ADDENDUM TO A CERTIFIED ENVIRONMENTAL IMPACT REPORT

The County of El Dorado, California, a municipal corporation, does hereby prepare, make declare, and publish the Addendum to a certified Environmental Impact Report (EIR) for the following described project:

Project Name: Public Safety Facility

The County of El Dorado, Facilities Division, has reviewed the proposed project and on the basis of the whole record before it, has determined that substantial evidence does not exist that the project, as identified in this Addendum, would have a significant effect on the environment beyond that which was previously evaluated in the EIR prepared for the Public Safety Facility Project (SCH # 2015062046). A subsequent EIR is not required pursuant to the California Environmental Quality Act of 1970 (Sections 21000, et. Seq., Public Resources Code of the State of California).

This Addendum to a certified EIR has been prepared pursuant to Title 14, Section 15164 of the California Code of Regulations.

Russ Fackrell, Facilities Manager
County of El Dorado

By: _____
Date: 9/24/18

Public Safety Facility
Addendum to an Environmental Impact Report

Project Name: Public Safety Facility

Project Location: The Public Safety Facility site is located in the Diamond Springs area of unincorporated El Dorado County, California, approximately 5.5 miles northeast of Shingle Springs, and approximately three miles southwest of the City of Placerville (see Figure 1). The site is identified by Assessor's Parcel Numbers (APNs) 329-240-55 and 329-391-10. Primary access to the site is provided from Industrial Drive via Missouri Flat Road, with secondary access planned from Merchandise Way at the southern site boundary. Merchandise Way is accessed from Enterprise Drive.

This Addendum focuses on roadway improvements planned for the intersections of Missouri Flat Road/Industrial Drive and Missouri Flat Road/Enterprise Drive. Both intersections are located approximately 1,000 feet east of the Public Safety Facility site (see Figure 1).

Current Plan Designations and Zoning: The current County General Plan land use and zoning designation for the proposed project site is Industrial.

Project Background: The Public Safety Facility project was approved by the El Dorado County Board of Supervisors, and the associated EIR certified, on March 8, 2016. The project included development of a multi-building public safety facility on approximately 11 acres of the 30.34-acre project site for the El Dorado County Sheriff's Office, with a maximum development potential totaling approximately 106,331 square feet (sf). The approved project would centralize and consolidate the Sheriff's Office functions currently operating out of seven different facilities. The other major project component consisted of an approximately seven-acre solar farm facility, which would be located immediately west of the proposed buildings. The 6.16-acre portion of the 30.34-acre site located north of Industrial Drive was not proposed for development as part of the project.

EIR Traffic Analysis

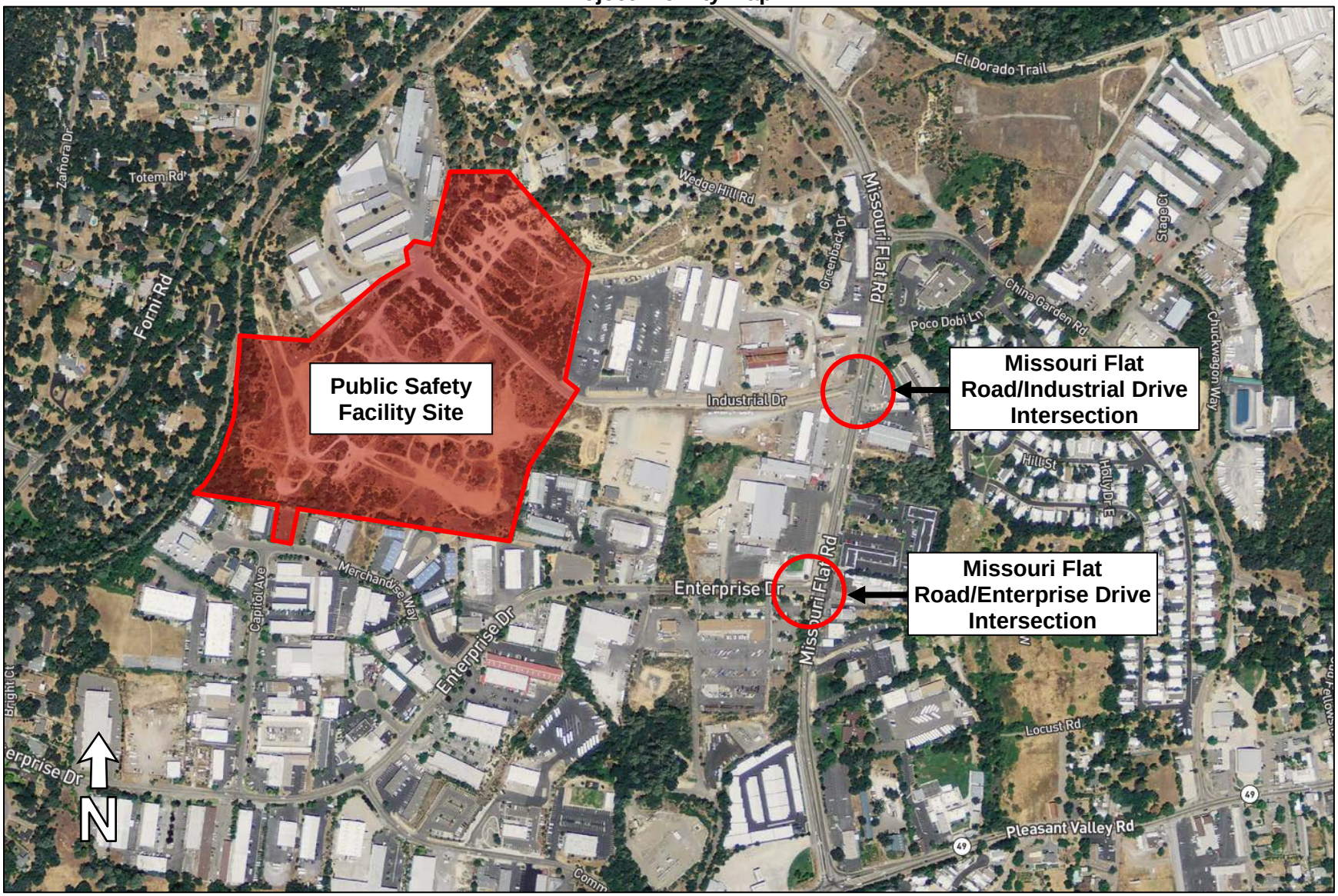
The traffic analysis of the EIR determined that the proposed project would result in a significant traffic level of service impact to the intersections of Missouri Flat Road/Enterprise Drive and Missouri Flat Road/China Garden Road. In addition, the traffic analysis determined that the project could result in a significant safety-related traffic impact to the intersection of Missouri Flat Road/Industrial Drive. As a result, the EIR required mitigation measures to mitigate project-level impacts to these intersections to a less-than-significant level. The mitigation measures are as follows:

Missouri Flat Road/China Garden Road

4.10-2(a) *Missouri Flat Road / China Garden Road. Prior to issuance of any building permits, the project applicant shall pay the countywide TIM fees for the project consistent with the County's CIP program.*

Installation of a traffic signal at the Missouri Flat Road / China Garden Road intersection will improve the LOS at the intersection to LOS B with a

Figure 1
Project Vicinity Map



delay of 16.1 seconds. Alternatively, restricting the eastbound and westbound approaches to right-turns only would result in acceptable operations in both peak hours.

Therefore, appropriate mitigation would include payment of traffic impact mitigation fees to satisfy the project's fair share obligation towards this improvement if it is included in the 20-Year CIP, or construction of the improvement with reimbursement or fee credit for costs that exceed the project's proportional share if the improvement is needed but not included in future updates to the 20-Year CIP or constructed by others, as determined by CDA.

Missouri Flat Road/Enterprise Drive

4.10-2(b) *Missouri Flat Road / Enterprise Drive. Prior to issuance of any building permits, the project applicant shall pay the countywide TIM fees for the project consistent with the County's CIP program.*

Signalization of this intersection will result in an LOS A condition in the a.m. peak hour (8.5 seconds) and LOS B condition in the p.m. peak hour (18.4 seconds).

Therefore, appropriate mitigation would include payment of traffic impact mitigation fees to satisfy the project's fair share obligation towards this improvement if it is included in the 20-Year CIP, or construction of the improvement with reimbursement or fee credit for costs that exceed the project's proportional share if the improvement is needed but not included in future updates to the 20-Year CIP or constructed by others, as determined by CDA.

Missouri Flat Road/Industrial Drive

4.10-4 *The project applicant shall fund and construct the traffic signal at the Missouri Flat Road / Industrial Drive intersection. The traffic signal improvement shall be shown on the project improvement plans prior to their approval by the El Dorado County Community Development Agency. Installation of a new traffic signal would improve the operating conditions to LOS B (17.5 seconds) in the AM peak hour and LOS B (13.4 seconds) in the PM peak hour.*

Page 4.10-42 of the EIR states, in reference to the above mitigation for Missouri Flat Road/Industrial Drive, that:

> Several driveways exist on Missouri Flat Road that could be affected by installing a new traffic signal at the Missouri Flat Road / Industrial Drive intersection. The driveways adjacent to the intersection (i.e. the south driveway on the east side of the intersection and the north driveway in the southwest quadrant of the intersection) may require closure or realignment to improve safety and minimize interference of the operation of the signal. Additional driveways could be impacted depending on the area of improvement. These issues will be evaluated when the traffic signal is designed.

This evaluation of the Missouri Flat Road/Industrial Drive signal design is provided in this Addendum. Specifically, the evaluation will determine whether any of the criteria in Section 15162

of the CEQA Guidelines would be triggered, thus warranting further CEQA review. The 15162 criteria are provided in the following section.

This addendum also seeks to determine whether the signal design for Missouri Flat Road/Enterprise Drive, which the County prepared subsequent to the certification of the EIR, would trigger any of the 15162 criteria.

As will be discussed in this addendum, the County Transportation Department prepared a traffic analysis for this addendum, which determined that a signal is not needed at the Missouri Flat Road/China Garden Road intersection to fully mitigate the Public Safety Facility project's impact. Rather, as allowed in Mitigation Measure 4.10-2(a) of the EIR, the County anticipates that the intersection would be modified to restrict the eastbound and westbound approaches to right-turns only. This would be accomplished with signage and a painted or raised median.

Rationale for Preparation of the Addendum

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

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

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

> (1) Substantial changes are proposed in the project which will require major revisions of the previous EIR or 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.

This addendum and attached documents constitute substantial evidence supporting the conclusion that preparation of a supplemental or subsequent EIR is not required prior to approval of the proposed signal projects, and provides the required documentation under CEQA.

Project Description: Since certification of the 2016 EIR, the El Dorado Community Development Services, Transportation Department, has prepared signal plans for the intersections of Missouri Flat Road/Industrial Drive and Missouri Flat Road/Enterprise Drive. The project components have not been altered from the components analyzed in the EIR; rather, the aforementioned signal plans provide project-specific information that was not available at the time the 2016 EIR was prepared. The following sections provide a summary of the proposed intersection improvements.

Missouri Flat Road/Industrial Drive Signal Improvements

Figure 2 provides an aerial overview of the existing lane configurations and overhead utilities at the intersection of Missouri Flat Road and Industrial Drive. As part of the proposed project, a new signal would be installed at the intersection. Intersection improvements would include installation of new traffic signal controller and cabinet, detector loops, and widening of both Missouri Flat Road and Industrial Drive to accommodate turn lanes (see Figure 3). This is Project #73366 of El Dorado County's Capital Improvement Program (CIP).

