds, #/hr	2	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	Free	-	None
Storage Length	0	160	-	150	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	87	87	87	87	87	87
Heavy Vehicles, %	1	1	3	1	1	3
Mvmt Flow	115	52	280	75	78	422

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	860	280	0	-	280	0
Stage 1	280	-	-	-	-	-
Stage 2	580	-	-	-	-	-
Critical Hdwy	6.41	6.21	-	-	4.11	-
Critical Hdwy Stg 1	5.41	-	-	-	-	-
Critical Hdwy Stg 2	5.41	-	-	-	-	-
Follow-up Hdwy	3.509	3.309	-	-	2.209	-
Pot Cap-1 Maneuver	328	761	-	0	1288	-
Stage 1	770	-	-	0	-	-
Stage 2	562	-	-	0	-	-
Platoon blocked, %			-			-
Mov Cap-1 Maneuver	301	761	-	-	1288	-
Mov Cap-2 Maneuver	301	-	-	-	-	-
Stage 1	709	-	-	-	-	-
Stage 2	561	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	19.8	0	1.2
HCM LOS	C		

Minor Lane/Major Mvmt	NBT	WBLn1	WBLn2	SBL	SBT
Capacity (veh/h)	-	301	761	1288	-
HCM Lane V/C Ratio	-	0.382	0.068	0.061	-
HCM Control Delay (s)	-	24.2	10.1	8	0
HCM Lane LOS	-	C	B	A	A
HCM 95th %tile Q(veh)	-	1.7	0.2	0.2	-

Intersection	
Intersection Delay, s/veh	11.6
Intersection LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBU	SBL
Lane Configurations												
Traffic Vol, veh/h	11	89	74	45	102	28	5	104	212	87	1	44
Future Vol, veh/h	11	89	74	45	102	28	5	104	212	87	1	44
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Heavy Vehicles, %	1	1	1	1	1	1	1	1	3	1	3	1
Mvmt Flow	12	98	81	49	112	31	5	114	233	96	1	48
Number of Lanes	1	1	1	1	1	1	0	1	1	1	0	1

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	3	3	3	3
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	3	3	3	3
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	3	3	3	3
HCM Control Delay	10.7	11.1	12.1	11.7
HCM LOS	B	B	B	B

Lane	NBLn1	NBLn2	NBLn3	EBLn1	EBLn2	EBLn3	WBLn1	WBLn2	WBLn3	SBLn1	SBLn2
Vol Left, %	100%	0%	0%	100%	0%	0%	100%	0%	0%	100%	0%
Vol Thru, %	0%	100%	0%	0%	100%	0%	0%	100%	0%	0%	100%
Vol Right, %	0%	0%	100%	0%	0%	100%	0%	0%	100%	0%	0%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	109	212	87	11	89	74	45	102	28	45	137
LT Vol	109	0	0	11	0	0	45	0	0	45	0
Through Vol	0	212	0	0	89	0	0	102	0	0	137
RT Vol	0	0	87	0	0	74	0	0	28	0	0
Lane Flow Rate	120	233	96	12	98	81	49	112	31	49	151
Geometry Grp	8	8	8	8	8	8	8	8	8	8	8
Degree of Util (X)	0.227	0.409	0.15	0.025	0.188	0.141	0.102	0.215	0.053	0.1	0.282
Departure Headway (Hd)	6.815	6.315	5.649	7.434	6.934	6.234	7.413	6.913	6.213	7.289	6.755
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cap	526	568	632	480	515	572	482	517	573	490	530
Service Time	4.574	4.074	3.408	5.207	4.707	4.007	5.186	4.686	3.986	5.06	4.526
HCM Lane V/C Ratio	0.228	0.41	0.152	0.025	0.19	0.142	0.102	0.217	0.054	0.1	0.285
HCM Control Delay	11.6	13.4	9.4	10.4	11.3	10	11	11.6	9.3	10.9	12.2
HCM Lane LOS	B	B	A	B	B	A	B	B	A	B	B
HCM 95th-tile Q	0.9	2	0.5	0.1	0.7	0.5	0.3	0.8	0.2	0.3	1.2

Intersection	
Intersection Delay, s/veh	
Intersection LOS	

Movement	SBT	SBR
Lane Configurations		
Traffic Vol, veh/h	137	12
Future Vol, veh/h	137	12
Peak Hour Factor	0.91	0.91
Heavy Vehicles, %	3	1
Mvmt Flow	151	13
Number of Lanes	1	1

Approach	
Opposing Approach	
Opposing Lanes	
Conflicting Approach Left	
Conflicting Lanes Left	
Conflicting Approach Right	
Conflicting Lanes Right	
HCM Control Delay	
HCM LOS	

Intersection	
Intersection Delay, s/veh	12
Intersection LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	6	3	53	55	2	36	33	324	56	24	285	8
Future Vol, veh/h	6	3	53	55	2	36	33	324	56	24	285	8
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Heavy Vehicles, %	1	1	1	1	1	1	1	3	1	1	3	1
Mvmt Flow	6	3	55	57	2	37	34	334	58	25	294	8
Number of Lanes	0	1	0	0	1	0	1	1	1	1	1	1

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	3	3
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	3	3	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	3	3	1	1
HCM Control Delay	9.4	10.5	12.5	12.4
HCM LOS	A	B	B	B

Lane	NBLn1	NBLn2	NBLn3	EBLn1	WBLn1	SBLn1	SBLn2	SBLn3
Vol Left, %	100%	0%	0%	10%	59%	100%	0%	0%
Vol Thru, %	0%	100%	0%	5%	2%	0%	100%	0%
Vol Right, %	0%	0%	100%	85%	39%	0%	0%	100%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	33	324	56	62	93	24	285	8
LT Vol	33	0	0	6	55	24	0	0
Through Vol	0	324	0	3	2	0	285	0
RT Vol	0	0	56	53	36	0	0	8
Lane Flow Rate	34	334	58	64	96	25	294	8
Geometry Grp	7	7	7	7	7	7	7	7
Degree of Util (X)	0.056	0.507	0.076	0.106	0.172	0.041	0.454	0.011
Departure Headway (Hd)	5.93	5.46	4.719	5.967	6.456	6.031	5.56	4.819
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cap	607	665	763	601	556	596	649	746
Service Time	3.636	3.166	2.425	3.704	4.19	3.74	3.27	2.528
HCM Lane V/C Ratio	0.056	0.502	0.076	0.106	0.173	0.042	0.453	0.011
HCM Control Delay	9	13.7	7.8	9.4	10.5	9	12.8	7.6
HCM Lane LOS	A	B	A	A	B	A	B	A
HCM 95th-tile Q	0.2	2.9	0.2	0.4	0.6	0.1	2.4	0

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	88	398	26	57	396	89	34	229	83	78	167	69
Future Volume (veh/h)	88	398	26	57	396	89	34	229	83	78	167	69
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		0.93	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
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	94	423	28	61	421	95	36	244	88	83	178	73
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	120	612	41	87	485	109	200	379	137	106	439	364
Arrive On Green	0.07	0.36	0.36	0.05	0.33	0.33	0.11	0.30	0.30	0.06	0.24	0.24
Sat Flow, veh/h	1767	1721	114	1767	1463	330	1767	1271	459	1767	1856	1539
Grp Volume(v), veh/h	94	0	451	61	0	516	36	0	332	83	178	73
Grp Sat Flow(s),veh/h/ln	1767	0	1835	1767	0	1793	1767	0	1730	1767	1856	1539
Q Serve(g_s), s	3.8	0.0	15.1	2.4	0.0	19.4	1.3	0.0	12.0	3.3	5.8	2.7
Cycle Q Clear(g_c), s	3.8	0.0	15.1	2.4	0.0	19.4	1.3	0.0	12.0	3.3	5.8	2.7
Prop In Lane	1.00		0.06	1.00		0.18	1.00		0.27	1.00		1.00
Lane Grp Cap(c), veh/h	120	0	653	87	0	594	200	0	516	106	439	364
V/C Ratio(X)	0.78	0.00	0.69	0.70	0.00	0.87	0.18	0.00	0.64	0.78	0.41	0.20
Avail Cap(c_a), veh/h	123	0	734	131	0	724	200	0	699	123	734	609
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	0.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	32.9	0.0	19.7	33.6	0.0	22.5	28.8	0.0	21.9	33.3	23.1	21.9
Incr Delay (d2), s/veh	26.8	0.0	2.4	9.9	0.0	9.5	0.4	0.0	1.4	24.0	0.6	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	2.4	0.0	6.3	1.2	0.0	9.0	0.6	0.0	4.8	2.1	2.5	1.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	59.7	0.0	22.1	43.6	0.0	32.0	29.2	0.0	23.2	57.3	23.7	22.2
LnGrp LOS	E	A	C	D	A	C	C	A	C	E	C	C
Approach Vol, veh/h		545			577			368			334	
Approach Delay, s/veh		28.6			33.2			23.8			31.7	
Approach LOS		C			C			C			C	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	8.5	25.4	7.7	30.1	12.3	21.6	9.5	28.4
Change Period (Y+Rc), s	4.2	* 4	* 4.2	4.6	4.2	* 4.6	4.6	* 4.6
Max Green Setting (Gmax), s	5.0	* 29	* 5.3	28.7	5.0	* 28	5.0	* 29
Max Q Clear Time (g_c+I1), s	5.3	14.0	4.4	17.1	3.3	7.8	5.8	21.4
Green Ext Time (p_c), s	0.0	1.9	0.0	2.1	0.0	1.1	0.0	2.0

Intersection Summary	
HCM 6th Ctrl Delay	29.7
HCM 6th LOS	C

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Intersection: 1: Reed Avenue & South Avenue

Movement	WB	SB
Directions Served	LR	LT
Maximum Queue (ft)	90	55
Average Queue (ft)	46	8
95th Queue (ft)	75	34
Link Distance (ft)	2568	2617
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 2: Frankwood Avenue & South Avenue

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	LTR	LTR
Maximum Queue (ft)	31	91	78	53
Average Queue (ft)	21	42	41	36
95th Queue (ft)	43	66	64	51
Link Distance (ft)	2568	2614	1605	2584
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 3: Reed Avenue & Parlier Avenue

Movement	WB	WB	SB
Directions Served	L	R	LT
Maximum Queue (ft)	97	55	74
Average Queue (ft)	52	28	9
95th Queue (ft)	83	51	41
Link Distance (ft)	569		2598
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)		160	
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 4: Frankwood Avenue & Parlier Avenue

Movement	EB	EB	EB	WB	WB	WB	NB	NB	NB	SB	SB	SB
Directions Served	L	T	R	L	T	R	UL	T	R	L	T	R
Maximum Queue (ft)	47	66	64	64	69	42	55	80	54	51	109	21
Average Queue (ft)	11	29	28	31	38	19	31	44	33	18	51	15
95th Queue (ft)	34	54	50	54	62	32	53	69	47	42	90	30
Link Distance (ft)		1936			333			1253			230	
Upstream Blk Time (%)												
Queuing Penalty (veh)												
Storage Bay Dist (ft)	55		130	55		250	150		250	90		100
Storage Blk Time (%)	0	1		1	2						0	
Queuing Penalty (veh)	0	1		2	2						0	

Intersection: 5: Frankwood Avenue & Cypress Avenue

Movement	EB	WB	NB	NB	NB	SB	SB	SB
Directions Served	LTR	LTR	L	T	R	L	T	R
Maximum Queue (ft)	68	180	91	155	50	31	114	31
Average Queue (ft)	30	52	33	66	28	12	54	8
95th Queue (ft)	58	101	58	113	45	37	85	30
Link Distance (ft)	1072	2206		602			1253	
Upstream Blk Time (%)								
Queuing Penalty (veh)								
Storage Bay Dist (ft)			110		110	100		100
Storage Blk Time (%)			0	1			0	
Queuing Penalty (veh)			0	1			0	

Intersection: 6: Frankwood Avenue & Manning Avenue

Movement	EB	EB	WB	WB	NB	NB	SB	SB	SB
Directions Served	L	TR	L	TR	L	TR	L	T	R
Maximum Queue (ft)	150	284	149	429	138	247	98	340	135
Average Queue (ft)	79	134	82	216	47	103	41	105	63
95th Queue (ft)	159	228	157	368	86	204	72	215	131
Link Distance (ft)		1832		1894		1255		278	
Upstream Blk Time (%)								1	
Queuing Penalty (veh)								3	
Storage Bay Dist (ft)	100		100		85		115		60
Storage Blk Time (%)	1	13	5	31	0	10	0	19	2
Queuing Penalty (veh)	5	11	23	29	0	5	0	38	7

Network Summary

Network wide Queuing Penalty: 128

Intersection: 1: Reed Avenue & South Avenue

Movement	WB	SB
Directions Served	LR	LT
Maximum Queue (ft)	94	53
Average Queue (ft)	30	11
95th Queue (ft)	67	38
Link Distance (ft)	2568	2617
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 2: Frankwood Avenue & South Avenue

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	LTR	LTR
Maximum Queue (ft)	55	79	74	55
Average Queue (ft)	33	31	40	37
95th Queue (ft)	50	53	62	53
Link Distance (ft)	2568	2614	1605	2584
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 3: Reed Avenue & Parlier Avenue

Movement	WB	WB	NB	SB
Directions Served	L	R	T	LT
Maximum Queue (ft)	136	77	31	77
Average Queue (ft)	44	30	1	22
95th Queue (ft)	78	54	10	57
Link Distance (ft)	569		503	2598
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)		160		
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 4: Frankwood Avenue & Parlier Avenue

Movement	EB	EB	EB	WB	WB	WB	NB	NB	NB	SB	SB	SB
Directions Served	L	T	R	L	T	R	UL	T	R	UL	T	R
Maximum Queue (ft)	26	48	44	49	67	21	74	94	66	26	48	21
Average Queue (ft)	10	28	22	23	30	13	33	45	32	21	30	5
95th Queue (ft)	31	49	38	44	51	26	55	71	46	37	47	19
Link Distance (ft)		1936			333			1253			230	
Upstream Blk Time (%)												
Queuing Penalty (veh)												
Storage Bay Dist (ft)	55		130	55		250	150		250	90		100
Storage Blk Time (%)		0		0	0							
Queuing Penalty (veh)		0		0	0							

Intersection: 5: Frankwood Avenue & Cypress Avenue

Movement	EB	WB	NB	NB	NB	SB	SB	SB
Directions Served	LTR	LTR	L	T	R	L	T	R
Maximum Queue (ft)	68	72	31	185	52	31	92	31
Average Queue (ft)	29	34	17	69	26	15	51	7
95th Queue (ft)	53	57	42	121	47	39	74	28
Link Distance (ft)	1072	2206		606			1253	
Upstream Blk Time (%)								
Queuing Penalty (veh)								
Storage Bay Dist (ft)			110		110	100		100
Storage Blk Time (%)				1			0	
Queuing Penalty (veh)				1			0	

Intersection: 6: Frankwood Avenue & Manning Avenue

Movement	EB	EB	WB	WB	NB	NB	SB	SB	SB
Directions Served	L	TR	L	TR	L	TR	L	T	R
Maximum Queue (ft)	150	491	149	444	88	257	112	163	135
Average Queue (ft)	75	181	63	206	34	127	55	85	36
95th Queue (ft)	158	349	142	350	74	216	88	147	76
Link Distance (ft)		1832		1892		1256		266	
Upstream Blk Time (%)									
Queuing Penalty (veh)									
Storage Bay Dist (ft)	100		100		85		115		60
Storage Blk Time (%)	13	19	1	34	0	18	0	14	1
Queuing Penalty (veh)	54	17	6	20	1	6	1	20	2

Network Summary

Network wide Queuing Penalty: 128

Appendix F: Near Term No Project Traffic Conditions

Intersection	
Int Delay, s/veh	5.7

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	140	34	212	51	30	443
Future Vol, veh/h	140	34	212	51	30	443
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	86	86	86	86	86	86
Heavy Vehicles, %	3	3	3	3	3	3
Mvmt Flow	163	40	247	59	35	515

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	862	277	0	0	306	0
Stage 1	277	-	-	-	-	-
Stage 2	585	-	-	-	-	-
Critical Hdwy	6.43	6.23	-	-	4.13	-
Critical Hdwy Stg 1	5.43	-	-	-	-	-
Critical Hdwy Stg 2	5.43	-	-	-	-	-
Follow-up Hdwy	3.527	3.327	-	-	2.227	-
Pot Cap-1 Maneuver	324	759	-	-	1249	-
Stage 1	767	-	-	-	-	-
Stage 2	555	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	311	759	-	-	1249	-
Mov Cap-2 Maneuver	311	-	-	-	-	-
Stage 1	737	-	-	-	-	-
Stage 2	555	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	28.2	0	0.5
HCM LOS	D		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	352	1249	-
HCM Lane V/C Ratio	-	-	0.575	0.028	-
HCM Control Delay (s)	-	-	28.2	8	0
HCM Lane LOS	-	-	D	A	A
HCM 95th %tile Q(veh)	-	-	3.4	0.1	-

Intersection	
Intersection Delay, s/veh	12.1
Intersection LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	18	37	18	68	111	29	24	148	31	11	182	47
Future Vol, veh/h	18	37	18	68	111	29	24	148	31	11	182	47
Peak Hour Factor	0.79	0.79	0.79	0.79	0.79	0.79	0.79	0.79	0.79	0.79	0.79	0.79
Heavy Vehicles, %	3	3	3	3	3	3	3	3	3	3	3	3
Mvmt Flow	23	47	23	86	141	37	30	187	39	14	230	59
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay	10	12.5	11.8	12.6
HCM LOS	A	B	B	B

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	12%	25%	33%	5%
Vol Thru, %	73%	51%	53%	76%
Vol Right, %	15%	25%	14%	20%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	203	73	208	240
LT Vol	24	18	68	11
Through Vol	148	37	111	182
RT Vol	31	18	29	47
Lane Flow Rate	257	92	263	304
Geometry Grp	1	1	1	1
Degree of Util (X)	0.385	0.15	0.409	0.446
Departure Headway (Hd)	5.395	5.857	5.599	5.287
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	666	610	642	681
Service Time	3.442	3.918	3.647	3.332
HCM Lane V/C Ratio	0.386	0.151	0.41	0.446
HCM Control Delay	11.8	10	12.5	12.6
HCM Lane LOS	B	A	B	B
HCM 95th-tile Q	1.8	0.5	2	2.3

Intersection						
Int Delay, s/veh	8.7					

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	159	51	244	43	51	572
Future Vol, veh/h	159	51	244	43	51	572
Conflicting Peds, #/hr	1	2	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	Free	-	None
Storage Length	0	160	-	150	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	89	89	89	89	89	89
Heavy Vehicles, %	1	1	3	1	1	3
Mvmt Flow	179	57	274	48	57	643

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	1032	276	0	-	274	0
Stage 1	274	-	-	-	-	-
Stage 2	758	-	-	-	-	-
Critical Hdwy	6.41	6.21	-	-	4.11	-
Critical Hdwy Stg 1	5.41	-	-	-	-	-
Critical Hdwy Stg 2	5.41	-	-	-	-	-
Follow-up Hdwy	3.509	3.309	-	-	2.209	-
Pot Cap-1 Maneuver	259	765	-	0	1295	-
Stage 1	774	-	-	0	-	-
Stage 2	465	-	-	0	-	-
Platoon blocked, %			-			-
Mov Cap-1 Maneuver	241	764	-	-	1295	-
Mov Cap-2 Maneuver	241	-	-	-	-	-
Stage 1	721	-	-	-	-	-
Stage 2	465	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	42.7	0	0.6
HCM LOS	E		

Minor Lane/Major Mvmt	NBT	WBLn1	WBLn2	SBL	SBT
Capacity (veh/h)	-	241	764	1295	-
HCM Lane V/C Ratio	-	0.741	0.075	0.044	-
HCM Control Delay (s)	-	53.2	10.1	7.9	0
HCM Lane LOS	-	F	B	A	A
HCM 95th %tile Q(veh)	-	5.2	0.2	0.1	-

Intersection	
Intersection Delay, s/veh	23.3
Intersection LOS	C

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBL	SBT
Lane Configurations												
Traffic Vol, veh/h	14	93	87	88	146	70	22	81	183	100	51	284
Future Vol, veh/h	14	93	87	88	146	70	22	81	183	100	51	284
Peak Hour Factor	0.77	0.77	0.77	0.77	0.77	0.77	0.77	0.77	0.77	0.77	0.77	0.77
Heavy Vehicles, %	1	1	1	1	1	1	1	1	3	1	1	3
Mvmt Flow	18	121	113	114	190	91	29	105	238	130	66	369
Number of Lanes	1	1	1	1	1	1	0	1	1	1	1	1

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	3	3	3	3
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	3	3	3	3
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	3	3	3	3
HCM Control Delay	15.1	16.7	18.1	38.2
HCM LOS	C	C	C	E

Lane	NBLn1	NBLn2	NBLn3	EBLn1	EBLn2	EBLn3	WBLn1	WBLn2	WBLn3	SBLn1	SBLn2
Vol Left, %	100%	0%	0%	100%	0%	0%	100%	0%	0%	100%	0%
Vol Thru, %	0%	100%	0%	0%	100%	0%	0%	100%	0%	0%	100%
Vol Right, %	0%	0%	100%	0%	0%	100%	0%	0%	100%	0%	0%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	103	183	100	14	93	87	88	146	70	51	284
LT Vol	103	0	0	14	0	0	88	0	0	51	0
Through Vol	0	183	0	0	93	0	0	146	0	0	284
RT Vol	0	0	100	0	0	87	0	0	70	0	0
Lane Flow Rate	134	238	130	18	121	113	114	190	91	66	369
Geometry Grp	8	8	8	8	8	8	8	8	8	8	8
Degree of Util (X)	0.334	0.561	0.283	0.049	0.309	0.268	0.295	0.464	0.205	0.165	0.869
Departure Headway (Hd)	8.999	8.499	7.833	9.725	9.225	8.525	9.303	8.803	8.103	8.952	8.486
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cap	400	425	458	369	390	421	386	410	443	401	428
Service Time	6.743	6.243	5.577	7.474	6.974	6.274	7.049	6.549	5.849	6.697	6.231
HCM Lane V/C Ratio	0.335	0.56	0.284	0.049	0.31	0.268	0.295	0.463	0.205	0.165	0.862
HCM Control Delay	16.2	21.6	13.7	13	16.1	14.4	15.9	19	12.9	13.5	46.6
HCM Lane LOS	C	C	B	B	C	B	C	C	B	B	E
HCM 95th-tile Q	1.4	3.3	1.2	0.2	1.3	1.1	1.2	2.4	0.8	0.6	8.8

Intersection	
Intersection Delay, s/veh	
Intersection LOS	

Movement	SBR
Lane Configurations	
Traffic Vol, veh/h	42
Future Vol, veh/h	42
Peak Hour Factor	0.77
Heavy Vehicles, %	1
Mvmt Flow	55
Number of Lanes	1

Approach	
Opposing Approach	
Opposing Lanes	
Conflicting Approach Left	
Conflicting Lanes Left	
Conflicting Approach Right	
Conflicting Lanes Right	
HCM Control Delay	
HCM LOS	

Intersection	
Intersection Delay, s/veh	22.2
Intersection LOS	C

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	12	10	67	126	4	38	73	301	39	14	341	9
Future Vol, veh/h	12	10	67	126	4	38	73	301	39	14	341	9
Peak Hour Factor	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80
Heavy Vehicles, %	1	1	1	1	1	1	1	3	1	1	3	1
Mvmt Flow	15	13	84	158	5	48	91	376	49	18	426	11
Number of Lanes	0	1	0	0	1	0	1	1	1	1	1	1

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	3	3
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	3	3	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	3	3	1	1
HCM Control Delay	12.4	16.7	20	29.7
HCM LOS	B	C	C	D

Lane	NBLn1	NBLn2	NBLn3	EBLn1	WBLn1	SBLn1	SBLn2	SBLn3
Vol Left, %	100%	0%	0%	13%	75%	100%	0%	0%
Vol Thru, %	0%	100%	0%	11%	2%	0%	100%	0%
Vol Right, %	0%	0%	100%	75%	23%	0%	0%	100%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	73	301	39	89	168	14	341	9
LT Vol	73	0	0	12	126	14	0	0
Through Vol	0	301	0	10	4	0	341	0
RT Vol	0	0	39	67	38	0	0	9
Lane Flow Rate	91	376	49	111	210	18	426	11
Geometry Grp	7	7	7	7	7	7	7	7
Degree of Util (X)	0.181	0.698	0.08	0.23	0.451	0.035	0.797	0.019
Departure Headway (Hd)	7.157	6.679	5.926	7.437	7.73	7.208	6.73	5.978
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cap	501	542	604	482	466	496	537	598
Service Time	4.905	4.427	3.673	5.198	5.481	4.954	4.476	3.722
HCM Lane V/C Ratio	0.182	0.694	0.081	0.23	0.451	0.036	0.793	0.018
HCM Control Delay	11.5	23.5	9.2	12.4	16.7	10.2	31	8.8
HCM Lane LOS	B	C	A	B	C	B	D	A
HCM 95th-tile Q	0.7	5.5	0.3	0.9	2.3	0.1	7.6	0.1

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	101	370	34	97	427	57	55	166	70	73	247	173
Future Volume (veh/h)	101	370	34	97	427	57	55	166	70	73	247	173
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		1.00	1.00		0.99	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
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	146	536	49	141	619	83	80	241	101	106	358	251
Peak Hour Factor	0.69	0.69	0.69	0.69	0.69	0.69	0.69	0.69	0.69	0.69	0.69	0.69
Percent Heavy Veh, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	176	695	64	171	654	88	102	290	122	132	467	388
Arrive On Green	0.10	0.42	0.42	0.10	0.41	0.41	0.06	0.23	0.23	0.07	0.25	0.25
Sat Flow, veh/h	1767	1673	153	1767	1601	215	1767	1236	518	1767	1856	1541
Grp Volume(v), veh/h	146	0	585	141	0	702	80	0	342	106	358	251
Grp Sat Flow(s),veh/h/ln	1767	0	1826	1767	0	1816	1767	0	1754	1767	1856	1541
Q Serve(g_s), s	8.0	0.0	27.2	7.7	0.0	36.8	4.4	0.0	18.3	5.8	17.6	10.7
Cycle Q Clear(g_c), s	8.0	0.0	27.2	7.7	0.0	36.8	4.4	0.0	18.3	5.8	17.6	10.7
Prop In Lane	1.00		0.08	1.00		0.12	1.00		0.30	1.00		1.00
Lane Grp Cap(c), veh/h	176	0	758	171	0	741	102	0	412	132	467	388
V/C Ratio(X)	0.83	0.00	0.77	0.82	0.00	0.95	0.78	0.00	0.83	0.80	0.77	0.65
Avail Cap(c_a), veh/h	181	0	772	190	0	777	140	0	516	138	532	442
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	0.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	43.6	0.0	24.8	43.7	0.0	28.2	45.9	0.0	35.9	44.9	34.2	18.2
Incr Delay (d2), s/veh	26.0	0.0	4.8	22.8	0.0	20.0	17.7	0.0	9.0	26.7	5.8	2.7
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	4.7	0.0	12.1	4.4	0.0	19.1	2.4	0.0	8.8	3.5	8.5	3.9
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	69.6	0.0	29.6	66.6	0.0	48.2	63.6	0.0	44.9	71.6	40.0	20.9
LnGrp LOS	E	A	C	E	A	D	E	A	D	E	D	C
Approach Vol, veh/h		731			843			422			715	
Approach Delay, s/veh		37.6			51.2			48.5			38.0	
Approach LOS		D			D			D			D	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	11.6	27.8	13.8	45.6	9.9	29.4	14.4	44.9
Change Period (Y+Rc), s	* 4.2	* 4.6	* 4.2	4.6	* 4.2	4.6	4.6	* 4.6
Max Green Setting (Gmax), s	* 7.7	* 29	* 11	41.7	* 7.8	28.3	10.1	* 42
Max Q Clear Time (g_c+I1), s	7.8	20.3	9.7	29.2	6.4	19.6	10.0	38.8
Green Ext Time (p_c), s	0.0	1.4	0.0	3.1	0.0	2.0	0.0	1.5

Intersection Summary		
HCM 6th Ctrl Delay		43.6
HCM 6th LOS		D

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Intersection						
Int Delay, s/veh	3					

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	76	33	335	88	56	360
Future Vol, veh/h	76	33	335	88	56	360
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	3	3	3	3	3	3
Mvmt Flow	83	36	364	96	61	391

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	925	412	0	0	460	0
Stage 1	412	-	-	-	-	-
Stage 2	513	-	-	-	-	-
Critical Hdwy	6.43	6.23	-	-	4.13	-
Critical Hdwy Stg 1	5.43	-	-	-	-	-
Critical Hdwy Stg 2	5.43	-	-	-	-	-
Follow-up Hdwy	3.527	3.327	-	-	2.227	-
Pot Cap-1 Maneuver	297	638	-	-	1096	-
Stage 1	666	-	-	-	-	-
Stage 2	599	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	276	638	-	-	1096	-
Mov Cap-2 Maneuver	276	-	-	-	-	-
Stage 1	619	-	-	-	-	-
Stage 2	599	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	21.7	0	1.1
HCM LOS	C		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	333	1096	-
HCM Lane V/C Ratio	-	-	0.356	0.056	-
HCM Control Delay (s)	-	-	21.7	8.5	0
HCM Lane LOS	-	-	C	A	A
HCM 95th %tile Q(veh)	-	-	1.6	0.2	-

Intersection	
Intersection Delay, s/veh	10.9
Intersection LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		✣			✣			✣			✣	
Traffic Vol, veh/h	44	103	16	52	57	9	17	200	62	20	169	28
Future Vol, veh/h	44	103	16	52	57	9	17	200	62	20	169	28
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Heavy Vehicles, %	3	3	3	3	3	3	3	3	3	3	3	3
Mvmt Flow	47	110	17	55	61	10	18	213	66	21	180	30
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay	10.6	10.1	11.6	10.8
HCM LOS	B	B	B	B

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	6%	27%	44%	9%
Vol Thru, %	72%	63%	48%	78%
Vol Right, %	22%	10%	8%	13%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	279	163	118	217
LT Vol	17	44	52	20
Through Vol	200	103	57	169
RT Vol	62	16	9	28
Lane Flow Rate	297	173	126	231
Geometry Grp	1	1	1	1
Degree of Util (X)	0.415	0.267	0.198	0.332
Departure Headway (Hd)	5.033	5.535	5.669	5.183
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	715	649	633	693
Service Time	3.065	3.571	3.709	3.218
HCM Lane V/C Ratio	0.415	0.267	0.199	0.333
HCM Control Delay	11.6	10.6	10.1	10.8
HCM Lane LOS	B	B	B	B
HCM 95th-tile Q	2	1.1	0.7	1.5

Intersection	
Int Delay, s/veh	6.1

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	119	46	352	90	68	432
Future Vol, veh/h	119	46	352	90	68	432
Conflicting Peds, #/hr	2	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	Free	-	None
Storage Length	0	160	-	150	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	87	87	87	87	87	87
Heavy Vehicles, %	1	1	3	1	1	3
Mvmt Flow	137	53	405	103	78	497

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	1060	405	0	-	405	0
Stage 1	405	-	-	-	-	-
Stage 2	655	-	-	-	-	-
Critical Hdwy	6.41	6.21	-	-	4.11	-
Critical Hdwy Stg 1	5.41	-	-	-	-	-
Critical Hdwy Stg 2	5.41	-	-	-	-	-
Follow-up Hdwy	3.509	3.309	-	-	2.209	-
Pot Cap-1 Maneuver	249	648	-	0	1159	-
Stage 1	676	-	-	0	-	-
Stage 2	519	-	-	0	-	-
Platoon blocked, %			-			-
Mov Cap-1 Maneuver	225	648	-	-	1159	-
Mov Cap-2 Maneuver	225	-	-	-	-	-
Stage 1	613	-	-	-	-	-
Stage 2	518	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	34.2	0	1.1
HCM LOS	D		

Minor Lane/Major Mvmt	NBT	WBLn1	WBLn2	SBL	SBT
Capacity (veh/h)	-	225	648	1159	-
HCM Lane V/C Ratio	-	0.608	0.082	0.067	-
HCM Control Delay (s)	-	43.1	11	8.3	0
HCM Lane LOS	-	E	B	A	A
HCM 95th %tile Q(veh)	-	3.5	0.3	0.2	-

Intersection	
Intersection Delay, s/veh	15.3
Intersection LOS	C

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBU	SBL
Lane Configurations												
Traffic Vol, veh/h	18	95	75	45	111	54	5	105	303	87	1	63
Future Vol, veh/h	18	95	75	45	111	54	5	105	303	87	1	63
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Heavy Vehicles, %	1	1	1	1	1	1	1	1	3	1	3	1
Mvmt Flow	20	104	82	49	122	59	5	115	333	96	1	69
Number of Lanes	1	1	1	1	1	1	0	1	1	1	0	1

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	3	3	3	3
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	3	3	3	3
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	3	3	3	3
HCM Control Delay	12.1	12.4	17.7	15.2
HCM LOS	B	B	C	C

Lane	NBLn1	NBLn2	NBLn3	EBLn1	EBLn2	EBLn3	WBLn1	WBLn2	WBLn3	SBLn1	SBLn2
Vol Left, %	100%	0%	0%	100%	0%	0%	100%	0%	0%	100%	0%
Vol Thru, %	0%	100%	0%	0%	100%	0%	0%	100%	0%	0%	100%
Vol Right, %	0%	0%	100%	0%	0%	100%	0%	0%	100%	0%	0%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	110	303	87	18	95	75	45	111	54	64	208
LT Vol	110	0	0	18	0	0	45	0	0	64	0
Through Vol	0	303	0	0	95	0	0	111	0	0	208
RT Vol	0	0	87	0	0	75	0	0	54	0	0
Lane Flow Rate	121	333	96	20	104	82	49	122	59	70	229
Geometry Grp	8	8	8	8	8	8	8	8	8	8	8
Degree of Util (X)	0.252	0.647	0.168	0.046	0.228	0.164	0.114	0.264	0.117	0.156	0.472
Departure Headway (Hd)	7.493	6.993	6.327	8.374	7.874	7.174	8.3	7.8	7.1	7.962	7.428
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cap	480	516	567	428	456	499	432	461	504	451	485
Service Time	5.231	4.731	4.065	6.122	5.622	4.922	6.047	5.547	4.847	5.706	5.172
HCM Lane V/C Ratio	0.252	0.645	0.169	0.047	0.228	0.164	0.113	0.265	0.117	0.155	0.472
HCM Control Delay	12.7	21.7	10.3	11.5	12.9	11.3	12.1	13.3	10.8	12.2	16.7
HCM Lane LOS	B	C	B	B	B	B	B	B	B	B	C
HCM 95th-tile Q	1	4.6	0.6	0.1	0.9	0.6	0.4	1	0.4	0.5	2.5