Missouri Flat Road would be widened north and south of the Missouri Flat Road/Industrial Drive intersection for right and left turn lanes. In addition, Industrial Drive would be realigned slightly to the south and widened to accommodate a left-turn lane and improve site distance at the intersection. Concrete curb ramps would be constructed to American Disabilities Act (ADA) standards at three of the intersection legs along with crosswalks to allow pedestrian access across Missouri Flat Road and Industrial Drive. The roadway pavement sections of Missouri Flat Road and Industrial Drive would be replaced within the limits of the proposed intersection improvements.

The proposed Missouri Flat Road/Industrial Drive intersection improvements would require the reconstruction of several existing commercial driveways, including APN's 329-260-01, 329-261-12, 329-261-13, and 327-260-37. In addition, the project would require removal of a portion of the existing landscaping adjacent to Missouri Flat Road. Two utility poles would be relocated. Other utility impacts could include manhole and valve adjustments to grade with the widening and reconstruction of pavement section along Industrial Drive. A new drop inlet and storm drain would be installed to convey water from Industrial Drive to the existing ditch along Missouri Flat Road, which would be reconstructed to accommodate the widening.

Figure 2
Existing Conditions: Missouri Flat Road/Industrial Drive Intersection

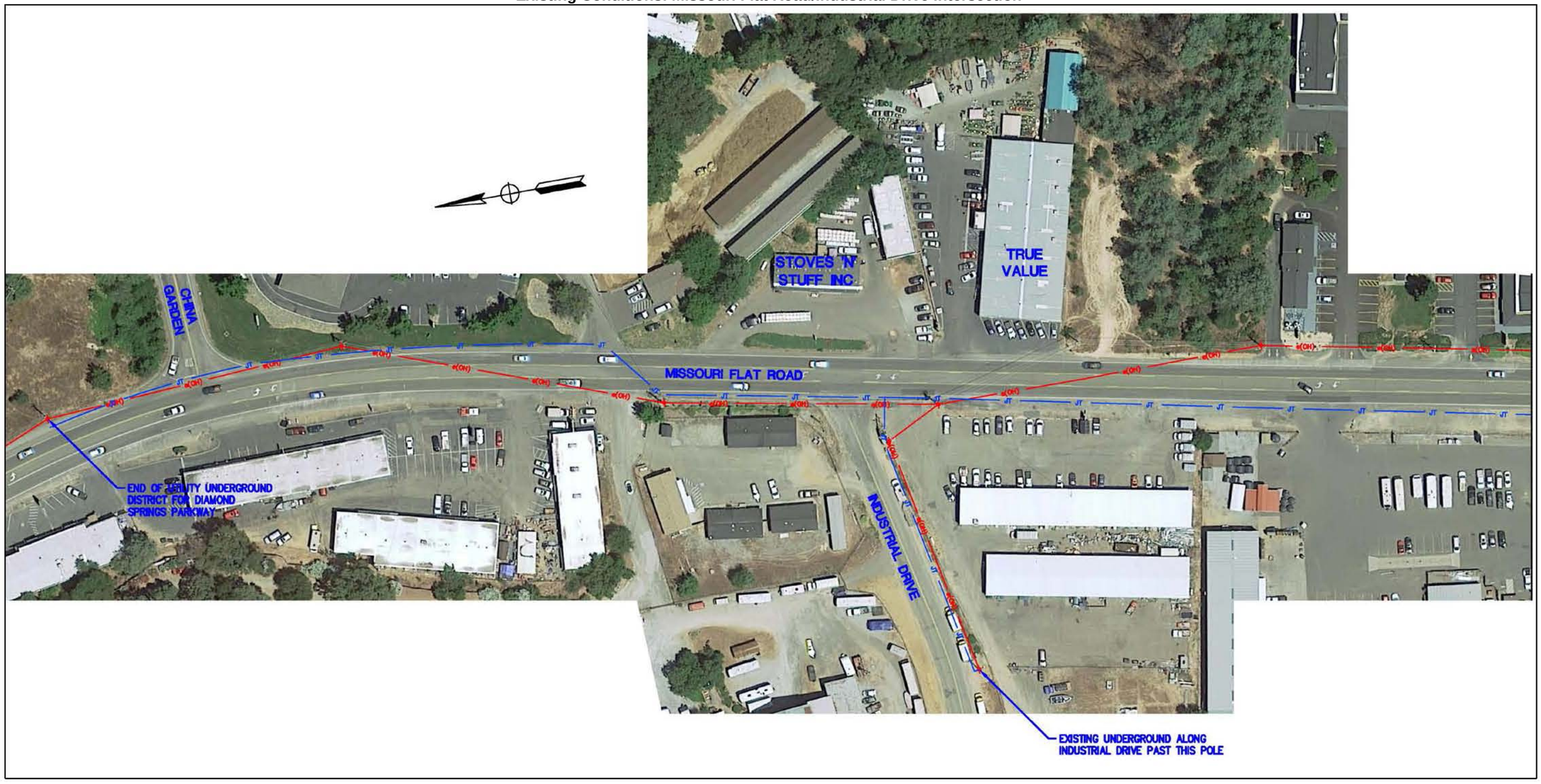
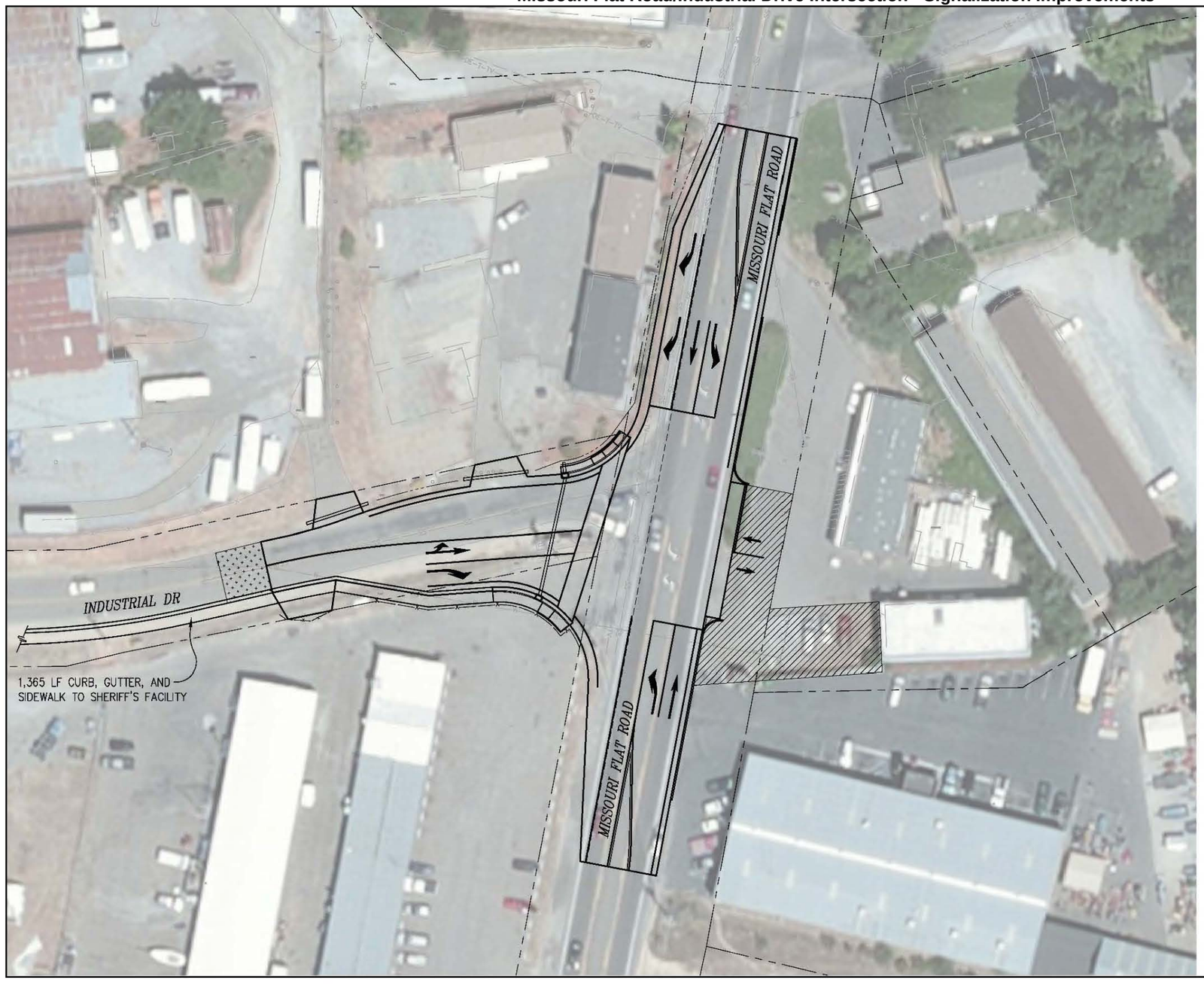


Figure 3
Missouri Flat Road/Industrial Drive Intersection - Signalization Improvements



QUANTITIES:

ROADWAY QUANTITIES:

ROADWAY EXCAVATION – INDUSTRIAL DR = 1,017 CY

INDUSTRIAL DR INTERSECTION IMPROVEMENTS – FULL SECTION: 5" HMA/15" AB
HMA = 478 TONS
AB = 732 CY

MISSOURI FLAT RD – SLURRY SEAL (TYPE 2) = 15 TONS

DRIVEWAY REHAB, ADJACENT TO MISSOURI FLAT – FULL SECTION: 3" HMA/9" AB
HMA = 98 TONS
AB = 150 CY

DRIVEWAY CONFORMS, ADJACENT TO INDUSTRIAL DR
HMA = 17 TONS
AB = 15 CY

STRIPING & MARKINGS:

DETAIL 21 = 172 LF
DETAIL 22 = 125 LF
DETAIL 27B = 878 LF
DETAIL 29 = 384 LF
DETAIL 38 = 276 LF
TYPE 'D' MARKERS = 30 EA
TYPE 'G' MARKERS = 13 EA
TYPE I ARROWS (24'): (2 EA @ 31 SF) = 62 SF
TYPE I ARROWS (10'): (2 EA @ 14 SF) = 28 SF
TYPE II ARROWS: (1 EA @ 45 SF) = 45 SF
TYPE III ARROWS: (5 EA @ 42 SF) = 210 SF
CROSSWALK = 186 SF
LIMIT LINE = 103 SF

CONCRETE:

DRIVEWAY, ADJACENT TO MISSOURI FLAT (600 SF)
CONCRETE = 11 CY, AB = 8 CY

SIDEWALK (376 SF)
CONCRETE = 7 CY, AB = 5 CY

CURB, TYPE A2–6 (92 LF)
CONCRETE = 6 CY, AB = 4 CY

DRAINAGE:

DRAINAGE INLET = 2 EA
18" RCP = 72 LF
18" PP = 70 LF
REGRADE DITCH = 19 CY

MISCELLANEOUS:

SAWCUT = 404 LF
COLDPLANE AT CONFORMS= 700 SF
AC DIKE (TYPE A) = 275 LF
RAISE SS MANHOLE TO GRADE = 1 EA
RAISE WATER VALVE LID TO GRADE = 1 EA
FENCE, CHAIN LINK (REMOVE) = 185 LF
FENCE, POST AND RAIL (REMOVE) = 68 LF
BLOCK WALL PLANTER (REMOVE) = 100 SF
SIGN "TRUE VALUE" (RELOCATE) = 1 EA
FENCE, CHAIN LINK = 158 LF
GATE, CHAIN LINK = 1 EA

Missouri Flat Road/Enterprise Drive Signal Improvements

Figure 4 provides an aerial overview of the existing lane configurations and overhead utilities at the intersection of Missouri Flat Road and Enterprise Drive. Similar to the Missouri Flat Road/Industrial Drive improvements, the proposed project would include installation of a new signal at the Missouri Flat Road/Enterprise Drive intersection. Intersection improvements would include installation of new traffic signal controller and cabinet, detector loops, and widening of both Missouri Flat Road and Enterprise Drive to accommodate turn lanes (see Figure 5). This is project #73365 of El Dorado County's CIP.

Missouri Flat Road would be widened north and south of the intersection for right and left turn lanes. In addition, Enterprise Drive would be widened to accommodate a left-turn lane at the intersection. Concrete curb ramps would be constructed to ADA standards at three of the intersection legs along with crosswalks to allow pedestrian access across Missouri Flat Road and Enterprise Drive. The roadway pavement sections of Missouri Flat Road and Enterprise Drive would be replaced within the limits of the proposed intersection improvements.

The proposed intersection improvements would require the reconstruction of several existing commercial driveways, including APNs 329-270-10, 329-260-06, 329-261-23, 329-261-17, 329-261-18, and 329-261-15. In addition, the project would require removal of a portion of the existing vegetation adjacent to Missouri Flat Road and Enterprise Drive. The vegetation consists of shrubs and trees, including gray pine, valley oak, and Coast live oak. Two utility poles and a fire hydrant would be relocated. Other utility impacts could include manhole and valve adjustments to grade with the widening and reconstruction of pavement section along Enterprise Drive. The project would install up to four new drop inlets and multiple storm drains to convey water from Enterprise Drive to the existing storm drain system along Missouri Flat Road.

Traffic Signal Improvement Timing

Utility relocation activities associated with implementation of the proposed traffic signal improvements would likely begin in summer of 2019. Traffic signal construction is anticipated to begin in 2020. The proposed traffic signal projects would likely occur at separate times; however, for the purposes of this analysis, the proposed improvements to the two intersections are assumed to occur simultaneously in order to provide a worst-case estimate of associated environmental impacts.

Figure 4
Existing Conditions: Missouri Flat Road/Enterprise Drive Intersection

Figure 5
Missouri Flat Road/Enterprise Drive Intersection – Signalization Improvements

QUANTITIES:

ROADWAY QUANTITIES:

ROADWAY EXCAVATION, ROAD SURFACE ONLY – ENTERPRISE DR = 825 CY
(DOES NOT INCLUDE EMBANKMENT EXCAVATION)

ENTERPRISE DR INTERSECTION IMPROVEMENTS – FULL SECTION: 5" HMA/15" AB
HMA = 827 TONS
AB = 1,267 CY

MISSOURI FLAT RD – SLURRY SEAL (TYPE 2) = 21 TONS

DRIVEWAY REHAB (ADJACENT TO ENTERPRISE DR) – FULL SECTION: 3" HMA/9" AB
HMA = 23 TONS
AB = 36 CY

STRIPING & MARKINGS:

DETAIL 21 = 174 LF
DETAIL 22 = 242 LF
DETAIL 27B = 1,912 LF
DETAIL 28 = 491 LF
DETAIL 29 = 120 LF
DETAIL 32 = 146 LF
DETAIL 38 = 425 LF
TYPE 'D' MARKERS = 43 EA
TYPE 'G' MARKERS = 18 EA
TYPE I ARROWS: (3 EA @ 31 SF) = 93 SF
TYPE II ARROWS: (2 EA @ 45 SF) = 90 SF
TYPE III ARROWS: (6 EA @ 42 SF) = 252 SF
TYPE IV ARROWS: (4 @ 15 SF) = 60 SF
CROSSWALK = 164 SF
LIMIT LINE = 95 SF

CONCRETE:

DRIVEWAY, ADJACENT TO MISSOURI FLAT RD (643 SF)
CONCRETE = 12 CY, AB = 8 CY

SIDEWALK (552 SF)
CONCRETE = 10 CY, AB = 7 CY

CURB, TYPE A2-6 (105 LF)
CONCRETE = 6 CY, AB = 5 CY

DRAINAGE:

MANHOLE (REMOVE) = 1 EA
DRAINAGE INLET (REMOVE) = 2 EA
DRAINAGE MANHOLE = 1 EA
DRAINAGE INLET = 4 EA
18" RCP = 147 LF

MISCELLANEOUS:

SAWCUT = 518 LF
COLDPLANE AT CONFORM= 775 SF
AC DIKE (TYPE A) = 438 LF
RAISE SS MANHOLE TO GRADE = 1 EA
RAISE WATER VALVE LID TO GRADE = 1 EA
RELOCATE FIRE HYDRANT = 1 EA
RELOCATE GATE, PGE FACILITY = 1 EA
RELOCATE BUSINESS SIGN = 5 EA

DRIVEWAY CONFORMS (ADJACENT TO ENTERPRISE DR)
HMA = 17 TONS
AB = 15 CY

ENVIRONMENTAL CHECKLIST

COMPARING CHANGES AND/OR NEW INFORMATION TO PREVIOUS ENVIRONMENTAL DOCUMENTS

The purpose of the checklist is to evaluate the categories in terms of any **"changes"** or **"new information"** that may result in a changed environmental impact evaluation. A "no" answer does not necessarily mean that there are no potential impacts relative to the environmental category, but that there is no relevant change in the condition or status of the impact due to its insignificance or its treatment in a previous environmental document.

EXPLANATION OF CHECKLIST EVALUATION CATEGORIES

Where Impact was Analyzed in Prior Environmental Documents
This column provides a reference to the pages of the other environmental documents where information and analysis may be found relative to the threshold listed under each topic.

Do Proposed Changes Involve New or More Severe Impacts?
Pursuant to Section 15162(a)(1) of the CEQA Guidelines, this column indicates whether the changes represented by the proposed project will result in new significant impacts or a substantial increase in the severity of a previously identified significant impact that have not already been evaluated and mitigated by the previous EIR. If a "yes" answer is given, additional mitigation measures acceptable to the applicant will be specified in the discussion section, including a statement of impact status after mitigation.

Any New Circumstances Involving New or More Severe Impacts?
Pursuant to Section 15162(a)(2) of the CEQA Guidelines, this column indicates whether there have been changes to the project site or the vicinity (environmental setting) that have occurred subsequent to the certification of the previous EIR that would result in new significant impacts or a substantial increase in the severity of a previously identified significant impact that were not evaluated and mitigated by the previous EIR. If a "yes" answer is given, additional mitigation measures acceptable to the applicant will be specified in the discussion section, including a statement of impact status after mitigation.

Any New Information of Substantial Importance?
Pursuant to Section 15162(a)(3) of the CEQA Guidelines, this column indicates whether there is new information of substantial importance which was not known and could have been known with the exercise of reasonable diligence at the time the previous EIR was certified. New information of substantial importance includes: (1) one or more significant effects not discussed in the previous EIR, (2) significant effects previously examined that are substantially more severe than shown in the previous EIR, (3) 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 (4) mitigation measures or alternatives that are considerably different from those analyzed in the previous EIR would substantially reduce one or more significant effects on the environment, but the project proponent declines to adopt the mitigation measure or alternative. If additional analysis is conducted and no new information of substantial importance is identified, no new or additional mitigation is necessary. If the additional analysis indicates new information of substantial importance, no additional environmental documentation is needed if it is found that a new or modified mitigation would eliminate a new significant impact or reduce the increase in severity to less than substantial.

Prior Environmental Document Mitigations Implemented or Address Impacts.
Pursuant to Section 15162(a)(3) of the CEQA Guidelines, this column indicates whether other environmental documents provide mitigation measures to address effects in the related impact category. If N/A is indicated, a previous environmental document and this initial study conclude that the impact does not occur with this project, and, therefore, no mitigation is needed.

DISCUSSION AND MITIGATION SECTIONS

Discussion:
A discussion of the elements of the checklist is provided under each environmental category in order to clarify the answers and provide substantial evidence supporting the impact conclusion. The discussion provides information about the particular environmental issue, how the project relates to the issue, and the status of any mitigation that may be required or that has already been implemented. The discussion is organized into four sections: Changes to the Project; Changes in Circumstances; Changes in Information; and Conclusion.

CEQA Topics

The proposed signal improvement projects would result in a limited potential to impact the physical environment. Therefore, it is reasonable and appropriate to focus this environmental analysis on those CEQA topics for which impacts may be triggered as a result of the signal projects. The environmental checklist presented herein focuses on the following CEQA issue areas which were analyzed in the Public Safety Facility EIR: Air Quality, Cultural Resources, Greenhouse Gas (GHG) Emissions, Noise, and Transportation and Circulation. Each topic is evaluated in detail within the corresponding checklist section. Remaining CEQA topics for which new impacts clearly would not occur as a result of the signal projects (e.g., public services, recreation, etc.) are summarily addressed in the section entitled “Remaining CEQA Topics.”

Prior CEQA Mitigation Measures:
Applicable mitigation measures from the previous environmental documents that apply to the changes or new information are referenced under each environmental category.

Environmental Issue Area	Where Impact Was Analyzed in Public Safety Facility EIR	Do Proposed Changes Involve New Significant Impacts or Substantially More Severe Impacts?	Any New Circumstances Involving New Significant Impacts or Substantially More Severe Impacts?	Any New Information of Substantial Importance?
Air Quality. Where available, the significance criteria established by the applicable air quality management or air pollution control district may be relied upon to make the following determinations. Would the project:				
a. Conflict with or obstruct implementation of the applicable air quality plan?	pg. 4.2-42 to 4.2-43	No	No	No
b. Violate any air quality standard or contribute substantially to an existing or projected air quality violation?	pg. 4.2-34 to 4.2-47	No	No	No
c. Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable federal or state ambient air quality standard (including releasing emissions which exceed quantitative thresholds for ozone precursors)?	pg. 4.2-42 to 4.2-43	No	No	No
d. Expose sensitive receptors to substantial pollutant concentrations?	pg. 4.2-37 to 4.2-40	No	No	No
e. Create objectionable odors affecting a substantial number of people?	pg. 4.2-40 to 4.2-41	No	No	No

Discussion:

Changes to the Project

Since certification of the EIR, the El Dorado Community Development Services, Transportation Department, has prepared signal plans for the intersections of Missouri Flat Road/Industrial Drive and Missouri Flat Road/Enterprise Drive. The project components have not been altered from the components analyzed in the 2016 EIR; rather, the aforementioned signal plans provide project-specific information that was not available at the time the EIR was prepared. In addition to the improvements to the intersections of Missouri

Flat Road/Industrial Drive and Missouri Flat Road/Enterprise Drive, Mitigation Measure 4.10-2(a) from the 2016 EIR required either signalization of the Missouri Flat Road/China Garden Road intersection or restricting the eastbound and westbound approaches to right turns only. As discussed in the Transportation/Traffic section of this Addendum, based upon additional review by the County, installation of a traffic signal at Missouri Flat Road/China Garden Road intersection is not preferred, because of the close proximity to other planned signals (i.e. Missouri Flat Road/Industrial Drive, Missouri Flat Road/Enterprise Drive, and Missouri Flat Road/Diamond Springs Parkway). As a result, this Addendum revises Mitigation Measure 4.10-2(a) to specifically require improvements at this intersection to prohibit eastbound and westbound through and left-turns with signage and a painted or raised median, rather than installation of a traffic signal. Accordingly, the proposed project does not involve changes that would result in new significant impacts or substantially more severe impacts.