Intersection	
Intersection Delay, s/veh	
Intersection LOS	

Movement	SBT	SBR
Lane Configurations		
Traffic Vol, veh/h	208	21
Future Vol, veh/h	208	21
Peak Hour Factor	0.91	0.91
Heavy Vehicles, %	3	1
Mvmt Flow	229	23
Number of Lanes	1	1

Approach	
Opposing Approach	
Opposing Lanes	
Conflicting Approach Left	
Conflicting Lanes Left	
Conflicting Approach Right	
Conflicting Lanes Right	
HCM Control Delay	
HCM LOS	

Intersection	
Intersection Delay, s/veh	15.4
Intersection LOS	C

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	9	3	53	55	2	36	33	413	56	24	354	11
Future Vol, veh/h	9	3	53	55	2	36	33	413	56	24	354	11
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Heavy Vehicles, %	1	1	1	1	1	1	1	3	1	1	3	1
Mvmt Flow	9	3	55	57	2	37	34	426	58	25	365	11
Number of Lanes	0	1	0	0	1	0	1	1	1	1	1	1

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	3	3
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	3	3	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	3	3	1	1
HCM Control Delay	10.1	11.2	16.8	15.4
HCM LOS	B	B	C	C

Lane	NBLn1	NBLn2	NBLn3	EBLn1	WBLn1	SBLn1	SBLn2	SBLn3
Vol Left, %	100%	0%	0%	14%	59%	100%	0%	0%
Vol Thru, %	0%	100%	0%	5%	2%	0%	100%	0%
Vol Right, %	0%	0%	100%	82%	39%	0%	0%	100%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	33	413	56	65	93	24	354	11
LT Vol	33	0	0	9	55	24	0	0
Through Vol	0	413	0	3	2	0	354	0
RT Vol	0	0	56	53	36	0	0	11
Lane Flow Rate	34	426	58	67	96	25	365	11
Geometry Grp	7	7	7	7	7	7	7	7
Degree of Util (X)	0.057	0.662	0.078	0.12	0.183	0.043	0.58	0.016
Departure Headway (Hd)	6.065	5.594	4.852	6.453	6.885	6.188	5.717	4.975
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cap	591	647	738	554	521	579	631	719
Service Time	3.794	3.323	2.581	4.207	4.637	3.919	3.448	2.705
HCM Lane V/C Ratio	0.058	0.658	0.079	0.121	0.184	0.043	0.578	0.015
HCM Control Delay	9.2	18.6	8	10.1	11.2	9.2	16.1	7.8
HCM Lane LOS	A	C	A	B	B	A	C	A
HCM 95th-tile Q	0.2	5	0.3	0.4	0.7	0.1	3.7	0

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	132	455	26	58	448	116	34	248	84	98	183	103
Future Volume (veh/h)	132	455	26	58	448	116	34	248	84	98	183	103
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		0.92	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
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	140	484	28	62	477	123	36	264	89	104	195	110
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	171	720	42	79	509	131	58	353	119	131	582	486
Arrive On Green	0.10	0.41	0.41	0.04	0.36	0.36	0.03	0.27	0.27	0.07	0.31	0.31
Sat Flow, veh/h	1767	1737	100	1767	1420	366	1767	1295	437	1767	1856	1547
Grp Volume(v), veh/h	140	0	512	62	0	600	36	0	353	104	195	110
Grp Sat Flow(s),veh/h/ln	1767	0	1837	1767	0	1786	1767	0	1732	1767	1856	1547
Q Serve(g_s), s	7.1	0.0	20.6	3.2	0.0	29.5	1.8	0.0	16.9	5.3	7.3	3.4
Cycle Q Clear(g_c), s	7.1	0.0	20.6	3.2	0.0	29.5	1.8	0.0	16.9	5.3	7.3	3.4
Prop In Lane	1.00		0.05	1.00		0.20	1.00		0.25	1.00		1.00
Lane Grp Cap(c), veh/h	171	0	762	79	0	640	58	0	472	131	582	486
V/C Ratio(X)	0.82	0.00	0.67	0.78	0.00	0.94	0.62	0.00	0.75	0.79	0.33	0.23
Avail Cap(c_a), veh/h	171	0	762	124	0	676	122	0	552	132	590	492
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	0.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	40.3	0.0	21.6	43.0	0.0	28.2	43.4	0.0	30.2	41.4	23.9	11.7
Incr Delay (d2), s/veh	25.8	0.0	2.3	15.1	0.0	20.1	10.3	0.0	4.7	27.3	0.3	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	4.2	0.0	8.8	1.7	0.0	15.4	1.0	0.0	7.6	3.2	3.2	1.7
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	66.1	0.0	23.9	58.1	0.0	48.3	53.7	0.0	34.9	68.7	24.3	11.9
LnGrp LOS	E	A	C	E	A	D	D	A	C	E	C	B
Approach Vol, veh/h		652			662			389			409	
Approach Delay, s/veh		33.0			49.2			36.7			32.2	
Approach LOS		C			D			D			C	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	10.9	29.4	8.3	42.3	7.2	33.1	13.4	37.2
Change Period (Y+Rc), s	* 4.2	* 4.6	* 4.2	4.6	* 4.2	4.6	4.6	* 4.6
Max Green Setting (Gmax), s	* 6.8	* 29	* 6.4	36.8	* 6.3	28.9	8.8	* 34
Max Q Clear Time (g_c+I1), s	7.3	18.9	5.2	22.6	3.8	9.3	9.1	31.5
Green Ext Time (p_c), s	0.0	1.6	0.0	2.7	0.0	1.3	0.0	1.1

Intersection Summary		
HCM 6th Ctrl Delay		38.6
HCM 6th LOS		D

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Intersection	
Intersection Delay, s/veh	17.9
Intersection LOS	C

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	140	34	212	51	30	443
Future Vol, veh/h	140	34	212	51	30	443
Peak Hour Factor	0.86	0.86	0.86	0.86	0.86	0.86
Heavy Vehicles, %	3	3	3	3	3	3
Mvmt Flow	163	40	247	59	35	515
Number of Lanes	1	0	1	0	0	1

Approach	WB	NB	SB
Opposing Approach		SB	NB
Opposing Lanes	0	1	1
Conflicting Approach Left	NB		WB
Conflicting Lanes Left	1	0	1
Conflicting Approach Right	SB	WB	
Conflicting Lanes Right	1	1	0
HCM Control Delay	12.3	12.4	23
HCM LOS	B	B	C

Lane	NBLn1	WBLn1	SBLn1
Vol Left, %	0%	80%	6%
Vol Thru, %	81%	0%	94%
Vol Right, %	19%	20%	0%
Sign Control	Stop	Stop	Stop
Traffic Vol by Lane	263	174	473
LT Vol	0	140	30
Through Vol	212	0	443
RT Vol	51	34	0
Lane Flow Rate	306	202	550
Geometry Grp	1	1	1
Degree of Util (X)	0.444	0.342	0.771
Departure Headway (Hd)	5.229	6.093	5.045
Convergence, Y/N	Yes	Yes	Yes
Cap	688	591	721
Service Time	3.263	4.135	3.073
HCM Lane V/C Ratio	0.445	0.342	0.763
HCM Control Delay	12.4	12.3	23
HCM Lane LOS	B	B	C
HCM 95th-tile Q	2.3	1.5	7.4

Intersection	
Intersection Delay, s/veh	16.2
Intersection LOS	C

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	159	51	244	43	51	572
Future Vol, veh/h	159	51	244	43	51	572
Peak Hour Factor	0.89	0.89	0.89	0.89	0.89	0.89
Heavy Vehicles, %	1	1	3	1	1	3
Mvmt Flow	179	57	274	48	57	643
Number of Lanes	1	1	1	1	0	2

Approach	WB	NB	SB
Opposing Approach		SB	NB
Opposing Lanes	0	2	2
Conflicting Approach Left	NB		WB
Conflicting Lanes Left	2	0	2
Conflicting Approach Right	SB	WB	
Conflicting Lanes Right	2	2	0
HCM Control Delay	13.4	14	18.1
HCM LOS	B	B	C

Lane	NBLn1	NBLn2	WBLn1	WBLn2	SBLn1	SBLn2
Vol Left, %	0%	0%	100%	0%	21%	0%
Vol Thru, %	100%	0%	0%	0%	79%	100%
Vol Right, %	0%	100%	0%	100%	0%	0%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	244	43	159	51	242	381
LT Vol	0	0	159	0	51	0
Through Vol	244	0	0	0	191	381
RT Vol	0	43	0	51	0	0
Lane Flow Rate	274	48	179	57	272	428
Geometry Grp	7	7	7	7	7	7
Degree of Util (X)	0.482	0.075	0.371	0.1	0.447	0.697
Departure Headway (Hd)	6.332	5.586	7.478	6.259	5.932	5.86
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes
Cap	568	640	481	571	606	617
Service Time	4.082	3.336	5.228	4.008	3.673	3.601
HCM Lane V/C Ratio	0.482	0.075	0.372	0.1	0.449	0.694
HCM Control Delay	14.9	8.8	14.6	9.7	13.4	21
HCM Lane LOS	B	A	B	A	B	C
HCM 95th-tile Q	2.6	0.2	1.7	0.3	2.3	5.6

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	101	370	34	97	427	57	55	166	70	73	247	173
Future Volume (veh/h)	101	370	34	97	427	57	55	166	70	73	247	173
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		0.99	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
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	146	536	49	141	619	83	80	241	101	106	358	251
Peak Hour Factor	0.69	0.69	0.69	0.69	0.69	0.69	0.69	0.69	0.69	0.69	0.69	0.69
Percent Heavy Veh, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	180	711	597	175	698	588	118	303	127	134	458	380
Arrive On Green	0.10	0.38	0.38	0.10	0.38	0.38	0.07	0.24	0.24	0.08	0.25	0.25
Sat Flow, veh/h	1767	1856	1558	1767	1856	1564	1767	1236	518	1767	1856	1541
Grp Volume(v), veh/h	146	536	49	141	619	83	80	0	342	106	358	251
Grp Sat Flow(s),veh/h/ln	1767	1856	1558	1767	1856	1564	1767	0	1755	1767	1856	1541
Q Serve(g_s), s	7.0	21.6	1.3	6.7	26.9	3.0	3.8	0.0	15.8	5.1	15.5	12.6
Cycle Q Clear(g_c), s	7.0	21.6	1.3	6.7	26.9	3.0	3.8	0.0	15.8	5.1	15.5	12.6
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.30	1.00		1.00
Lane Grp Cap(c), veh/h	180	711	597	175	698	588	118	0	430	134	458	380
V/C Ratio(X)	0.81	0.75	0.08	0.81	0.89	0.14	0.68	0.00	0.80	0.79	0.78	0.66
Avail Cap(c_a), veh/h	221	865	726	246	891	751	156	0	590	160	615	511
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	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	37.9	23.1	8.9	38.1	25.2	17.7	39.3	0.0	30.5	39.2	30.3	29.2
Incr Delay (d2), s/veh	16.9	3.0	0.1	12.4	9.0	0.1	7.2	0.0	5.3	19.8	4.6	2.0
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	3.8	9.4	0.6	3.4	12.7	1.1	1.9	0.0	7.2	2.9	7.2	4.7
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	54.9	26.1	9.0	50.5	34.2	17.8	46.6	0.0	35.8	59.0	34.9	31.2
LnGrp LOS	D	C	A	D	C	B	D	A	D	E	C	C
Approach Vol, veh/h		731			843			422			715	
Approach Delay, s/veh		30.7			35.3			37.9			37.2	
Approach LOS		C			D			D			D	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	10.7	25.1	12.7	37.7	10.0	25.9	13.4	37.0
Change Period (Y+Rc), s	4.2	* 4	* 4.2	4.6	4.2	* 4.6	4.6	* 4.6
Max Green Setting (Gmax), s	7.8	* 29	* 12	40.2	7.6	* 29	10.8	* 41
Max Q Clear Time (g_c+I1), s	7.1	17.8	8.7	23.6	5.8	17.5	9.0	28.9
Green Ext Time (p_c), s	0.0	1.7	0.1	3.2	0.0	2.3	0.1	3.5

Intersection Summary	
HCM 6th Ctrl Delay	35.0
HCM 6th LOS	C

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Intersection	
Intersection Delay, s/veh	14.4
Intersection LOS	B

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	76	33	335	88	56	360
Future Vol, veh/h	76	33	335	88	56	360
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles, %	3	3	3	3	3	3
Mvmt Flow	83	36	364	96	61	391
Number of Lanes	1	0	1	0	0	1

Approach	WB	NB	SB
Opposing Approach		SB	NB
Opposing Lanes	0	1	1
Conflicting Approach Left	NB		WB
Conflicting Lanes Left	1	0	1
Conflicting Approach Right	SB	WB	
Conflicting Lanes Right	1	1	0
HCM Control Delay	10.5	14.6	15.2
HCM LOS	B	B	C

Lane	NBLn1	WBLn1	SBLn1
Vol Left, %	0%	70%	13%
Vol Thru, %	79%	0%	87%
Vol Right, %	21%	30%	0%
Sign Control	Stop	Stop	Stop
Traffic Vol by Lane	423	109	416
LT Vol	0	76	56
Through Vol	335	0	360
RT Vol	88	33	0
Lane Flow Rate	460	118	452
Geometry Grp	1	1	1
Degree of Util (X)	0.599	0.198	0.607
Departure Headway (Hd)	4.693	6.016	4.836
Convergence, Y/N	Yes	Yes	Yes
Cap	763	601	737
Service Time	2.773	4.016	2.918
HCM Lane V/C Ratio	0.603	0.196	0.613
HCM Control Delay	14.6	10.5	15.2
HCM Lane LOS	B	B	C
HCM 95th-tile Q	4	0.7	4.2

Intersection	
Intersection Delay, s/veh	15.5
Intersection LOS	C

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	119	46	352	90	68	432
Future Vol, veh/h	119	46	352	90	68	432
Peak Hour Factor	0.87	0.87	0.87	0.87	0.87	0.87
Heavy Vehicles, %	1	1	3	1	1	3
Mvmt Flow	137	53	405	103	78	497
Number of Lanes	1	1	1	1	0	2

Approach	WB	NB	SB
Opposing Approach		SB	NB
Opposing Lanes	0	2	2
Conflicting Approach Left	NB		WB
Conflicting Lanes Left	2	0	2
Conflicting Approach Right	SB	WB	
Conflicting Lanes Right	2	2	0
HCM Control Delay	12.4	17.9	14.3
HCM LOS	B	C	B

Lane	NBLn1	NBLn2	WBLn1	WBLn2	SBLn1	SBLn2
Vol Left, %	0%	0%	100%	0%	32%	0%
Vol Thru, %	100%	0%	0%	0%	68%	100%
Vol Right, %	0%	100%	0%	100%	0%	0%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	352	90	119	46	212	288
LT Vol	0	0	119	0	68	0
Through Vol	352	0	0	0	144	288
RT Vol	0	90	0	46	0	0
Lane Flow Rate	405	103	137	53	244	331
Geometry Grp	7	7	7	7	7	7
Degree of Util (X)	0.673	0.151	0.288	0.093	0.407	0.541
Departure Headway (Hd)	5.99	5.246	7.576	6.354	6.012	5.884
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes
Cap	603	683	475	563	599	612
Service Time	3.731	2.987	5.327	4.104	3.751	3.623
HCM Lane V/C Ratio	0.672	0.151	0.288	0.094	0.407	0.541
HCM Control Delay	20.2	8.9	13.4	9.8	12.8	15.4
HCM Lane LOS	C	A	B	A	B	C
HCM 95th-tile Q	5.1	0.5	1.2	0.3	2	3.2

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	132	455	26	58	448	116	34	248	84	98	183	103
Future Volume (veh/h)	132	455	26	58	448	116	34	248	84	98	183	103
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		0.93	1.00		0.99
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
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	140	484	28	62	477	123	36	264	89	104	195	110
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	174	665	562	84	561	470	61	381	129	132	620	517
Arrive On Green	0.10	0.36	0.36	0.05	0.30	0.30	0.03	0.29	0.29	0.07	0.33	0.33
Sat Flow, veh/h	1767	1856	1568	1767	1856	1557	1767	1298	437	1767	1856	1549
Grp Volume(v), veh/h	140	484	28	62	477	123	36	0	353	104	195	110
Grp Sat Flow(s),veh/h/ln	1767	1856	1568	1767	1856	1557	1767	0	1735	1767	1856	1549
Q Serve(g_s), s	6.0	17.6	0.9	2.7	18.8	3.4	1.6	0.0	14.1	4.5	6.1	2.7
Cycle Q Clear(g_c), s	6.0	17.6	0.9	2.7	18.8	3.4	1.6	0.0	14.1	4.5	6.1	2.7
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.25	1.00		1.00
Lane Grp Cap(c), veh/h	174	665	562	84	561	470	61	0	510	132	620	517
V/C Ratio(X)	0.81	0.73	0.05	0.74	0.85	0.26	0.59	0.00	0.69	0.79	0.31	0.21
Avail Cap(c_a), veh/h	186	757	640	134	702	589	138	0	646	143	681	569
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	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	34.4	21.7	16.3	36.6	25.5	11.0	37.1	0.0	24.4	35.4	19.3	8.5
Incr Delay (d2), s/veh	21.2	3.1	0.0	12.0	8.1	0.3	8.6	0.0	2.3	23.3	0.3	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	3.5	7.6	0.3	1.4	9.0	1.6	0.8	0.0	5.9	2.7	2.5	1.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	55.6	24.8	16.4	48.6	33.7	11.3	45.6	0.0	26.6	58.7	19.6	8.7
LnGrp LOS	E	C	B	D	C	B	D	A	C	E	B	A
Approach Vol, veh/h		652			662			389			409	
Approach Delay, s/veh		31.0			30.9			28.4			26.6	
Approach LOS		C			C			C			C	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	10.0	27.5	7.9	32.5	6.9	30.6	12.3	28.1
Change Period (Y+Rc), s	* 4.2	* 4.6	* 4.2	4.6	* 4.2	4.6	4.6	* 4.6
Max Green Setting (Gmax), s	* 6.3	* 29	* 5.9	31.8	* 6.1	28.6	8.2	* 30
Max Q Clear Time (g_c+I1), s	6.5	16.1	4.7	19.6	3.6	8.1	8.0	20.8
Green Ext Time (p_c), s	0.0	1.9	0.0	2.4	0.0	1.3	0.0	2.2

Intersection Summary		
HCM 6th Ctrl Delay		29.7
HCM 6th LOS		C

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Intersection: 1: Reed Avenue & South Avenue

Movement	WB	NB	SB
Directions Served	LR	TR	LT
Maximum Queue (ft)	55	102	137
Average Queue (ft)	33	57	68
95th Queue (ft)	45	90	98
Link Distance (ft)	2568	1261	2617
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 2: Frankwood Avenue & South Avenue

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	LTR	LTR
Maximum Queue (ft)	55	56	101	79
Average Queue (ft)	34	36	43	45
95th Queue (ft)	49	52	74	72
Link Distance (ft)	2568	2614	1605	2584
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 3: Reed Avenue & Parlier Avenue

Movement	WB	WB	NB	SB	SB
Directions Served	L	R	T	LT	T
Maximum Queue (ft)	77	53	122	79	76
Average Queue (ft)	45	23	59	49	56
95th Queue (ft)	68	49	96	71	75
Link Distance (ft)	569		503	1281	1281
Upstream Blk Time (%)					
Queuing Penalty (veh)					
Storage Bay Dist (ft)		160			
Storage Blk Time (%)					
Queuing Penalty (veh)					

Intersection: 4: Frankwood Avenue & Parlier Avenue

Movement	EB	EB	EB	WB	WB	WB	NB	NB	NB	SB	SB	SB
Directions Served	L	T	R	L	T	R	UL	T	R	L	T	R
Maximum Queue (ft)	26	68	78	74	68	65	73	96	72	54	135	45
Average Queue (ft)	10	30	27	32	40	24	40	52	34	25	60	16
95th Queue (ft)	30	56	51	57	66	45	62	85	50	46	98	36
Link Distance (ft)		1936			333			1253			230	
Upstream Blk Time (%)												
Queuing Penalty (veh)												
Storage Bay Dist (ft)	55		130	55		250	150		250	90		100
Storage Blk Time (%)		1		1	2						1	
Queuing Penalty (veh)		1		2	3						1	

Intersection: 5: Frankwood Avenue & Cypress Avenue

Movement	EB	WB	NB	NB	NB	SB	SB	SB
Directions Served	LTR	LTR	L	T	R	L	T	R
Maximum Queue (ft)	67	77	55	157	56	30	135	32
Average Queue (ft)	35	44	31	74	25	7	64	7
95th Queue (ft)	58	73	53	127	50	27	108	27
Link Distance (ft)	1072	2206		602			1253	
Upstream Blk Time (%)								
Queuing Penalty (veh)								
Storage Bay Dist (ft)			110		110	100		100
Storage Blk Time (%)				3			1	
Queuing Penalty (veh)				3			0	

Intersection: 6: Frankwood Avenue & Manning Avenue

Movement	EB	EB	EB	WB	WB	WB	NB	NB	SB	SB	SB
Directions Served	L	T	R	L	T	R	L	TR	L	T	R
Maximum Queue (ft)	149	264	21	149	380	370	140	260	99	219	135
Average Queue (ft)	78	169	7	86	185	34	44	120	49	103	55
95th Queue (ft)	150	253	21	170	298	140	120	220	87	172	119
Link Distance (ft)		1832			1894			1242		266	
Upstream Blk Time (%)											
Queuing Penalty (veh)											
Storage Bay Dist (ft)	100		250	100		250	85		115		60
Storage Blk Time (%)	2	18		7	27		0	21	1	21	3
Queuing Penalty (veh)	9	25		32	42		0	12	2	52	10

Network Summary

Network wide Queuing Penalty: 193

Intersection: 1: Reed Avenue & South Avenue

Movement	WB	NB	SB
Directions Served	LR	TR	LT
Maximum Queue (ft)	63	125	104
Average Queue (ft)	35	76	63
95th Queue (ft)	54	112	95
Link Distance (ft)	2568	1264	2617
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 2: Frankwood Avenue & South Avenue

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	LTR	LTR
Maximum Queue (ft)	73	78	117	98
Average Queue (ft)	39	37	50	45
95th Queue (ft)	61	63	82	75
Link Distance (ft)	2568	2614	1605	2584
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 3: Reed Avenue & Parlier Avenue

Movement	WB	WB	NB	SB	SB
Directions Served	L	R	T	LT	T
Maximum Queue (ft)	55	55	165	102	74
Average Queue (ft)	37	27	73	52	46
95th Queue (ft)	57	49	114	84	67
Link Distance (ft)	569		503	1278	1278
Upstream Blk Time (%)					
Queuing Penalty (veh)					
Storage Bay Dist (ft)		160			
Storage Blk Time (%)			0		
Queuing Penalty (veh)			0		

Intersection: 4: Frankwood Avenue & Parlier Avenue

Movement	EB	EB	EB	WB	WB	WB	NB	NB	NB	SB	SB	SB
Directions Served	L	T	R	L	T	R	UL	T	R	UL	T	R
Maximum Queue (ft)	26	89	45	47	67	44	68	157	54	120	94	20
Average Queue (ft)	8	28	22	22	28	19	36	58	29	31	45	7
95th Queue (ft)	27	52	39	37	49	36	58	102	45	64	80	22
Link Distance (ft)		1936			333			1253			230	
Upstream Blk Time (%)												
Queuing Penalty (veh)												
Storage Bay Dist (ft)	55		130	55		250	150		250	90		100
Storage Blk Time (%)		1		0	0			0			0	
Queuing Penalty (veh)		1		0	0			0			0	

Intersection: 5: Frankwood Avenue & Cypress Avenue

Movement	EB	WB	NB	NB	NB	SB	SB	SB
Directions Served	LTR	LTR	L	T	R	L	T	R
Maximum Queue (ft)	52	51	55	121	73	31	143	51
Average Queue (ft)	27	31	22	74	28	16	66	7
95th Queue (ft)	47	48	47	111	54	41	114	30
Link Distance (ft)	1072	2206		606			1253	
Upstream Blk Time (%)								
Queuing Penalty (veh)								
Storage Bay Dist (ft)			110		110	100		100
Storage Blk Time (%)				1			2	
Queuing Penalty (veh)				1			1	

Intersection: 6: Frankwood Avenue & Manning Avenue

Movement	EB	EB	EB	WB	WB	WB	NB	NB	SB	SB	SB
Directions Served	L	T	R	L	T	R	L	TR	L	T	R
Maximum Queue (ft)	150	344	42	149	468	370	140	240	194	202	135
Average Queue (ft)	94	193	9	45	229	65	47	135	74	83	32
95th Queue (ft)	166	309	26	92	378	234	128	210	142	176	84
Link Distance (ft)		1832			1892			1243		254	
Upstream Blk Time (%)											
Queuing Penalty (veh)											
Storage Bay Dist (ft)	100		250	100		250	85		115		60
Storage Blk Time (%)	1	21		0	34		0	25	6	11	1
Queuing Penalty (veh)	4	34		0	59		0	9	17	22	2

Network Summary

Network wide Queuing Penalty: 151

Appendix G: Near Term plus Project Traffic Conditions

Intersection	
Int Delay, s/veh	6.1

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	140	47	212	51	32	443
Future Vol, veh/h	140	47	212	51	32	443
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	86	86	86	86	86	86
Heavy Vehicles, %	3	3	3	3	3	3
Mvmt Flow	163	55	247	59	37	515

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	866	277	0	0	306	0
Stage 1	277	-	-	-	-	-
Stage 2	589	-	-	-	-	-
Critical Hdwy	6.43	6.23	-	-	4.13	-
Critical Hdwy Stg 1	5.43	-	-	-	-	-
Critical Hdwy Stg 2	5.43	-	-	-	-	-
Follow-up Hdwy	3.527	3.327	-	-	2.227	-
Pot Cap-1 Maneuver	322	759	-	-	1249	-
Stage 1	767	-	-	-	-	-
Stage 2	553	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	309	759	-	-	1249	-
Mov Cap-2 Maneuver	309	-	-	-	-	-
Stage 1	736	-	-	-	-	-
Stage 2	553	-	-	-	-	-

Approach	WB		NB		SB	
HCM Control Delay, s	28.7		0		0.5	
HCM LOS	D					

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	363	1249	-
HCM Lane V/C Ratio	-	-	0.599	0.03	-
HCM Control Delay (s)	-	-	28.7	8	0
HCM Lane LOS	-	-	D	A	A
HCM 95th %tile Q(veh)	-	-	3.7	0.1	-

Intersection	
Intersection Delay, s/veh	12.3
Intersection LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		✣			✣			✣			✣	
Traffic Vol, veh/h	18	37	20	68	111	29	37	148	31	11	182	47
Future Vol, veh/h	18	37	20	68	111	29	37	148	31	11	182	47
Peak Hour Factor	0.79	0.79	0.79	0.79	0.79	0.79	0.79	0.79	0.79	0.79	0.79	0.79
Heavy Vehicles, %	3	3	3	3	3	3	3	3	3	3	3	3
Mvmt Flow	23	47	25	86	141	37	47	187	39	14	230	59
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay	10.1	12.7	12.3	12.7
HCM LOS	B	B	B	B

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	17%	24%	33%	5%
Vol Thru, %	69%	49%	53%	76%
Vol Right, %	14%	27%	14%	20%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	216	75	208	240
LT Vol	37	18	68	11
Through Vol	148	37	111	182
RT Vol	31	20	29	47
Lane Flow Rate	273	95	263	304
Geometry Grp	1	1	1	1
Degree of Util (X)	0.413	0.156	0.414	0.45
Departure Headway (Hd)	5.434	5.909	5.66	5.336
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	662	604	635	671
Service Time	3.486	3.975	3.713	3.387
HCM Lane V/C Ratio	0.412	0.157	0.414	0.453
HCM Control Delay	12.3	10.1	12.7	12.7
HCM Lane LOS	B	B	B	B
HCM 95th-tile Q	2	0.5	2	2.3

Intersection						
Int Delay, s/veh	11.8					

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	180	51	244	49	51	572
Future Vol, veh/h	180	51	244	49	51	572
Conflicting Peds, #/hr	1	2	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	Free	-	None
Storage Length	0	160	-	150	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	89	89	89	89	89	89
Heavy Vehicles, %	1	1	3	1	1	3
Mvmt Flow	202	57	274	55	57	643

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	1032	276	0	-	274	0
Stage 1	274	-	-	-	-	-
Stage 2	758	-	-	-	-	-
Critical Hdwy	6.41	6.21	-	-	4.11	-
Critical Hdwy Stg 1	5.41	-	-	-	-	-
Critical Hdwy Stg 2	5.41	-	-	-	-	-
Follow-up Hdwy	3.509	3.309	-	-	2.209	-
Pot Cap-1 Maneuver	259	765	-	0	1295	-
Stage 1	774	-	-	0	-	-
Stage 2	465	-	-	0	-	-
Platoon blocked, %			-			-
Mov Cap-1 Maneuver	241	764	-	-	1295	-
Mov Cap-2 Maneuver	241	-	-	-	-	-
Stage 1	721	-	-	-	-	-
Stage 2	465	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	54.5	0	0.6
HCM LOS	F		

Minor Lane/Major Mvmt	NBT	WBLn1	WBLn2	SBL	SBT
Capacity (veh/h)	-	241	764	1295	-
HCM Lane V/C Ratio	-	0.839	0.075	0.044	-
HCM Control Delay (s)	-	67.1	10.1	7.9	0
HCM Lane LOS	-	F	B	A	A
HCM 95th %tile Q(veh)	-	6.6	0.2	0.1	-

Intersection	
Intersection Delay, s/veh	24.2
Intersection LOS	C

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBL	SBT
Lane Configurations												
Traffic Vol, veh/h	20	93	87	88	146	71	22	81	184	100	53	287
Future Vol, veh/h	20	93	87	88	146	71	22	81	184	100	53	287
Peak Hour Factor	0.77	0.77	0.77	0.77	0.77	0.77	0.77	0.77	0.77	0.77	0.77	0.77
Heavy Vehicles, %	1	1	1	1	1	1	1	1	3	1	1	3
Mvmt Flow	26	121	113	114	190	92	29	105	239	130	69	373
Number of Lanes	1	1	1	1	1	1	0	1	1	1	1	1
Approach	EB			WB			NB				SB	
Opposing Approach	WB			EB			SB				NB	
Opposing Lanes	3			3			3				3	
Conflicting Approach Left	SB			NB			EB				WB	
Conflicting Lanes Left	3			3			3				3	
Conflicting Approach Right	NB			SB			WB				EB	
Conflicting Lanes Right	3			3			3				3	
HCM Control Delay	15.3			17.1			18.7				39.3	
HCM LOS	C			C			C				E	

Lane	NBLn1	NBLn2	NBLn3	EBLn1	EBLn2	EBLn3	WBLn1	WBLn2	WBLn3	SBLn1	SBLn2
Vol Left, %	100%	0%	0%	100%	0%	0%	100%	0%	0%	100%	0%
Vol Thru, %	0%	100%	0%	0%	100%	0%	0%	100%	0%	0%	100%
Vol Right, %	0%	0%	100%	0%	0%	100%	0%	0%	100%	0%	0%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	103	184	100	20	93	87	88	146	71	53	287
LT Vol	103	0	0	20	0	0	88	0	0	53	0
Through Vol	0	184	0	0	93	0	0	146	0	0	287
RT Vol	0	0	100	0	0	87	0	0	71	0	0
Lane Flow Rate	134	239	130	26	121	113	114	190	92	69	373
Geometry Grp	8	8	8	8	8	8	8	8	8	8	8
Degree of Util (X)	0.34	0.574	0.288	0.071	0.314	0.272	0.3	0.472	0.211	0.173	0.888
Departure Headway (Hd)	9.146	8.646	7.98	9.862	9.362	8.662	9.457	8.957	8.257	9.04	8.574
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cap	393	418	451	363	384	415	381	402	434	397	425
Service Time	6.896	6.396	5.73	7.618	7.118	6.418	7.207	6.707	6.007	6.789	6.323
HCM Lane V/C Ratio	0.341	0.572	0.288	0.072	0.315	0.272	0.299	0.473	0.212	0.174	0.878
HCM Control Delay	16.6	22.5	13.9	13.4	16.4	14.6	16.2	19.5	13.2	13.7	50
HCM Lane LOS	C	C	B	B	C	B	C	C	B	B	E
HCM 95th-tile Q	1.5	3.5	1.2	0.2	1.3	1.1	1.2	2.5	0.8	0.6	9.2

Intersection	
Intersection Delay, s/veh	
Intersection LOS	

Movement	SBR
Lane Configurations	
Traffic Vol, veh/h	63
Future Vol, veh/h	63
Peak Hour Factor	0.77
Heavy Vehicles, %	1
Mvmt Flow	82
Number of Lanes	1

Approach	
Opposing Approach	
Opposing Lanes	
Conflicting Approach Left	
Conflicting Lanes Left	
Conflicting Approach Right	
Conflicting Lanes Right	
HCM Control Delay	
HCM LOS	