Changes in Circumstances

Changes in circumstances that would affect the analysis of air quality impacts presented in the EIR have not occurred. The El Dorado County Air Quality Management District's (EDCAQMD) significance thresholds for reactive organic gasses (ROG) and nitrogen oxides (NO_X), which were presented in the 2016 EIR, remain applicable to the proposed project. Accordingly, new circumstances that would involve new significant impacts or substantially more severe impacts do not exist.

Changes in Information

The 2016 EIR included an analysis of the potential for the Public Safety Facility Project to result in excess criteria pollutant emissions during construction and operation. The project was modeled using the California Emissions Estimator Model (CalEEMod) version 2013.2.2 software - a statewide model designed to provide a uniform platform for government agencies, land use planners, and environmental professionals to quantify air quality emissions, including GHG emissions, from land use projects. The resultant criteria pollutant emissions were compared to the El Dorado County Air Quality Management District's (EDCAQMD) significance thresholds for reactive organic gasses (ROG) and nitrogen oxides (NO_X), shown in Table 1 below.

Table 1
EDCAQMD Thresholds of Significance

Pollutant	Construction/Operational Threshold (lbs/day)
ROG	82
NO_X	82

Source: El Dorado County Air Pollution Control District. Guide to Air Quality Assessment: Determining Significance of Air Quality Impacts Under the California Environmental Quality Act. February 2002.

As noted previously, at the time the 2016 EIR was certified, the specific design of the intersection improvements required by Mitigation Measures 4.10-2(b), 4.10-4, and 4.10-2(a) in the EIR were not known. As such, construction emissions associated with implementation of the improvements were not included in the project modeling.

With regard to the Missouri Flat Road/China Garden Road intersection, the proposed improvements would be limited to either installation of a painted or raised median. A painted median would not require any ground-disturbing activities. In the event that the County elects to install a raised median, construction activities would occur over approximately one week and would not require any heavy-duty construction equipment. As such, criteria pollutant emissions associated with the improvements would be relatively minor and would not conflict with the EDCAQMD significant thresholds shown in Table 1. Furthermore, criteria pollutant emissions from the median improvements would not combine with criteria pollutant emissions from other project phases, as the median improvements would occur separately. Thus, air quality impacts associated with the Missouri Flat Road/China Garden Road intersection improvements would be less than significant and are not discussed further.

During implementation of the proposed intersection improvements at Missouri Flat Road/Industrial Drive and Missouri Flat Road/Enterprise Drive, various types of equipment and vehicles would temporarily operate within the improvement areas. Construction exhaust emissions would be generated from vegetation clearing and earth movement activities, trenching for utility relocation, paving, construction workers' commute, and haul trucks used for soil and asphalt export. The aforementioned activities would involve the use of diesel- and gasoline-powered equipment that would generate emissions of criteria pollutants. In addition, construction activities represent sources of fugitive dust, which includes particulate matter (PM) emissions.

Although the EDCAQMD does not maintain a specific tool for roadway construction emissions modeling, the nearby Sacramento Metropolitan Air Quality Management District (SMAQMD) maintains the Road Construction Emissions Model (Roadmod) for roadway construction projects. In the absence of an EDCAQMD tool, the SMAQMD Roadmod tool was used to model construction emissions related to the proposed intersection improvements. The Roadmod modeling assumed the following information regarding the improvements:

- Signal construction activities would begin in June of 2019, following construction of the Public Safety Facility;
- The intersection improvements would occur over approximately one month;
- Improvements at the two intersections would disturb a total of 3.2 acres;
- Approximately one cubic yard (CY) of asphalt and 20 CY of soil would be exported during the grubbing/land clearing phase;
- Approximately 1,200 CY of soil would be exported during the grading/excavation phase;
- The haul trip length (two-way) for the grubbing/land clearing phase would be 3.6 miles; and
- The haul trip length (two-way) for the grading/excavation phase would be 1.0 mile.

As shown in Table 1 above, the EDCAQMD threshold of significance for construction is 82 lbs/day for ROG and NOx. Table 2 below presents the estimated construction-related emissions of ROG and NOx that would result from the proposed project. All Roadmod results are included as Attachment A to this Addendum.

Table 2
Maximum Unmitigated Construction Criteria Pollutant Emissions

Pollutant	Project Emissions (lbs/day)	EDCAQMD Significance Threshold (lbs/day)
ROG	6.78	82.0
NO_X	74.05	82.0
Source: Roadmod, July 2018 (see Attachment A).		

As shown in the table, short-term construction-related emissions of ROG and NO_X associated with the proposed intersection improvements would be below the thresholds of significance. According to the EDCAQMD, if ROG and NO_X mass emissions are determined not to be significant, then the assumption could be made that exhaust emissions of other air pollutants during construction would also not be significant.

The EDCAQMD screening approach for fugitive dust (PM_{10}) emissions is based on dust suppression measures that would prevent visible emissions beyond the boundaries of the project site. If such measures are incorporated into the design of the project, then further calculations to determine PM_{10} emissions is not necessary. Construction activities associated with the proposed improvements would be required to comply with all EDCAQMD rules and regulations for construction, including, but not limited to, the following, which would be noted on County-approved improvement plans:

- Rule 202 related to visible emissions;
- Rule 215 related to architectural coatings;
- Rule 223 related to fugitive dust; and
- Rule 224 related to cutback asphalt paving material.

Compliance with such rules and regulations would ensure that PM_{10} emissions would not be significant and would help to further reduce criteria pollutant emissions beyond the estimates shown in Table 2.

It should be noted that in addition to the above issues related to criteria pollutant emissions, the 2016 EIR included an analysis of whether development of the Public Safety Facility would expose sensitive receptors to substantial pollutant concentrations or create objectionable odors affecting a substantial number of people. The proposed intersection improvements would not occur within the vicinity of any sensitive receptors (i.e., residential development, hospitals, schools, etc.). In addition, the improvements would occur over a relatively short time period. Thus, the proposed project would not result in new or substantially more severe impacts related to substantial pollutant or odor exposure beyond what was previously analyzed in the 2016 EIR.

Conclusion

Based on the above, the proposed project would not result in any changes, new circumstances, or new information that would involve new significant impacts or substantially more severe impacts related to air quality from what has been anticipated for the project site in the 2016 EIR.

Prior CEQA Mitigation Measures:

The Public Safety Facility EIR does not include applicable mitigation measures related to air quality.

Environmental Issue Area	Where Impact Was Analyzed in Prior Environmental Documents.	Do Proposed Changes Involve New Significant Impacts or Substantially More Severe Impacts?	Any New Circumstances Involving New Significant Impacts or Substantially More Severe Impacts?	Any New Information of Substantial Importance?
Biological Resources. Would the project:				
a. Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Game or U.S. Fish and Wildlife Service?	pg. 4.3-23 to 4.3-24	No	No	No
b. Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations or by the California Department of Fish and Game or US Fish and Wildlife Service?	pg. 4.3-25 to 4.3-26	No	No	No
c. Have a substantial adverse effect on federally protected wetlands as defined by Section 404 of the Clean Water Act (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means?	pg. 4.3-25 to 4.3-26	No	No	No
d. Interfere substantially with the movement of any native resident or migratory fish and wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites?	pg. 4.3-26	No	No	No
e. Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?	pg. 4.3-27 to 4.3-28	No	No	No
f. Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community	pg. 4.0-2	No	No	No

Conservation Plan, or other approved local, regional, or state habitat conservation plan?				

Discussion:

Changes to the Project

The project components have not been altered from the components analyzed in the 2016 EIR; rather, the aforementioned signal plans provide project-specific information that was not available at the time the EIR was prepared. Accordingly, the proposed project does not involve changes that would result in new significant impacts or substantially more severe impacts.

Changes in Circumstances

Changes in circumstances with respect to biological resources have not occurred. The Public Safety Facility EIR was certified by the Board of Supervisors in 2016 and the physical conditions of the roadway improvement areas, existing at the time of certification, remain today.

Changes in Information

The additional design-level information provided for the Industrial Drive/Missouri Flat Road and Enterprise Drive/Missouri Flat Road intersections warrants consideration in this Addendum with respect to whether impacts from these improvements could result in adverse effects to biological resources. First, it is noted that the proposed improvement areas do not contain riparian or other sensitive natural communities identified in local or regional plans. In addition, the improvement areas do not function as wildlife movement corridors given the lack of contiguous habitats and the impediments to wildlife travel (e.g., developed properties, roadways).

Habitat for wildlife is limited to the mature trees within the Enterprise Drive/Missouri Flat Road improvement area. While there is some vegetation at the northwest corner of the Industrial Drive/Missouri Flat Road intersection, this vegetation is non-native landscaping consisting of shrubbery. Reducing the height of this shrubbery to improve sight distance at the intersection would not result in habitat impacts that could affect special-status wildlife. The mature trees within the Enterprise Drive/Missouri Flat Road signal improvement area consist of the following:

Tag #	Diameter at Breast Height (inches)	Description	Notes
5824	21.36	Valley Oak	Located along Missouri Flat Road, at southwest corner of Enterprise Drive/Missouri Flat Road intersection
5833	14.88	Valley Oak	Located on south side of Enterprise Drive, along existing PG&E property fence line
5829	25.56	Valley Oak	Located on south side of Enterprise Drive, west of entrance driveway to PG&E property
5834	9.6	Coast Live Oak	FORKED. Located on south side of Enterprise Drive.
	6.84		
5836	5.4	Coast Live Oak	FORKED. Located on south side of Enterprise Drive.
	4.92		
	7.2		
5837	21	Coast Live Oak	Located on south side of Enterprise Drive.
5832	7.68	Gray Pine	FORKED. Located on south side of Enterprise Drive.
	8.76		
5838	12.24	Gray Pine	Located on south side of Enterprise Drive.

These existing trees could provide habitat for nesting migratory birds protected under the federal Migratory Bird Treat Act. However, if nesting birds are present in these trees prior to their removal for the proposed signal improvements, they would be protected via implementation of the preconstruction survey mitigation measure within the Public Safety Facility EIR. Mitigation Measure 4.3-2 of the EIR requires preconstruction surveys prior to construction, and if nesting birds are detected, implementation of non-disturbance nest

buffers until the young have fledged. Compliance with Mitigation Measure 4.3-2 from the Public Safety Facility EIR, as presented below, would still be required to be implemented for the proposed signal projects. Thus, the proposed project would not cause any new impacts, or previously identified impacts to become more severe than previously analyzed, related to protected wildlife.