Intersection	
Intersection Delay, s/veh	22.5
Intersection LOS	C

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	12	10	67	126	4	38	73	302	39	14	343	10
Future Vol, veh/h	12	10	67	126	4	38	73	302	39	14	343	10
Peak Hour Factor	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80
Heavy Vehicles, %	1	1	1	1	1	1	1	3	1	1	3	1
Mvmt Flow	15	13	84	158	5	48	91	378	49	18	429	13
Number of Lanes	0	1	0	0	1	0	1	1	1	1	1	1

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	3	3
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	3	3	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	3	3	1	1
HCM Control Delay	12.4	16.8	20.2	30.1
HCM LOS	B	C	C	D

Lane	NBLn1	NBLn2	NBLn3	EBLn1	WBLn1	SBLn1	SBLn2	SBLn3
Vol Left, %	100%	0%	0%	13%	75%	100%	0%	0%
Vol Thru, %	0%	100%	0%	11%	2%	0%	100%	0%
Vol Right, %	0%	0%	100%	75%	23%	0%	0%	100%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	73	302	39	89	168	14	343	10
LT Vol	73	0	0	12	126	14	0	0
Through Vol	0	302	0	10	4	0	343	0
RT Vol	0	0	39	67	38	0	0	10
Lane Flow Rate	91	378	49	111	210	18	429	12
Geometry Grp	7	7	7	7	7	7	7	7
Degree of Util (X)	0.182	0.701	0.08	0.23	0.452	0.035	0.802	0.021
Departure Headway (Hd)	7.166	6.688	5.935	7.455	7.745	7.215	6.737	5.984
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cap	500	540	603	481	464	496	536	597
Service Time	4.914	4.436	3.682	5.215	5.495	4.96	4.482	3.728
HCM Lane V/C Ratio	0.182	0.7	0.081	0.231	0.453	0.036	0.8	0.02
HCM Control Delay	11.5	23.7	9.2	12.4	16.8	10.2	31.5	8.9
HCM Lane LOS	B	C	A	B	C	B	D	A
HCM 95th-tile Q	0.7	5.5	0.3	0.9	2.3	0.1	7.7	0.1

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	102	370	34	97	427	57	55	166	70	73	247	175
Future Volume (veh/h)	102	370	34	97	427	57	55	166	70	73	247	175
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		1.00	1.00		0.99	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
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	148	536	49	141	619	83	80	241	101	106	358	254
Peak Hour Factor	0.69	0.69	0.69	0.69	0.69	0.69	0.69	0.69	0.69	0.69	0.69	0.69
Percent Heavy Veh, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	178	695	64	172	653	88	102	290	122	132	467	388
Arrive On Green	0.10	0.42	0.42	0.10	0.41	0.41	0.06	0.23	0.23	0.07	0.25	0.25
Sat Flow, veh/h	1767	1673	153	1767	1601	215	1767	1236	518	1767	1856	1541
Grp Volume(v), veh/h	148	0	585	141	0	702	80	0	342	106	358	254
Grp Sat Flow(s),veh/h/ln	1767	0	1826	1767	0	1816	1767	0	1754	1767	1856	1541
Q Serve(g_s), s	8.1	0.0	27.2	7.7	0.0	36.9	4.4	0.0	18.3	5.8	17.7	10.8
Cycle Q Clear(g_c), s	8.1	0.0	27.2	7.7	0.0	36.9	4.4	0.0	18.3	5.8	17.7	10.8
Prop In Lane	1.00		0.08	1.00		0.12	1.00		0.30	1.00		1.00
Lane Grp Cap(c), veh/h	178	0	758	172	0	740	102	0	412	132	467	388
V/C Ratio(X)	0.83	0.00	0.77	0.82	0.00	0.95	0.78	0.00	0.83	0.80	0.77	0.65
Avail Cap(c_a), veh/h	184	0	758	218	0	772	139	0	515	138	531	441
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	0.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	43.6	0.0	24.9	43.8	0.0	28.3	45.9	0.0	36.0	45.0	34.3	18.2
Incr Delay (d2), s/veh	25.8	0.0	4.9	17.6	0.0	20.4	17.8	0.0	9.1	26.8	5.9	2.9
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	4.8	0.0	12.2	4.2	0.0	19.3	2.4	0.0	8.8	3.5	8.5	4.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	69.4	0.0	29.8	61.3	0.0	48.7	63.7	0.0	45.1	71.8	40.1	21.1
LnGrp LOS	E	A	C	E	A	D	E	A	D	E	D	C
Approach Vol, veh/h		733			843			422			718	
Approach Delay, s/veh		37.8			50.8			48.6			38.1	
Approach LOS		D			D			D			D	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	11.6	27.8	13.8	45.6	9.9	29.5	14.6	44.9
Change Period (Y+Rc), s	* 4.2	* 4.6	* 4.2	4.6	* 4.2	4.6	4.6	* 4.6
Max Green Setting (Gmax), s	* 7.7	* 29	* 12	40.1	* 7.8	28.3	10.3	* 42
Max Q Clear Time (g_c+I1), s	7.8	20.3	9.7	29.2	6.4	19.7	10.1	38.9
Green Ext Time (p_c), s	0.0	1.4	0.1	2.8	0.0	2.0	0.0	1.4

Intersection Summary	
HCM 6th Ctrl Delay	43.6
HCM 6th LOS	D

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Intersection	
Int Delay, s/veh	3.3

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	76	38	335	88	69	360
Future Vol, veh/h	76	38	335	88	69	360
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	3	3	3	3	3	3
Mvmt Flow	83	41	364	96	75	391

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	953	412	0	0	460	0
Stage 1	412	-	-	-	-	-
Stage 2	541	-	-	-	-	-
Critical Hdwy	6.43	6.23	-	-	4.13	-
Critical Hdwy Stg 1	5.43	-	-	-	-	-
Critical Hdwy Stg 2	5.43	-	-	-	-	-
Follow-up Hdwy	3.527	3.327	-	-	2.227	-
Pot Cap-1 Maneuver	286	638	-	-	1096	-
Stage 1	666	-	-	-	-	-
Stage 2	581	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	261	638	-	-	1096	-
Mov Cap-2 Maneuver	261	-	-	-	-	-
Stage 1	608	-	-	-	-	-
Stage 2	581	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	22.7	0	1.4
HCM LOS	C		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	325	1096	-
HCM Lane V/C Ratio	-	-	0.381	0.068	-
HCM Control Delay (s)	-	-	22.7	8.5	0
HCM Lane LOS	-	-	C	A	A
HCM 95th %tile Q(veh)	-	-	1.7	0.2	-

Intersection	
Intersection Delay, s/veh	11.1
Intersection LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	44	103	29	52	57	9	22	200	62	20	169	28
Future Vol, veh/h	44	103	29	52	57	9	22	200	62	20	169	28
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Heavy Vehicles, %	3	3	3	3	3	3	3	3	3	3	3	3
Mvmt Flow	47	110	31	55	61	10	23	213	66	21	180	30
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay	10.8	10.2	11.9	10.9
HCM LOS	B	B	B	B

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	8%	25%	44%	9%
Vol Thru, %	70%	59%	48%	78%
Vol Right, %	22%	16%	8%	13%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	284	176	118	217
LT Vol	22	44	52	20
Through Vol	200	103	57	169
RT Vol	62	29	9	28
Lane Flow Rate	302	187	126	231
Geometry Grp	1	1	1	1
Degree of Util (X)	0.427	0.287	0.2	0.336
Departure Headway (Hd)	5.084	5.518	5.722	5.239
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	707	650	626	686
Service Time	3.119	3.559	3.765	3.277
HCM Lane V/C Ratio	0.427	0.288	0.201	0.337
HCM Control Delay	11.9	10.8	10.2	10.9
HCM Lane LOS	B	B	B	B
HCM 95th-tile Q	2.1	1.2	0.7	1.5

Intersection	
Int Delay, s/veh	7.2

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	131	46	352	111	68	432
Future Vol, veh/h	131	46	352	111	68	432
Conflicting Peds, #/hr	2	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	Free	-	None
Storage Length	0	160	-	150	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	87	87	87	87	87	87
Heavy Vehicles, %	1	1	3	1	1	3
Mvmt Flow	151	53	405	128	78	497

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	1060	405	0	-	405	0
Stage 1	405	-	-	-	-	-
Stage 2	655	-	-	-	-	-
Critical Hdwy	6.41	6.21	-	-	4.11	-
Critical Hdwy Stg 1	5.41	-	-	-	-	-
Critical Hdwy Stg 2	5.41	-	-	-	-	-
Follow-up Hdwy	3.509	3.309	-	-	2.209	-
Pot Cap-1 Maneuver	249	648	-	0	1159	-
Stage 1	676	-	-	0	-	-
Stage 2	519	-	-	0	-	-
Platoon blocked, %			-			-
Mov Cap-1 Maneuver	225	648	-	-	1159	-
Mov Cap-2 Maneuver	225	-	-	-	-	-
Stage 1	613	-	-	-	-	-
Stage 2	518	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	38.6	0	1.1
HCM LOS	E		

Minor Lane/Major Mvmt	NBT	WBLn1	WBLn2	SBL	SBT
Capacity (veh/h)	-	225	648	1159	-
HCM Lane V/C Ratio	-	0.669	0.082	0.067	-
HCM Control Delay (s)	-	48.3	11	8.3	0
HCM Lane LOS	-	E	B	A	A
HCM 95th %tile Q(veh)	-	4.2	0.3	0.2	-

Intersection	
Intersection Delay, s/veh	15.9
Intersection LOS	C

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBU	SBL
Lane Configurations												
Traffic Vol, veh/h	40	95	75	45	111	56	5	105	308	87	1	65
Future Vol, veh/h	40	95	75	45	111	56	5	105	308	87	1	65
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Heavy Vehicles, %	1	1	1	1	1	1	1	1	3	1	3	1
Mvmt Flow	44	104	82	49	122	62	5	115	338	96	1	71
Number of Lanes	1	1	1	1	1	1	0	1	1	1	0	1

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	3	3	3	3
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	3	3	3	3
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	3	3	3	3
HCM Control Delay	12.4	12.7	19	15.5
HCM LOS	B	B	C	C

Lane	NBLn1	NBLn2	NBLn3	EBLn1	EBLn2	EBLn3	WBLn1	WBLn2	WBLn3	SBLn1	SBLn2
Vol Left, %	100%	0%	0%	100%	0%	0%	100%	0%	0%	100%	0%
Vol Thru, %	0%	100%	0%	0%	100%	0%	0%	100%	0%	0%	100%
Vol Right, %	0%	0%	100%	0%	0%	100%	0%	0%	100%	0%	0%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	110	308	87	40	95	75	45	111	56	66	210
LT Vol	110	0	0	40	0	0	45	0	0	66	0
Through Vol	0	308	0	0	95	0	0	111	0	0	210
RT Vol	0	0	87	0	0	75	0	0	56	0	0
Lane Flow Rate	121	338	96	44	104	82	49	122	62	73	231
Geometry Grp	8	8	8	8	8	8	8	8	8	8	8
Degree of Util (X)	0.257	0.673	0.172	0.104	0.232	0.167	0.116	0.27	0.124	0.163	0.486
Departure Headway (Hd)	7.654	7.154	6.488	8.492	7.992	7.292	8.478	7.978	7.278	8.111	7.577
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cap	469	504	553	422	449	491	423	450	492	442	475
Service Time	5.399	4.899	4.233	6.244	5.744	5.044	6.233	5.733	5.033	5.862	5.328
HCM Lane V/C Ratio	0.258	0.671	0.174	0.104	0.232	0.167	0.116	0.271	0.126	0.165	0.486
HCM Control Delay	13	23.5	10.6	12.2	13.2	11.5	12.3	13.7	11.1	12.4	17.3
HCM Lane LOS	B	C	B	B	B	B	B	B	B	B	C
HCM 95th-tile Q	1	5	0.6	0.3	0.9	0.6	0.4	1.1	0.4	0.6	2.6

Intersection	
Intersection Delay, s/veh	
Intersection LOS	

Movement	SBT	SBR
Lane Configurations		
Traffic Vol, veh/h	210	33
Future Vol, veh/h	210	33
Peak Hour Factor	0.91	0.91
Heavy Vehicles, %	3	1
Mvmt Flow	231	36
Number of Lanes	1	1

Approach	
Opposing Approach	
Opposing Lanes	
Conflicting Approach Left	
Conflicting Lanes Left	
Conflicting Approach Right	
Conflicting Lanes Right	
HCM Control Delay	
HCM LOS	

Intersection	
Intersection Delay, s/veh	15.6
Intersection LOS	C

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		✥			✥		↰	↑	↱	↰	↑	↱
Traffic Vol, veh/h	10	3	53	55	2	36	33	417	56	24	356	11
Future Vol, veh/h	10	3	53	55	2	36	33	417	56	24	356	11
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Heavy Vehicles, %	1	1	1	1	1	1	1	3	1	1	3	1
Mvmt Flow	10	3	55	57	2	37	34	430	58	25	367	11
Number of Lanes	0	1	0	0	1	0	1	1	1	1	1	1

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	3	3
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	3	3	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	3	3	1	1
HCM Control Delay	10.2	11.2	17.1	15.5
HCM LOS	B	B	C	C

Lane	NBLn1	NBLn2	NBLn3	EBLn1	WBLn1	SBLn1	SBLn2	SBLn3
Vol Left, %	100%	0%	0%	15%	59%	100%	0%	0%
Vol Thru, %	0%	100%	0%	5%	2%	0%	100%	0%
Vol Right, %	0%	0%	100%	80%	39%	0%	0%	100%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	33	417	56	66	93	24	356	11
LT Vol	33	0	0	10	55	24	0	0
Through Vol	0	417	0	3	2	0	356	0
RT Vol	0	0	56	53	36	0	0	11
Lane Flow Rate	34	430	58	68	96	25	367	11
Geometry Grp	7	7	7	7	7	7	7	7
Degree of Util (X)	0.057	0.669	0.078	0.123	0.184	0.043	0.584	0.016
Departure Headway (Hd)	6.073	5.602	4.86	6.487	6.906	6.199	5.728	4.985
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cap	590	645	737	551	519	578	631	717
Service Time	3.807	3.335	2.593	4.241	4.657	3.934	3.462	2.72
HCM Lane V/C Ratio	0.058	0.667	0.079	0.123	0.185	0.043	0.582	0.015
HCM Control Delay	9.2	19	8	10.2	11.2	9.2	16.2	7.8
HCM Lane LOS	A	C	A	B	B	A	C	A
HCM 95th-tile Q	0.2	5.1	0.3	0.4	0.7	0.1	3.8	0

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	133	455	26	58	448	116	34	251	84	98	183	105
Future Volume (veh/h)	133	455	26	58	448	116	34	251	84	98	183	105
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		0.92	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
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	141	484	28	62	477	123	36	267	89	104	195	112
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	171	720	42	79	509	131	58	355	118	131	584	487
Arrive On Green	0.10	0.41	0.41	0.04	0.36	0.36	0.03	0.27	0.27	0.07	0.31	0.31
Sat Flow, veh/h	1767	1737	100	1767	1420	366	1767	1300	433	1767	1856	1547
Grp Volume(v), veh/h	141	0	512	62	0	600	36	0	356	104	195	112
Grp Sat Flow(s),veh/h/ln	1767	0	1837	1767	0	1786	1767	0	1733	1767	1856	1547
Q Serve(g_s), s	7.1	0.0	20.6	3.2	0.0	29.6	1.8	0.0	17.1	5.3	7.3	3.5
Cycle Q Clear(g_c), s	7.1	0.0	20.6	3.2	0.0	29.6	1.8	0.0	17.1	5.3	7.3	3.5
Prop In Lane	1.00		0.05	1.00		0.20	1.00		0.25	1.00		1.00
Lane Grp Cap(c), veh/h	171	0	761	79	0	640	58	0	473	131	584	487
V/C Ratio(X)	0.83	0.00	0.67	0.78	0.00	0.94	0.62	0.00	0.75	0.79	0.33	0.23
Avail Cap(c_a), veh/h	171	0	761	124	0	675	122	0	552	132	589	491
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	0.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	40.4	0.0	21.6	43.0	0.0	28.2	43.5	0.0	30.3	41.5	23.9	11.7
Incr Delay (d2), s/veh	27.0	0.0	2.3	15.1	0.0	20.3	10.3	0.0	4.9	27.3	0.3	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	4.3	0.0	8.8	1.7	0.0	15.5	1.0	0.0	7.7	3.2	3.2	1.7
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	67.4	0.0	24.0	58.1	0.0	48.5	53.8	0.0	35.2	68.8	24.2	11.9
LnGrp LOS	E	A	C	E	A	D	D	A	D	E	C	B
Approach Vol, veh/h		653			662			392			411	
Approach Delay, s/veh		33.3			49.4			36.9			32.2	
Approach LOS		C			D			D			C	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	10.9	29.5	8.3	42.3	7.2	33.2	13.4	37.2
Change Period (Y+Rc), s	* 4.2	* 4.6	* 4.2	4.6	* 4.2	4.6	4.6	* 4.6
Max Green Setting (Gmax), s	* 6.8	* 29	* 6.4	36.8	* 6.3	28.9	8.8	* 34
Max Q Clear Time (g_c+I1), s	7.3	19.1	5.2	22.6	3.8	9.3	9.1	31.6
Green Ext Time (p_c), s	0.0	1.6	0.0	2.7	0.0	1.3	0.0	1.1

Intersection Summary	
HCM 6th Ctrl Delay	38.8
HCM 6th LOS	D

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Intersection	
Intersection Delay, s/veh	18.5
Intersection LOS	C

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	140	47	212	51	32	443
Future Vol, veh/h	140	47	212	51	32	443
Peak Hour Factor	0.86	0.86	0.86	0.86	0.86	0.86
Heavy Vehicles, %	3	3	3	3	3	3
Mvmt Flow	163	55	247	59	37	515
Number of Lanes	1	0	1	0	0	1

Approach	WB	NB	SB
Opposing Approach		SB	NB
Opposing Lanes	0	1	1
Conflicting Approach Left	NB		WB
Conflicting Lanes Left	1	0	1
Conflicting Approach Right	SB	WB	
Conflicting Lanes Right	1	1	0
HCM Control Delay	12.6	12.6	24.1
HCM LOS	B	B	C

Lane	NBLn1	WBLn1	SBLn1
Vol Left, %	0%	75%	7%
Vol Thru, %	81%	0%	93%
Vol Right, %	19%	25%	0%
Sign Control	Stop	Stop	Stop
Traffic Vol by Lane	263	187	475
LT Vol	0	140	32
Through Vol	212	0	443
RT Vol	51	47	0
Lane Flow Rate	306	217	552
Geometry Grp	1	1	1
Degree of Util (X)	0.449	0.367	0.783
Departure Headway (Hd)	5.291	6.071	5.101
Convergence, Y/N	Yes	Yes	Yes
Cap	679	591	707
Service Time	3.332	4.117	3.133
HCM Lane V/C Ratio	0.451	0.367	0.781
HCM Control Delay	12.6	12.6	24.1
HCM Lane LOS	B	B	C
HCM 95th-tile Q	2.3	1.7	7.7

Intersection	
Intersection Delay, s/veh	16.8
Intersection LOS	C

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	180	51	244	49	51	572
Future Vol, veh/h	180	51	244	49	51	572
Peak Hour Factor	0.89	0.89	0.89	0.89	0.89	0.89
Heavy Vehicles, %	1	1	3	1	1	3
Mvmt Flow	202	57	274	55	57	643
Number of Lanes	1	1	1	1	0	2

Approach	WB	NB	SB
Opposing Approach		SB	NB
Opposing Lanes	0	2	2
Conflicting Approach Left	NB		WB
Conflicting Lanes Left	2	0	2
Conflicting Approach Right	SB	WB	
Conflicting Lanes Right	2	2	0
HCM Control Delay	14.4	14.3	18.9
HCM LOS	B	B	C

Lane	NBLn1	NBLn2	WBLn1	WBLn2	SBLn1	SBLn2
Vol Left, %	0%	0%	100%	0%	21%	0%
Vol Thru, %	100%	0%	0%	0%	79%	100%
Vol Right, %	0%	100%	0%	100%	0%	0%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	244	49	180	51	242	381
LT Vol	0	0	180	0	51	0
Through Vol	244	0	0	0	191	381
RT Vol	0	49	0	51	0	0
Lane Flow Rate	274	55	202	57	272	428
Geometry Grp	7	7	7	7	7	7
Degree of Util (X)	0.492	0.087	0.423	0.1	0.457	0.712
Departure Headway (Hd)	6.456	5.709	7.521	6.301	6.057	5.984
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes
Cap	557	625	477	567	595	604
Service Time	4.214	3.466	5.276	4.055	3.804	3.731
HCM Lane V/C Ratio	0.492	0.088	0.423	0.101	0.457	0.709
HCM Control Delay	15.4	9	15.7	9.8	13.8	22.2
HCM Lane LOS	C	A	C	A	B	C
HCM 95th-tile Q	2.7	0.3	2.1	0.3	2.4	5.8

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	102	370	34	97	427	57	55	166	70	73	247	175
Future Volume (veh/h)	102	370	34	97	427	57	55	166	70	73	247	175
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		0.99	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
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	148	536	49	141	619	83	80	241	101	106	358	254
Peak Hour Factor	0.69	0.69	0.69	0.69	0.69	0.69	0.69	0.69	0.69	0.69	0.69	0.69
Percent Heavy Veh, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	181	710	596	174	695	585	103	301	126	134	484	402
Arrive On Green	0.10	0.38	0.38	0.10	0.37	0.37	0.06	0.24	0.24	0.08	0.26	0.26
Sat Flow, veh/h	1767	1856	1558	1767	1856	1564	1767	1236	518	1767	1856	1542
Grp Volume(v), veh/h	148	536	49	141	619	83	80	0	342	106	358	254
Grp Sat Flow(s),veh/h/ln	1767	1856	1558	1767	1856	1564	1767	0	1755	1767	1856	1542
Q Serve(g_s), s	7.2	22.1	1.8	6.9	27.6	2.2	3.9	0.0	16.1	5.2	15.6	9.2
Cycle Q Clear(g_c), s	7.2	22.1	1.8	6.9	27.6	2.2	3.9	0.0	16.1	5.2	15.6	9.2
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.30	1.00		1.00
Lane Grp Cap(c), veh/h	181	710	596	174	695	585	103	0	427	134	484	402
V/C Ratio(X)	0.82	0.75	0.08	0.81	0.89	0.14	0.78	0.00	0.80	0.79	0.74	0.63
Avail Cap(c_a), veh/h	217	846	711	241	872	735	152	0	577	156	602	500
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	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	38.7	23.6	17.3	38.9	25.9	9.4	41.0	0.0	31.3	40.1	29.8	14.9
Incr Delay (d2), s/veh	18.3	3.2	0.1	13.3	9.7	0.1	13.9	0.0	5.8	20.8	3.7	1.7
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	9.7	0.6	3.5	13.2	1.1	2.1	0.0	7.4	3.0	7.2	3.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	57.0	26.8	17.4	52.2	35.6	9.5	54.8	0.0	37.1	60.8	33.6	16.7
LnGrp LOS	E	C	B	D	D	A	D	A	D	E	C	B
Approach Vol, veh/h		733			843			422			718	
Approach Delay, s/veh		32.3			35.8			40.5			31.6	
Approach LOS		C			D			D			C	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	10.9	26.0	12.9	38.3	9.3	27.6	13.6	37.6
Change Period (Y+Rc), s	* 4.2	* 4.6	* 4.2	4.6	* 4.2	4.6	4.6	* 4.6
Max Green Setting (Gmax), s	* 7.8	* 29	* 12	40.2	* 7.6	28.6	10.8	* 41
Max Q Clear Time (g_c+I1), s	7.2	18.1	8.9	24.1	5.9	17.6	9.2	29.6
Green Ext Time (p_c), s	0.0	1.6	0.1	3.2	0.0	2.3	0.1	3.4

Intersection Summary	
HCM 6th Ctrl Delay	34.5
HCM 6th LOS	C

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Intersection	
Intersection Delay, s/veh	14.9
Intersection LOS	B

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	76	38	335	88	69	360
Future Vol, veh/h	76	38	335	88	69	360
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles, %	3	3	3	3	3	3
Mvmt Flow	83	41	364	96	75	391
Number of Lanes	1	0	1	0	0	1

Approach	WB	NB	SB
Opposing Approach		SB	NB
Opposing Lanes	0	1	1
Conflicting Approach Left	NB		WB
Conflicting Lanes Left	1	0	1
Conflicting Approach Right	SB	WB	
Conflicting Lanes Right	1	1	0
HCM Control Delay	10.6	14.9	16
HCM LOS	B	B	C

Lane	NBLn1	WBLn1	SBLn1
Vol Left, %	0%	67%	16%
Vol Thru, %	79%	0%	84%
Vol Right, %	21%	33%	0%
Sign Control	Stop	Stop	Stop
Traffic Vol by Lane	423	114	429
LT Vol	0	76	69
Through Vol	335	0	360
RT Vol	88	38	0
Lane Flow Rate	460	124	466
Geometry Grp	1	1	1
Degree of Util (X)	0.604	0.208	0.63
Departure Headway (Hd)	4.729	6.034	4.862
Convergence, Y/N	Yes	Yes	Yes
Cap	754	599	732
Service Time	2.816	4.034	2.951
HCM Lane V/C Ratio	0.61	0.207	0.637
HCM Control Delay	14.9	10.6	16
HCM Lane LOS	B	B	C
HCM 95th-tile Q	4.1	0.8	4.5

Intersection	
Intersection Delay, s/veh	15.8
Intersection LOS	C

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	131	46	352	111	68	432
Future Vol, veh/h	131	46	352	111	68	432
Peak Hour Factor	0.87	0.87	0.87	0.87	0.87	0.87
Heavy Vehicles, %	1	1	3	1	1	3
Mvmt Flow	151	53	405	128	78	497
Number of Lanes	1	1	1	1	0	2

Approach	WB	NB	SB
Opposing Approach		SB	NB
Opposing Lanes	0	2	2
Conflicting Approach Left	NB		WB
Conflicting Lanes Left	2	0	2
Conflicting Approach Right	SB	WB	
Conflicting Lanes Right	2	2	0
HCM Control Delay	12.8	18.1	14.7
HCM LOS	B	C	B

Lane	NBLn1	NBLn2	WBLn1	WBLn2	SBLn1	SBLn2
Vol Left, %	0%	0%	100%	0%	32%	0%
Vol Thru, %	100%	0%	0%	0%	68%	100%
Vol Right, %	0%	100%	0%	100%	0%	0%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	352	111	131	46	212	288
LT Vol	0	0	131	0	68	0
Through Vol	352	0	0	0	144	288
RT Vol	0	111	0	46	0	0
Lane Flow Rate	405	128	151	53	244	331
Geometry Grp	7	7	7	7	7	7
Degree of Util (X)	0.682	0.189	0.319	0.094	0.414	0.551
Departure Headway (Hd)	6.067	5.322	7.631	6.409	6.116	5.988
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes
Cap	595	672	471	558	587	602
Service Time	3.814	3.069	5.386	4.163	3.862	3.734
HCM Lane V/C Ratio	0.681	0.19	0.321	0.095	0.416	0.55
HCM Control Delay	20.9	9.3	13.9	9.8	13.1	15.9
HCM Lane LOS	C	A	B	A	B	C
HCM 95th-tile Q	5.3	0.7	1.4	0.3	2	3.3

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	133	455	26	58	448	116	34	251	84	98	183	105
Future Volume (veh/h)	133	455	26	58	448	116	34	251	84	98	183	105
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		0.93	1.00		0.99
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
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	141	484	28	62	477	123	36	267	89	104	195	112
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	175	665	562	84	560	470	61	383	128	132	620	518
Arrive On Green	0.10	0.36	0.36	0.05	0.30	0.30	0.03	0.29	0.29	0.07	0.33	0.33
Sat Flow, veh/h	1767	1856	1568	1767	1856	1557	1767	1302	434	1767	1856	1549
Grp Volume(v), veh/h	141	484	28	62	477	123	36	0	356	104	195	112
Grp Sat Flow(s),veh/h/ln	1767	1856	1568	1767	1856	1557	1767	0	1736	1767	1856	1549
Q Serve(g_s), s	6.1	17.7	0.9	2.7	18.9	3.4	1.6	0.0	14.2	4.5	6.1	2.7
Cycle Q Clear(g_c), s	6.1	17.7	0.9	2.7	18.9	3.4	1.6	0.0	14.2	4.5	6.1	2.7
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.25	1.00		1.00
Lane Grp Cap(c), veh/h	175	665	562	84	560	470	61	0	511	132	620	518
V/C Ratio(X)	0.81	0.73	0.05	0.74	0.85	0.26	0.59	0.00	0.70	0.79	0.31	0.22
Avail Cap(c_a), veh/h	185	755	638	133	700	587	138	0	644	142	679	567
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	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	34.5	21.8	16.4	36.8	25.6	11.1	37.2	0.0	24.5	35.6	19.4	8.5
Incr Delay (d2), s/veh	21.5	3.1	0.0	12.1	8.2	0.3	8.6	0.0	2.4	23.4	0.3	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	7.7	0.3	1.4	9.0	1.6	0.8	0.0	6.0	2.7	2.5	1.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	56.0	24.8	16.4	48.9	33.9	11.4	45.8	0.0	26.9	59.0	19.6	8.7
LnGrp LOS	E	C	B	D	C	B	D	A	C	E	B	A
Approach Vol, veh/h		653			662			392			411	
Approach Delay, s/veh		31.2			31.1			28.6			26.6	
Approach LOS		C			C			C			C	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	10.0	27.6	7.9	32.6	6.9	30.7	12.3	28.2
Change Period (Y+Rc), s	* 4.2	* 4.6	* 4.2	4.6	* 4.2	4.6	4.6	* 4.6
Max Green Setting (Gmax), s	* 6.3	* 29	* 5.9	31.8	* 6.1	28.6	8.2	* 30
Max Q Clear Time (g_c+I1), s	6.5	16.2	4.7	19.7	3.6	8.1	8.1	20.9
Green Ext Time (p_c), s	0.0	1.9	0.0	2.4	0.0	1.4	0.0	2.2

Intersection Summary	
HCM 6th Ctrl Delay	29.8
HCM 6th LOS	C

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Intersection: 1: Reed Avenue & South Avenue

Movement	WB	NB	SB
Directions Served	LR	TR	LT
Maximum Queue (ft)	76	94	117
Average Queue (ft)	39	53	69
95th Queue (ft)	61	74	100
Link Distance (ft)	2568	1248	2617
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 2: Frankwood Avenue & South Avenue

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	LTR	LTR
Maximum Queue (ft)	91	76	75	102
Average Queue (ft)	34	40	48	44
95th Queue (ft)	56	60	70	71
Link Distance (ft)	2568	2614	1605	2584
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 3: Reed Avenue & Parlier Avenue

Movement	WB	WB	NB	SB	SB
Directions Served	L	R	T	LT	T
Maximum Queue (ft)	77	55	90	98	80
Average Queue (ft)	49	26	54	55	58
95th Queue (ft)	69	53	77	78	78
Link Distance (ft)	569		503	1294	1294
Upstream Blk Time (%)					
Queuing Penalty (veh)					
Storage Bay Dist (ft)		160			
Storage Blk Time (%)					
Queuing Penalty (veh)					

Intersection: 4: Frankwood Avenue & Parlier Avenue

Movement	EB	EB	EB	WB	WB	WB	NB	NB	NB	SB	SB	SB
Directions Served	L	T	R	L	T	R	UL	T	R	L	T	R
Maximum Queue (ft)	47	111	65	69	88	43	55	119	54	130	174	153
Average Queue (ft)	11	34	26	33	39	21	35	57	30	24	65	34
95th Queue (ft)	34	68	48	54	66	36	59	90	45	63	129	86
Link Distance (ft)		1936			333			1253			230	
Upstream Blk Time (%)												
Queuing Penalty (veh)												
Storage Bay Dist (ft)	55		130	55		250	150		250	90		100
Storage Blk Time (%)	0	2		1	2						6	
Queuing Penalty (veh)	0	2		2	3						7	

Intersection: 5: Frankwood Avenue & Cypress Avenue

Movement	EB	WB	NB	NB	NB	SB	SB	SB
Directions Served	LTR	LTR	L	T	R	L	T	R
Maximum Queue (ft)	50	134	79	156	32	31	147	31
Average Queue (ft)	27	50	36	83	25	17	64	8
95th Queue (ft)	43	90	64	133	45	42	108	29
Link Distance (ft)	1072	2206		602			1253	
Upstream Blk Time (%)								
Queuing Penalty (veh)								
Storage Bay Dist (ft)			110		110	100		100
Storage Blk Time (%)				2			2	
Queuing Penalty (veh)				2			0	

Intersection: 6: Frankwood Avenue & Manning Avenue

Movement	EB	EB	EB	WB	WB	WB	NB	NB	SB	SB	SB
Directions Served	L	T	R	L	T	R	L	TR	L	T	R
Maximum Queue (ft)	149	274	42	150	587	370	139	279	194	275	135
Average Queue (ft)	67	157	11	89	283	47	53	113	53	116	78
95th Queue (ft)	121	257	35	158	478	192	111	217	108	208	156
Link Distance (ft)		1832			1894			1242		266	
Upstream Blk Time (%)										0	
Queuing Penalty (veh)										1	
Storage Bay Dist (ft)	100		250	100		250	85		115		60
Storage Blk Time (%)	1	21		11	37		3	17		26	5
Queuing Penalty (veh)	3	28		53	56		7	9		63	17

Network Summary

Network wide Queuing Penalty: 254

Intersection: 1: Reed Avenue & South Avenue

Movement	WB	NB	SB
Directions Served	LR	TR	LT
Maximum Queue (ft)	55	141	130
Average Queue (ft)	32	75	69
95th Queue (ft)	51	113	108
Link Distance (ft)	2568	1250	2617
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 2: Frankwood Avenue & South Avenue

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	LTR	LTR
Maximum Queue (ft)	75	64	78	98
Average Queue (ft)	43	34	54	46
95th Queue (ft)	65	52	74	79
Link Distance (ft)	2568	2614	1605	2584
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 3: Reed Avenue & Parlier Avenue

Movement	WB	WB	NB	SB	SB
Directions Served	L	R	T	LT	T
Maximum Queue (ft)	77	55	132	75	103
Average Queue (ft)	41	29	72	49	46
95th Queue (ft)	64	55	110	69	73
Link Distance (ft)	569		503	1292	1292
Upstream Blk Time (%)					
Queuing Penalty (veh)					
Storage Bay Dist (ft)		160			
Storage Blk Time (%)			0		
Queuing Penalty (veh)			0		

Intersection: 4: Frankwood Avenue & Parlier Avenue

Movement	EB	EB	EB	WB	WB	WB	NB	NB	NB	SB	SB	SB
Directions Served	L	T	R	L	T	R	UL	T	R	UL	T	R
Maximum Queue (ft)	51	65	62	46	66	62	76	129	55	70	121	46
Average Queue (ft)	16	30	25	20	35	19	43	68	31	24	51	16
95th Queue (ft)	41	51	50	37	57	42	63	108	49	46	97	37
Link Distance (ft)		1936			333			1253			230	
Upstream Blk Time (%)												
Queuing Penalty (veh)												
Storage Bay Dist (ft)	55		130	55		250	150		250	90		100
Storage Blk Time (%)	0	0		0	1						1	
Queuing Penalty (veh)	0	1		0	1						1	

Intersection: 5: Frankwood Avenue & Cypress Avenue

Movement	EB	WB	NB	NB	NB	SB	SB	SB
Directions Served	LTR	LTR	L	T	R	L	T	R
Maximum Queue (ft)	50	70	54	130	55	52	117	31
Average Queue (ft)	28	33	19	73	28	20	63	9
95th Queue (ft)	48	60	45	109	51	45	100	31
Link Distance (ft)	1072	2206		606			1253	
Upstream Blk Time (%)								
Queuing Penalty (veh)								
Storage Bay Dist (ft)			110		110	100		100
Storage Blk Time (%)				1			1	
Queuing Penalty (veh)				0			0	

Intersection: 6: Frankwood Avenue & Manning Avenue

Movement	EB	EB	EB	WB	WB	WB	NB	NB	SB	SB	SB
Directions Served	L	T	R	L	T	R	L	TR	L	T	R
Maximum Queue (ft)	150	367	20	150	413	370	139	322	134	209	135
Average Queue (ft)	111	217	4	64	220	50	24	177	65	82	42
95th Queue (ft)	186	336	17	147	339	152	70	312	118	154	106
Link Distance (ft)		1832			1892			1243		254	
Upstream Blk Time (%)											
Queuing Penalty (veh)											
Storage Bay Dist (ft)	100		250	100		250	85		115		60
Storage Blk Time (%)	14	30		2	36		0	35	4	12	1
Queuing Penalty (veh)	67	48		12	62		0	12	12	24	4

Network Summary

Network wide Queuing Penalty: 245

Appendix H: Cumulative Year 2040 plus Project Traffic Conditions

Intersection	
Int Delay, s/veh	200.2

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	296	193	362	88	95	561
Future Vol, veh/h	296	193	362	88	95	561
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	3	3	3	3	3	3
Mvmt Flow	322	210	393	96	103	610

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	1257	441	0	0	489	0
Stage 1	441	-	-	-	-	-
Stage 2	816	-	-	-	-	-
Critical Hdwy	6.43	6.23	-	-	4.13	-
Critical Hdwy Stg 1	5.43	-	-	-	-	-
Critical Hdwy Stg 2	5.43	-	-	-	-	-
Follow-up Hdwy	3.527	3.327	-	-	2.227	-
Pot Cap-1 Maneuver	~ 188	614	-	-	1069	-
Stage 1	646	-	-	-	-	-
Stage 2	433	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	~ 161	614	-	-	1069	-
Mov Cap-2 Maneuver	~ 161	-	-	-	-	-
Stage 1	552	-	-	-	-	-
Stage 2	433	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	$ 651.1	0	1.3
HCM LOS	F		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	227	1069	-
HCM Lane V/C Ratio	-	-	2.342	0.097	-
HCM Control Delay (s)	-	-	$ 651.1	8.7	0
HCM Lane LOS	-	-	F	A	A
HCM 95th %tile Q(veh)	-	-	42.7	0.3	-

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

Intersection	
Intersection Delay, s/veh	14
Intersection LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		✣			✣			✣			✣	
Traffic Vol, veh/h	18	113	60	68	127	36	37	169	31	19	238	47
Future Vol, veh/h	18	113	60	68	127	36	37	169	31	19	238	47
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles, %	3	3	3	3	3	3	3	3	3	3	3	3
Mvmt Flow	20	123	65	74	138	39	40	184	34	21	259	51
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay	12.4	13.7	13.5	15.5
HCM LOS	B	B	B	C

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	16%	9%	29%	6%
Vol Thru, %	71%	59%	55%	78%
Vol Right, %	13%	31%	16%	15%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	237	191	231	304
LT Vol	37	18	68	19
Through Vol	169	113	127	238
RT Vol	31	60	36	47
Lane Flow Rate	258	208	251	330
Geometry Grp	1	1	1	1
Degree of Util (X)	0.431	0.352	0.427	0.537
Departure Headway (Hd)	6.019	6.096	6.126	5.849
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	600	590	588	618
Service Time	4.034	4.147	4.174	3.861
HCM Lane V/C Ratio	0.43	0.353	0.427	0.534
HCM Control Delay	13.5	12.4	13.7	15.5
HCM Lane LOS	B	B	B	C
HCM 95th-tile Q	2.2	1.6	2.1	3.2

Intersection						
Int Delay, s/veh	42.8					

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	180	72	415	49	65	803
Future Vol, veh/h	180	72	415	49	65	803
Conflicting Peds, #/hr	1	2	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	Free	-	None
Storage Length	0	160	-	150	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	1	1	3	1	1	3
Mvmt Flow	196	78	451	53	71	873

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	1467	453	0	-	451	0
Stage 1	451	-	-	-	-	-
Stage 2	1016	-	-	-	-	-
Critical Hdwy	6.41	6.21	-	-	4.11	-
Critical Hdwy Stg 1	5.41	-	-	-	-	-
Critical Hdwy Stg 2	5.41	-	-	-	-	-
Follow-up Hdwy	3.509	3.309	-	-	2.209	-
Pot Cap-1 Maneuver	~ 142	609	-	0	1115	-
Stage 1	644	-	-	0	-	-
Stage 2	351	-	-	0	-	-
Platoon blocked, %			-			-
Mov Cap-1 Maneuver	~ 124	608	-	-	1115	-
Mov Cap-2 Maneuver	~ 124	-	-	-	-	-
Stage 1	564	-	-	-	-	-
Stage 2	351	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	258.9	0	0.6
HCM LOS	F		

Minor Lane/Major Mvmt	NBT	WBLn1	WBLn2	SBL	SBT
Capacity (veh/h)	-	124	608	1115	-
HCM Lane V/C Ratio	-	1.578	0.129	0.063	-
HCM Control Delay (s)	-	$ 357.7	11.8	8.4	0
HCM Lane LOS	-	F	B	A	A
HCM 95th %tile Q(veh)	-	14.1	0.4	0.2	-

Notes

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

Intersection	
Intersection Delay, s/veh	18.9
Intersection LOS	C

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBL	SBT
Lane Configurations												
Traffic Vol, veh/h	20	93	89	106	172	73	22	81	184	100	53	287
Future Vol, veh/h	20	93	89	106	172	73	22	81	184	100	53	287
Peak Hour Factor	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86
Heavy Vehicles, %	1	1	1	1	1	1	1	1	3	1	1	3
Mvmt Flow	23	108	103	123	200	85	26	94	214	116	62	334
Number of Lanes	1	1	1	1	1	1	0	1	1	1	1	1

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	3	3	3	3
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	3	3	3	3
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	3	3	3	3
HCM Control Delay	14	16.1	16.2	26.4
HCM LOS	B	C	C	D

Lane	NBLn1	NBLn2	NBLn3	EBLn1	EBLn2	EBLn3	WBLn1	WBLn2	WBLn3	SBLn1	SBLn2
Vol Left, %	100%	0%	0%	100%	0%	0%	100%	0%	0%	100%	0%
Vol Thru, %	0%	100%	0%	0%	100%	0%	0%	100%	0%	0%	100%
Vol Right, %	0%	0%	100%	0%	0%	100%	0%	0%	100%	0%	0%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	103	184	100	20	93	89	106	172	73	53	287
LT Vol	103	0	0	20	0	0	106	0	0	53	0
Through Vol	0	184	0	0	93	0	0	172	0	0	287
RT Vol	0	0	100	0	0	89	0	0	73	0	0
Lane Flow Rate	120	214	116	23	108	103	123	200	85	62	334
Geometry Grp	8	8	8	8	8	8	8	8	8	8	8
Degree of Util (X)	0.29	0.488	0.243	0.061	0.268	0.236	0.303	0.464	0.18	0.147	0.755
Departure Headway (Hd)	8.703	8.203	7.537	9.421	8.921	8.221	8.944	8.444	7.644	8.614	8.148
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cap	411	436	473	382	406	440	404	430	466	414	441
Service Time	6.502	6.002	5.336	7.123	6.623	5.923	6.644	6.144	5.444	6.414	5.948
HCM Lane V/C Ratio	0.292	0.491	0.245	0.06	0.266	0.234	0.304	0.465	0.182	0.15	0.757
HCM Control Delay	15.1	18.7	12.8	12.7	14.9	13.4	15.5	18.2	12.1	12.9	32.2
HCM Lane LOS	C	C	B	B	B	B	C	C	B	B	D
HCM 95th-tile Q	1.2	2.6	0.9	0.2	1.1	0.9	1.3	2.4	0.6	0.5	6.3

Intersection	
Intersection Delay, s/veh	
Intersection LOS	

Movement	SBR
Lane Configurations	
Traffic Vol, veh/h	63
Future Vol, veh/h	63
Peak Hour Factor	0.86
Heavy Vehicles, %	1
Mvmt Flow	73
Number of Lanes	1

Approach	
Opposing Approach	
Opposing Lanes	
Conflicting Approach Left	
Conflicting Lanes Left	
Conflicting Approach Right	
Conflicting Lanes Right	
HCM Control Delay	
HCM LOS	

Intersection	
Intersection Delay, s/veh	18.6
Intersection LOS	C

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	12	10	67	126	4	38	73	302	39	14	343	10
Future Vol, veh/h	12	10	67	126	4	38	73	302	39	14	343	10
Peak Hour Factor	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86
Heavy Vehicles, %	1	1	1	1	1	1	1	3	1	1	3	1
Mvmt Flow	14	12	78	147	5	44	85	351	45	16	399	12
Number of Lanes	0	1	0	0	1	0	1	1	1	1	1	1

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	3	3
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	3	3	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	3	3	1	1
HCM Control Delay	11.7	15.2	17.1	23.4
HCM LOS	B	C	C	C

Lane	NBLn1	NBLn2	NBLn3	EBLn1	WBLn1	SBLn1	SBLn2	SBLn3
Vol Left, %	100%	0%	0%	13%	75%	100%	0%	0%
Vol Thru, %	0%	100%	0%	11%	2%	0%	100%	0%
Vol Right, %	0%	0%	100%	75%	23%	0%	0%	100%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	73	302	39	89	168	14	343	10
LT Vol	73	0	0	12	126	14	0	0
Through Vol	0	302	0	10	4	0	343	0
RT Vol	0	0	39	67	38	0	0	10
Lane Flow Rate	85	351	45	103	195	16	399	12
Geometry Grp	7	7	7	7	7	7	7	7
Degree of Util (X)	0.164	0.63	0.072	0.205	0.405	0.032	0.722	0.019
Departure Headway (Hd)	6.939	6.462	5.712	7.117	7.466	6.992	6.515	5.765
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cap	519	562	629	504	483	514	558	623
Service Time	4.653	4.177	3.426	4.871	5.213	4.706	4.229	3.478
HCM Lane V/C Ratio	0.164	0.625	0.072	0.204	0.404	0.031	0.715	0.019
HCM Control Delay	11	19.6	8.9	11.7	15.2	9.9	24.4	8.6
HCM Lane LOS	B	C	A	B	C	A	C	A
HCM 95th-tile Q	0.6	4.4	0.2	0.8	1.9	0.1	5.9	0.1

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	122	465	48	166	653	84	55	166	70	73	247	175
Future Volume (veh/h)	122	465	48	166	653	84	55	166	70	73	247	175
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		1.00	1.00		0.99	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
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	142	541	56	193	759	98	64	193	81	85	287	203
Peak Hour Factor	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86
Percent Heavy Veh, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	162	729	76	223	760	98	82	249	104	105	398	329
Arrive On Green	0.09	0.44	0.44	0.13	0.47	0.47	0.05	0.20	0.20	0.06	0.21	0.21
Sat Flow, veh/h	1767	1652	171	1767	1609	208	1767	1235	518	1767	1856	1536
Grp Volume(v), veh/h	142	0	597	193	0	857	64	0	274	85	287	203
Grp Sat Flow(s),veh/h/ln	1767	0	1823	1767	0	1817	1767	0	1753	1767	1856	1536
Q Serve(g_s), s	8.1	0.0	27.9	11.0	0.0	48.3	3.7	0.0	15.2	4.9	14.8	9.5
Cycle Q Clear(g_c), s	8.1	0.0	27.9	11.0	0.0	48.3	3.7	0.0	15.2	4.9	14.8	9.5
Prop In Lane	1.00		0.09	1.00		0.11	1.00		0.30	1.00		1.00
Lane Grp Cap(c), veh/h	162	0	805	223	0	858	82	0	353	105	398	329
V/C Ratio(X)	0.88	0.00	0.74	0.86	0.00	1.00	0.78	0.00	0.78	0.81	0.72	0.62
Avail Cap(c_a), veh/h	162	0	805	234	0	858	91	0	495	105	528	437
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	0.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	46.1	0.0	23.8	44.0	0.0	27.0	48.4	0.0	38.8	47.7	37.5	21.6
Incr Delay (d2), s/veh	38.1	0.0	3.7	26.0	0.0	30.3	31.5	0.0	5.1	36.0	3.3	1.9
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	5.2	0.0	12.2	6.3	0.0	26.6	2.3	0.0	7.0	3.2	6.9	3.5
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	84.2	0.0	27.5	70.0	0.0	57.3	79.9	0.0	43.9	83.7	40.7	23.5
LnGrp LOS	F	A	C	E	A	E	E	A	D	F	D	C
Approach Vol, veh/h		739			1050			338			575	
Approach Delay, s/veh		38.4			59.7			50.7			41.0	
Approach LOS		D			E			D			D	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	10.3	25.3	17.2	49.9	9.0	26.6	14.0	53.1
Change Period (Y+Rc), s	* 4.2	* 4.6	* 4.2	4.6	* 4.2	4.6	4.6	* 4.6
Max Green Setting (Gmax), s	* 6.1	* 29	* 14	44.3	* 5.3	29.2	9.4	* 49
Max Q Clear Time (g_c+I1), s	10.9	17.2	13.0	29.9	5.7	16.8	10.1	50.3
Green Ext Time (p_c), s	0.0	1.3	0.0	3.4	0.0	1.9	0.0	0.0

Intersection Summary	
HCM 6th Ctrl Delay	48.8
HCM 6th LOS	D

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Intersection						
Int Delay, s/veh	198.8					

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	150	120	535	213	239	507
Future Vol, veh/h	150	120	535	213	239	507
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	3	3	3	3	3	3
Mvmt Flow	163	130	582	232	260	551

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	1769	698	0	0	814	0
Stage 1	698	-	-	-	-	-
Stage 2	1071	-	-	-	-	-
Critical Hdwy	6.43	6.23	-	-	4.13	-
Critical Hdwy Stg 1	5.43	-	-	-	-	-
Critical Hdwy Stg 2	5.43	-	-	-	-	-
Follow-up Hdwy	3.527	3.327	-	-	2.227	-
Pot Cap-1 Maneuver	~ 91	439	-	-	809	-
Stage 1	492	-	-	-	-	-
Stage 2	328	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	~ 49	439	-	-	809	-
Mov Cap-2 Maneuver	~ 49	-	-	-	-	-
Stage 1	264	-	-	-	-	-
Stage 2	328	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	$ 1288.4	0	3.7
HCM LOS	F		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	81	809	-
HCM Lane V/C Ratio	-	-	3.623	0.321	-
HCM Control Delay (s)	-	-	$ 1288.4	11.5	0
HCM Lane LOS	-	-	F	B	A
HCM 95th %tile Q(veh)	-	-	30.2	1.4	-

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

Intersection	
Intersection Delay, s/veh	24.1
Intersection LOS	C

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		✣			✣			✣			✣	
Traffic Vol, veh/h	44	376	73	52	57	9	22	200	62	20	169	28
Future Vol, veh/h	44	376	73	52	57	9	22	200	62	20	169	28
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Heavy Vehicles, %	3	3	3	3	3	3	3	3	3	3	3	3
Mvmt Flow	47	400	78	55	61	10	23	213	66	21	180	30
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay	35.3	12.2	16.9	14.7
HCM LOS	E	B	C	B

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	8%	9%	44%	9%
Vol Thru, %	70%	76%	48%	78%
Vol Right, %	22%	15%	8%	13%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	284	493	118	217
LT Vol	22	44	52	20
Through Vol	200	376	57	169
RT Vol	62	73	9	28
Lane Flow Rate	302	524	126	231
Geometry Grp	1	1	1	1
Degree of Util (X)	0.541	0.863	0.242	0.427
Departure Headway (Hd)	6.442	5.927	6.933	6.666
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	559	608	516	538
Service Time	4.503	3.975	5.008	4.733
HCM Lane V/C Ratio	0.54	0.862	0.244	0.429
HCM Control Delay	16.9	35.3	12.2	14.7
HCM Lane LOS	C	E	B	B
HCM 95th-tile Q	3.2	9.7	0.9	2.1

Intersection	
Int Delay, s/veh	27.4

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	131	63	634	111	91	622
Future Vol, veh/h	131	63	634	111	91	622
Conflicting Peds, #/hr	2	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	Free	-	None
Storage Length	0	160	-	150	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	1	1	3	1	1	3
Mvmt Flow	142	68	689	121	99	676

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	1565	689	0	-	689	0
Stage 1	689	-	-	-	-	-
Stage 2	876	-	-	-	-	-
Critical Hdwy	6.41	6.21	-	-	4.11	-
Critical Hdwy Stg 1	5.41	-	-	-	-	-
Critical Hdwy Stg 2	5.41	-	-	-	-	-
Follow-up Hdwy	3.509	3.309	-	-	2.209	-
Pot Cap-1 Maneuver	~ 123	447	-	0	910	-
Stage 1	500	-	-	0	-	-
Stage 2	409	-	-	0	-	-
Platoon blocked, %			-			-
Mov Cap-1 Maneuver	~ 101	447	-	-	910	-
Mov Cap-2 Maneuver	~ 101	-	-	-	-	-
Stage 1	413	-	-	-	-	-
Stage 2	408	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	213.5	0	1.2
HCM LOS	F		

Minor Lane/Major Mvmt	NBT	WBLn1	WBLn2	SBL	SBT
Capacity (veh/h)	-	101	447	910	-
HCM Lane V/C Ratio	-	1.41	0.153	0.109	-
HCM Control Delay (s)	-	$ 309.2	14.5	9.4	0
HCM Lane LOS	-	F	B	A	A
HCM 95th %tile Q(veh)	-	10.3	0.5	0.4	-

Notes

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

Intersection	
Intersection Delay, s/veh	16.6
Intersection LOS	C

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBU	SBL
Lane Configurations												
Traffic Vol, veh/h	40	100	84	58	129	56	5	105	308	87	1	65
Future Vol, veh/h	40	100	84	58	129	56	5	105	308	87	1	65
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Heavy Vehicles, %	1	1	1	1	1	1	1	1	3	1	3	1
Mvmt Flow	44	110	92	64	142	62	5	115	338	96	1	71
Number of Lanes	1	1	1	1	1	1	0	1	1	1	0	1

Approach	EB			WB			NB				SB	
Opposing Approach	WB			EB			SB				NB	
Opposing Lanes	3			3			3				3	
Conflicting Approach Left	SB			NB			EB				WB	
Conflicting Lanes Left	3			3			3				3	
Conflicting Approach Right	NB			SB			WB				EB	
Conflicting Lanes Right	3			3			3				3	
HCM Control Delay	12.8			13.4			20.1				16.2	
HCM LOS	B			B			C				C	

Lane	NBLn1	NBLn2	NBLn3	EBLn1	EBLn2	EBLn3	WBLn1	WBLn2	WBLn3	SBLn1	SBLn2
Vol Left, %	100%	0%	0%	100%	0%	0%	100%	0%	0%	100%	0%
Vol Thru, %	0%	100%	0%	0%	100%	0%	0%	100%	0%	0%	100%
Vol Right, %	0%	0%	100%	0%	0%	100%	0%	0%	100%	0%	0%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	110	308	87	40	100	84	58	129	56	66	210
LT Vol	110	0	0	40	0	0	58	0	0	66	0
Through Vol	0	308	0	0	100	0	0	129	0	0	210
RT Vol	0	0	87	0	0	84	0	0	56	0	0
Lane Flow Rate	121	338	96	44	110	92	64	142	62	73	231
Geometry Grp	8	8	8	8	8	8	8	8	8	8	8
Degree of Util (X)	0.264	0.692	0.178	0.106	0.249	0.191	0.152	0.319	0.126	0.168	0.5
Departure Headway (Hd)	7.86	7.36	6.694	8.658	8.158	7.458	8.592	8.092	7.392	8.329	7.795
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cap	457	491	535	413	440	480	417	444	484	430	462
Service Time	5.614	5.114	4.448	6.424	5.924	5.224	6.355	5.855	5.155	6.089	5.555
HCM Lane V/C Ratio	0.265	0.688	0.179	0.107	0.25	0.192	0.153	0.32	0.128	0.17	0.5
HCM Control Delay	13.4	25.1	10.9	12.5	13.6	12	12.9	14.6	11.2	12.8	18.2
HCM Lane LOS	B	D	B	B	B	B	B	B	B	B	C
HCM 95th-tile Q	1	5.3	0.6	0.4	1	0.7	0.5	1.4	0.4	0.6	2.7

Intersection	
Intersection Delay, s/veh	
Intersection LOS	

Movement	SBT	SBR
Lane Configurations	↑	↱
Traffic Vol, veh/h	210	33
Future Vol, veh/h	210	33
Peak Hour Factor	0.91	0.91
Heavy Vehicles, %	3	1
Mvmt Flow	231	36
Number of Lanes	1	1

Approach	
Opposing Approach	
Opposing Lanes	
Conflicting Approach Left	
Conflicting Lanes Left	
Conflicting Approach Right	
Conflicting Lanes Right	
HCM Control Delay	
HCM LOS	

Intersection	
Intersection Delay, s/veh	15.6
Intersection LOS	C

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	10	3	53	55	2	36	34	417	57	24	356	11
Future Vol, veh/h	10	3	53	55	2	36	34	417	57	24	356	11
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Heavy Vehicles, %	1	1	1	1	1	1	1	3	1	1	3	1
Mvmt Flow	10	3	55	57	2	37	35	430	59	25	367	11
Number of Lanes	0	1	0	0	1	0	1	1	1	1	1	1

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	3	3
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	3	3	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	3	3	1	1
HCM Control Delay	10.2	11.2	17.1	15.5
HCM LOS	B	B	C	C

Lane	NBLn1	NBLn2	NBLn3	EBLn1	WBLn1	SBLn1	SBLn2	SBLn3
Vol Left, %	100%	0%	0%	15%	59%	100%	0%	0%
Vol Thru, %	0%	100%	0%	5%	2%	0%	100%	0%
Vol Right, %	0%	0%	100%	80%	39%	0%	0%	100%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	34	417	57	66	93	24	356	11
LT Vol	34	0	0	10	55	24	0	0
Through Vol	0	417	0	3	2	0	356	0
RT Vol	0	0	57	53	36	0	0	11
Lane Flow Rate	35	430	59	68	96	25	367	11
Geometry Grp	7	7	7	7	7	7	7	7
Degree of Util (X)	0.059	0.669	0.079	0.123	0.184	0.043	0.584	0.016
Departure Headway (Hd)	6.074	5.603	4.861	6.491	6.91	6.201	5.73	4.988
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cap	590	645	737	551	519	578	631	717
Service Time	3.807	3.335	2.593	4.243	4.66	3.936	3.465	2.722
HCM Lane V/C Ratio	0.059	0.667	0.08	0.123	0.185	0.043	0.582	0.015
HCM Control Delay	9.2	19	8	10.2	11.2	9.2	16.2	7.8
HCM Lane LOS	A	C	A	B	B	A	C	A
HCM 95th-tile Q	0.2	5.1	0.3	0.4	0.7	0.1	3.8	0

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	163	740	49	84	589	132	34	251	84	98	183	105
Future Volume (veh/h)	163	740	49	84	589	132	34	251	84	98	183	105
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		0.91	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
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	173	787	52	89	627	140	36	267	89	104	195	112
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	196	840	56	109	639	143	51	302	101	124	509	424
Arrive On Green	0.11	0.49	0.49	0.06	0.44	0.44	0.03	0.23	0.23	0.07	0.27	0.27
Sat Flow, veh/h	1767	1721	114	1767	1466	327	1767	1294	431	1767	1856	1544
Grp Volume(v), veh/h	173	0	839	89	0	767	36	0	356	104	195	112
Grp Sat Flow(s),veh/h/ln	1767	0	1835	1767	0	1794	1767	0	1725	1767	1856	1544
Q Serve(g_s), s	11.6	0.0	51.8	6.0	0.0	50.6	2.4	0.0	23.9	7.0	10.2	5.1
Cycle Q Clear(g_c), s	11.6	0.0	51.8	6.0	0.0	50.6	2.4	0.0	23.9	7.0	10.2	5.1
Prop In Lane	1.00		0.06	1.00		0.18	1.00		0.25	1.00		1.00
Lane Grp Cap(c), veh/h	196	0	896	109	0	782	51	0	403	124	509	424
V/C Ratio(X)	0.88	0.00	0.94	0.82	0.00	0.98	0.70	0.00	0.88	0.84	0.38	0.26
Avail Cap(c_a), veh/h	196	0	896	109	0	782	100	0	417	124	509	424
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	0.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	52.6	0.0	29.0	55.6	0.0	33.4	57.8	0.0	44.4	55.2	35.3	18.7
Incr Delay (d2), s/veh	34.4	0.0	16.8	36.4	0.0	27.5	15.8	0.0	19.2	37.8	0.5	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	7.0	0.0	25.8	3.7	0.0	27.0	1.3	0.0	12.4	4.4	4.7	2.5
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	87.0	0.0	45.8	92.1	0.0	60.9	73.5	0.0	63.6	93.0	35.8	19.1
LnGrp LOS	F	A	D	F	A	E	E	A	E	F	D	B
Approach Vol, veh/h		1012			856			392			411	
Approach Delay, s/veh		52.8			64.1			64.5			45.7	
Approach LOS		D			E			E			D	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	12.6	32.6	11.6	63.2	7.7	37.5	17.9	56.9
Change Period (Y+Rc), s	* 4.2	* 4.6	* 4.2	4.6	* 4.2	4.6	4.6	* 4.6
Max Green Setting (Gmax), s	* 8.4	* 29	* 7.4	58.2	* 6.8	30.0	13.3	* 52
Max Q Clear Time (g_c+I1), s	9.0	25.9	8.0	53.8	4.4	12.2	13.6	52.6
Green Ext Time (p_c), s	0.0	0.7	0.0	2.3	0.0	1.3	0.0	0.0

Intersection Summary	
HCM 6th Ctrl Delay	57.1
HCM 6th LOS	E

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	296	193	362	88	95	561
Future Volume (veh/h)	296	193	362	88	95	561
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00		0.98	1.00	
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No		No			No
Adj Sat Flow, veh/h/ln	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	322	210	393	96	103	610
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	3	3	3	3	3	3
Cap, veh/h	419	372	478	117	140	935
Arrive On Green	0.24	0.24	0.33	0.33	0.08	0.50
Sat Flow, veh/h	1767	1572	1433	350	1767	1856
Grp Volume(v), veh/h	322	210	0	489	103	610
Grp Sat Flow(s),veh/h/ln	1767	1572	0	1784	1767	1856
Q Serve(g_s), s	7.9	5.4	0.0	11.6	2.6	11.2
Cycle Q Clear(g_c), s	7.9	5.4	0.0	11.6	2.6	11.2
Prop In Lane	1.00	1.00		0.20	1.00	
Lane Grp Cap(c), veh/h	419	372	0	595	140	935
V/C Ratio(X)	0.77	0.56	0.00	0.82	0.73	0.65
Avail Cap(c_a), veh/h	688	612	0	810	237	1203
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	16.5	15.5	0.0	14.1	20.8	8.5
Incr Delay (d2), s/veh	3.0	1.3	0.0	5.0	7.2	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	2.6	1.5	0.0	4.5	1.1	2.4
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	19.5	16.9	0.0	19.1	28.1	9.3
LnGrp LOS	B	B	A	B	C	A
Approach Vol, veh/h	532		489			713
Approach Delay, s/veh	18.5		19.1			12.0
Approach LOS	B		B			B

Timer - Assigned Phs	1	2				6	8
Phs Duration (G+Y+Rc), s	7.9	21.4				29.3	17.0
Change Period (Y+Rc), s	* 4.2	* 6				6.0	6.0
Max Green Setting (Gmax), s	* 6.2	* 21				30.0	18.0
Max Q Clear Time (g_c+I1), s	4.6	13.6				13.2	9.9
Green Ext Time (p_c), s	0.0	1.8				3.1	1.1

Intersection Summary			
HCM 6th Ctrl Delay			16.0
HCM 6th LOS			B

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Intersection	
Intersection Delay, s/veh	10.9
Intersection LOS	B

Approach	WB	NB	SB
Entry Lanes	1	2	2
Conflicting Circle Lanes	2	2	2
Adj Approach Flow, veh/h	274	504	944
Demand Flow Rate, veh/h	277	519	971
Vehicles Circulating, veh/h	465	72	198
Vehicles Exiting, veh/h	126	1097	544
Ped Vol Crossing Leg, #/h	0	1	2
Ped Cap Adj	1.000	0.999	0.998
Approach Delay, s/veh	6.8	6.1	14.6
Approach LOS	A	A	B

Lane	Left	Left	Right	Left	Right
Designated Moves	LR	LT	R	L	TR
Assumed Moves	LR	LT	R	L	TR
RT Channelized					
Lane Util	1.000	0.896	0.104	0.074	0.926
Follow-Up Headway, s	2.535	2.667	2.535	2.667	2.535
Critical Headway, s	4.328	4.645	4.328	4.645	4.328
Entry Flow, veh/h	277	465	54	72	899
Cap Entry Lane, veh/h	956	1263	1336	1125	1200
Entry HV Adj Factor	0.989	0.971	0.981	0.986	0.971
Flow Entry, veh/h	274	451	53	71	873
Cap Entry, veh/h	946	1225	1310	1107	1163
V/C Ratio	0.290	0.368	0.040	0.064	0.751
Control Delay, s/veh	6.8	6.5	3.1	3.8	15.5
LOS	A	A	A	A	C
95th %tile Queue, veh	1	2	0	0	7

Movement	WBL	WBR	NBT	NBR	SBL	SBT	
Lane Configurations							
Traffic Volume (veh/h)	180	72	415	49	65	803	
Future Volume (veh/h)	180	72	415	49	65	803	
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	
Work Zone On Approach	No		No			No	
Adj Sat Flow, veh/h/ln	1885	1885	1856	1885	1885	1856	
Adj Flow Rate, veh/h	196	78	451	0	71	873	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	
Percent Heavy Veh, %	1	1	3	1	1	3	
Cap, veh/h	297	264	745		127	1094	
Arrive On Green	0.17	0.17	0.40	0.00	0.07	0.59	
Sat Flow, veh/h	1795	1598	1856	1598	1795	1856	
Grp Volume(v), veh/h	196	78	451	0	71	873	
Grp Sat Flow(s),veh/h/ln	1795	1598	1856	1598	1795	1856	
Q Serve(g_s), s	3.7	1.5	6.9	0.0	1.4	13.1	
Cycle Q Clear(g_c), s	3.7	1.5	6.9	0.0	1.4	13.1	
Prop In Lane	1.00	1.00		1.00	1.00		
Lane Grp Cap(c), veh/h	297	264	745		127	1094	
V/C Ratio(X)	0.66	0.30	0.61		0.56	0.80	
Avail Cap(c_a), veh/h	951	846	1190		250	1666	
HCM Platoon Ratio	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	
Uniform Delay (d), s/veh	14.0	13.1	8.5	0.0	16.1	5.7	
Incr Delay (d2), s/veh	2.5	0.6	0.8	0.0	3.8	1.6	
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	0.5	1.9	0.0	0.6	2.1	
Unsig. Movement Delay, s/veh							
LnGrp Delay(d),s/veh	16.5	13.8	9.3	0.0	19.9	7.3	
LnGrp LOS	B	B	A		B	A	
Approach Vol, veh/h	274		451	A		944	
Approach Delay, s/veh	15.8		9.3			8.3	
Approach LOS	B		A			A	
Timer - Assigned Phs	1	2				6	8
Phs Duration (G+Y+Rc), s	6.7	19.0				25.7	10.1
Change Period (Y+Rc), s	* 4.2	4.6				4.6	4.2
Max Green Setting (Gmax), s	* 5	23.0				32.2	19.0
Max Q Clear Time (g_c+I1), s	3.4	8.9				15.1	5.7
Green Ext Time (p_c), s	0.0	2.3				6.1	0.7