With respect to the project's potential to conflict with local policies or ordinances protecting biological resources, such as a tree protection ordinance, El Dorado County Board of Supervisors approved the General Plan Biological Resources Policy Update Project on October 24, 2017, which included adoption of an Oak Resources Conservation Ordinance (Ord. No. 5061). Section 130.39.050 exempts County Road Projects from mitigation requirements, with the exception of valley oak trees, heritage trees, and oak woodlands. Heritage Trees are defined by the ordinance as any native live oak tree of the genus Quercus with a single main trunk measuring 36 inches diameter at breast height (dbh) or greater, or with a multiple trunk with an aggregate trunk diameter measuring 36 inches or greater. As shown in the above table, no trees proposed for removal meet the criteria for a Heritage Tree. In addition, the trees are not part of an oak woodland as defined in Ordinance 5061. The signal projects, however, would require the removal of three valley oak trees. Mitigation for loss of valley oaks can be mitigated through in-lieu fee payment to the Oak Woodland Conservation Fund (Ord. 5061 Sec. 130.39.060(E)). The applicant will thus comply with Ordinance 5061 by providing the in-lieu fee payment to the Oak Woodland Conservation Fund prior to removal of the valley oak trees. In addition, Mitigation Measure 4.3-5 of the Public Safety Facility EIR requires implementation of tree protection methods during construction. These protection methods would ensure that trees not requiring removal to accommodate the signal projects would be protected during construction.

Conclusion

Based on the above, the proposed project would not result in any changes, new circumstances, or new information that would involve new significant impacts or substantially more severe impacts related to biological resources from what has been anticipated for the project site in the 2016 EIR.

Prior CEQA Mitigation Measures:

Mitigation Measure 4.3-2 from the 2016 EIR would apply to the proposed project.

4.3-2 *Prior to issuance of a grading permit for development, a pre-construction nesting bird survey shall be conducted on-site within 14 days prior to site clearing if site clearing associated with the project would commence between March 1st and August 15th ("the nesting season in northern California"). If disturbance associated with the project would occur outside of the nesting season, no surveys shall be required. The written results of the pre-construction survey shall be submitted to the County Community Development Services Division. If migratory birds are identified as nesting on the project site, a non-disturbance buffer of 75 feet shall be established or as otherwise prescribed by a qualified ornithologist. If raptors are identified as nesting on the project site, a non-disturbance buffer of 500 feet shall be established or as otherwise prescribed by a qualified ornithologist. The buffer shall be demarcated with painted orange lath or via the installation of orange construction fencing. Disturbance within the buffer shall be*

postponed until a qualified ornithologist has determined that the young have attained sufficient flight skills to leave the area or that the nesting cycle has otherwise completed.

4.3-5(b) *Prior to Grading Plan approval, the plans shall include a list of tree protection methods, for review and approval by the County Community Development ~~Agency~~ Services. The list of tree protection methods shall be implemented during construction of the project. The list of tree protection methods shall include, but not necessarily limited to, the following:*

- *The applicant shall hire an International Society of Arboriculture (ISA) certified arborist to be present on-site during all grading, construction, and tree removal activities. The arborist shall evaluate all proposed improvements that may affect each native tree to be preserved, make recommendations on these proposed improvements, and oversee construction of these improvements during site development to ensure that the appropriate trees are removed or preserved in compliance with the tree removal permit and approved Improvement Plans.*
- *The applicant shall install a four-foot tall, brightly colored (yellow or orange), synthetic mesh material fence around all oak trees to be preserved that are greater than six inches DBH (or 10 inches DBH aggregate for multi-trunked trees). The fencing shall delineate an area that is at least the radius of which is equal to the largest radius of the protected tree's drip line plus one foot. The fence shall be installed prior to any site preparation or construction equipment being moved onsite or any site preparation or construction activities taking place. Development of this site, including grading, shall not be allowed until this condition is satisfied. Any encroachment within the areas listed above, including within driplines of trees to be saved, must first be approved by a designated representative of ~~the~~ Community Development ~~Agency~~Services. Grading, clearing, or storage of equipment or machinery may not occur until a representative of ~~the~~ Community Development ~~Agency~~Services has inspected and approved all temporary construction fencing. Trees shall be preserved where feasible. This may include the use of retaining walls, planter islands, or other techniques commonly associated with tree preservation. The Grading/Improvement Plans shall indicate the location of the fencing and include a note describing the fencing requirements consistent with this mitigation measure.*
- *The project applicant shall implement the following guidelines before and during grading and construction for protection of all oak trees to be preserved:*
    - *Plans and specifications shall clearly state protection procedures for oak trees on the project site. The specifications shall also include a provision for remedies if oak trees are damaged;*
    - *Before construction commences, those oak trees within 25 feet of construction sites shall be pruned and the soil aerated and fertilized;*
    - *Vehicles, construction equipment, mobile offices, or materials shall not be parked, stored, or operated within the driplines of oak trees to be preserved;*
    - *Cuts and fills around trees shall be avoided where feasible.*
    - *Soil surface removal greater than one foot shall not occur within the driplines of oak trees to be preserved. Cuts shall not occur within five feet of their trunks;*
    - *Earthen fill greater than one foot deep shall not be placed within the driplines of oak trees to be preserved, and fill shall not be placed within five feet of their trunks;*

- *Underground utility line trenching shall not be placed within the driplines of oak trees to be preserved where feasible without first obtaining approval from a designated representative of the Community Development ~~Agency~~Services. If it is necessary to install underground utilities within the driplines of oak trees, boring or drilling rather than trenching shall be used;*
- *Paving shall not be placed in the vicinity of oak trees to be preserved (at a minimum, within the dripline of any oak tree) without first obtaining approval from a designated representative of ~~the~~ Community Development ~~Agency~~Services; and*
- *Irrigation lines or sprinklers shall not be allowed within the dripline of native oak trees.*

Environmental Issue Area	Where Impact Was Analyzed in the Public Safety Facility EIR.	Do Proposed Changes Involve New Significant Impacts or Substantially More Severe Impacts?	Any New Circumstances Involving New Significant Impacts or Substantially More Severe Impacts?	Any New Information of Substantial Importance?
Cultural Resources. Would the project:				
a. Cause a substantial adverse change in the significance of a historical resource as defined in Section 15064.5?	pg. 4.4-11 to 4.4-13	No	No	No
b. Cause a substantial adverse change in the significance of an archaeological resource pursuant to Section 15064.5?	pg. 4.4-11 to 4.4-13	No	No	No
c. Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?	pg. 4.4-11 to 4.4-13	No	No	No
d. Disturb any human remains, including those interred outside the dedicated cemeteries?	pg. 4.4-11 to 4.4-13	No	No	No

Discussion:

Changes to the Project

The project components have not been altered from the components analyzed in the 2016 EIR; rather, the aforementioned signal plans provide project-specific information that was not available at the time the EIR was prepared. Accordingly, the proposed project does not involve changes that would result in new significant impacts or substantially more severe impacts.

Changes in Circumstances

At the time the EIR was certified, the County's Environmental Checklist did not include a specific question regarding a project's potential impacts resulting from an adverse change to a significant tribal cultural resource; however, the EIR included results of a search of the Native American Heritage Commission (NAHC) Sacred Lands File, which failed to indicate the presence of known tribal cultural resources in the immediate project area. In addition, the environmental setting of the proposed signal improvement areas has not changed such that a new significant impact or substantial increase in the severity of a previously identified significant impact could

occur. AB 52 consultation was not required for the reasons stated on pages 4.4-8 to 4.4-9 of the EIR. Accordingly, new circumstances that would involve new significant impacts or substantially more severe impacts do not exist.

Changes in Information

The proposed intersection improvement areas do not contain any existing permanent structures or any other resources that could be considered historic resources. Furthermore, a new records search of the California Historical Resources Information System (CHRIS) was performed for this Addendum to determine whether the improvement areas contain any recorded cultural resources. According to the records search, the potential for locating historic-period cultural resources in the immediate vicinity of the proposed improvement areas is low based on the extent of known cultural resources and the existing environmental setting.[1] Known historic-period cultural resources have not been identified within the improvement areas.

Per the CHRIS search, within the project region, archaeologists typically locate prehistoric-period habitation sites "along streams or on ridges or knolls, especially those with southern exposure." The region is known as the ethnographic-period territory of the Nisenan, also called the Southern Maidu. The Nisenan maintained permanent settlements along major rivers in the Sacramento Valley and foothills and periodically traveled to higher elevations. The proposed intersection improvement areas are situated in the Sierra Nevada foothills, approximately one mile south of Weber Creek, the nearest major watercourse. Given the limited extent of known cultural resources and the environmental setting, the potential for locating unique archaeological or paleontological resources, human remains, or tribal cultural resources in the immediate vicinity of the proposed improvement areas is anticipated to be low. The proposed intersection improvements would occur within previously disturbed areas consisting of either utility, roadway, and/or drainage improvements. The earthwork required for the signal projects would require limited incursions into native soils that have not been previously disturbed. If native soils are encountered, the EIR includes mitigation measures to ensure that any identified cultural resources would not be adversely affected. Compliance with the mitigation measures from the Public Safety Facility EIR, as presented below, would still be required to be implemented for the proposed signal projects.

Overall, the proposed project would not cause any new impacts, or previously identified impacts to become more severe than previously analyzed, related to cultural resources.

Conclusion

Based on the above, the proposed project would not result in any changes, new circumstances, or new information that would involve new significant impacts or substantially more severe impacts related to cultural resources from what has been anticipated for the project site in the 2016 EIR.

[1] North Central Information Center. *Records Search Results for Public Safety Facility Project*. July 12, 2018.

Prior CEQA Mitigation Measures:

Mitigation Measures 4.4-1(a) and 4.4-1(b) from the 2016 EIR would apply to the proposed project.

4.4-1(a) *If buried archeological resources, such as chipped or ground stone, historic debris, building foundations, or buried paleontological resources are discovered during ground disturbing activities, work shall stop in that area, and within 100 feet of the find, until a qualified archaeologist can assess the significance of the find and, if necessary, develop appropriate treatment measures in consultation with the County and other appropriate agencies. Possible management recommendations for historical or unique archaeological resources could include resource avoidance (i.e., preservation in place) or data recovery excavations where avoidance is infeasible in light of project design or layout, or is unnecessary to avoid significant effects. These recommendations shall be included on the project grading plans prior to their approval.*

4.4-1(b) *If human remains of Native American origin are discovered during project construction, State laws relating to the disposition of Native American remains in coordination with the NAHC (PRC 5097.98) must be complied with. If any human remains are discovered or recognized in any location other than a dedicated cemetery, work shall stop in that area and within 100 feet of the find until:*

- *The County coroner has been informed and has determined that investigation of the cause of death is not required; and*
- *If the remains are of Native American origin, the descendants of the deceased Native Americans have made a recommendation to the landowner or the person responsible for the excavation work for means of treating or disposing of, with appropriate dignity, the human remains and any associated grave goods as provided in PRC 5097.98;*

Or

- *The NAHC was unable to identify a descendant, or the descendant failed to make a recommendation within 24 hours after being notified by the Commission.*

These recommendations shall be included on the project grading plans prior to their approval.