Intersection Summary		
HCM 6th Ctrl Delay		9.8
HCM 6th LOS		A

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Unsignalized Delay for [NBR] is excluded from calculations of the approach delay and intersection delay.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	122	465	48	166	653	84	55	166	70	73	247	175
Future Volume (veh/h)	122	465	48	166	653	84	55	166	70	73	247	175
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		0.99	1.00		0.99
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
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	142	541	56	193	759	98	64	193	81	85	287	203
Peak Hour Factor	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86
Percent Heavy Veh, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	143	916	95	238	1042	135	95	290	122	110	450	377
Arrive On Green	0.08	0.28	0.28	0.13	0.33	0.33	0.05	0.23	0.23	0.06	0.24	0.24
Sat Flow, veh/h	1767	3221	332	1767	3138	405	1767	1238	519	1767	1856	1553
Grp Volume(v), veh/h	142	295	302	193	426	431	64	0	274	85	287	203
Grp Sat Flow(s),veh/h/ln	1767	1763	1791	1767	1763	1780	1767	0	1757	1767	1856	1553
Q Serve(g_s), s	5.0	8.9	9.0	6.6	13.2	13.2	2.2	0.0	8.8	2.9	8.6	4.9
Cycle Q Clear(g_c), s	5.0	8.9	9.0	6.6	13.2	13.2	2.2	0.0	8.8	2.9	8.6	4.9
Prop In Lane	1.00		0.19	1.00		0.23	1.00		0.30	1.00		1.00
Lane Grp Cap(c), veh/h	143	502	510	238	586	591	95	0	412	110	450	377
V/C Ratio(X)	1.00	0.59	0.59	0.81	0.73	0.73	0.67	0.00	0.66	0.78	0.64	0.54
Avail Cap(c_a), veh/h	143	671	682	297	825	833	143	0	823	143	851	712
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	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	28.5	19.1	19.1	26.0	18.2	18.2	28.8	0.0	21.5	28.6	21.0	9.9
Incr Delay (d2), s/veh	74.0	1.1	1.1	12.7	2.0	2.0	7.9	0.0	1.8	17.7	1.5	1.2
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	4.9	3.4	3.5	3.4	5.0	5.1	1.1	0.0	3.6	1.7	3.6	2.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	102.5	20.2	20.2	38.7	20.2	20.2	36.7	0.0	23.3	46.3	22.5	11.1
LnGrp LOS	F	C	C	D	C	C	D	A	C	D	C	B
Approach Vol, veh/h		739			1050			338			575	
Approach Delay, s/veh		36.0			23.6			25.9			22.0	
Approach LOS		D			C			C			C	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	8.0	19.1	12.6	22.2	7.5	19.6	9.6	25.2
Change Period (Y+Rc), s	* 4.2	* 4.6	* 4.2	4.6	* 4.2	4.6	4.6	* 4.6
Max Green Setting (Gmax), s	* 5	* 29	* 10	23.6	* 5	28.4	5.0	* 29
Max Q Clear Time (g_c+I1), s	14.9	10.8	8.6	11.0	4.2	10.6	7.0	15.2
Green Ext Time (p_c), s	0.0	1.6	0.1	2.9	0.0	2.2	0.0	4.5

Intersection Summary	
HCM 6th Ctrl Delay	26.9
HCM 6th LOS	C

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	122	465	48	166	653	84	55	166	70	73	247	175
Future Volume (veh/h)	122	465	48	166	653	84	55	166	70	73	247	175
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		1.00	1.00		0.99	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
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	142	541	56	193	759	98	64	193	81	85	287	203
Peak Hour Factor	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86
Percent Heavy Veh, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	173	767	645	226	815	688	82	256	108	108	413	342
Arrive On Green	0.10	0.41	0.41	0.13	0.44	0.44	0.05	0.21	0.21	0.06	0.22	0.22
Sat Flow, veh/h	1767	1856	1559	1767	1856	1565	1767	1235	518	1767	1856	1537
Grp Volume(v), veh/h	142	541	56	193	759	98	64	0	274	85	287	203
Grp Sat Flow(s),veh/h/ln	1767	1856	1559	1767	1856	1565	1767	0	1753	1767	1856	1537
Q Serve(g_s), s	7.3	22.4	2.0	9.9	36.0	2.5	3.3	0.0	13.6	4.4	13.2	8.2
Cycle Q Clear(g_c), s	7.3	22.4	2.0	9.9	36.0	2.5	3.3	0.0	13.6	4.4	13.2	8.2
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.30	1.00		1.00
Lane Grp Cap(c), veh/h	173	767	645	226	815	688	82	0	364	108	413	342
V/C Ratio(X)	0.82	0.71	0.09	0.85	0.93	0.14	0.78	0.00	0.75	0.79	0.69	0.59
Avail Cap(c_a), veh/h	173	807	678	244	881	743	95	0	548	110	584	483
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	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	41.1	22.5	16.6	39.6	24.7	8.1	43.8	0.0	34.5	43.0	33.2	18.0
Incr Delay (d2), s/veh	26.0	2.7	0.1	23.1	15.5	0.1	29.4	0.0	3.2	29.7	2.1	1.6
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	9.7	0.7	5.6	18.1	1.2	2.1	0.0	6.1	2.8	6.0	2.9
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	67.1	25.2	16.6	62.7	40.2	8.2	73.2	0.0	37.7	72.7	35.3	19.7
LnGrp LOS	E	C	B	E	D	A	E	A	D	E	D	B
Approach Vol, veh/h		739			1050			338			575	
Approach Delay, s/veh		32.6			41.4			44.4			35.3	
Approach LOS		C			D			D			D	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	9.9	23.9	16.1	43.0	8.5	25.3	13.7	45.4
Change Period (Y+Rc), s	* 4.2	* 4.6	* 4.2	4.6	* 4.2	4.6	4.6	* 4.6
Max Green Setting (Gmax), s	* 5.8	* 29	* 13	40.4	* 5	29.2	9.1	* 44
Max Q Clear Time (g_c+I1), s	6.4	15.6	11.9	24.4	5.3	15.2	9.3	38.0
Green Ext Time (p_c), s	0.0	1.4	0.0	3.2	0.0	2.0	0.0	2.8

Intersection Summary	
HCM 6th Ctrl Delay	38.1
HCM 6th LOS	D

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	150	120	535	213	239	507
Future Volume (veh/h)	150	120	535	213	239	507
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
Work Zone On Approach	No		No			No
Adj Sat Flow, veh/h/ln	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	163	130	582	232	260	551
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	3	3	3	3	3	3
Cap, veh/h	215	192	626	249	300	1345
Arrive On Green	0.12	0.12	0.50	0.50	0.17	0.72
Sat Flow, veh/h	1767	1572	1262	503	1767	1856
Grp Volume(v), veh/h	163	130	0	814	260	551
Grp Sat Flow(s),veh/h/ln	1767	1572	0	1765	1767	1856
Q Serve(g_s), s	7.0	6.2	0.0	33.7	11.2	9.1
Cycle Q Clear(g_c), s	7.0	6.2	0.0	33.7	11.2	9.1
Prop In Lane	1.00	1.00		0.29	1.00	
Lane Grp Cap(c), veh/h	215	192	0	875	300	1345
V/C Ratio(X)	0.76	0.68	0.00	0.93	0.87	0.41
Avail Cap(c_a), veh/h	407	362	0	951	342	1425
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	33.2	32.8	0.0	18.4	31.5	4.2
Incr Delay (d2), s/veh	5.4	4.2	0.0	14.5	18.5	0.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.0	2.3	0.0	15.4	5.8	1.6
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	38.6	37.0	0.0	33.0	50.0	4.4
LnGrp LOS	D	D	A	C	D	A
Approach Vol, veh/h	293		814			811
Approach Delay, s/veh	37.9		33.0			19.0
Approach LOS	D		C			B

Timer - Assigned Phs	1	2	6	8
Phs Duration (G+Y+Rc), s	19.3	43.3	62.6	15.5
Change Period (Y+Rc), s	6.0	* 4.6	6.0	6.0
Max Green Setting (Gmax), s	15.1	* 42	60.0	18.0
Max Q Clear Time (g_c+I1), s	13.2	35.7	11.1	9.0
Green Ext Time (p_c), s	0.1	3.0	3.3	0.6

Intersection Summary	
HCM 6th Ctrl Delay	27.8
HCM 6th LOS	C

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Intersection	
Intersection Delay, s/veh	8.7
Intersection LOS	A

Approach	WB	NB	SB
Entry Lanes	1	2	2
Conflicting Circle Lanes	2	2	2
Adj Approach Flow, veh/h	210	810	775
Demand Flow Rate, veh/h	212	832	796
Vehicles Circulating, veh/h	710	100	143
Vehicles Exiting, veh/h	222	839	779
Ped Vol Crossing Leg, #/h	0	2	0
Ped Cap Adj	1.000	0.998	1.000
Approach Delay, s/veh	7.8	9.0	8.6
Approach LOS	A	A	A

Lane	Left	Left	Right	Left	Right
Designated Moves	LR	LT	R	L	TR
Assumed Moves	LR	LT	R	L	TR
RT Channelized					
Lane Util	1.000	0.853	0.147	0.126	0.874
Follow-Up Headway, s	2.535	2.667	2.535	2.667	2.535
Critical Headway, s	4.328	4.645	4.328	4.645	4.328
Entry Flow, veh/h	212	710	122	100	696
Cap Entry Lane, veh/h	777	1231	1304	1183	1258
Entry HV Adj Factor	0.991	0.971	0.992	0.990	0.971
Flow Entry, veh/h	210	689	121	99	676
Cap Entry, veh/h	769	1193	1291	1172	1221
V/C Ratio	0.273	0.578	0.094	0.084	0.553
Control Delay, s/veh	7.8	10.0	3.5	3.8	9.3
LOS	A	A	A	A	A
95th %tile Queue, veh	1	4	0	0	4

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	131	63	634	111	91	622
Future Volume (veh/h)	131	63	634	111	91	622
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
Work Zone On Approach	No		No			No
Adj Sat Flow, veh/h/ln	1885	1885	1856	1885	1885	1856
Adj Flow Rate, veh/h	142	68	689	0	99	676
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	1	1	3	1	1	3
Cap, veh/h	223	199	862		150	1213
Arrive On Green	0.12	0.12	0.46	0.00	0.08	0.65
Sat Flow, veh/h	1795	1598	1856	1598	1795	1856
Grp Volume(v), veh/h	142	68	689	0	99	676
Grp Sat Flow(s),veh/h/ln	1795	1598	1856	1598	1795	1856
Q Serve(g_s), s	3.0	1.5	12.6	0.0	2.1	7.9
Cycle Q Clear(g_c), s	3.0	1.5	12.6	0.0	2.1	7.9
Prop In Lane	1.00	1.00		1.00	1.00	
Lane Grp Cap(c), veh/h	223	199	862		150	1213
V/C Ratio(X)	0.64	0.34	0.80		0.66	0.56
Avail Cap(c_a), veh/h	860	765	1309		226	1739
HCM Platoon Ratio	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
Uniform Delay (d), s/veh	16.5	15.9	9.1	0.0	17.6	3.7
Incr Delay (d2), s/veh	3.0	1.0	2.1	0.0	4.8	0.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.2	0.5	3.6	0.0	0.9	0.9
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	19.5	16.9	11.2	0.0	22.5	4.1
LnGrp LOS	B	B	B		C	A
Approach Vol, veh/h	210		689	A		775
Approach Delay, s/veh	18.7		11.2			6.5
Approach LOS	B		B			A

Timer - Assigned Phs	1	2				6		8
Phs Duration (G+Y+Rc), s	7.5	23.0				30.5		9.1
Change Period (Y+Rc), s	* 4.2	4.6				4.6		4.2
Max Green Setting (Gmax), s	* 5	28.0				37.2		19.0
Max Q Clear Time (g_c+I1), s	4.1	14.6				9.9		5.0
Green Ext Time (p_c), s	0.0	3.9				4.9		0.5

Intersection Summary	
HCM 6th Ctrl Delay	9.9
HCM 6th LOS	A

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Unsignalized Delay for [NBR] is excluded from calculations of the approach delay and intersection delay.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	163	740	49	84	589	132	34	251	84	98	183	105
Future Volume (veh/h)	163	740	49	84	589	132	34	251	84	98	183	105
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		0.96	1.00		0.99
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
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	173	787	52	89	627	140	36	267	89	104	195	112
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	203	1140	75	114	812	181	229	389	130	132	438	367
Arrive On Green	0.11	0.34	0.34	0.06	0.28	0.28	0.13	0.30	0.30	0.07	0.24	0.24
Sat Flow, veh/h	1767	3356	222	1767	2859	637	1767	1314	438	1767	1856	1553
Grp Volume(v), veh/h	173	413	426	89	386	381	36	0	356	104	195	112
Grp Sat Flow(s),veh/h/ln	1767	1763	1815	1767	1763	1733	1767	0	1753	1767	1856	1553
Q Serve(g_s), s	7.4	15.5	15.5	3.8	15.4	15.4	1.4	0.0	13.7	4.4	6.9	4.5
Cycle Q Clear(g_c), s	7.4	15.5	15.5	3.8	15.4	15.4	1.4	0.0	13.7	4.4	6.9	4.5
Prop In Lane	1.00		0.12	1.00		0.37	1.00		0.25	1.00		1.00
Lane Grp Cap(c), veh/h	203	599	617	114	501	492	229	0	519	132	438	367
V/C Ratio(X)	0.85	0.69	0.69	0.78	0.77	0.77	0.16	0.00	0.69	0.79	0.44	0.31
Avail Cap(c_a), veh/h	203	700	721	171	668	656	229	0	664	143	691	578
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	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	33.2	21.8	21.8	35.3	25.1	25.1	29.6	0.0	23.8	34.8	24.9	24.1
Incr Delay (d2), s/veh	27.6	2.4	2.3	12.4	4.0	4.1	0.3	0.0	2.0	23.2	0.7	0.5
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	4.6	6.3	6.5	2.0	6.5	6.5	0.6	0.0	5.8	2.7	2.9	1.6
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	60.8	24.2	24.1	47.6	29.1	29.2	29.9	0.0	25.8	58.0	25.7	24.5
LnGrp LOS	E	C	C	D	C	C	C	A	C	E	C	C
Approach Vol, veh/h		1012			856			392			411	
Approach Delay, s/veh		30.4			31.1			26.2			33.5	
Approach LOS		C			C			C			C	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	9.9	26.9	9.1	30.6	14.1	22.7	13.4	26.3				
Change Period (Y+Rc), s	* 4.2	* 4.2	* 4.2	4.6	4.2	* 4.6	4.6	* 4.6				
Max Green Setting (Gmax), s	* 6.2	* 29	* 7.4	30.4	6.1	* 29	8.8	* 29				
Max Q Clear Time (g_c+I1), s	6.4	15.7	5.8	17.5	3.4	8.9	9.4	17.4				
Green Ext Time (p_c), s	0.0	1.9	0.0	4.2	0.0	1.3	0.0	3.7				
Intersection Summary												
HCM 6th Ctrl Delay			30.5									
HCM 6th LOS			C									
Notes												

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	163	740	49	84	589	132	34	251	84	98	183	105
Future Volume (veh/h)	163	740	49	84	589	132	34	251	84	98	183	105
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		0.91	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
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	173	787	52	89	627	140	36	267	89	104	195	112
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	236	822	695	107	679	571	204	335	112	121	384	318
Arrive On Green	0.13	0.44	0.44	0.06	0.37	0.37	0.12	0.26	0.26	0.07	0.21	0.21
Sat Flow, veh/h	1767	1856	1569	1767	1856	1560	1767	1298	433	1767	1856	1535
Grp Volume(v), veh/h	173	787	52	89	627	140	36	0	356	104	195	112
Grp Sat Flow(s),veh/h/ln	1767	1856	1569	1767	1856	1560	1767	0	1730	1767	1856	1535
Q Serve(g_s), s	9.5	41.5	1.2	5.0	32.7	4.8	1.9	0.0	19.4	5.9	9.4	6.3
Cycle Q Clear(g_c), s	9.5	41.5	1.2	5.0	32.7	4.8	1.9	0.0	19.4	5.9	9.4	6.3
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.25	1.00		1.00
Lane Grp Cap(c), veh/h	236	822	695	107	679	571	204	0	447	121	384	318
V/C Ratio(X)	0.73	0.96	0.07	0.84	0.92	0.25	0.18	0.00	0.80	0.86	0.51	0.35
Avail Cap(c_a), veh/h	236	844	713	107	747	627	204	0	496	121	528	437
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	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	42.1	27.2	6.6	47.0	30.7	12.7	40.4	0.0	35.0	46.7	35.5	34.3
Incr Delay (d2), s/veh	11.3	21.0	0.0	40.9	16.2	0.2	0.4	0.0	8.1	43.3	1.0	0.7
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	4.8	21.9	0.7	3.4	17.0	2.2	0.8	0.0	9.2	4.0	4.3	2.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	53.4	48.2	6.6	87.9	46.9	13.0	40.8	0.0	43.1	90.0	36.6	35.0
LnGrp LOS	D	D	A	F	D	B	D	A	D	F	D	C
Approach Vol, veh/h		1012			856			392			411	
Approach Delay, s/veh		47.0			45.6			42.9			49.7	
Approach LOS		D			D			D			D	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	11.1	30.3	10.3	49.4	15.9	25.5	18.1	41.6				
Change Period (Y+Rc), s	* 4.2	* 4.2	* 4.2	4.6	4.2	* 4.6	4.6	* 4.6				
Max Green Setting (Gmax), s	* 6.9	* 29	* 6.1	46.0	6.5	* 29	11.4	* 41				
Max Q Clear Time (g_c+I1), s	7.9	21.4	7.0	43.5	3.9	11.4	11.5	34.7				
Green Ext Time (p_c), s	0.0	1.4	0.0	1.3	0.0	1.3	0.0	2.3				

Intersection Summary		
HCM 6th Ctrl Delay		46.3
HCM 6th LOS		D

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Intersection: 1: Reed Avenue & South Avenue

Movement	WB	WB	NB	SB	SB
Directions Served	L	R	TR	L	T
Maximum Queue (ft)	216	119	226	117	184
Average Queue (ft)	98	56	132	53	95
95th Queue (ft)	163	94	200	95	163
Link Distance (ft)	2562		2598		2605
Upstream Blk Time (%)					
Queuing Penalty (veh)					
Storage Bay Dist (ft)		250		250	
Storage Blk Time (%)					
Queuing Penalty (veh)					

Intersection: 2: Frankwood Avenue & South Avenue

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	LTR	LTR
Maximum Queue (ft)	78	118	77	92
Average Queue (ft)	49	50	47	54
95th Queue (ft)	77	89	66	82
Link Distance (ft)	2562	2614	1605	2584
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 3: Reed Avenue & Parlier Avenue

Movement	WB	WB	NB	SB	SB
Directions Served	L	R	T	L	T
Maximum Queue (ft)	118	68	177	139	247
Average Queue (ft)	68	30	81	41	150
95th Queue (ft)	104	58	142	84	236
Link Distance (ft)	563		503		2598
Upstream Blk Time (%)					
Queuing Penalty (veh)					
Storage Bay Dist (ft)		160		250	
Storage Blk Time (%)			0		0
Queuing Penalty (veh)			0		0

Intersection: 4: Frankwood Avenue & Parlier Avenue

Movement	EB	EB	EB	WB	WB	WB	NB	NB	NB	SB	SB	SB
Directions Served	L	T	R	L	T	R	UL	T	R	L	T	R
Maximum Queue (ft)	26	88	79	94	95	44	74	80	67	148	174	155
Average Queue (ft)	14	35	28	35	47	23	40	46	35	26	60	31
95th Queue (ft)	35	67	61	66	86	38	65	70	51	69	113	88
Link Distance (ft)		1936			333			1253			230	
Upstream Blk Time (%)												
Queuing Penalty (veh)												
Storage Bay Dist (ft)	55		130	55		250	150		250	90		100
Storage Blk Time (%)		1		1	4						4	
Queuing Penalty (veh)		2		2	8						4	

Intersection: 5: Frankwood Avenue & Cypress Avenue

Movement	EB	WB	NB	NB	NB	SB	SB	SB
Directions Served	LTR	LTR	L	T	R	L	T	R
Maximum Queue (ft)	87	71	55	115	48	31	136	31
Average Queue (ft)	34	41	34	68	19	10	54	8
95th Queue (ft)	64	66	46	106	44	33	96	30
Link Distance (ft)	1072	2206		602			1253	
Upstream Blk Time (%)								
Queuing Penalty (veh)								
Storage Bay Dist (ft)			110		110	100		100
Storage Blk Time (%)				0			1	
Queuing Penalty (veh)				0			0	

Intersection: 6: Frankwood Avenue & Manning Avenue

Movement	EB	EB	EB	WB	WB	WB	NB	NB	SB	SB	SB
Directions Served	L	T	TR	L	T	TR	L	TR	L	T	R
Maximum Queue (ft)	149	208	193	150	222	254	138	174	95	158	135
Average Queue (ft)	94	99	101	108	135	164	43	101	47	94	56
95th Queue (ft)	161	177	172	165	222	251	99	158	88	140	110
Link Distance (ft)		1832	1832		1894	1894		1243		266	
Upstream Blk Time (%)											
Queuing Penalty (veh)											
Storage Bay Dist (ft)	100			100			85		115		60
Storage Blk Time (%)	21	4		21	16		1	13		22	3
Queuing Penalty (veh)	48	4		68	27		1	7		53	10

Network Summary

Network wide Queuing Penalty: 236

Intersection: 6: Frankwood Avenue & Manning Avenue

Movement	EB	EB	EB	WB	WB	WB	B26	NB	NB	SB	SB	SB
Directions Served	L	T	R	L	T	R	T	L	TR	L	T	R
Maximum Queue (ft)	149	467	370	149	1966	370	22	139	240	153	310	135
Average Queue (ft)	105	222	24	134	795	153	1	41	119	65	143	89
95th Queue (ft)	169	375	132	173	1658	424	7	103	212	122	233	158
Link Distance (ft)		1832			1894		595		1242		266	
Upstream Blk Time (%)					1						1	
Queuing Penalty (veh)					0						3	
Storage Bay Dist (ft)	100		250	100		250		85		115		60
Storage Blk Time (%)	10	24		38	45			0	19	4	33	13
Queuing Penalty (veh)	54	41		280	114			0	11	18	82	40

Intersection: 1: Reed Avenue & South Avenue

Movement	WB	WB	NB	SB	SB
Directions Served	L	R	TR	L	T
Maximum Queue (ft)	158	119	614	226	110
Average Queue (ft)	87	56	308	129	56
95th Queue (ft)	148	102	483	191	101
Link Distance (ft)	2562		2598		2605
Upstream Blk Time (%)					
Queuing Penalty (veh)					
Storage Bay Dist (ft)		250		250	
Storage Blk Time (%)					
Queuing Penalty (veh)					

Intersection: 2: Frankwood Avenue & South Avenue

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	LTR	LTR
Maximum Queue (ft)	230	74	132	121
Average Queue (ft)	129	35	63	57
95th Queue (ft)	203	58	104	91
Link Distance (ft)	2562	2614	1605	2584
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 3: Reed Avenue & Parlier Avenue

Movement	WB	WB	NB	NB	SB	SB
Directions Served	L	R	T	R	L	T
Maximum Queue (ft)	118	55	244	246	75	167
Average Queue (ft)	55	32	106	8	48	85
95th Queue (ft)	97	55	177	81	80	149
Link Distance (ft)	563		503			2598
Upstream Blk Time (%)						
Queuing Penalty (veh)						
Storage Bay Dist (ft)		160		150	250	
Storage Blk Time (%)			2			
Queuing Penalty (veh)			2			

Intersection: 4: Frankwood Avenue & Parlier Avenue

Movement	EB	EB	EB	WB	WB	WB	NB	NB	NB	SB	SB	SB
Directions Served	L	T	R	L	T	R	UL	T	R	UL	T	R
Maximum Queue (ft)	52	68	57	88	111	104	74	145	66	72	136	158
Average Queue (ft)	23	29	26	29	38	23	36	78	30	23	52	18
95th Queue (ft)	49	54	46	62	72	55	55	128	50	49	93	64
Link Distance (ft)		1936			333			1253			230	
Upstream Blk Time (%)												
Queuing Penalty (veh)												
Storage Bay Dist (ft)	55		130	55		250	150		250	90		100
Storage Blk Time (%)	0	1		1	2			0		0	1	
Queuing Penalty (veh)	1	1		1	3			0		0	1	

Intersection: 5: Frankwood Avenue & Cypress Avenue

Movement	EB	WB	NB	NB	NB	SB	SB	SB
Directions Served	LTR	LTR	L	T	R	L	T	R
Maximum Queue (ft)	63	67	53	146	50	31	120	31
Average Queue (ft)	28	30	23	76	25	17	63	9
95th Queue (ft)	48	50	47	123	47	42	98	32
Link Distance (ft)	1072	2206		606			1253	
Upstream Blk Time (%)								
Queuing Penalty (veh)								
Storage Bay Dist (ft)			110		110	100		100
Storage Blk Time (%)				2			1	
Queuing Penalty (veh)				1			0	

Intersection: 6: Frankwood Avenue & Manning Avenue

Movement	EB	EB	EB	WB	WB	WB	NB	NB	SB	SB	SB
Directions Served	L	T	TR	L	T	TR	L	TR	L	T	R
Maximum Queue (ft)	150	304	263	149	270	290	140	315	150	307	135
Average Queue (ft)	99	154	159	67	135	163	53	182	81	103	48
95th Queue (ft)	162	262	246	130	214	247	132	289	136	203	119
Link Distance (ft)		1833	1833		1892	1892		1244		254	
Upstream Blk Time (%)										1	
Queuing Penalty (veh)										5	
Storage Bay Dist (ft)	100			100			85		115		60
Storage Blk Time (%)	12	16		0	20		0	30	8	19	1
Queuing Penalty (veh)	44	26		1	17		2	10	22	39	3

Network Summary

Network wide Queuing Penalty: 178

Intersection: 6: Frankwood Avenue & Manning Avenue

Movement	EB	EB	EB	B14	B14	WB	WB	WB	NB	NB	SB	SB
Directions Served	L	T	R	T		L	T	R	L	TR	L	T
Maximum Queue (ft)	150	1952	370	705	694	150	814	370	138	318	194	199
Average Queue (ft)	143	1657	93	481	456	97	421	148	35	161	67	85
95th Queue (ft)	178	2446	344	963	950	169	679	387	89	276	132	160
Link Distance (ft)		1832		642	642		1892			1243		254
Upstream Blk Time (%)		72		70	63							
Queuing Penalty (veh)		0		0	0							
Storage Bay Dist (ft)	100		250			100		250	85		115	
Storage Blk Time (%)	79	46				2	53		1	32	5	18
Queuing Penalty (veh)	623	98				16	114		5	11	15	36

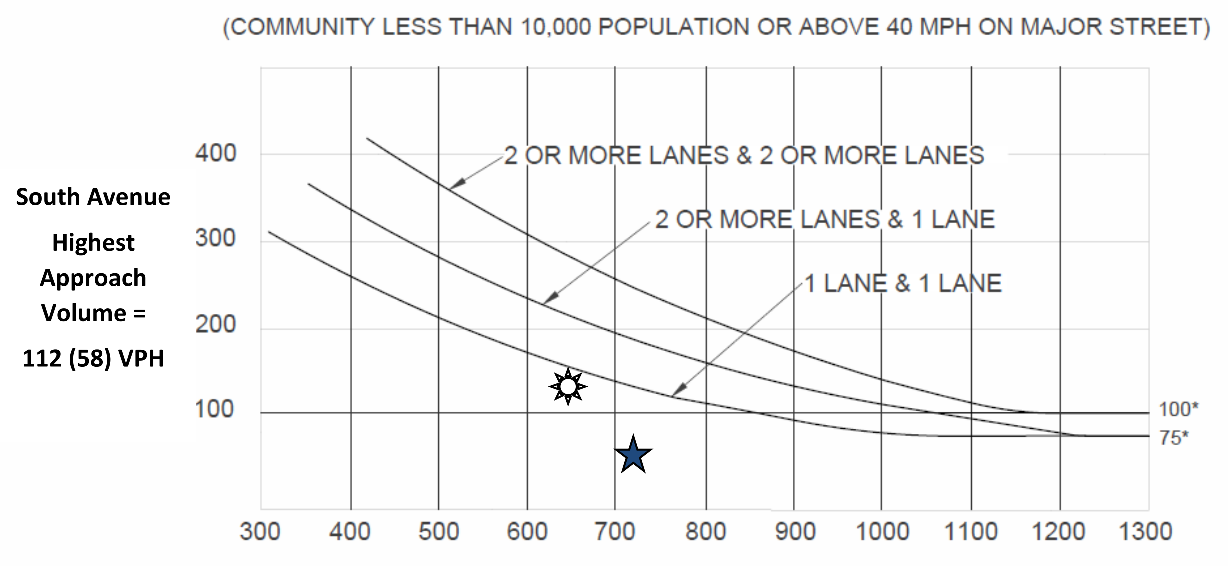
Intersection: 6: Frankwood Avenue & Manning Avenue

Movement	SB
Directions Served	R
Maximum Queue (ft)	135
Average Queue (ft)	49
95th Queue (ft)	111
Link Distance (ft)	
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	60
Storage Blk Time (%)	3
Queuing Penalty (veh)	7

Appendix I: Signal Warrants

Warrant 3: Peak Hour (Rural)

Existing Traffic Conditions
1. Reed Avenue / South Avenue
AM (PM) Peak Hour



*Note: 100 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 75 vph applies as the lower threshold volume for a minor street approach with one lane.

☼ **AM Peak Hour – Signal Warrant is Not Met**

★ **PM Peak Hour – Signal Warrant is Not Met**

Source: California Manual of Uniform Traffic Control Devices (CA MUTCD 2014 Edition)
Chapter 4C: Traffic Control Signal Needs Studies
Part 4: Highway Traffic Signals
November 7, 2014

Warrant 3: Peak Hour (Rural)

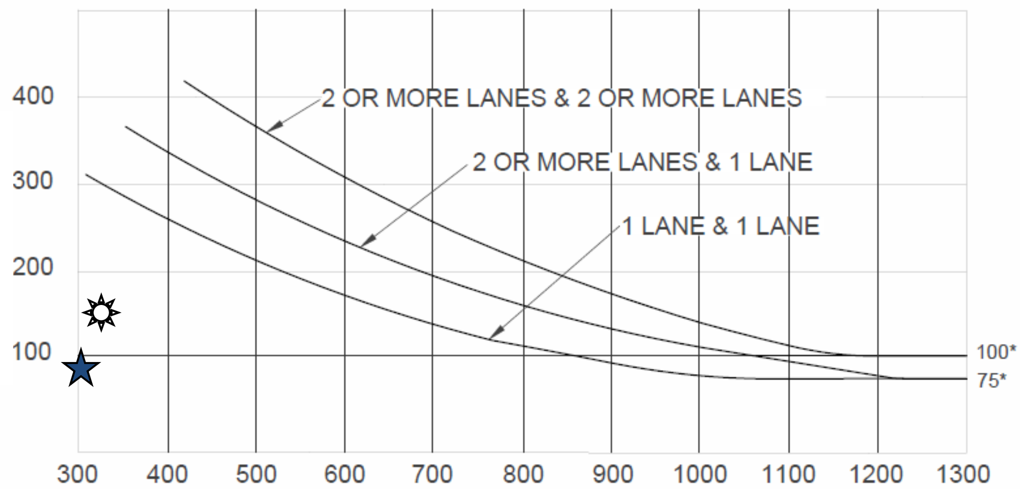
Existing Traffic Conditions

2. Frankwood Avenue / South Avenue

AM (PM) Peak Hour

(COMMUNITY LESS THAN 10,000 POPULATION OR ABOVE 40 MPH ON MAJOR STREET)

South Avenue Highest Approach Volume = 158 (95) VPH



Frankwood Avenue Total of Both Approaches = 321 (303) VPH

*Note: 100 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 75 vph applies as the lower threshold volume for a minor street approach with one lane.

☼ **AM Peak Hour – Signal Warrant is Not Met**

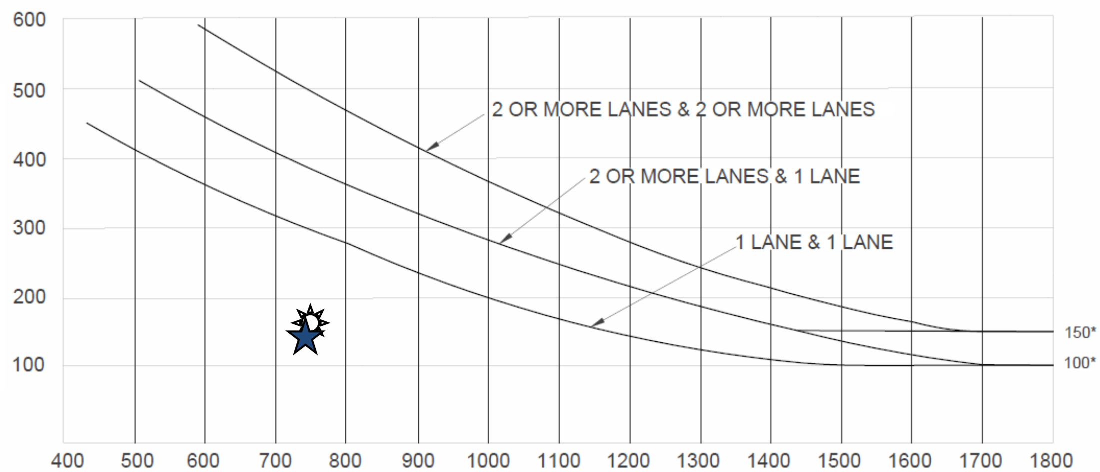
★ **PM Peak Hour – Signal Warrant is Not Met**

Source: California Manual of Uniform Traffic Control Devices (CA MUTCD 2014 Edition)
Chapter 4C: Traffic Control Signal Needs Studies
Part 4: Highway Traffic Signals
November 7, 2014

Warrant 3: Peak Hour (Urban)

Existing Traffic Conditions
3. Reed Avenue / Parlier Avenue
AM (PM) Peak Hour

Parlier Avenue Highest Approach Volume = 162 (123) VPH



Reed Avenue Total of Both Approaches = 754 (744) VPH

*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.