Environmental Issue Area	Where Impact Was Analyzed in the Public Safety Facility EIR	Do Proposed Changes Involve New Significant Impacts or Substantially More Severe Impacts?	Any New Circumstances Involving New Significant Impacts or Substantially More Severe Impacts?	Any New Information of Substantial Importance?
Greenhouse Gas Emissions. Would the project:				
a. Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment?	pg. 4.2-44 to 4.2-46	No	No	No
b. Conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emission of greenhouse gases?	pg. 4.2-44 to 4.2-46	No	No	No

Discussion:

Changes to the Project

The project components have not been altered from the components analyzed in the 2016 EIR; rather, the aforementioned signal plans provide project-specific information that was not available at the time the EIR was prepared. Accordingly, the proposed project does not involve changes that would result in new significant impacts or substantially more severe impacts.

Changes in Circumstances

Changes in circumstances that would affect the analysis of GHG emissions impacts presented in the EIR have not occurred. The thresholds for GHG emissions recommended by the EDCAQMD, which are presented in the 2016 EIR, remain applicable to the proposed project. Accordingly, new circumstances that would involve new significant impacts or substantially more severe impacts do not exist.

Changes in Information

The EDCAQMD has not formally adopted thresholds for evaluating GHG emissions but, rather, has recommended the use of thresholds adopted by the Sacramento Metropolitan Air Quality Management District (SMAQMD). SMAQMD's threshold for land development and construction projects is 1,100 metric tons of CO_2 equivalents ($MTCO_2e$/yr), the common unit of measurement for GHG emissions. If a

proposed project results in emissions in excess of 1,100 $MTCO_2e$/yr during either construction or operation, the proposed project would be anticipated to result in a significant impact related to GHG emissions.

As noted above, as part of the 2016 EIR, GHG emissions associated with construction of the Public Safety Facility were modeled using CalEEMod version 2013.2.2 software and compared to the 1,100 $MTCO_2e$/yr threshold. However, because the specific design of the intersection improvements required by Mitigation Measures 4.10-2(b) and 4.10-4 in the EIR were not known, construction GHG emissions associated with implementation of the improvements were not included in the project modeling.

Construction of the proposed intersection improvements would cumulatively contribute to increases of GHG emissions. Estimated GHG emissions attributable to the improvements would be primarily associated with increases of carbon dioxide (CO_2) and, to a lesser extent, other GHG pollutants, such as methane (CH_4) and nitrous oxide (N_2O) associated with operation of diesel construction equipment and haul trucks. The common unit of measurement for GHG is expressed in terms of annual metric tons of CO_2 equivalents ($MTCO_2e$/yr). In order to quantify GHG emissions attributable to the proposed improvements, the improvements were modeled using SMAQMD's Roadmod tool using the same assumptions discussed under the Air Quality section of this Addendum. Table 3 below presents the estimated construction-related GHG emissions that would result from the proposed project. All Roadmod results are included as Attachment A to this Addendum.

Table 3
Unmitigated Construction GHG Emissions

Phase	Total Intersection Improvement GHG Emissions ($MTCO_2e$)	Threshold of Significance ($MTCO_2e$/yr)
Grubbing/Land Clearing	6.68	
Grading/Excavation	23.52	
Drainage/Utilities/Sub-Grade	14.33	
Paving	2.01	
Total	**46.53**	**1,100**

Source: Roadmod, July 2018 (see Attachment A).

As shown in the table, the proposed improvements would generate a total of 45.74 $MTCO_2e$, which is below the applicable 1,100 $MTCO_2e$/yr threshold of significance. It should be noted that the emissions estimates presented in Table 3 do not include emissions associated with installation a painted or raised median at the Missouri Flat Road/China Garden Road intersection, as required by Mitigation Measure 4.10-2(a) from the 2016 EIR. However, as discussed in the Air Quality section of this Addendum, neither improvement option would require any substantial ground-disturbing activities. In the event that the County elects to install a raised median, construction activities would occur over approximately one week and would not require any heavy-duty construction equipment. In addition, emissions from the median improvements would not combine with GHG emissions from other project phases, as the median improvements would occur separately. Thus, GHG emissions associated with improvements to the Missouri Flat

Road/China Garden Road intersection would be relatively minor and would not significantly contribute towards the applicable 1,100 $MTCO_2e$/yr threshold. GHG emissions associated with the median improvements are not discussed further.

It should be noted that while the proposed signal improvements would occur after construction of the Public Safety Facility project has been completed, the construction emissions associated with the signal improvements and the Public Safety Facility project could potentially occur within the same calendar year. The applicable SMAQMD threshold for construction GHG emissions is based on total yearly emissions, rather than daily emissions as is used for criteria pollutants. Consequently, the GHG emissions associated with the on-site improvements included in the Public Safety Facility project have been added to the signal improvement GHG emissions shown in Table 3, thus providing a worst-case estimate of annual construction emissions. Per the 2016 EIR, construction activity related to implementation of the Public Safety Facility would result in maximum annual emissions of 922.96 $MTCO_2e$/yr. The combined emissions of the Public Safety Facility and the proposed signal improvements would be 969.49 $MTCO_2e$/yr, which remains below the applicable 1,100 $MTCO_2e$/yr threshold of significance.

Based on the above, whether considered separately or together with construction emissions from the Public Safety Facility project, completion of the proposed intersection improvements would not result in new or more severe impacts related to GHG emissions beyond what was previously analyzed in the 2016 EIR.

Conclusion

Based on the above, the proposed project would not result in any changes, new circumstances, or new information that would involve new significant impacts or substantially more severe impacts related to GHG emissions from what has been anticipated for the project in the 2016 EIR.

Prior CEQA Mitigation Measures:

The Public Safety Facility EIR does not include applicable mitigation measures related to GHG emissions, as impacts were determined to be less-than-significant.

Environmental Issue Area	Where Impact Was Analyzed in the Public Safety Facility EIR.	Do Proposed Changes Involve New Significant Impacts or Substantially More Severe Impacts?	Any New Circumstances Involving New Significant Impacts or Substantially More Severe Impacts?	Any New Information of Substantial Importance?
Noise. Would the project:				
a. Exposure of persons to or generation of noise levels in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies?	pg. 4.9-24 to 4.9-31	No	No	No
b. Exposure of persons to or generation of excessive groundborne vibration or groundborne noise levels?	pg. 4.9-23 to 4.9-24	No	No	No
c. A substantial permanent increase in ambient noise levels in the project vicinity above levels existing without the project?	pg. 4.9-24 to 4.9-31	No	No	No
d. A substantial temporary or periodic increase in ambient noise levels in the project vicinity above levels existing without the project?	pg. 4.9-21 to 4.9-23	No	No	No
e. For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project expose people residing or working in the project area to excessive noise levels?	pg. 4.9-16	No	No	No
f. For a project within the vicinity of a private airstrip, would the project expose people residing or working in the project area to excessive noise levels?	pg. 4.9-16	No	No	No

Discussion:

Changes to the Project

The project components have not been altered from the components analyzed in the 2016 EIR such that the intensity of on-site use would increase and result in further elevated operational noise levels; rather, the aforementioned signal plans provide project-specific information that was not available at the time the EIR was prepared. Accordingly, the proposed project does not involve changes that would result in new significant noise impacts or substantially more severe impacts.

Changes in Circumstances

Changes in circumstances that would affect the analysis of noise and vibration impacts presented in the EIR have not occurred. Accordingly, new circumstances that would involve new significant impacts or substantially more severe impacts do not exist.

Changes in Information

The 2016 EIR included an analysis of on-site construction noise associated with the Public Safety Facility structures and associated improvements. As noted in the EIR, many jurisdictions exempt construction noise during normal, daytime hours (7 AM to 7 PM). However, Policy 6.5.1.11 of the Noise Element of El Dorado County sets daytime noise level limits for construction noise. The predicted construction noise levels associated with the project were determined to exceed the County's 55 decibel (dB) hourly average (L_{eq}) daytime limit for construction noise impacting residential properties. Mitigation Measure 4.9-1 was included in the EIR to help reduce construction noise levels. However, because feasible mitigation was not available to ensure that the County's daytime limit was not exceeded, the impact was determined to remain significant and unavoidable. Nevertheless, it was acknowledged in the EIR that many jurisdictions exempt construction noise during normal, daytime hours, given their temporary nature (see EIR p. 4.9-22). Since certification of the EIR, the El Dorado County Board of Supervisors amended their General Plan on December 15, 2015 via Resolution 196-2015 to revise Policy 6.5.1.11 to clarify that the construction noise standards in Table 6-4 of the General Plan Noise Element (see Table 4.9-8 of the Public Safety Facility EIR) shall not apply to those activities associated with actual construction of a project as long as such construction occurs between the hours of 7 AM and 7 PM., Monday through Friday, and 8 AM and 5 PM on weekends, and on federally-recognized holidays. Thus, El Dorado County's revised policy related to construction noise now comports with the typical approach taken by other California jurisdictions.

Construction noise associated with implementation of the proposed signal improvements would occur within the above-specific hours, as required by General Plan Policy 6.5.1.11. In addition, the noise levels would be relatively minimal and would occur over a short period of time (approximately one month) in a primarily industrial area. Such construction activities would be subject to Mitigation Measure 4.9-1 from the EIR, which would minimize excess noise generation. Overall, the proposed project would not cause any new impacts, or previously identified impacts to become more severe than previously analyzed, related to noise.

Conclusion

Based on the above, the proposed project would not result in any changes, new circumstances, or new information that would involve new significant impacts or substantially more severe impacts related to noise resources from what has been anticipated for the project site in the 2016 EIR.

Prior CEQA Mitigation Measures:

Mitigation Measure 4.9-1 from the 2016 EIR would apply to the proposed project.

4.9-1 *The following criteria shall be included in the grading plan submitted by the applicant for review and approval by the El Dorado County Community Development ~~Agency~~Services prior to issuance of grading permits:*

- *A. Equipment shall be well maintained with effective exhaust mufflers and intake silencers where applicable. Mufflers shall meet the equipment manufacturer's specifications and be free of rust, holes, and exhaust leaks. Construction contractors should select the quietest equipment possible with included optional noise control measures where feasible.*
- *B. Construction techniques and equipment that minimizes noise and vibration will be implemented into the construction plan.*
- *C. Combine noisy operations to occur during the same period. The total noise level produced will not be significantly greater than the level produced if the operations were performed separately.*
- *D. Plan noisiest equipment and activities during daytime hours with the highest background sound levels.*
- *E. To the extent feasible, place the loudest equipment and activities on the construction area as far as possible from noise-sensitive locations.*
- *F. Contractors shall utilize existing site electrical power where possible to avoid operating diesel-powered generators.*
- *G. Avoid excessive engine revving using lower engine speed where possible and turn off idling equipment. Do not use engine braking. Haul trucks should coast by residential properties under as low of engine speed as possible while avoiding heavy braking.*
- *H. The contractor shall designate a "noise disturbance coordinator" who will be responsible for responding to any local complaints about construction noise. The disturbance coordinator would determine the cause of the noise complaint (e.g., starting too early, bad muffler, etc.) and institute reasonable measures as warranted to correct the problem to the satisfaction of the El Dorado County Community Development ~~Agency~~Services. A telephone number for the disturbance coordinator shall be conspicuously posted at the construction site.*

The above measures shall be utilized during construction, to the extent feasible, as determined by the El Dorado County Community Development ~~Agency~~Services.