AM Peak Hour – Signal Warrant is Not Met

PM Peak Hour – Signal Warrant is Not Met

Source: California Manual of Uniform Traffic Control Devices (CA MUTCD 2014 Edition)
Chapter 4C: Traffic Control Signal Needs Studies
Part 4: Highway Traffic Signals
November 7, 2014

Warrant 3: Peak Hour (Urban)

Existing Traffic Conditions

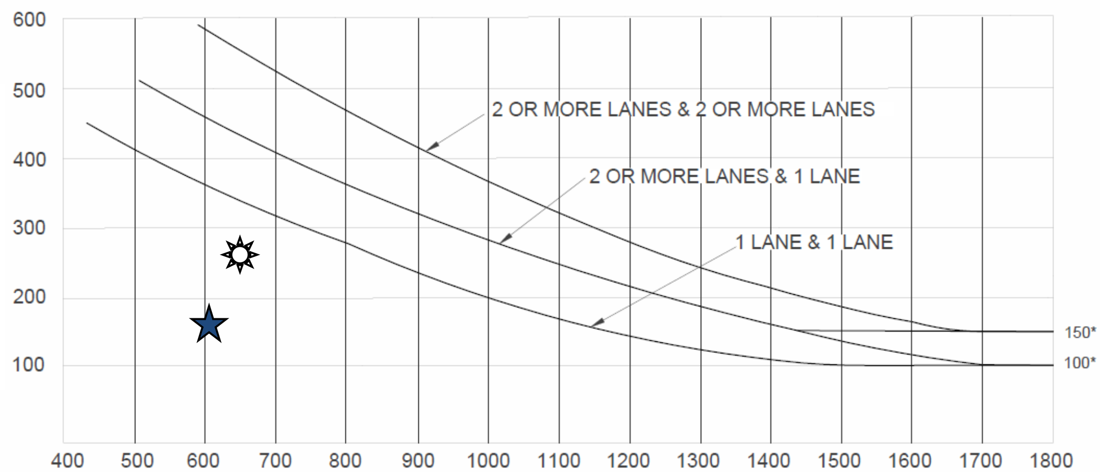
4. Frankwood Avenue / Parlier Avenue

AM (PM) Peak Hour

Parlier Avenue

Highest Approach Volume =

260 (161) VPH



Frankwood Avenue Total of Both Approaches =

651 (602) VPH

*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.

☼ **AM Peak Hour – Signal Warrant is Not Met**

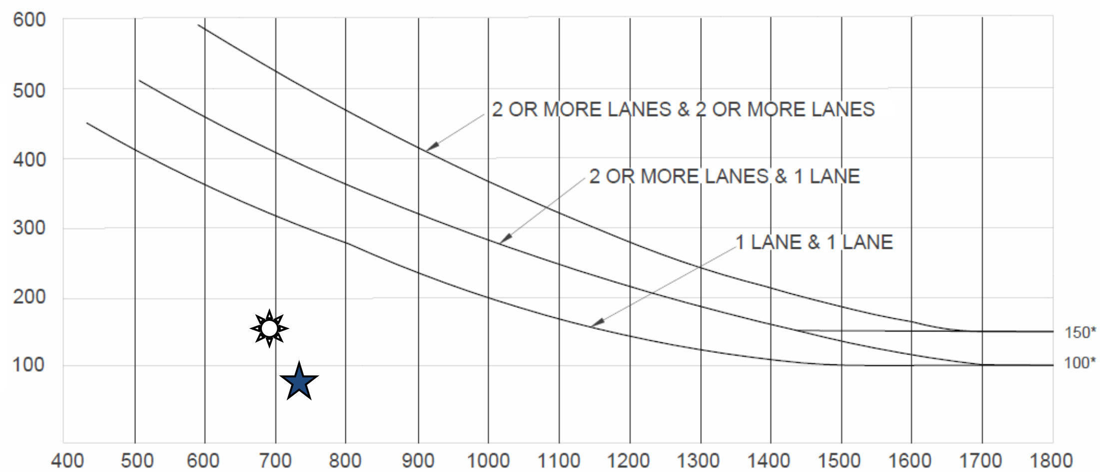
★ **PM Peak Hour – Signal Warrant is Not Met**

Source: California Manual of Uniform Traffic Control Devices (CA MUTCD 2014 Edition)
Chapter 4C: Traffic Control Signal Needs Studies
Part 4: Highway Traffic Signals
November 7, 2014

Warrant 3: Peak Hour (Urban)

Existing Traffic Conditions
5. Frankwood Avenue / Cypress Avenue
AM (PM) Peak Hour

Cypress Avenue
Highest Approach Volume =
149 (75) VPH



Frankwood Avenue Total of Both Approaches =
691 (730) VPH

*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.

AM Peak Hour – Signal Warrant is Not Met
PM Peak Hour – Signal Warrant is Not Met

Source: California Manual of Uniform Traffic Control Devices (CA MUTCD 2014 Edition)
Chapter 4C: Traffic Control Signal Needs Studies
Part 4: Highway Traffic Signals
November 7, 2014

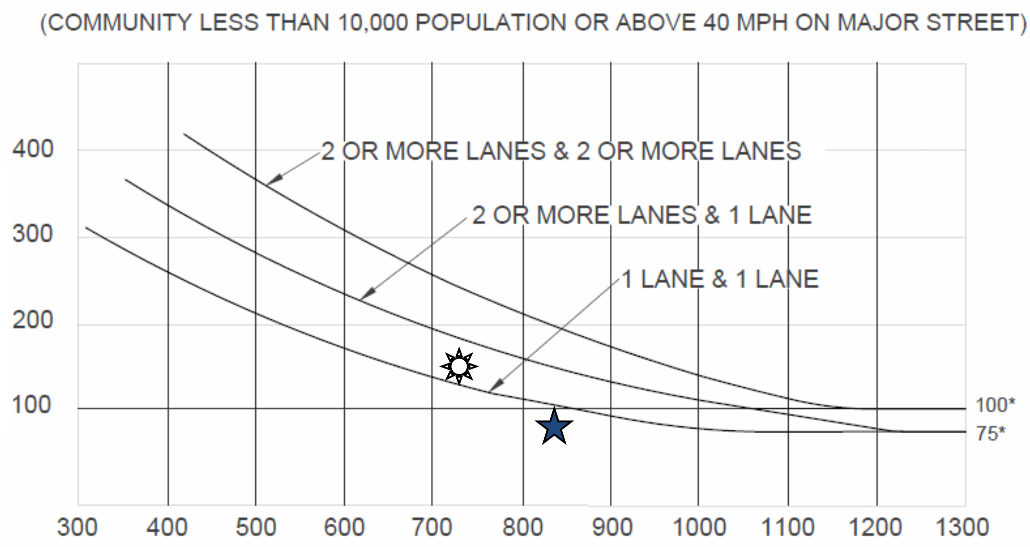
Warrant 3: Peak Hour (Rural)

Near Term No Project Traffic Conditions

1. Reed Avenue / South Avenue

AM (PM) Peak Hour

South Avenue Highest Approach Volume = 157 (93) VPH



Reed Avenue Total of Both Approaches = 736 (839) VPH

*Note: 100 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 75 vph applies as the lower threshold volume for a minor street approach with one lane.

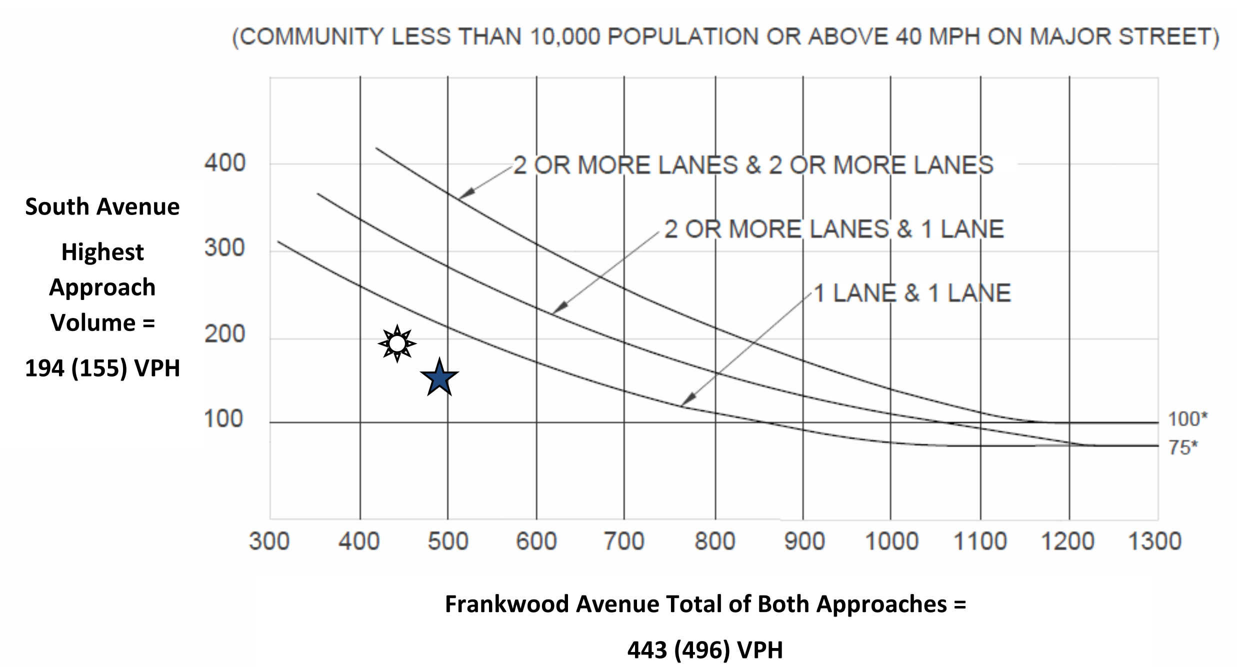
☼ **AM Peak Hour – Signal Warrant is Met**

★ **PM Peak Hour – Signal Warrant is Not Met**

Source: California Manual of Uniform Traffic Control Devices (CA MUTCD 2014 Edition)
Chapter 4C: Traffic Control Signal Needs Studies
Part 4: Highway Traffic Signals
November 7, 2014

Warrant 3: Peak Hour (Rural)

Near Term No Project Traffic Conditions
2. Frankwood Avenue / South Avenue
AM (PM) Peak Hour



*Note: 100 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 75 vph applies as the lower threshold volume for a minor street approach with one lane.

AM Peak Hour – Signal Warrant is Not Met

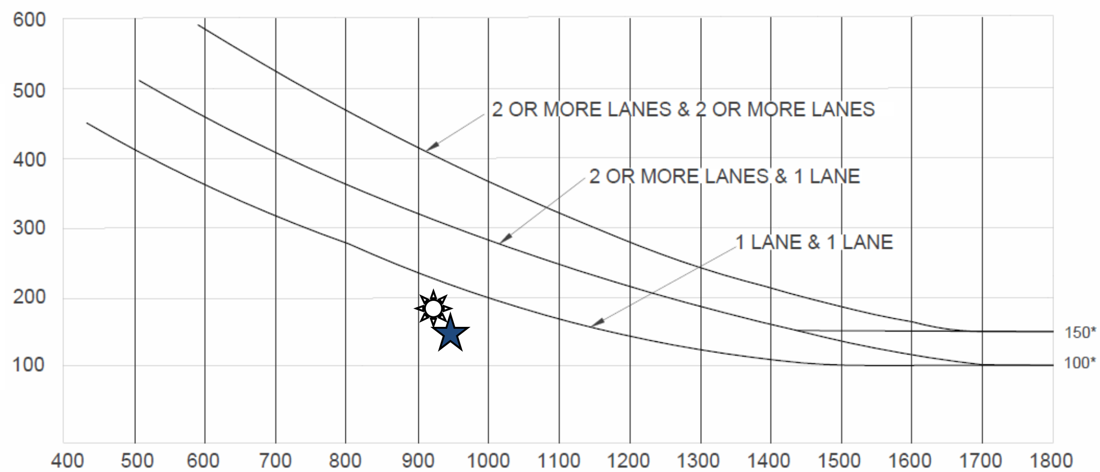
PM Peak Hour – Signal Warrant is Not Met

Source: California Manual of Uniform Traffic Control Devices (CA MUTCD 2014 Edition)
Chapter 4C: Traffic Control Signal Needs Studies
Part 4: Highway Traffic Signals
November 7, 2014

Warrant 3: Peak Hour (Urban)

Near Term No Project Traffic Conditions
3. Reed Avenue / Parlier Avenue
AM (PM) Peak Hour

Parlier Avenue Highest Approach Volume = 185 (142) VPH



Reed Avenue Total of Both Approaches = 910 (942) VPH

*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.

AM Peak Hour – Signal Warrant is Not Met

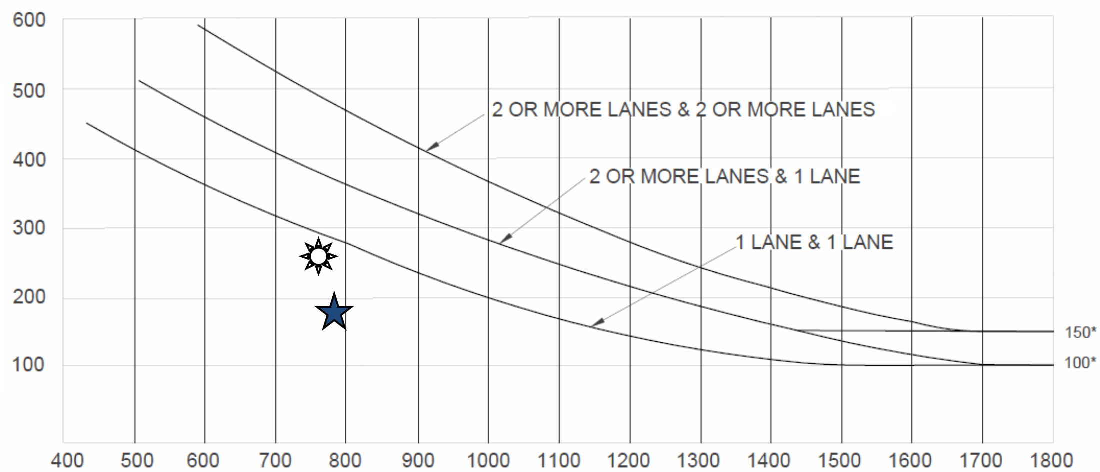
PM Peak Hour – Signal Warrant is Not Met

Source: California Manual of Uniform Traffic Control Devices (CA MUTCD 2014 Edition)
Chapter 4C: Traffic Control Signal Needs Studies
Part 4: Highway Traffic Signals
November 7, 2014

Warrant 3: Peak Hour (Urban)

Near Term No Project Traffic Conditions
4. Frankwood Avenue / Parlier Avenue
AM (PM) Peak Hour

Parlier Avenue Highest Approach Volume = 269 (183) VPH



Frankwood Avenue Total of Both Approaches = 763 (793) VPH

*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.

☼ **AM Peak Hour – Signal Warrant is Not Met**

★ **PM Peak Hour – Signal Warrant is Not Met**

Source: California Manual of Uniform Traffic Control Devices (CA MUTCD 2014 Edition)
Chapter 4C: Traffic Control Signal Needs Studies
Part 4: Highway Traffic Signals
November 7, 2014

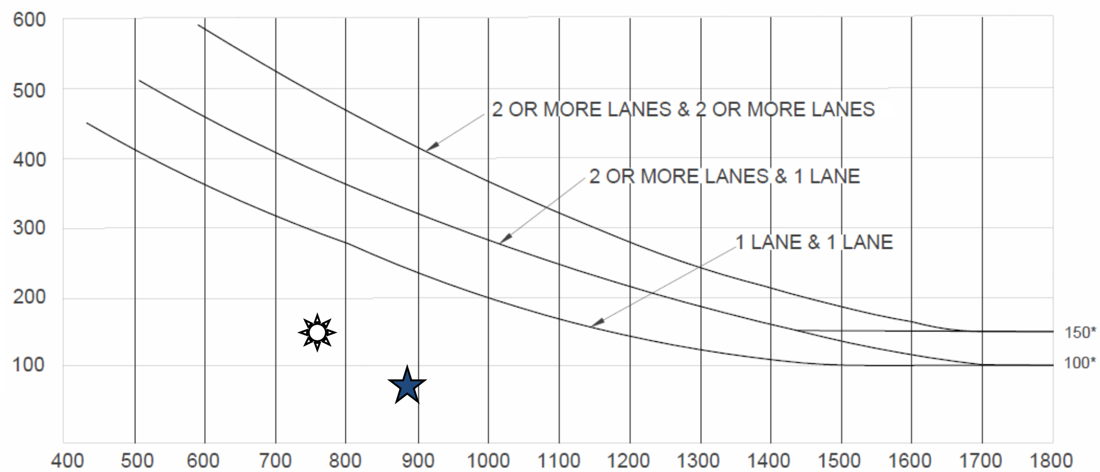
Warrant 3: Peak Hour (Urban)

Near Term No Project Traffic Conditions
5. Frankwood Avenue / Cypress Avenue
AM (PM) Peak Hour

Cypress Avenue

Highest Approach Volume =

149 (75) VPH



Frankwood Avenue Total of Both Approaches =

777 (891) VPH

*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.

☼ **AM Peak Hour – Signal Warrant is Not Met**

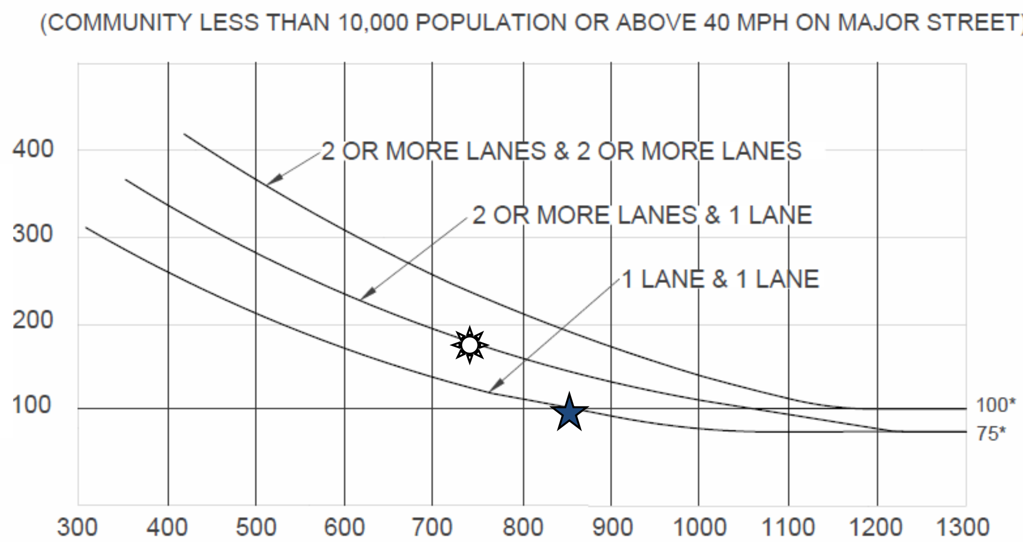
★ **PM Peak Hour – Signal Warrant is Not Met**

Source: California Manual of Uniform Traffic Control Devices (CA MUTCD 2014 Edition)
Chapter 4C: Traffic Control Signal Needs Studies
Part 4: Highway Traffic Signals
November 7, 2014

Warrant 3: Peak Hour (Rural)

Near Term plus Project Traffic Conditions
1. Reed Avenue / South Avenue
AM (PM) Peak Hour

South Avenue Highest Approach Volume = 164 (95) VPH



Reed Avenue Total of Both Approaches = 738 (852) VPH

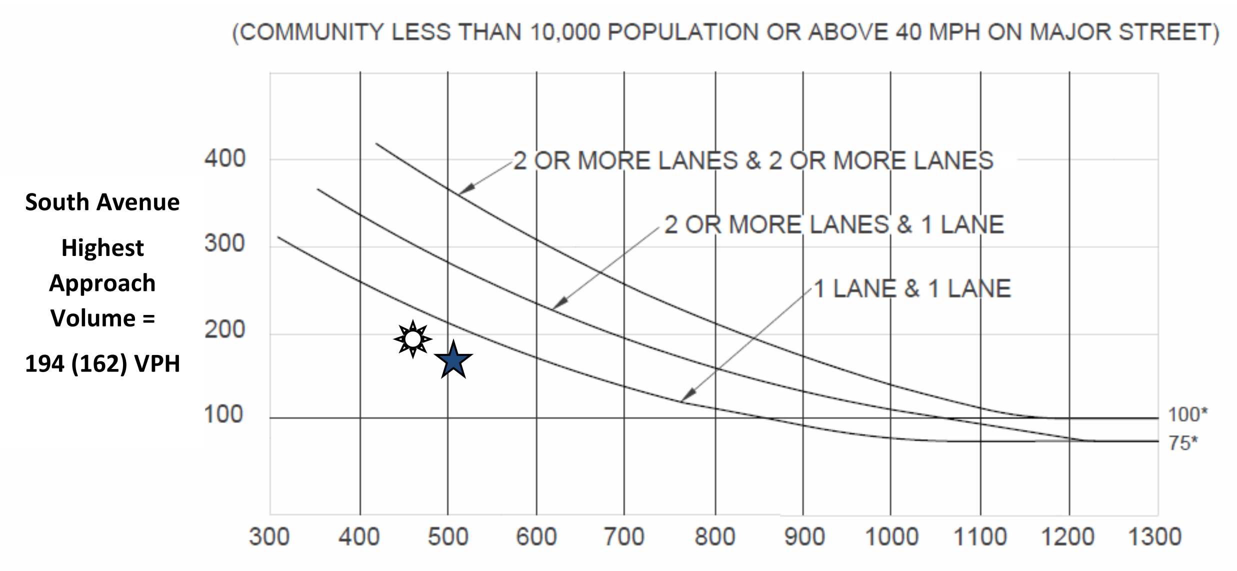
*Note: 100 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 75 vph applies as the lower threshold volume for a minor street approach with one lane.

AM Peak Hour – Signal Warrant is Met
PM Peak Hour – Signal Warrant is Not Met

Source: California Manual of Uniform Traffic Control Devices (CA MUTCD 2014 Edition)
Chapter 4C: Traffic Control Signal Needs Studies
Part 4: Highway Traffic Signals
November 7, 2014

Warrant 3: Peak Hour (Rural)

Near Term plus Project Traffic Conditions
2. Frankwood Avenue / South Avenue
AM (PM) Peak Hour



*Note: 100 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 75 vph applies as the lower threshold volume for a minor street approach with one lane.

AM Peak Hour – Signal Warrant is Not Met

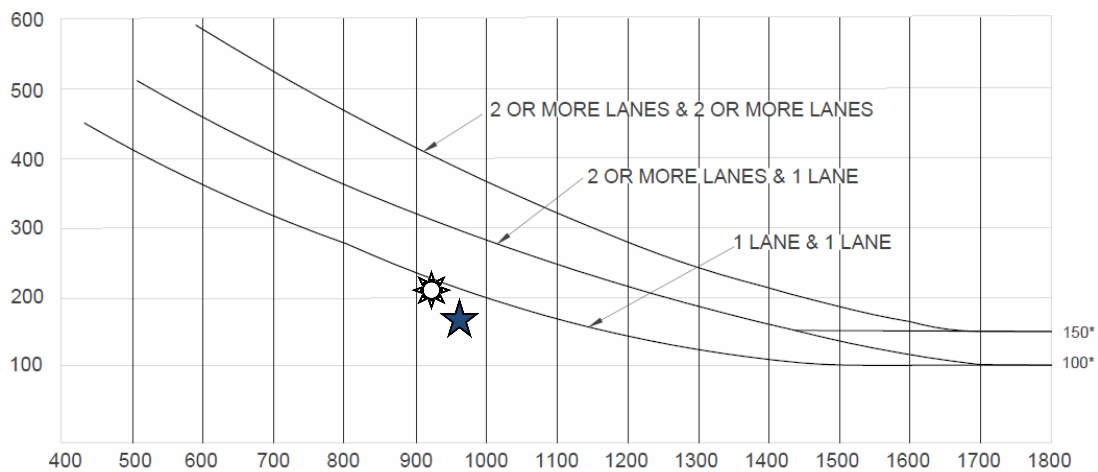
PM Peak Hour – Signal Warrant is Not Met

Source: California Manual of Uniform Traffic Control Devices (CA MUTCD 2014 Edition)
Chapter 4C: Traffic Control Signal Needs Studies
Part 4: Highway Traffic Signals
November 7, 2014

Warrant 3: Peak Hour (Urban)

Near Term plus Project Traffic Conditions
3. Reed Avenue / Parlier Avenue
AM (PM) Peak Hour

Parlier Avenue Highest Approach Volume = 206 (154) VPH



Reed Avenue Total of Both Approaches = 916 (963) VPH

*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.

AM Peak Hour – Signal Warrant is Not Met

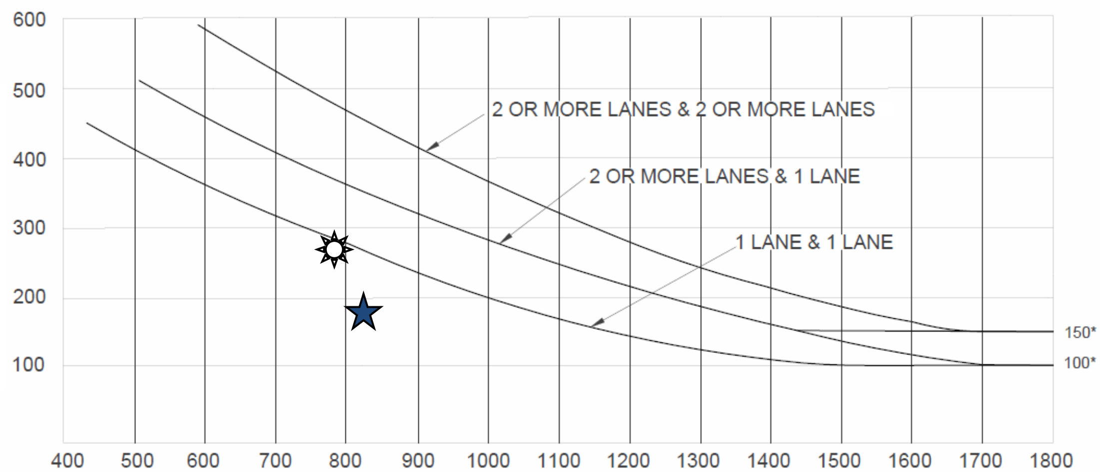
PM Peak Hour – Signal Warrant is Not Met

Source: California Manual of Uniform Traffic Control Devices (CA MUTCD 2014 Edition)
Chapter 4C: Traffic Control Signal Needs Studies
Part 4: Highway Traffic Signals
November 7, 2014

Warrant 3: Peak Hour (Urban)

Near Term plus Project Traffic Conditions
4. Frankwood Avenue / Parlier Avenue
AM (PM) Peak Hour

Parlier Avenue Highest Approach Volume = 270 (184) VPH



Frankwood Avenue Total of Both Approaches = 790 (814) VPH

*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.

AM Peak Hour – Signal Warrant is Not Met

PM Peak Hour – Signal Warrant is Not Met

Source: California Manual of Uniform Traffic Control Devices (CA MUTCD 2014 Edition)
Chapter 4C: Traffic Control Signal Needs Studies
Part 4: Highway Traffic Signals
November 7, 2014

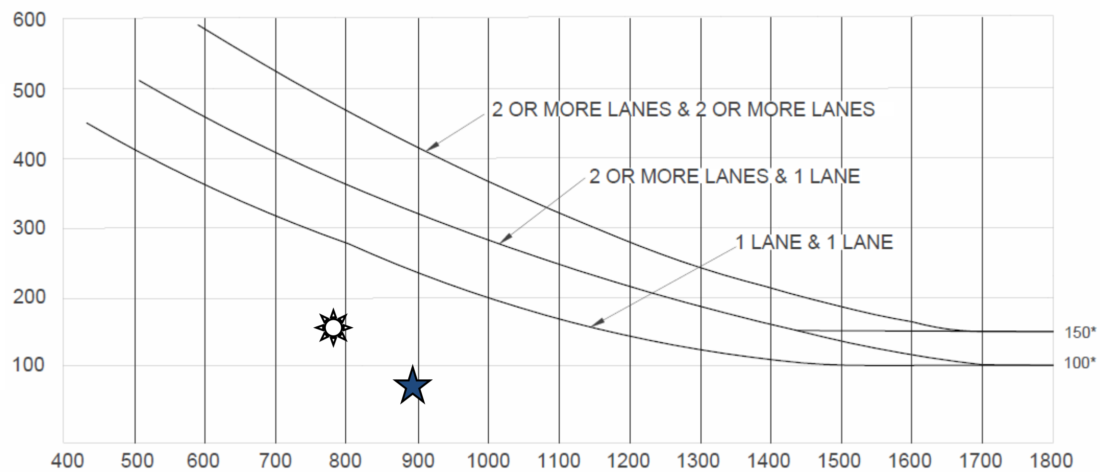
Warrant 3: Peak Hour (Urban)

Near Term plus Project Traffic Conditions
5. Frankwood Avenue / Cypress Avenue
AM (PM) Peak Hour

Cypress Avenue

Highest Approach Volume =

149 (75) VPH



Frankwood Avenue Total of Both Approaches =

781 (897) VPH

*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.

AM Peak Hour – Signal Warrant is Not Met

PM Peak Hour – Signal Warrant is Not Met

Source: California Manual of Uniform Traffic Control Devices (CA MUTCD 2014 Edition)
Chapter 4C: Traffic Control Signal Needs Studies
Part 4: Highway Traffic Signals
November 7, 2014

JLB Traffic Engineering, Inc.
Traffic Engineering, Transportation Planning, & Parking Solutions
www.JLBtraffic.com
info@JLBtraffic.com
1300 E. Shaw Ave., Ste. 103
Fresno, CA 93710
(559) 570-8991

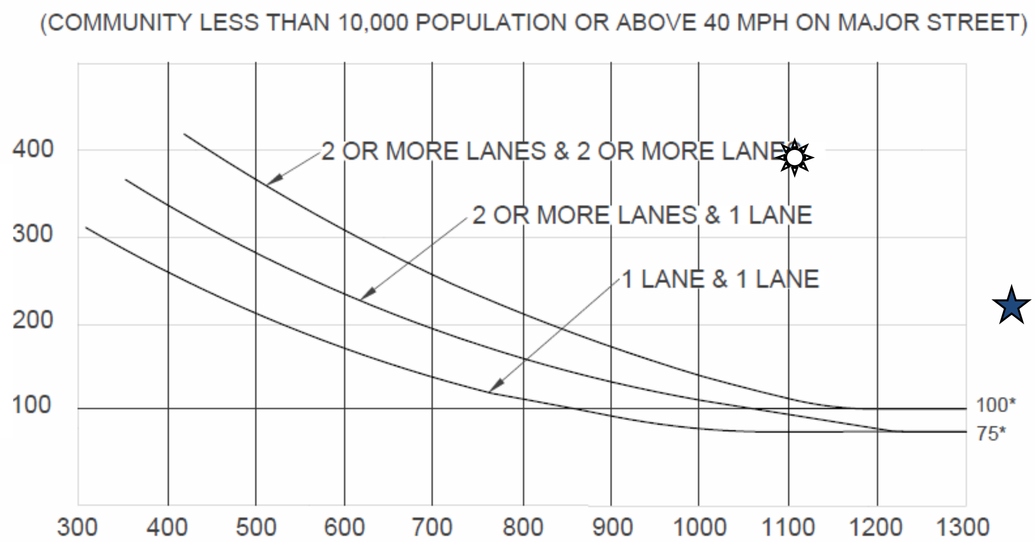
Warrant 3: Peak Hour (Rural)

Cumulative Year 2040 plus Project Traffic Conditions

1. Reed Avenue / South Avenue

AM (PM) Peak Hour

South Avenue Highest Approach Volume = 392 (211) VPH



Reed Avenue Total of Both Approaches = 1107 (1493) VPH

*Note: 100 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 75 vph applies as the lower threshold volume for a minor street approach with one lane.

AM Peak Hour – Signal Warrant is Met

PM Peak Hour – Signal Warrant is Met

Source: California Manual of Uniform Traffic Control Devices (CA MUTCD 2014 Edition)
Chapter 4C: Traffic Control Signal Needs Studies
Part 4: Highway Traffic Signals
November 7, 2014

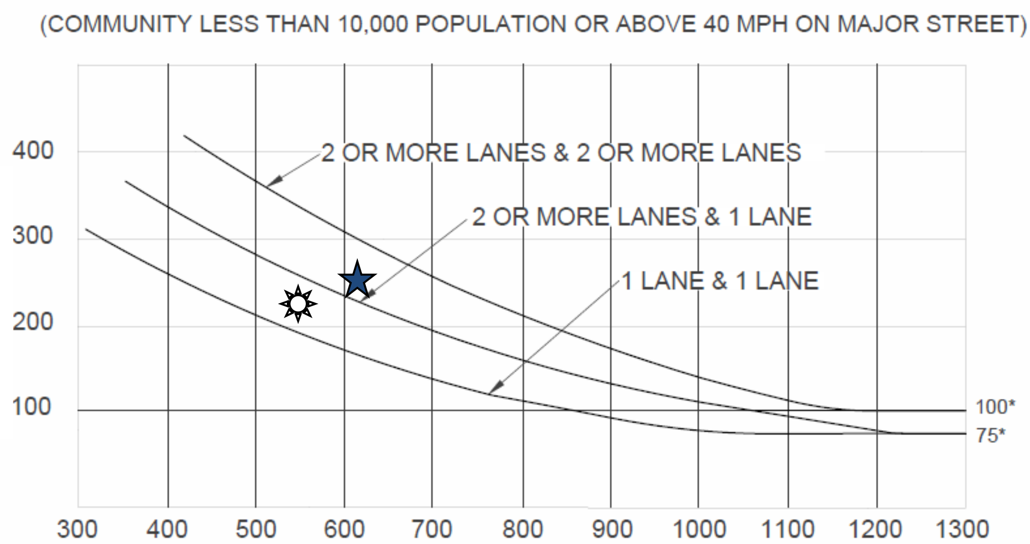
Warrant 3: Peak Hour (Rural)

Cumulative Year 2040 plus Project Traffic Conditions

2. Frankwood Avenue / South Avenue

AM (PM) Peak Hour

Minor Street Highest Approach Volume = 213 (253) VPH



Major Street Total of Both Approaches = 541 (611) VPH

*Note: 100 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 75 vph applies as the lower threshold volume for a minor street approach with one lane.