Environmental Issue Area	Where Impact Was Analyzed in Public Safety Facility EIR.	Do Proposed Changes Involve New Significant Impacts or Substantially More Severe Impacts?	Any New Circumstances Involving New Significant Impacts or Substantially More Severe Impacts?	Any New Information of Substantial Importance?
Transportation/Traffic. Would the project:				
a. Conflict with an applicable plan, ordinance or policy establishing measures of effectiveness for the performance of the circulation system, taking into account all modes of transportation including mass transit and non-motorized travel and relevant components of the circulation system, including but not limited to intersections, streets, highways and freeways, pedestrian and bicycle paths, and mass transit?	pg. 4.10-30 to 4.10-42 and 4.10-47 to 4.10-50	No	No	No
b. Conflict with an applicable congestion management program, including, but not limited to level of service standards and travel demand measures, or other standards established by the county congestion management agency for designated roads or highways?	pg. 4.10-30 to 4.10-42 and 4.10-47 to 4.10-50	No	No	No
c. Result in a change in air traffic patterns, including either an increase in traffic levels or a change in location that results in substantial safety risks?	pg. 4.10-17	No	No	No
d. Substantially increase hazards due to design features (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)?	pg. 4.10-42 to 4.10-43	No	No	No
e. Result in inadequate emergency access?	pg. 4.10-17	No	No	No
f. Conflict with adopted policies, plans, or programs regarding public transit, bicycle, or pedestrian facilities, or otherwise decrease the performance or safety of such facilities?	pg. 4.10-43 to 4.10-44	No	No	No

Discussion:

Changes to the Project

The project components have not been altered from the components analyzed in the 2016 EIR; rather, the aforementioned signal plans provide project-specific information that was not available at the time the EIR was prepared. Accordingly, the proposed project does not involve changes that would result in new significant impacts or substantially more severe impacts.

Changes in Circumstances

Changes in circumstances that would affect the analysis of transportation and circulation impacts presented in the EIR have not occurred. The geometries of the Missouri Flat Road/Industrial Drive and Missouri Flat Road/Enterprise Drive intersections have not been altered since certification of the EIR. Accordingly, new circumstances that would involve new significant impacts or substantially more severe impacts do not exist.

Changes in Information

The purpose of this Addendum is to determine whether the implementation of the intersection signal improvements, combined with traffic associated with buildout of the Public Safety Facility and other planned buildout in the County, would result in new or substantial increase in severity of significant traffic impacts identified in the 2016 EIR. To answer these questions, El Dorado County Transportation Department conducted a Traffic Operations Analysis (see Attachment B).[2] The Traffic Operations Analysis also included an analysis of potential safety hazards and access issues at existing driveways on Missouri Flat Road that could be affected by the proposed improvements.

It should be noted that the proposed project would not include any changes that would affect air traffic patterns, including either an increase in traffic levels or a change in location that results in substantial safety risks. In addition, the project would not conflict with adopted policies, plans, or programs regarding public transit, bicycle, or pedestrian facilities, or otherwise decrease the performance or safety of such facilities. Thus, impacts related to such are not discussed further in this Addendum.

Methodology and Thresholds of Significance

The Traffic Operations Analysis evaluates the intersections based on the AM and PM peak hour traffic operations. The analysis assigned a Level of Service (LOS) to the intersections for each peak hour to describe existing and future traffic operations. LOS is a qualitative measure of traffic operating conditions ranging from LOS A to LOS F. The grades are assigned based on the average duration of delay associated with a given traffic control device. In general, LOS A represents free-flow conditions with very little delay,

[2] El Dorado County Department of Transportation. *Traffic Operations Analysis for the Missouri Flat Road Improvement Project.* August 14, 2018.

while LOS F represents over-capacity conditions with long delays and queues. The study intersections were analyzed using the procedures and methodologies contained in the 2016 Highway Capacity Manual (HCM) prepared by the Transportation Research Board.

At signalized intersections, LOS is based on the average control delay for the entire intersection. At side-street stop-controlled intersections, the LOS is based on the delay reported for the worst turning movement (i.e., the turning movement with the highest delay). Table 4 displays the delay range associated with each LOS category for signalized and unsignalized intersections.

The HCM methodologies were applied using the micro-simulation software package, SimTraffic 10. Typical HCM methodology provides a calculation of LOS by accounting for traffic levels, peak hour factors, traffic signal timings, lane configurations, speed limits, and other inputs. In addition, micro-simulation analysis also accounts for turn pocket lengths, driver behavior, distance between intersections, vehicle platooning, and other traffic progression factors.

Table 4
Intersection LOS Criteria

LOS	Average Delay (sec/veh)		Description
	Signalized	Unsignalized	
A	< 10.0	< 10.0	Very low delay. At signalized intersections, most vehicles do not stop.
B	10.0 to 20.0	10.0 to 15.0	Generally good progression of vehicles. Slight delays.
C	20.1 to 35.0	15.1 to 25.0	Fair progression. At signalized intersections, increased number of stopped vehicles.
D	35.1 to 55.0	25.1 to 35.0	Noticeable congestion. At signalized intersections, large portion of vehicles stopped.
E	55.1 to 80.0	35.1 to 50.0	Poor progression. High delays and frequent cycle failure.
F	> 80.0	> 50.0	Oversaturation. Forced flow. Extensive queuing.

Source: El Dorado County, Traffic Operations Analysis for the Missouri Flat Road Improvement Project, 2018.

The LOS at both intersections was evaluated against General Plan Policy TC-Xd, which states, in part, “Level of Service (LOS) for County-maintained roads and state highways within the unincorporated areas of the county shall not be worse than LOS E in the Community Regions.” The following four study intersections were evaluated in the Traffic Operations Analysis:

1. Missouri Flat Road/China Garden Road;
2. Missouri Flat Road/Industrial Drive;
3. Missouri Flat Road/Enterprise Drive; and
4. Missouri Flat Road/Pleasant Valley Road.

All of the study intersections are located within the El Dorado/Diamond Springs Community Region. Therefore, intersections that operate at LOS F are considered deficient. Per the County, the proposed project would be considered to result in a significant impact if improvements associated with the Public Safety Facility Project, including the proposed intersection improvements, would cause an intersection to degrade from LOS E or better to LOS F. For intersections that currently operate at LOS F, a significant impact would occur if the project would substantially worsen operations. General Plan Policy TC-Xe defines "worsen" as any of the following:

A. A two percent increase in total daily traffic volumes or AM/PM peak hour volumes;
B. An addition of 100 or more daily trips; or
C. An addition of 10 or more trips during the AM or PM peak hours.

Operations at the four study intersections were evaluated under the following scenarios:

- **Existing conditions:** Existing traffic volumes and lane configurations based on traffic counts conducted in May 2018 when local schools were in session.
- **Existing Plus Project conditions:** Traffic volumes with the proposed signalization and associated improvements completed. The Existing Plus Project conditions include vehicle traffic associated with full buildout of the Public Safety Facility site, as determined in the certified 2016 EIR.
- **Cumulative Year 2040 conditions:** Traffic forecasts and anticipated lane configurations for Year 2040. The Cumulative Year 2040 conditions assume completion of roadway and development projects planned to be in place by 2040.
- **Cumulative Year 2040 Plus Project conditions:** Cumulative Year 2040 conditions with the proposed signalization and associated improvements completed.

Existing Conditions

The traffic volumes collected in May 2018 were used to analyze the LOS under Existing conditions without the proposed intersection improvements. Currently, both of the study intersections are unsignalized with side street stop control. A single-lane approach is provided for the side street approach at both intersections.

Per the Traffic Operations Analysis, during the AM peak hour, the intersection of Missouri Flat Road/Enterprise Drive operates at LOS F, while all other intersections operate at LOS E or better. During the PM peak hour, three of the four study intersections operate unacceptably at LOS F, including Missouri Flat Road/China Garden Road, Missouri Flat Road/Industrial Drive, and Missouri Flat Road/Enterprise Drive.

Existing Plus Project Conditions

For the Existing Plus Project conditions, traffic operations were evaluated with both signals and associated intersection improvements in place. The traffic signals would be coordinated from Pleasant Valley Road (SR 49) through Industrial Drive. The Existing Plus Project conditions assume that all on-site improvements associated with the Public Safety Facility are complete and the Facility is operational.

The proposed traffic signals would improve traffic operations for the side streets at both the Missouri Flat Road/Industrial Drive and Missouri Flat Road/Enterprise Drive intersections. The improvements are expected to draw more traffic on the side street at Enterprise Drive, as the road serves a major employment area in Diamond Springs. Thus, under Existing Plus Project conditions, traffic was redistributed to account for additional side street demand at the Missouri Flat Road/Enterprise Drive intersection.

As shown in Table 5 below, three of the four study intersections would operate acceptably (LOS E or better) under Existing Plus Project conditions. However, the proposed intersection improvements, combined with the increase in traffic from the Public Safety Facility, would add more than 10 trips to the Missouri Flat Road/China Garden Road intersection, which would operate unacceptably (LOS F) under both Existing and Existing Plus Project conditions. Thus, consistent with the 2016 EIR, a significant impact would occur. It is important to note that the reported LOS for the Missouri Flat Road/China Garden Road intersection is based on the movement with the highest delay, in accordance with HCM methodology.

Table 5
Study Intersection LOS: Existing Plus Project Conditions

Intersection	Existing		Existing Plus Project	
	AM Peak Hour (Delay/LOS)	PM Peak Hour (Delay/LOS)	AM Peak Hour (Delay/LOS)	PM Peak Hour (Delay/LOS)
1. Missouri Flat Road/China Garden Road	45/E	**81/F**	50/E	**121/F**
2. Missouri Flat Road/Industrial Drive	48/E	**101/F**	12/B	10/B
3. Missouri Flat Road/Enterprise Drive	**58/F**	**130/F**	8/A	9/A
4. Missouri Flat Road/Pleasant Valley Road	24/C	34/C	24/C	43/D

Notes:
- Average delay is reported in seconds per vehicle. For signalized intersections, the LOS is based on the average control delay for all approaches. For side-street stop-controlled intersections, LOS is based on the movement with the worst delay.
- **Bold** text indicates unacceptable (LOS F) operations.

Source: *El Dorado County, Traffic Operations Analysis for the Missouri Flat Road Improvement Project, 2018.*

In this case the westbound left turn movement operates at LOS F during the PM peak hour, while all other movements operate at LOS D or better. As noted previously, in order to reduce the impact to a less-than-significant level, Mitigation Measure 4.10-2(a) in the 2016

EIR required payment of countywide TIM fees for the project consistent with the County's CIP program, to help fund improvements to the Missouri Flat Road/China Garden Road intersection. With completion of the required improvements, the 2016 EIR concluded that a less-than-significant impact would occur under existing plus project conditions.

As discussed previously, Mitigation Measure 4.10-2(a) from the 2016 EIR required either signalization of the Missouri Flat Road/China Garden Road intersection or restricting the eastbound and westbound approaches to right turns only. According to the Traffic Operations Analysis, the eastbound and westbound through and left-turns should be prohibited with signage and a painted or raised median. Specifically, the median would modify the side streets to right-in/right-out and left-in only. Such an improvement would affect less than 20 vehicles during each peak hour. Installation of a traffic signal at Missouri Flat Road/China Garden Road intersection is not preferred, because of the close proximity to other planned signals (i.e. Missouri Flat Road/Industrial Drive, Missouri Flat Road/Enterprise Drive, and Missouri Flat Road/Diamond Springs Parkway).