☼ **AM Peak Hour – Signal Warrant is Met**

★ **PM Peak Hour – Signal Warrant is Met**

Source: California Manual of Uniform Traffic Control Devices (CA MUTCD 2014 Edition)
Chapter 4C: Traffic Control Signal Needs Studies
Part 4: Highway Traffic Signals
November 7, 2014

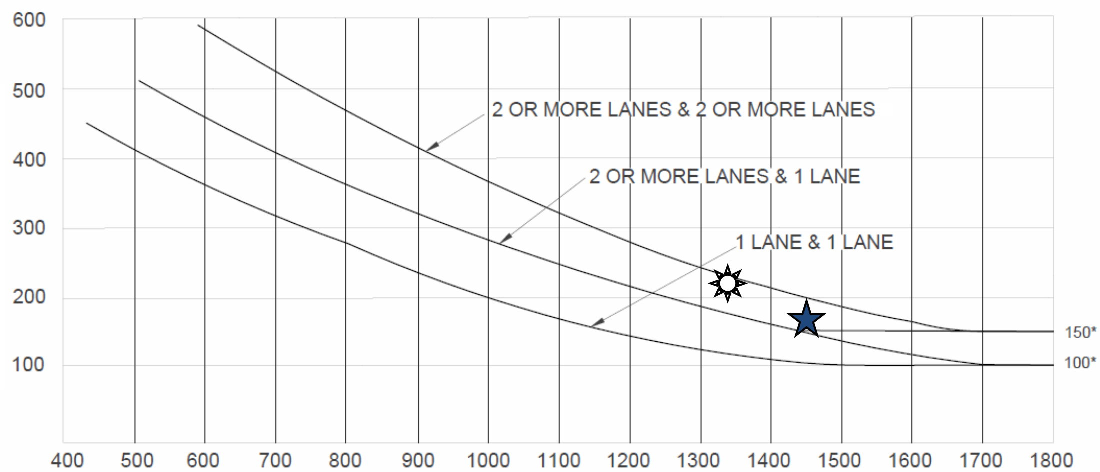
Warrant 3: Peak Hour (Urban)

Cumulative Year 2040 plus Project Traffic Conditions
3. Reed Avenue / Parlier Avenue
AM (PM) Peak Hour

Parlier Avenue

Highest Approach Volume =

216 (163) VPH



Reed Avenue Total of Both Approaches =

1331 (1457) VPH

*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.

AM Peak Hour – Signal Warrant is Met

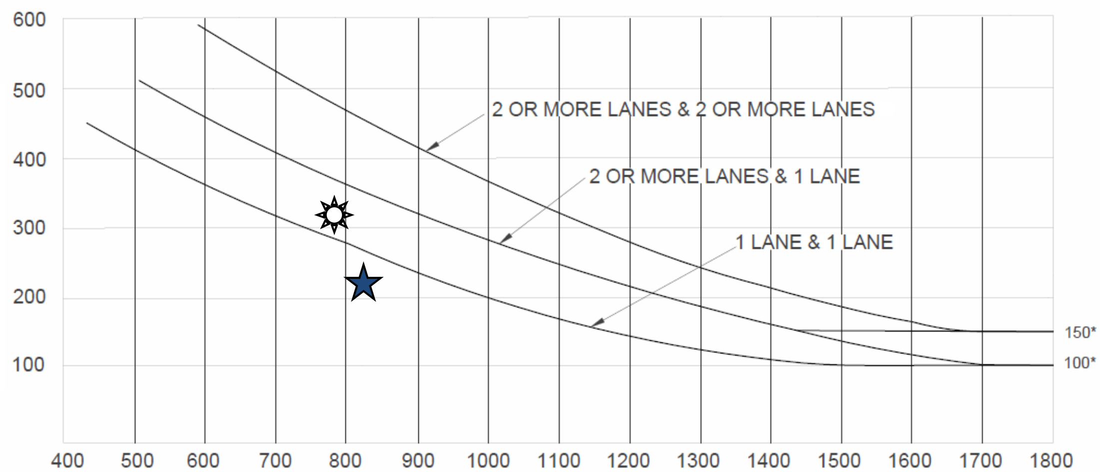
PM Peak Hour – Signal Warrant is Met

Source: California Manual of Uniform Traffic Control Devices (CA MUTCD 2014 Edition)
Chapter 4C: Traffic Control Signal Needs Studies
Part 4: Highway Traffic Signals
November 7, 2014

Warrant 3: Peak Hour (Urban)

Cumulative Year 2040 plus Project Traffic Conditions
4. Frankwood Avenue / Parlier Avenue
AM (PM) Peak Hour

Parlier Avenue
Highest Approach Volume =
314 (215) VPH



Frankwood Avenue Total of Both Approaches =
790 (814) VPH

*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.

AM Peak Hour – Signal Warrant is Met
PM Peak Hour – Signal Warrant is Not Met

Source: California Manual of Uniform Traffic Control Devices (CA MUTCD 2014 Edition)
Chapter 4C: Traffic Control Signal Needs Studies
Part 4: Highway Traffic Signals
November 7, 2014

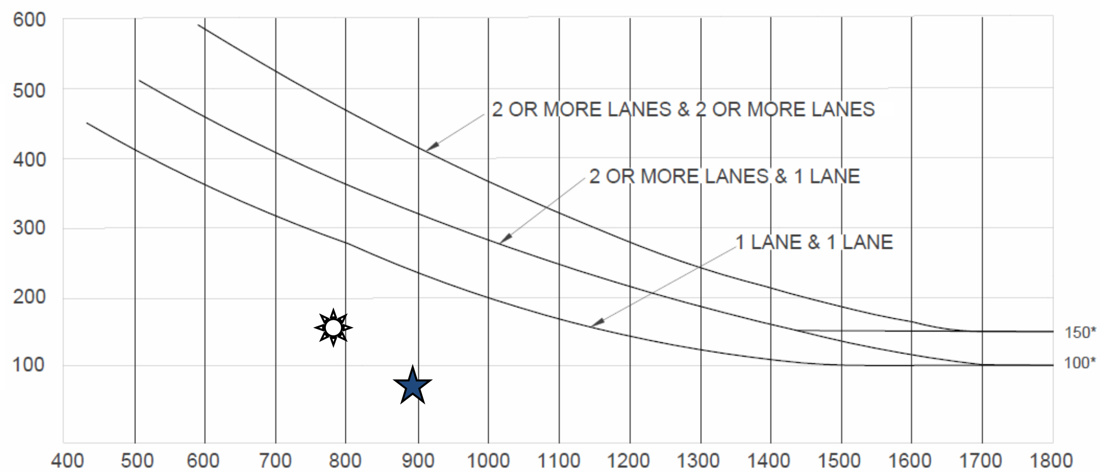
Warrant 3: Peak Hour (Urban)

Cumulative Year 2040 plus Project Traffic Conditions
5. Frankwood Avenue / Cypress Avenue
AM (PM) Peak Hour

Cypress Avenue

Highest Approach Volume =

149 (75) VPH



Frankwood Avenue Total of Both Approaches =

781 (899) VPH

*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.

AM Peak Hour – Signal Warrant is Not Met

PM Peak Hour – Signal Warrant is Not Met

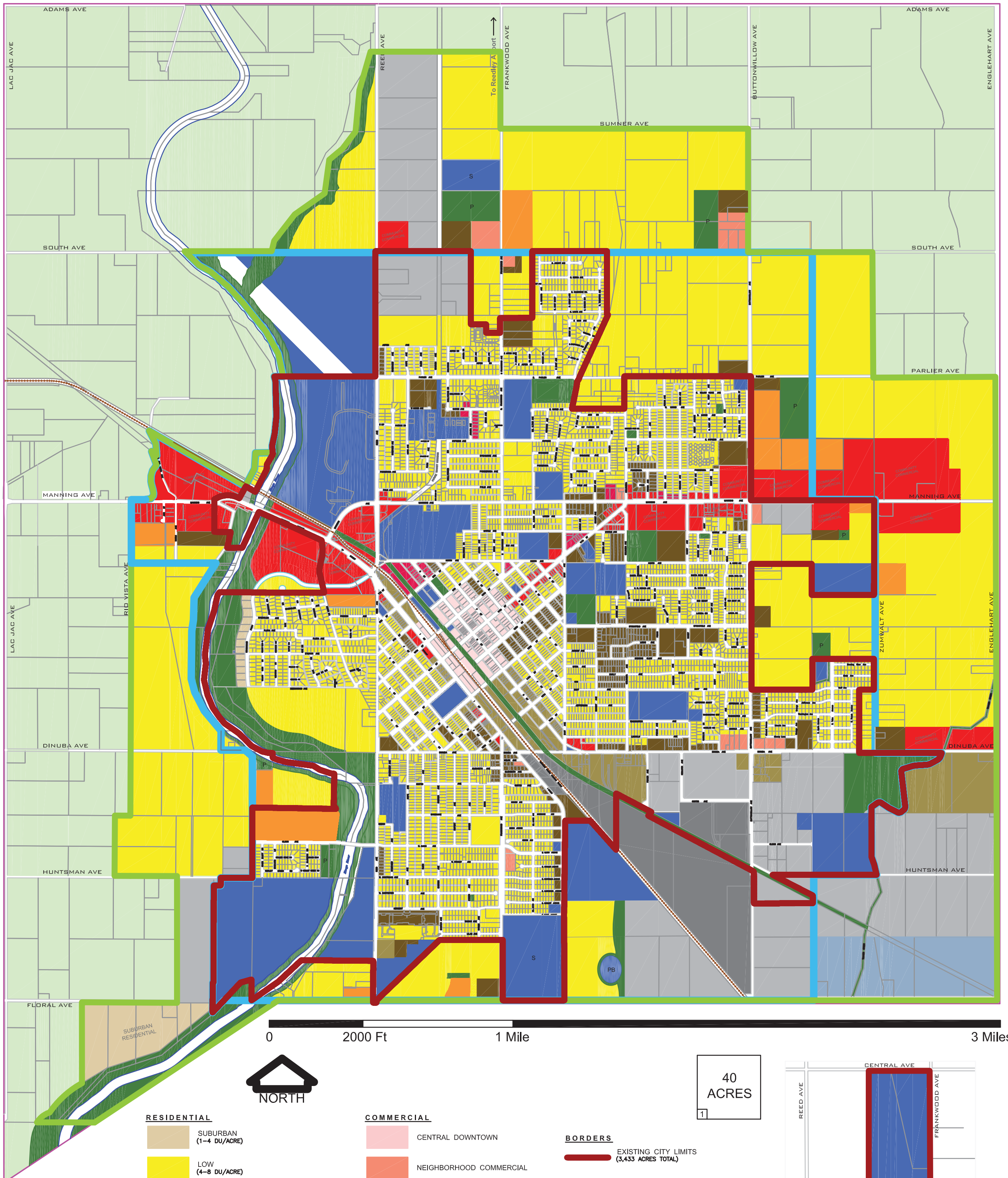
Source: California Manual of Uniform Traffic Control Devices (CA MUTCD 2014 Edition)
Chapter 4C: Traffic Control Signal Needs Studies
Part 4: Highway Traffic Signals
November 7, 2014

Exhibit A

City of Reedley, General Plan Land Use Map (As adopted by City Council Resolution No. 2014-18)

City of Reedley
GENERAL PLAN LAND USE MAP

(Adopted by City Council Resolution No. 2014-018, Dated February 25, 2014)



RESIDENTIAL

- SUBURBAN (1–4 DU/ACRE)
- LOW (4–8 DU/ACRE)
- MEDIUM (8–15 DU/ACRE)
- HIGH (15–29 DU/ACRE)

OTHER

- OPEN SPACE
- PUBLIC / INSTITUTIONAL FACILITY
- REMAINDER OF STUDY AREA
- COMMUNITY BUFFER

COMMERCIAL

- CENTRAL DOWNTOWN
- NEIGHBORHOOD COMMERCIAL
- COMMUNITY COMMERCIAL
- OFFICE
- SERVICE COMMERCIAL

INDUSTRIAL

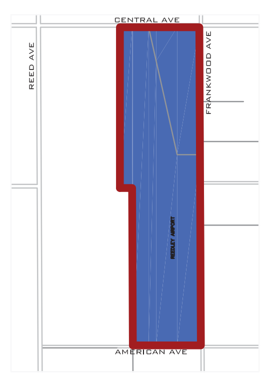
- LIGHT INDUSTRIAL
- HEAVY INDUSTRIAL

BORDERS

- EXISTING CITY LIMITS (3,433 ACRES TOTAL)
- LAFCO SPHERE OF INFLUENCE (5,053 ACRES TOTAL)
- APPROVED SPHERE OF INFLUENCE (7,087 ACRES TOTAL)
- GEN PLAN STUDY AREA (10,620 ACRES TOTAL)

MISC

- P PROPOSED FACILITY / PARK
- S PROPOSED SCHOOL
- PB PROPOSED PONDING BASIN



Reedley Airport: Approximately 15,400 Ft. (2.9 Miles) North from the intersection of Frankwood and South Avenue's.

Last Updated: 6-7-16 KP

Exhibit C

Mitigation Monitoring Checklist for Final Environmental Impact Report (SCH No. 2010031106) & Reedley General Plan Update 2030, dated February 18, 2014

Exhibit B

Mitigation Monitoring Checklist for Final Environmental Impact Report (SCH No. 2010031106) & Reedley General Plan Update 2030, dated February 18, 2014

Mitigation Monitoring And Reporting Program

For

Final Environmental Impact Report (State Clearinghouse No. 2010031106)

&
Reedley General Plan 2030 Update

February 18, 2014

City of Reedley
Community Development Department
1733 Ninth Street, City Hall
Reedley, California 93654
(559) 637-4200

MITIGATION MONITORING AND REPORTING PROGRAM

The following Mitigation Monitoring and Reporting Program (MMRP) for the Reedley General Plan 2030 Update (GPU) project has been prepared pursuant to CEQA Guidelines, Section 15097 and Public Resources Code, Section 21081.6. This MMRP lists applicable mitigation measures from the Final Environmental Impact Report for the project. The appropriate timing of implementation and responsible party are identified to ensure proper enforcement of the mitigation measures from the EIR to reduce project impacts to less than significant levels.

Because the Environmental Impact Report (EIR) is programmatic in nature (CEQA Guidelines, Section 15168), the goals and policies contained in the proposed GPU serve as the primary means of avoiding or reducing impacts identified for each environmental topic evaluated. Once the proposed GPU is adopted by the City, all future development projects must be substantially consistent with the proposed GPU and its policies. Consequently, the City's implementation of the GPU policies would serve as a mitigation tool for avoiding or reducing project-specific and cumulative environmental effects of resulting from buildout of the City pursuant to the GPU. Implementation of many of the proposed policies would serve to avoid or significantly reduce and lessen the environmental effects of new development. See Draft Program EIR, Table S-1, Significant Impacts and Mitigation Measure Summary (Pg. S-3) and Recirculated Draft Program EIR, Table S-1, Significant Impacts and Mitigation Measure Summary (Page S-5).

This programmatic level EIR references GPU policy implementation as the primary tool by which potential environmental impacts of buildout of the SOI will be avoided or reduced. The GPU policies were applies to a level of less than significant level and are not explicitly identified as mitigation measures within this MMRP.

Where proposed GPU goals and policies may not serve to reduce a significant impact to a less than significant level, mitigation measures are proposed for that purpose. Where the GPU policies may not serve to adequately mitigate significant impacts to a less than significant level, mitigation measures are identified. The City may rely on General Plan policies to mitigate environmental impacts under CEQA (See Napa Citizens for Honest Gov't v. Napa County Board of Supervisors (2001) 91 Cal.App 4th). Therefore, these mitigation measures were designed as an enforceable commitment and not merely adopted to be disregarded. The Mitigation Measures themselves are designed to fill "gaps" that may exist between the level of impact avoidance or reduction provided by implementation of GPU goals and policies, and the level of impact avoidance or reduction needed to mitigate significant impacts to a less than significant level. In this case, both GPU policies and additional mitigation measures were included in the reporting program.

The following MMRP identifies the entity responsible for verifying that the mitigation measures for the project are performed. The City of Reedley, as lead agency, will also be responsible for providing a date that each mitigation measure is verified as completed. The MMRP provides a comment/verification date column for the responsible entity to provide notes and remarks and provide a date the measure was completed. The timing of implementing the mitigation measures in the MMRP is identified in each measure.

The performance of the mitigation measures is the responsibility of the project applicant. The project applicant is responsible to provide evidence to the City of Reedley that the mitigation measures are performed and completed. The City of Reedley, as lead agency, will be responsible for ensuring that implementation of all mitigation measures occurs in accordance with this program.

Impact	Mitigation Measure	Timing of Implementation	Responsible Agency/Department	Comment/Verification Date
2.2 Agricultural Resources				
Impact AG-1: Conversion of approximately 2,983 acres of Prime Farmland, Unique Farmland, or Farmland of Statewide Importance to non-agricultural use.	<u>Land Use Policies</u>: LU 2.5.1: In areas outside the city limits, the City shall encourage Fresno County to: a) Maintain an exclusive agricultural zone district. b) Maintain a minimum permitted lot size for agricultural land which ensures that the land can be used for commercial agricultural purposes.	LU 2.5.1: Ongoing	City of Reedley, County of Fresno & Local Area Formation Commission	
	LU 2.5.2: New development will only be approved in sequential fashion contiguous to existing development to ensure orderly extension of municipal services and unnecessary conversion of agricultural lands. Development standards shall incorporate measures to preserve and protect agricultural land as set forth in Policies LU 2.5.1 through LU 2.5.18 and COSP 4.3.1 through 4.3.4.	LU 2.5.2: Ongoing	City of Reedley, County of Fresno & Local Area Formation Commission	
	LU 2.5.3: The City shall oppose formation of new land conservation contracts on land adjacent to the City's boundaries. The City shall also work with owners of land within the SOI who wish to file for non-renewal of Williamson Act contracts in advance of urban development.	LU 2.5.3: Ongoing	City of Reedley	
	LU 2.5.4: Within one year of the adoption of the GPU, the City shall adopt a right-to-farm ordinance which will require purchasers of residential, industrial and/or commercial properties within close proximity to existing agricultural uses to acknowledge that their land borders, or is in close proximity to, agricultural land and will endure the potential impacts of that interface. The goal of this proposed ordinance is to promote and protect existing agriculture operations, allowing farmers/ ranchers to conduct operations when urban land	LU 2.5.4: Within one year of the adoption of the GPU.	City of Reedley, County of Fresno & Local Area Formation Commission	

	uses extend into natural resource areas or are side-by-side, and, address the subject of frequent nuisance complaints. This Ordinance shall be implemented through a right-to-farm covenant to be recorded against the dominant and subordinate properties.			
	LU 2.5.5: The City shall discourage the development of peninsulas of urban development into agricultural lands.	LU 2.5.5: Ongoing	City of Reedley	
	LU 2.5.6: In cooperation with Fresno County, Fresno Local Agency Formation Commission (LAFCO), community and agricultural industry stakeholders, the City shall adopt and maintain a SOI consistent with the goals and policies of this GPU. The sphere of influence shall serve the mutual interest of the County and City by preserving agricultural uses from incompatible or unplanned urban uses.	LU 2.5.6: Ongoing	City of Reedley, County of Fresno & Local Area Formation Commission	
	LU 2.5.7: Require contiguous development within the SOI unless it can be demonstrated that the development of contiguous property is infeasible. An analysis of the fiscal impacts on public utilities including water, surface transportation, and service shall be required as part of the application to annex new territory into the City.	LU 2.5.7: Ongoing	City of Reedley, County of Fresno & Local Area Formation Commission	
	LU 2.5.8: The City shall not support annexing land for residential development until at least eighty (80%) percent of the existing residentially designated land inside the city limits is developed.	LU 2.5.8: Ongoing	City of Reedley, County of Fresno & Local Area Formation Commission	
	LU 2.5.9: Work with Fresno County and Fresno LAFCO to maintain agricultural designations in areas outside the Reedley SOI.	LU 2.5.9: Ongoing	City of Reedley, County of Fresno & Local Area Formation Commission	

	LU 2.5.10: Continue to maintain a Memorandum of Understanding (MOU) with Fresno County which clearly sets forth the following: a) The County shall not approve any discretionary development permit for new urban development within the City's SOI unless that development has first been referred to the City. b) That the development is orderly. c) County shall require development standards of the City of Reedley, when development is within the existing SOI. d) The City application for the annexation of any new territory be consistent with the Cortese-Knox Act. e) City initiated annexation shall have development eminent, with at least fifty (50) percent of the proposed area having an approved site plan and/or tentative map.	LU 2.5.10: Ongoing	City of Reedley, County of Fresno	
	LU 2.5.11: The Plan should foster the establishment of a concentrated urban development pattern, with land outside the planned urban area being designated exclusively for Agriculture.	LU 2.5.11: Ongoing	City of Reedley	
	LU 2.5.12: New urban development should occur in an orderly manner with initial development occurring on the available undeveloped properties within the City's limits which would be considered in-fill, by-passed parcels or in parcels in close proximity to the urban core, places of employment and established neighborhoods.	LU 2.5.12: Ongoing	City of Reedley	

	LU 2.5.13: The City should promote and provide urban services to development within the City as a means of controlling and directing growth.	LU 2.5.13: Ongoing	City of Reedley	
	LU 2.5.14: Initial development shall incorporate the necessary infrastructure to accommodate future development for the surrounding area consistent with the goals and objectives of the GPU. Reimbursement agreements or other mechanisms may be provided to the developer as a means to share the equitable burden of costs.	LU 2.5.14: Ongoing	City of Reedley	
	LU 2.5.15: Provide transitional design between land use types and high quality urban uses.	LU 2.5.15: Ongoing	City of Reedley	
	LU 2.5.16: The City shall encourage in-fill projects that incorporate pedestrian-oriented design.	LU 2.5.16: Ongoing	City of Reedley	
	LU 2.5.17: The City shall propose plan areas and zone districts that can accommodate mixed use planning that will provide a combination of residential, commercial services and employment opportunities all within close proximity.	LU 2.5.17: Ongoing	City of Reedley	
	LU 2.5.18: From the adoption date of this GPU, the City shall annex a maximum of five hundred (500) acres from within the existing SOI (@1,797-acres). Only when a Farmland Preservation Program is adopted for implementation shall the City propose additional lands for orderly annexation. The Farmland Preservation Program is discussed in great detail in Section 4.3 Agriculture. <u>Agriculture Policies</u>:	LU 2.5.18: From the adoption date of this GPU, the City shall annex a maximum of five hundred (500) acres from within the existing SOI (@1,797-acres).	City of Reedley, County of Fresno & Local Area Formation Commission	
	COSP4.3.1: Support the efforts of the County of Fresno and agricultural and community stakeholders to preserve and protect farmlands outside the centralized core of the City.	COSP4.3.1: Ongoing	City of Reedley	

	COSP4.3.2: Maintain a 20-acre minimum parcel size for agriculturally designated parcels to encourage viable agricultural operations and to prevent parcelization into rural residential or ranchette developments.	COSP4.3.2: Ongoing	City of Reedley, County of Fresno	
	COSP4.3.3: The City shall prepare and adopt a Farmland Preservation Plan (FPP). This plan shall include a set of policies, standards and measures to avoid the unnecessary conversion of agricultural lands. For each policy, standard or measure, the plan shall include a discussion of the following: (1) How the policy would minimize a potential detrimental effect caused by urban development; (2) Whether and how the policy would assist in avoiding the premature conversion of Prime Farmland, Unique Farmland or Farmland of Statewide Importance; (3) How the policy, standard or measure would be integrated into the entitlement process; and, (4) How the policy, standard or measure would be enforced through the regulatory environment. The FPP shall include the following policies: a) The City shall protect agriculturally designated areas, and direct urban growth away from productive agricultural lands into urbanized or underdeveloped portions of the City. b) The City shall collaborate with the Fresno County Local Area Formation Commission (LAFCo), Fresno County and land owners to encourage minimum parcel sizes of 20 acres or more for land designated for agriculture and/or evidence of commercial agricultural use prior to entering into new Williamson Act contracts.	COSP4.3.3: See LU2.5.18. The City shall prepare and deliver to the City Council an annual report FPP, describing progress made toward the preparation, adoption and implementation of the final FPP.	City of Reedley, County of Fresno & Local Area Formation Commission	

	c) The City shall not protest the renewal of Williamson Act Contracts with regard to land located within the City's SOI, but not adjacent or in close proximity to the City's current boundary, where the land's minimum parcel size is at least 20 acres and the land owner has provided evidence satisfactory to the City that the land is currently being used for commercial agricultural operations. d) The City shall support the efforts of public, private, and non-profit organizations to preserve Prime Farmland, Unique Farmland or Farmland of Statewide Importance located in Fresno County through the dedication of conservation easements and the preservation of range land held as environmental mitigation. e) The City shall encourage the installation of solar and wind energy production facilities in agricultural areas so long as they do not result in a tax burden to Fresno County, do not result in permanent water transfers from productive agricultural land, do not hinder agricultural operations on adjacent land, or do not require cancellation of Williamson Act contracts. In addition, these facilities should include dedications of agricultural land and habitat mitigation, measures to control erosion, and assurances for financing decommissioning activities. f) The City shall actively collaborate with landowners, cities, state and federal agencies, colleges, universities, stakeholders, and community-based organizations to continue to expand agricultural preservation in the surrounding Fresno County area. g) The City shall discourage public agencies from locating facilities, especially schools, in existing agricultural areas.			

	h) The City shall encourage the voluntary merger of antiquated subdivision lots that conflict with adjacent agricultural uses. The FPP shall include the following implementation measures: a) A provision designating the Community Development Department as the department responsible for the preparation and implementation of the FPP, once adopted and directing the Department to prepare annual reports to the City Council describing progress made toward the preparation, adoption and implementation of the final FPP. b) The creation of a community outreach program to encourage current agricultural land owners' continued participation in programs that preserve farmland, including the Williamson Act, conservation easements, and USDA-funded conservation practices.			
	c) Amend the Reedley Municipal Code within 12 months of adoption of the GPU to provide at least for the following: 1) Amend the zoning ordinance to require a minimum 100-foot buffer between new residential development and existing agricultural operations, and to establish design/maintenance guidelines for developers and property owners. The 100-foot buffer will create an appropriate transitional space between urban and agricultural land uses so as to facilitate continued agricultural operations. 2) Amend Chapter 10-6A, the Residential Estate (RE) District section, which is intended to provide living areas that combine both the urban and rural setting, to add provisions to prevent premature	c) Amend the Reedley Municipal Code within 12 months of adoption of the GPU.	City of Reedley	

	conversion of agricultural land, which could cause incompatible land uses and potential conflicts. 3) Amend the subdivision ordinance to facilitate the voluntary merger of antiquated subdivision lots that conflict with adjacent agricultural uses. 4) Amend the zoning ordinance to include provisions requiring that environmental review expressly analyze the potential for a proposed entitlement or permit to create incompatibilities with agricultural uses through traffic generation, groundwater contamination, storm-water drainage disposal and/or the deterioration of air quality. d) The City shall manage extension of public utilities and infrastructure to avoid extending them into agricultural areas before those areas are committed to conversion of urban uses. COSP 4.3.4: In conjunction with the preparation, adoption and implementation of the Farmland Preservation Plan described in Policy COSP 4.3.3, the City shall develop and consider the adoption of a program that shall require new development within the SOI to fund farmland preservation efforts. The goal of this program is to preserve designated Prime Farmland, Unique Farmland, and Farmland of Statewide Importance (together "Farmland") that otherwise runs the risk of being converted to urbanized development. This program shall act as a mitigation program in response to the necessary agricultural land conversion that occurs as a result of the City's expansion into its SOI. The City shall not support the annexation of lands in excess of a total of 500 acres within the City's existing SOI until this program, or a program that accomplishes the same goals, has been adopted and other actions and approvals necessary to the implementation of the program have been completed. Among other	COSP 4.3.4: See LU2.5.18 The City shall not support the annexation of lands in excess of a total of 500 acres within the City's existing SOI until this program, or a program that accomplishes the same goals, has been adopted and other actions and approvals necessary to the implementation of the program have been completed.	City of Reedley, County of Fresno & Local Area Formation Commission	

	provisions, the program shall include the following evaluation and performance requirements: a) Program Goal: As Prime Farmland, Unique Farmland, and Farmland of Statewide Importance within the City's SOI is converted to urban uses, secure the permanent preservation of other Prime Farmland, Unique Farmland, and Farmland of Statewide Importance within Fresno County on a 1 for 1 basis. b) Evaluation Process: To accomplish the program goal, as part of the entitlement application process Farmland proposed for conversion will be evaluated using the Land Evaluation and Site Assessment (LESA) model issued by the California Department of Conservation. The LESA model provides an analytical approach for rating the relative quality of land resources based upon specific factors, such as soils, site acreage, water availability, and surrounding land uses. The LESA model worksheets are provided in Appendix A, Evaluation and Site Assessment (LESA) Model, California Department of Conservation. c) Fee Program: The City shall develop and adopt a fee program consistent with the requirements of the Mitigation Fee Act that will require applicants seeking to annex Farmland within the City's SOI to pay a fee to the City of Reedley equivalent to the cost of preserving Important Farmland on a 1 to 1 basis with land converted to urban uses. The City shall use the fees to fund an irrevocable instrument (e.g. an easement) to permanently preserve farmlands via a Trust for Farmland Funds Disbursements. d) Alternative to Payment of Fee: As an alternative to the payment of the fee described in subsection (c), applicant shall provide documentation			

	satisfactory to the City that demonstrates that applicant has entered into a binding agreement with one or more property owners or a third-party organization acceptable to the City of Reedley (e.g. the Sequoia Riverlands Trust) to permanently preserve farmland equivalent in acreage to the Farmland proposed for annexation into the City. The agreement shall identify an irrevocable instrument that will be recorded against the preserved property. e) This program will also involve the City maintaining a current list of organizations and owners of Farmland that can facilitate the acquisition of conservation easements so as not to unduly delay the annexation of the land into the City and completion of the proposed development.			
Impact AG-2: Conflict with Existing Zoning or Williamson Act contracts existing on land within the proposed expanded SOI.	Land Use Policies: LU 2.5.1: In areas outside the city limits, the City shall encourage Fresno County to: a) Maintain an exclusive agricultural zone district. b) Maintain a minimum permitted lot size for agricultural land which ensures that the land can be used for commercial agricultural purposes. LU 2.5.2: New development will only be approved in sequential fashion contiguous to existing development to ensure orderly extension of municipal services and unnecessary conversion of agricultural lands. Development standards shall incorporate measures to preserve and protect agricultural land as set forth in Policies LU 2.5.1 through LU 2.5.18 and COSP 4.3.1 through 4.3.4. LU 2.5.4: Within one year of the adoption of the GPU, the City shall adopt a right-to-farm ordinance which will require purchasers of residential, industrial and/or commercial properties within close proximity to existing agricultural uses to	LU 2.5.1: Ongoing LU 2.5.2: Ongoing LU 2.5.4: Within one year of the adoption of the GPU.	City of Reedley, County of Fresno & Local Area Formation Commission City of Reedley, County of Fresno & Local Area Formation Commission City of Reedley	

	acknowledge that their land borders, or is in close proximity to, agricultural land and will endure the potential impacts of that interface. The goal of this proposed ordinance is to promote and protect existing agriculture operations, allowing farmers/ ranchers to conduct operations when urban land uses extend into natural resource areas or are side-by-side, and, address the subject of frequent nuisance complaints. This Ordinance shall be implemented through a right-to-farm covenant to be recorded against the dominant and subordinate properties.			
	LU 2.5.7: Require contiguous development within the SOI unless it can be demonstrated that the development of contiguous property is infeasible. An analysis of the fiscal impacts on public utilities including water, surface transportation, and service shall be required as part of the application to annex new territory into the City.	LU 2.5.7: Ongoing	City of Reedley, County of Fresno & Local Area Formation Commission	
	LU 2.5.8: The City shall not support annexing land for residential development until at least eighty (80%) percent of the existing residentially designated land inside the city limits is developed.	LU 2.5.8: Ongoing	City of Reedley	
	LU 2.5.9: Work with Fresno County and Fresno LAFCO to maintain agricultural designations in areas outside the Reedley SOI.	LU 2.5.9: Ongoing	City of Reedley, County of Fresno & Local Area Formation Commission	
	LU 2.5.11: The Plan should foster the establishment of a concentrated urban development pattern, with land outside the planned urban area being designated exclusively for Agriculture.	LU 2.5.11: Ongoing	City of Reedley	
	LU 2.5.12: New urban development should occur in an orderly manner with initial development occurring on the available undeveloped properties within the City's limits which would be considered	LU 2.5.12: Ongoing	City of Reedley	

	in-fill, by-passed parcels or in parcels in close proximity to the urban core, places of employment and established neighborhoods. Agriculture Policies: COSP 4.3.2: Maintain a 20-acre minimum parcel size for agriculturally designated parcels to encourage viable agricultural operations and to prevent parcelization into rural residential or ranchette developments.	COSP 4.3.2: Ongoing	City of Reedley	
2.3 Air Quality				
Impact AQ-1: Conflict with air quality management plans for the San Joaquin Valley Air Basin.	The proposed GPU contains a multitude of goals and policies that would directly and indirectly reduce of avoid air emissions. Many goals and policies are modeled on those recommended by the SJVAPCD for reducing air emissions from new development. The goals and policies are found through the Land Use; Circulation; and Conservation, Open Space, Parks and Recreation Elements of the GPU.	Prior to issuance of building permits, during construction and operational activities.	City of Reedley	
Impact AQ-2: Cumulatively considerable increase in criteria pollutants (ozone and PM10) for which the air basin is in non-attainment.	See AQ-1	See above	City of Reedley	
2.4 Biological Resources				
BIO-1: Substantial adverse effects on special-status species.	COSP4.13C: As feasible, preserve native vegetation and protected wildlife, habitat areas, and vegetation, through avoidance, impact mitigation, and habitat enhancement. COSP4.13.4: As part of the environmental review of new development projects:	COSP4.13C: Ongoing COSP4.13.4: Ongoing as development is	City of Reedley City of Reedley	

	(a) Biological studies shall be prepared to assess habitat value when determined appropriate by the Community Development Department. (b) Mitigation shall be applied to assure that degradation of habitat or impacts to sensitive species is reduced or eliminated. (c) Input will be sought from agencies and individuals with expertise in biological resources, including the California Department of Fish and Game, California Water Quality Control Board, U.S. Army Corps of Engineers, U.S. Fish and Wildlife Service, and U.S. Environmental Protection Agency. COSP4.13.16: Require preservation of contiguous areas in excess of the 100-year flood plain as merited by special circumstances. Special circumstances may include sensitive wildlife or vegetation, wetland habitat, oak woodland areas, slope or topographical considerations, and recreation opportunities.	proposed. COSP4.13.16 Ongoing as development is proposed.	City of Reedley	
BIO-1: Substantial adverse effects on special-status species.	BIO-1: Where review of a proposed project or activity identifies potential impacts on special-status plant species [including but not limited to brittlescale (*Atriplex depressa*), California satintail (*Imperata brevifolia*), Earlimart orache (*Atriplex erecticaulis*), lesser saltscale (*Atriplex minuscula*), recurved larkspur (*Delphinium recurvatum*), San Joaquin adobe sunburst (*Pseudobahia peirsonii*), and/or spiny-sepaled button-celery (*Eryngium spinosepalum*)] due to the presence of suitable habitat, then the City shall require that the special-status species with potential to occur on a project site be evaluated. Focused surveys conducted in accordance with current CDFG and CNPS rare plant survey protocols may be required if suitable habitat is present and would be impacted. If special-status plants occur on a site and could be	Prior to approval of an entitlement application, with oversight during the pre-construction phase of any project.	City of Reedley	

	significantly impacted by a proposed project, then appropriate avoidance or mitigation shall be provided in coordination with federal or state regulatory agencies as needed to reduce the impact to a less than significant level.			
BIO-1: Substantial adverse effects on special-status species.	BIO-2: Where review of a proposed project or activity identifies potential impacts on special-status animal species due to the presence of suitable habitat, then the City shall require that the special-status species with potential to occur on a project site be evaluated. Such species include but are not limited to: invertebrates [Valley elderberry longhorn beetle (*Desmocerus californicus dimorphus*), vernal pool fairy shrimp (*Branchinecta lynchi*), and vernal pool tadpole shrimp (*Lepidurus packardi*)], reptiles and amphibians [California tiger salamander (*Ambystoma californiense*), western pond turtle (*Emys marmorata*), and western spadefoot (*Spea hammondii*)], birds [burrowing owl (*Athene cunicularia*), Swainson's hawk (*Buteo swainsoni*), and western yellow-billed cuckoo (*Coccyzus americanus occidentalis*)], and mammals [pallid bat (*Antrozous pallidus*), San Joaquin kit fox (*Vulpes macrotis mutica*), and western mastiff bat (*Eumops perotis californicus*)]. Focused surveys conducted in accordance with current CDFG and USFWS survey protocols may be required if suitable habitat is present and would be impacted. If special-status animals occur on a site and could be significantly impacted by a proposed project, then appropriate avoidance or mitigation shall be provided in coordination with federal or state regulatory agencies as needed to reduce the impact to a less than significant level.	Prior to approval of an entitlement application, with oversight during the pre-construction phase of any project.	City of Reedley	
BIO-1: Substantial adverse effects on special-status species.	BIO-3. If construction activities are planned to occur with 250 feet of mature trees or shrubs during the nesting bird season (February 1 to August 31), a qualified biologist shall conduct a pre-construction survey for nesting birds to ensure that no nests would be disturbed during project construction. This	Prior to approval of an entitlement application, with oversight during the pre-construction phase of any	City of Reedley	

	survey shall be conducted no more than seven days prior to the initiation of disturbance activities during the early part of the breeding season (February through April) and no more than 30 days prior to the initiation of these activities during the late part of the breeding season (May through August). If no active nests are present within 250 feet of construction, then activities can proceed as scheduled. However, if an active nest is detected during the survey within 250 feet of construction, then the establishment of a protective construction-free buffer zone from each active nest (typically 250 feet for raptors and 50-100 feet for other species) would be required until the juvenile bird(s) have fledged, unless the biologist determines that construction activity would not impact the active nest(s). The buffer zone shall be clearly delineated or fenced to prevent disturbance to nesting birds.	project.		
2.5 Climate Change/Greenhouse Gases				
GHG-1: Generate GHGs that may have a significant impact on the environment or conflict with an applicable plan, policy or regulation adopted to reduce GHG emissions.	COSP4.11.2: The City will establish a Climate Action Plan[2] which will include measures to reduce GHG emissions from municipal, business and community activities by at least 15% by 2020 compared to "business as usual" (including any reductions required by ARB under AB 32) by July 2015.	COSP4.11.2: July 2015	City of Reedley	
GHG-1: Generate GHGs that may have a significant impact on the environment or conflict with an applicable plan, policy or regulation adopted to reduce GHG emissions.	GHG-1. Until such time as the City adopts a Climate Action Plan, the City shall review and require all future development projects to be consistent with the GHG emissions impact analysis and mitigation framework developed by the SJVAPCD as part of its Climate Change Action Plan. Future projects which are not exempt from review under the Climate Change Action Plan framework shall demonstrate that GHG emissions reduction measures have been included in the project design to reduce total emissions by 29	The City shall within two years after the adoption of the GPU, adopt a Climate Action Plan.	City of Reedley	

	percent or the SJVAPCD emissions reduction threshold in effect at the time environmental review is being conducted for individual projects.			
2.9 Hydrology and Water Quality				
HYD-2: Substantially deplete groundwater supplies or interfere with groundwater recharge.	Water Service Policies: CIR 3.10.1: The City shall adopt the 2010 Urban Water Management Plan in accordance with California Water Code, Division 6, by January 2014; a) The Plan shall be prepared in accordance with Article 1, Sections 10620-10621. b) The contents of this Plan shall be consistent with Article 2. Contents of Plans, Sections 10630-10634. c) The implementation of the Plan shall be in accordance with Article 3. Adoption and Implementation of Plans, Sections 10640-10645. d) After the adoption of the 2010 Urban Water Management Plan, the City shall prepare and adopt the 2015 Urban Water Management Plan, pursuant to the California Water Code, Division 6. e) Should the Plan expire at any time, pursuant to State Law, the City shall not support the approval of unincorporated territory, General Plan, zone change and/or tentative tract map entitlement applications.	CIR 3.10.1: Completed	City of Reedley	
	CIR 3.10.2: The City shall identify capital facilities necessary to maintain service in the City of Reedley as the City expands.	CIR 3.10.2: Annual review by the City Council.	City of Reedley	
	CIR 3.10.3: The City Council shall annually review and adopt updates of development impact fees,	CIR 3.10.3: Annual review by City	City of Reedley	

	water connection charges, and volume-based monthly service charges to ensure that adequate funds are collected to operate and maintain existing facilities and to construct new facilities for delivery, monitoring, and storage.	council.		
	CIR 3.10.4: The City shall actively support efforts to expand surface water supply and storage that benefits the City. These efforts should include, but not be limited to, coordination with Irrigation Districts for water banking, and WWTP effluent recycling and percolation.	CIR 3.10.4: Ongoing	City of Reedley	
	CIR 3.10.5: The City shall require that necessary water supply infrastructure is available prior to constructing new development, and approve development entitlements only when there is assurance of a dependable and adequate water supply that will serve the development.	CIR 3.10.5: At time of entitlement approval and prior to issuance of a building permit.	City of Reedley	
	CIR 3.10.6: Any development project which meets the definition of a "water-demand project", pursuant to the CEQA Guidelines, Section 15155, shall be required to prepare a "water assessment" in accordance with Water Code Sections10910 & 10915. The City Council shall formally consider approval of the assessment within the time period required by applicable law and prior to the approval of any development entitlements for the development project.	CIR 3.10.6: Pursuant to proposed project compliance with CEQA Guidelines.	City of Reedley	
	CIR 3.10.7: The City shall cooperate with surrounding water management authorities and irrigation districts to develop a comprehensive water management and recharge program which addresses the long-term stabilization of the Kings Basin and the transfer of excess WWTP effluent recycled water for use by the districts for recharge or use by their constituents.	CIR 3.10.7: Ongoing	City of Reedley	

	CIR 3.10.8: Through the entitlement process described in the RMC, the City shall require as a condition of approval that new development will be required to install water meters which meet the City's standards.	CIR 3.10.8: Prior to issuance of a building permit.	City of Reedley	
	CIR 3.10.9: The City shall encourage and cooperate with the private sector, as appropriate, to incorporate alternative methods of water reuse into new development, such as reclaimed water from irrigation, landscaping and purple pipe systems.	CIR 3.10.9: Ongoing	City of Reedley	
	CIR 3.10.10A: The City Council shall initiate the preparation and then consider adoption of a performance based Water Conservation Program ("WCP") that addresses water consumption to help ensure an adequate water supply to accommodate the projected growth and development patterns proposed within this GPU. The policies and implementation measures contained in the WCP shall set performance standards for sustainable management of Reedley's water production. The WCP, or a similar program that accomplishes the goals set forth below, shall be adopted and in effect prior to the implementation deadlines set forth in any of the policies set forth below. For each policy, standard and implementation measure identified below for inclusion in the WCP there shall be a discussion of the following: (1) How the policy, standard or implementation measure shall reduce per capita potable water consumption; (2) Whether and how the policy, standard or implementation measure would be integrated into the development entitlement process; and (3) how the policy, standard or implementation measure would be enforced through the regulatory environment.	CIR 3.10.10A: The WCP, or a similar program that accomplishes the goals set forth below, shall be adopted and in effect prior to the implementation deadlines set forth in any of the policies set forth below.	City of Reedley	

	The policies listed below have been assigned a date of anticipated implementation or completion. Those dates were determined by operational necessity and compliance, complexity of task and staffing capacity. GOAL: To reduce per capita potable water consumption by an additional twenty (20) percent by the year 2020. COMPLIANCE MONITORING AND REPORTING: After the adoption of the WCP, the Community Development Department shall provide an annual report to the City Council progress made toward overall implementation of the WCP. The WCP shall include the following policies and implementation measures:			
	a) The WCP shall include a public education component that addresses various topics related to groundwater production, consumption, recharge and recycling. The public education activities listed below will occur annually at various times throughout the year:	a) Ongoing	City of Reedley	
	1) The annual water quality report, prepared by the Public Works Department, which includes statistics related to annual water consumption, discharge and containment, shall be presented to the City Council for its consideration of approval. After Council approval, the report shall be submitted to the State Department of Water Resources.	1) Annual review by the City Council.	City of Reedley	
	2) The Public Works Department shall prepare an annual report that identifies, at a minimum, the amount of water used to irrigate the open space and the projected amount of groundwater recharge that has occurred. The City shall use industry standards to establish a formula to calculate the	2) Annual review by City Council.	City of Reedley	

	balancing of production to groundwater recharge.			
	3) All water quality reports prepared by the Public Works Department that are required by the Regional Water Quality Board shall be presented to the City Council for its consideration of approval.	3) Annual review by City Council.	City of Reedley	
	4) The City shall develop publications and other forms of communication to City water customers to inform them regarding the City's efforts to reduce water consumption and ways the customers can assist with achieving the City's goals.	4) Ongoing	City of Reedley	
	b) By March 2014, City Council shall consider the adoption of a water utility plan to implement a city-wide public water system through the year 2030. The implementation of this plan will assist the City in identifying locations for future delivery and recharge infrastructure. The Plan will serve as a basis for the development of impact fees necessary for implementation of the plan.	b) March 2014	City of Reedley	
	c) Within one (1) year of the adoption of the GPU, the City Council shall complete a thorough review of the City's development impact fee program and shall consider the adoption of a comprehensive update of the various fees included in the program. 1) This review shall include, but not be limited to, Storm Drainage, Water Distribution, Groundwater Recharge, Water Supply/Holding and Waste Water Collection and Treatment. 2) Within each topic area, the review shall include the analysis of existing conditions, proposed new development, need necessitated by future development and proportional cost attributed to land use development.	c) Within one (1) year of the adoption of the GPU	City of Reedley	

	d) Within one (1) year of the adoption of the GPU, the City Council shall consider the amendment of RMC, Section 8-1-12 and other relevant provisions of the RMC related to Water Conservation, to include additional water conservation provisions and implementation measures to assist in implementing the provisions of Senate Bill No. 407 and State Building Code provisions related to water conserving plumbing fixtures and fittings, so as to meet or exceed a twenty (20) percent reduction in water consumption. Specific requirements added to the RMC would include, at a minimum, the following: 1) Shower head fixtures and fittings shall be designed and installed so that they will not exceed a water supply flow rate of 1.75 gallons per minute. 2) Faucets at kitchens, lavatories, wet bars, laundry sinks, or other similar use fixtures shall be Water Sense labeled and installed so that they will not exceed a water supply flow rate of 1.5 gallons per minute. 3) Toilet fixtures and fittings shall have an average consumption that does not exceed 1.1 gallons of water per flush. 4) New residential dwellings that are equipped with clothes washers shall install washers that are ENERGY STAR qualified. 5) The water pressure in a single family home shall not exceed 60 pounds per square inch (psi), with no detectable water leaks. Multifamily and midrise projects are exempt from the water pressure testing criterion but shall meet the requirements as stated in 1) through 4) above (Source: U.S. Green Building Council).	d) Within one (1) year of the adoption of the GPU.	City of Reedley	

	e) The City shall strive to implement best management practices ("BMP") developed by the California Urban Water Conservation Council and provide annual reports to the City Council and the California Urban Water Conservation Council regarding its progress in implementing the BMP. f) The City shall consider the adoption of a Water Efficient Landscaping Ordinance that is as effective as, or more effective than, the Model Water Efficient Landscape Ordinance adopted by the California Department of Water Resources. The Ordinance shall contain applicability, definitions, provisions for new construction or rehabilitated landscapes, application requirements, water efficient landscape and certification. To further reduce outdoor water consumption, encourage water efficient landscaping practices through the reduction of turf grass by at least 40% and increasing the amount of plants that are native or adapted to the region by at least 25% (Source: U.S. Green Building Council).	e) Ongoing	City of Reedley	
	g) The City shall work with utility service providers such as PG&E who have rebate programs available to City's water customers to inform customers of the programs and to encourage them to utilize the programs to replace current water consuming appliances with water conserving appliances that are Energy Star rated.	g) Ongoing	City of Reedley	
	h) The City shall measure irrigation water used for parks/open space through the installation of standard water meters on all large park/open space areas, which may be creditable for recharge purposes. The installation of the meters will be completed within one year after the adoption of the GPU.	h) Ongoing	City of Reedley	

	i) The City shall systematically replace failing irrigation controllers at City parks, median islands and other City facilities with landscape irrigation systems with irrigation controllers equipped with, at a minimum, rain and evapotranspiration sensors, with the goal of reducing water used for landscape irrigation by twenty (20) percent to forty (40) percent, as supported by studies performed in the industry. This replacement program shall commence when the GPU is adopted.	i) Ongoing	City of Reedley	
	j) The City shall work cooperatively with land owners, local and regional water agencies, and irrigation districts which rely upon the Kings Basin as a source of water to identify and implement infrastructure projects and other programs that serve to reduce the use of groundwater and/or facilitate the recharge of the aquifer.	j) Ongoing	City of Reedley	
	k) The City shall continue to work with the Upper Kings Basin Integrated Regional Water Management Authority in developing a strong coalition of water agencies, cities, counties and environmental groups to address local water issues.	k) Ongoing	City of Reedley	
	CIR 3.10.10B: As part of the City's formulation of its annual budget, City staff shall identify a list of capital facilities improvement projects, with proposed budgetary allocations, necessary to implement further reductions in water consumption and/or maintain service.	CIR 3.10.10B: Ongoing	City of Reedley	
	Waste Water Policies:			
	CIR 3.10.11: By March 2014, City Council shall adopt a Waste Water Master Plan to address collection and treatment system. The implementation of this plan will assist the City in identifying general locations for future	CIR 3.10.11: By March 2014.	City of Reedley	

	infrastructure. The Plan will also be vital to the development of impact fees which are necessary for implementation.			
	CIR 3.10.12: The master plan will include analysis of the treatment needs as well as collector system disposal measures and funding mechanisms.	CIR 3.10.13: By March 2014.	City of Reedley	
	CIR 3.10.13: The City shall acquire adequate land to be used for reclamation purposes.	CIR 3.10.13: By 2018.	City of Reedley	
	CIR 3.10.14: The City shall periodically review and update development impact fees, wastewater connection charges, and monthly service charges to ensure that adequate funds are collected to operate and maintain existing facilities and to construct new facilities.	CIR 3.10.14: City Council review on a three-year ongoing cycle.	City of Reedley	
	<u>Storm Water Policies</u>:			
	CIR 3.10.18: The City shall prepare and present to the City Council for consideration of adoption of a comprehensive set of policies to ensure an adequate storm water drainage system to support the growth and development patterns proposed within this GPU. These policies shall set performance standards for sustainable management of Reedley's storm water drainage system. The policies, including those set forth below, shall be adopted such that their provisions are implemented by the deadlines set forth in the proposed policies. If the policy does not contain a specific deadline for its implementation, it shall be considered for adoption within twelve (12) months of the GPU's adoption. After the adoption of the GPU, the Community Development Department shall provide an annual report to the City Council describing progress made toward the development, adoption and overall implementation of these policies.	CIR 3.10.18: Within twelve month of the adoption.	City of Reedley	

	The staff analysis supporting each policy shall include a discussion of the following: (1) How the policy would minimize potential detrimental effect caused by the percolation of storm water; (2) Whether and how the policy would assist in the City's efforts to recharge the underground aquifer; (3) How the policy would be integrated into the entitlement process; and, (4) How the policy would be enforced through the regulatory environment. The policies shall include the following:			
	a) The City shall develop and implement a public education component that addresses various topics related to collection and disposal of storm water and shall include periodic reports to the City Council and the public regarding its progress in implementing the policies. Specifically, this component shall include the following actions by the City Council:	a) Ongoing	City of Reedley	
	1) All legally required storm drainage reports prepared by the Public Works Department shall be presented to the City Council for consideration of adoption.	1) Annual review by the City Council.	City of Reedley	
	2) All legally required National Pollutant Discharge Elimination System (NPDES) program reports, prepared by the Public Works Department shall be presented to the City Council for consideration of adoption.	2) Annual review by the City Council.	City of Reedley	
	3) By March 2014, City Council shall consider the adoption of the Storm Drain Master Plan. The plan will assist the City in identifying locations for future infrastructure and ground water recharge opportunities. The Plan will also serve as basis for the development of updates to the impact fees which are necessary for implementation.	3) March 2014	City of Reedley	

	b) The City shall develop standard operating procedures for vegetation management in storm water basins to ensure the basins structure and capacity is not compromised. The formal procedure shall be adopted within eighteen months after the adoption of the GPU.	b) Ongoing	City of Reedley	
	c) The City shall develop standard operating procedures for storm water measurement and for recording water levels in the basins. These procedures shall be adopted within eighteen months after the adoption of the GPU.	c) Ongoing	City of Reedley	
	d) The City shall develop standard operating procedures for documentation of interceptor monitoring and clean-out. The formal procedures shall be adopted within eighteen months after the adoption of the GPU.	d) Ongoing	City of Reedley	
	e) The City shall develop standard operating procedures for the bottom ripping of all storm water basins to ensure continual and optimal percolation. The procedures shall be adopted within eighteen months after the adoption of the GPU.	e) Ongoing	City of Reedley	
	f) As the City collects storm drainage development impact fees, and those fees become available, the City shall install measuring devices (e.g. flow meters, visually marked measuring poles) on drain inlets to measure storm events, which will be used to quantify Reedley's efforts to increase groundwater recharge.	f) Ongoing	City of Reedley	
	g) On an on-going basis, the City shall strive to work with the irrigation districts to identify the most suitable locations for storm water basins based on soil type, elevation, and other factors.	g) Ongoing	City of Reedley	

	CIR 3.10.18B: As part of the City's formulation of its annual budget, City staff shall identify a list of capital facility improvement projects, with proposed budgetary allocations, necessary to increase the use of collected storm water for the City's groundwater recharge efforts. CIR 3.10.19A: The City shall prepare and present to the City Council for consideration of adoption a comprehensive set of policies to ensure an adequate city-wide program for the recharge of ground water to support the growth and development patterns proposed within this GPU. These policies shall set performance standards for sustainable management of Reedley's use of groundwater and promote efforts to increase groundwater recharge. The policies, including those set forth below, shall be adopted such that their provisions are implemented by the deadlines set forth in the proposed policies. If the policy does not contain a specific deadline for adoption or implementation, it shall be considered for adoption within twelve (12) months of the GPU's adoption. After the adoption of the GPU, the Community Development Department shall provide an annual report to the City Council describing progress made toward the development, adoption and overall implementation of these policies. The staff analysis supporting each policy shall include a discussion of the following: (1) How the policy would help to reduce consumptive use; (2) Whether and how the policy would assist in the City's efforts to recharge the underground aquifer; (3) How the policy would be integrated into the entitlement process; and, (4) How the policy would be enforced through the regulatory environment. The policies shall include the following:	CIR 3.10.18B: Annual review by City Council. CIR 3.10.19A: Within twelve (12) months of the GPU's adoption.	City of Reedley City of Reedley	

	a) The City shall develop and implement a public education component that addresses various topics related to the consumptive use of groundwater as well as efforts to recharge the underground aquifer and shall include periodic reports to the City Council and the public regarding its progress in implementing the policies. b) The City shall work cooperatively with land owners, local and regional water agencies, and irrigation districts which rely upon the Kings Basin as a source of water to identify and implement infrastructure projects and other programs that serve to reduce the use of groundwater and/or facilitate the recharge of the aquifer. c) The City shall work cooperatively with the irrigation districts to develop and implement new strategies to expand upon current efforts directed toward groundwater recharge. These strategies may include: 1) Exploring the feasibility of joint water banking. 2) Exploring opportunities to jointly participate in studies that will be used to facilitate new or expand wastewater recycling and reclamation opportunities. d) Develop a methodology for early consultation (CEQA Section §21080.3) with the irrigation districts as part of the environmental review process when an entitlement application that involves annexing new land into the City is submitted. The comments received from the District will be fundamental to the development of conditions of approval applied to said projects. This process could be developed and implemented within one year after the adoption of the GPU.	a) Ongoing b) Ongoing c) Ongoing d) Within one year after the adoption of the GPU.	City of Reedley City of Reedley City of Reedley City of Reedley	

	e) On an on-going basis, the City shall strive to work with the irrigation districts to identify the most suitable locations for storm water basins based on soil type, elevation, and other factors.	e) Ongoing	City of Reedley	
	f) The City shall continue to work with the Upper Kings Basin Integrated Regional Water Management Authority in developing a strong coalition of water agencies, cities, counties and environmental groups to address local water issues.	f) Ongoing	City of Reedley	
	g) The City shall continue to work with the Kings River Conservation District to identify projects that would directly and efficiently increase groundwater recharge and to identify funding sources for said project, with the goal of submitting a grant application to the District for such a project by January 15, 2015.	g) By January 15, 2015.	City of Reedley	
	h) Within one (1) year of the adoption of the GPU, the City Council shall complete a thorough review of the City's development impact fee program and shall consider the adoption of a comprehensive update of the various fees included in the program. 1) This review shall include, but not be limited to, Storm Drainage, Water Distribution, Groundwater Recharge, Water Supply/Holding and Waste Water Collection and Treatment. 2) Within each topic area, the review shall include the analysis of existing conditions, proposed new development, need necessitated by future development and proportional cost attributed to land use development.	h) Within one year after the adoption of the GPU.	City of Reedley	
	i) By 2020, the City shall prepare an updated Groundwater Pumping, Recharge, and Consumptive Use Analysis report using the same	i) To be completed by the end of 2020.	City of Reedley	

	methodology as the 2013 report. Part of this report will include policies, recommendations, and implementation measures. The analysis and recommendations shall be presented to the City Council for its consideration.			
	j) All annual reports, prepared by the Public Works Department related to water quality, water supply and delivery, and groundwater recharge shall be presented to the City Council for its consideration of adoptions.	j) Ongoing	City of Reedley	
	k) The City shall continue to strive to develop and implement best management practices, strategies, in compliance with State law, and regulatory permits/requirements related to water quality and supply and groundwater recharge and report annually to the California Urban Water Conservation Council on its progress in development and implementing said practices.	k) Annual Reporting	City of Reedley	
	l) The Public Works Department shall prepare an annual report that identifies, at a minimum, the amount of water used to irrigate the open space and the projected amount of groundwater recharge that has occurred. The City shall use industry standards to establish a formula to calculate the balancing of production to groundwater recharge.	l) Ongoing	City of Reedley	
	CIR 3.10.20B: As part of the City's formulation of its annual budget, City staff shall identify a capital facility improvement projects, with proposed budgetary allocations, necessary to implement the City's groundwater recharge efforts.	CIR 3.10.20B Annual review by City Council.	City of Reedley	
	<u>Natural Resources Policies</u>:			
	COSP4.2.3 Protect areas of groundwater recharge from land uses and disposal methods which would degrade water sources.	COSP4.2.3: Ongoing	City of Reedley	

	COSP4.2.4 Provide public sewer service to new urban development as a means of protecting groundwater resources.	COSP4.2.4: At time of entitlement approval and prior to issuance of a building permit.	City of Reedley	
	COSP4.2.5: To protect human health the City groundwater resources will be monitored on a regular basis to test for bacteriological and toxic chemical components.	COSP4.2.5: Ongoing	City of Reedley	
	COSP4.2.6: Promote activities which combine storm-water control and water recharge.	COSP4.2.6: Ongoing	City of Reedley	
	COSP4.2.7: The City will enhance groundwater recharge supply by requiring the installation of detention/retention ponds in new growth areas.	COSP4.2.7: Ongoing	City of Reedley	
	COSP4.2.10: Continue to encourage water conservation.	COSP4.2.10: Ongoing	City of Reedley	
HYD-2: Substantially deplete groundwater supplies or interfere with groundwater recharge.	HYD-1. The City will update its Urban Water Master Plan or prepare a separate water supply plan to identify how the City will avoid or substantially reduce the impacts of increased demand for groundwater resources on groundwater depletion and overdraft of the Kings Basin resulting from implementation of the proposed GPU. The plan should include, but may not be limited to the following components: (a) Inventory of existing water demands, supplies, and providers, water use efficiency, recycling, transfers, and conjunctive use. (b) Analysis of future water demands based on general plan land use at buildout.	City Council has approved the 2010-2015 Urban Water Management Plan.	City of Reedley	

	(c) Assessment of future opportunities for enhanced water use conservation (which could include an update of the City's water conservation ordinance), recycling of water, water transfers, conjunctive use of groundwater and surface water, additional storage or water development projects, and other potential increases in water entitlements and supply. (d) Assessment of any shortfalls in future water demands based on wet, normal, dry, and multiple dry year types and contingency plans for drought conditions. (e) Identification of alternative water sources that will be utilized as needed to supplement groundwater extraction as the City's only source of urban water supply in order to avoid or substantially reduce impacts from overdraft of the Kings Basin.			
2.10 Noise				
N-1: Noise levels from transportation sources, potentially stationary sources, and potentially railroad sources in excess of noise standards.	NE 6.1.3: Areas subject to a DNL greater than 60 dBA are identified as noise impact zones. As part of the special permit process the proposed development project will be required to have an acoustical analysis prepared by a licensed engineer. The report should also include practical and reasonable mitigation measures.	Ongoing as development is proposed.	City of Reedley	
	NE 6.1.5: Design of all proposed development should incorporate features necessary to minimize adverse noise impacts, while also minimizing effects on surrounding land uses.	Ongoing as development is proposed.	City of Reedley	
	NE 6.1.6: Land use and transportation planning should include analysis of the potentially adverse noise levels associated with various design and use alternatives.	Ongoing as development is proposed.	City of Reedley	

	NE 6.1.7: The design of proposed transportation facility should incorporate feasible measures to diminish potential increases in noise levels.	Ongoing as development is proposed.	City of Reedley	
	NE 6.1.8: To relieve excessive noise generation associated with various modes of transportation, the City should: a) designate truck routes where appropriate (see Circulation Element). b) Limit vehicle speed where appropriate. c) Adoption of State Noise Insulation Standards (California Code of Regulations, Title 24) and Chapter 35 of the Uniform Building Code (UBC) concerning interior noise exposure for new single, multi-family housing, hotels and motels. d) Encourage appropriate authorities to stringently enforce California Motor Vehicle Code standards relating to noise emission levels and muffler systems. e) Maintain awareness of State and Federal standards or legislation relating to noise and lend support or criticism as appropriate. NE 6.1.9: The City should cooperate with Fresno County to adopt compatible noise control programs. NE 6.1.10: The City should develop noise contours for the following facilities: a) Major roads classified in the Circulation Element of the General Plan. b) Stationary facilities which emit noise levels greater than DNL of 60 dBA.	Ongoing, and as development is proposed.	City of Reedley	

N-1: Noise levels from transportation sources, potentially stationary sources, and potentially railroad sources in excess of noise standards.	N-1. The City will minimize to the degree practicable the impact of transportation-related noise. Transportation noise sources include roadways, railroads and aircraft operations. Transportation noise shall be minimized as follows: (a) Noise-Sensitive Land Uses: New development of noise-sensitive land uses shall not be permitted in areas exposed to existing or projected future noise levels from transportation noise sources exceeding 60 dB DNL within outdoor activity areas unless appropriate noise mitigation measures have been incorporated into the final project design. An exterior exposure of up to 65 dB DNL within outdoor activity areas may be allowed if a good-faith effort has been made to mitigate exterior noise exposure using a practical application of available noise mitigation measures and interior noise exposure due to exterior sources will not exceed 45 dB DNL. (b) New Transportation Noise Sources: Noise created by new transportation noise sources, including roadway improvement projects, shall be mitigated so as not to exceed 60 dB DNL within outdoor activity areas and 45 dB DNL within interior living spaces of existing or planned noise-sensitive land uses.	Prior to approval of an entitlement application, with mitigation as necessary to reduce impacts to a less than significant level.	City of Reedley, County of Fresno & Local Area Formation Commission Community Development Department	
N-1: Noise levels from transportation sources, potentially stationary sources, and potentially railroad sources in excess of noise standards.	N-2. The City will minimize to the degree practicable the impact of stationary noise sources. Stationary noise sources include industrial and commercial facilities, agricultural operations and vehicle movements on private property. Stationary noise shall be minimized as follows: (a) Noise-Sensitive Land Uses: The development of new noise-sensitive land uses shall not be permitted in areas where noise levels from existing stationary noises sources may exceed the noise level standards shown in Table 6.1.2-B of the proposed GPU within outdoor activity areas.	Prior to approval of an entitlement application, with mitigation as necessary to reduce impacts to a less than significant level.	City of Reedley	

	(b) New Stationary Noise Sources: Noise created by proposed stationary noise sources, or existing stationary noise sources which undergo modifications that may increase noise levels, shall be mitigated so as not to exceed the noise level standards shown in Table 6.1.2-B of the proposed GPU within outdoor activity areas of existing or planned noise-sensitive land uses.			
N-1: Noise levels from transportation sources, potentially stationary sources, and potentially railroad sources in excess of noise standards.	N-3. Maintain a citywide noise environment that achieves noise goals through development review and post-development monitoring by implementing the following actions: (a) Development Review: The City will review new public and private development proposals to determine conformance with the policies and implementing actions of the Noise Element. (b) Acoustical Analysis Required (Transportation Noise Sources): At the discretion of the Community Development Department or where the development of a project may result in noise-sensitive land uses being exposed to existing or projected future transportation noise levels exceeding 60 dB DNL (or CNEL), an acoustical analysis shall be required early in the review process so that noise mitigation may be included in the project design. For development not subject to environmental review, the requirements for an acoustical analysis shall be implemented prior to the issuance of a building permit. Areas of the city potentially exposed to noise from transportation sources in excess of 60 dB DNL (or CNEL) may be determined by reference to Table 16, Generalized Traffic Noise Exposure Reedley 2020 General Plan Update Future Conditions, for traffic noise. For railroad noise, it is assumed that areas closer than 200 feet from the track may be exposed to 60 dB DNL or above.	Prior to approval of an entitlement application, with mitigation as necessary to reduce impacts to a less than significant level.	City of Reedley	

	When required, an acoustical analysis shall include identification and quantification of noise sources that may affect the proposed use, or that may result from the proposed use, for existing and foreseeable future conditions. Noise levels shall be quantified in terms of the DNL (CNEL for aircraft noise) and shall include consideration of site-specific conditions that could affect noise exposure at the location or locations of interest. (c) Acoustical Analysis Required (Stationary Noise Sources): Where, at the discretion of the Community Development Department, the development of a project may result in noise-sensitive land uses being exposed to noise from existing or future stationary sources exceeding the daytime or nighttime standards shown in Table 6.1.2-B of the proposed GPU, an acoustical analysis shall be required. The acoustical analysis should be required early in the review process so that noise mitigation may be included in the project design. For development not subject to environmental review, the requirements for an acoustical analysis shall be implemented prior to the issuance of a building permit. When required, an acoustical analysis shall include identification and quantification of noise sources that may affect the proposed use, or that may result from the proposed use, for existing and foreseeable future conditions. Noise levels shall be quantified in terms of the noise level descriptors utilized in 6.1.2-B and shall include consideration of site-specific conditions that could affect noise exposure at the location or locations of interest.			

	(d) Compliance Monitoring: The City shall develop and employ procedures to monitor compliance with the policies of the Noise Element after completion of projects where noise mitigation measures have been required.			
2.13 Utilities				
UTIL-3: Have sufficient water supply available to serve the project from existing entitlements and resources, or are new or expanded entitlements needed.	See HYD-1 and HYD-2.	See above.	Community Development, Engineering and Public Works Departments	