Motorists wishing to make the eastbound left-turn can make that movement at a driveway located just north or south of the intersection, both of which have a center turn lane to help facilitate the movement. Motorists wishing to make the westbound left-turn can instead travel south on China Garden Road to Pleasant Valley Road and turn on Missouri Flat Road. The through movements had zero traffic during the May 2018 traffic counts.

As such, Mitigation Measure 4.10-2(a) is modified as follows:

4.10-2(a) *Missouri Flat Road / China Garden Road. Prior to issuance of any building permits, the project applicant shall pay the countywide TIM fees for the project consistent with the County's CIP program.*

~~Installation of a traffic signal at the Missouri Flat Road / China Garden Road intersection will improve the LOS at the intersection to LOS B with a delay of 16.1 seconds. Alternatively,~~ rRestricting the eastbound and westbound approaches to right-turns only would result in acceptable operations in both peak hours.

Therefore, appropriate mitigation would include payment of traffic impact mitigation fees to satisfy the project's fair share obligation towards this improvement if it is included in the 20-Year CIP, or construction of the improvement with reimbursement or fee credit for costs that exceed the project's proportional share if the improvement is needed but not included in future updates to the 20-Year CIP or constructed by others, as determined by CDA.

Per the Traffic Operations Analysis, implementation of Mitigation Measure 4.10-2(a), as modified above, would improve operations at the Missouri Flat Road/China Garden Road intersection from LOS F to LOS C during the PM peak hour under Existing Plus Project conditions (see Table 6). Thus, impacts would be less than significant.

Table 6
Study Intersection LOS: Existing Plus Project Conditions with Mitigation

Intersection	Existing Plus Project		Existing Plus Project with Mitigation	
	AM Peak Hour (Delay/LOS)	PM Peak Hour (Delay/LOS)	AM Peak Hour (Delay/LOS)	PM Peak Hour (Delay/LOS)
1. Missouri Flat Road/China Garden Road	50/E	**121/F**	17/C	26/C
2. Missouri Flat Road/Industrial Drive	12/B	10/B	13/B	9/A
3. Missouri Flat Road/Enterprise Drive	8/A	9/A	8/A	9/A
4. Missouri Flat Road/Pleasant Valley Road	24/C	43/D	22/C	41/D

Notes:
- Average delay is reported in seconds per vehicle. For signalized intersections, the LOS is based on the average control delay for all approaches. For side-street stop-controlled intersections, LOS is based on the movement with the worst delay.
- **Bold** text indicates unacceptable (LOS F) operations.

Source: *El Dorado County, Traffic Operations Analysis for the Missouri Flat Road Improvement Project, 2018.*

Cumulative Year 2040 Plus Project Conditions

The Cumulative Year 2040 forecasts assume other both roadway and development projects are in place by 2040. The forecasts assume completion of Diamond Springs Parkway, a new four-lane arterial roadway connecting SR 49 to Missouri Flat Road just north of China Garden Road. In addition, Missouri Flat Road is planned to be widened from two to four lanes between China Garden Road and Pleasant Valley Road through the study area. The future land development projects assumed for the cumulative conditions include both approved and pending projects. Non-residential projects include the Public Safety Facility, The Crossings, Creekside Plaza, and Diamond Dorado retail centers. Traffic from residential projects, such as Piedmont Oaks and Diamond Springs Village, are also included.

The Cumulative Year 2040 study intersection operations with and without completion of the proposed project are shown in Table 7 below. As shown in the table, under Cumulative Year 2040 conditions without completion of the proposed intersection improvements, three of the four study intersections would continue to operate unacceptably (LOS F) during the PM peak hour and one intersection would operate unacceptably during the AM peak hour. The proposed intersection signalizations would improve operations to LOS A at both the Missouri Flat Road/Industrial Drive and Missouri Flat Road/Enterprise Drive intersections during both peak hours.

The intersection of Missouri Flat Road/China Garden Road operates would operate at LOS F with and without the project. Completion of the Public Safety Facility project, including the proposed intersection improvements, would add more than 10 trips to the intersection. Therefore, consistent with the conclusions of the 2016 EIR, a significant impact could occur. As noted previously, in order to reduce the impact to a less-than-significant level, Mitigation Measure 4.10-2(a) in the 2016 EIR required improvements to the Missouri Flat

Road/China Garden Road intersection. With completion of the required improvements, the 2016 EIR concluded that a less-than-significant impact would occur under cumulative conditions.

Table 7
Study Intersection LOS: Cumulative Year 2040 Plus Project Conditions

Intersection	Cumulative Year 2040		Cumulative Year 2040 Plus Project	
	AM Peak Hour (Delay/LOS)	PM Peak Hour (Delay/LOS)	AM Peak Hour (Delay/LOS)	PM Peak Hour (Delay/LOS)
1. Missouri Flat Road/China Garden Road	24/C	**89/F**	9/A	**64/F**
2. Missouri Flat Road/Industrial Drive	**66/F**	**144/F**	10/A	6/A
3. Missouri Flat Road/Enterprise Drive	21/C	**157/F**	7/A	8/A
4. Missouri Flat Road/Pleasant Valley Road	19/B	32/C	23/B	31 C

Notes:
- Average delay is reported in seconds per vehicle. For signalized intersections, the LOS is based on the average control delay for all approaches. For side-street stop-controlled intersections, LOS is based on the movement with the worst delay.
- **Bold** text indicates unacceptable (LOS F) operations.

Source: *El Dorado County, Traffic Operations Analysis for the Missouri Flat Road Improvement Project, 2018.*

Similar to Mitigation Measure 4.10-2(a), discussed above, Mitigation Measure 4.10-3(a) for the 2025 scenario and 4.10-7(a) for the 2035 scenario from the 2016 EIR required either signalization of the Missouri Flat Road/China Garden Road intersection or restricting the eastbound and westbound approaches to right turns only. Given that the Traffic Operations Analysis recommends the eastbound and westbound through and left-turns should be prohibited with signage and a painted or raised median as opposed to installation of a traffic signal, Mitigation Measure 4.10-3(a) shall be modified as follows:

4.10-3(a) *Missouri Flat Road / China Garden Road. Implement Mitigation Measure 4.10-2(a) regarding payment of TIM fees for the project.*

The CIP improvements needed to mitigate this intersection impact in the Year 2025 condition are already identified in Mitigation Measure 4.10-2(a). ~~Signalization will improve the LOS at this intersection to LOS B during both peak hours in the Year 2025 condition. Alternatively, r~~Restricting the eastbound and westbound approaches to right-turns only would result in acceptable ~~LOS C~~ operations in both peak hours in the Year 2025 condition.

In addition, Mitigation Measure 4.10-7(a) shall be modified as follows:

4.10-7(a) *Missouri Flat Road / China Garden Road. Implement Mitigation Measure 4.10-2(a) regarding payment of TIM fees for the project.*

The CIP improvements needed to mitigate this intersection impact in the Year 2035 condition are already identified in Mitigation Measure 4.10-2(a). ~~Signalization will improve the LOS at this intersection to LOS B during both peak hours in the Year 2035 condition. Alternatively, r~~Restricting the eastbound and westbound approaches to right-turns only would result in acceptable ~~LOS C~~ operations in both peak hours in the Year 2035 condition.

Per the Traffic Operations Analysis, restricting the eastbound and westbound approaches to right-turns only would improve operations at the Missouri Flat Road/China Garden Road intersection to LOS A during the PM peak hour under Cumulative Year 2040 Plus Project conditions (see Table 8). Thus, impacts would be less than significant.

Table 8
Study Intersection LOS: Cumulative Year 2040 Plus Project Conditions with Mitigation

Intersection	Cumulative Year 2040 Plus Project		Cumulative Year 2040 Plus Project with Mitigation	
	AM Peak Hour (Delay/LOS)	PM Peak Hour (Delay/LOS)	AM Peak Hour (Delay/LOS)	PM Peak Hour (Delay/LOS)
1. Missouri Flat Road/China Garden Road	9/A	**64/F**	6/A	5/A
2. Missouri Flat Road/Industrial Drive	10/A	6/A	11/A	6/A
3. Missouri Flat Road/Enterprise Drive	7/A	8/A	7/A	8/A
4. Missouri Flat Road/Pleasant Valley Road	23/B	31/C	23/B	37/D

Notes:
- Average delay is reported in seconds per vehicle. For signalized intersections, the LOS is based on the average control delay for all approaches. For side-street stop-controlled intersections, LOS is based on the movement with the worst delay.
- **Bold** text indicates unacceptable (LOS F) operations.

Source: *El Dorado County, Traffic Operations Analysis for the Missouri Flat Road Improvement Project, 2018.*

Mitigation for Missouri Flat Road/Industrial Drive Intersection

With respect to Mitigation Measure 4.10-4 of the EIR, requiring signalization of the Missouri Flat Road/Industrial Drive intersection, it is important to note that this signal project was added to the County's CIP on June 26, 2018. Construction of the signal is currently planned for Fiscal Year 2020/2021. At the time the Public Safety Facility EIR was prepared, the signal project was not included in the County CIP. In accordance with Policy TC-Xf of the El Dorado County General Plan, the County shall do one of the following with respect to this impact: (1) condition the project to construct all road improvements necessary to maintain or attain Level of Service standards detailed in the General Plan Transportation and Circulation Element; or (2) ensure the construction of the necessary road improvements are included in the County's 20-year CIP. Now that the Missouri Flat Road/Industrial Drive signal project has been included in the County's CIP (Project #73366), both options set forth in Policy TC-Xf are met. While payment of traffic impact mitigation (TIM) fees would be permissible due to the inclusion of the signal project in the County's CIP, Mitigation Measure 4.10-4 will continue

to require the applicant to construct the traffic signal. However, the mitigation measure is hereby revised to clarify that the signal project shall be installed prior to 2022.

4.10-4 *The project applicant shall fund and construct the traffic signal at the Missouri Flat Road / Industrial Drive intersection. The traffic signal improvement shall be shown on the project improvement plans prior to their approval by the El Dorado County Community Development ~~Agency~~Services. The signal project is included in the County's CIP as Project #73366) and programmed for Fiscal Year 2020/2021. Thus, the signal shall be installed prior to 2022. Installation of a new traffic signal would improve the operating conditions to LOS B (17.5 seconds) in the AM peak hour and LOS B (13.4 seconds) in the PM peak hour. As part of the signal improvements, the non-native vegetation located within sight lines north of the intersection shall be removed so as to improve safety.*

Access to Existing Properties and Businesses

As noted in the 2016 EIR, several driveways on Missouri Flat Road could be affected by the proposed intersection improvements. Each traffic signal has been designed to maintain and improve access to the adjacent properties and businesses, as described below.

At the Missouri Flat Road/Industrial Drive intersection, the existing driveways serving APNs 329-261-12 (currently occupied by Stoves 'n' Stuff) and 329-261-13 (currently occupied by True Value Hardware) along the east side of Missouri Flat Road would be combined into a single driveway aligned with the signalized intersection. Curbs would be installed along Missouri Flat Road adjacent to both parcels in order to restrict illegal turning movements around the intersection and facilitate traffic through the signal. The existing driveways at the north end of APN 329-261-12 and south end of APN 329-261-13 would remain and allow right-in/right-out movements only.

Currently, a multi-tenant retail center is located to the southwest of the Missouri Flat Road/Industrial Drive intersection at APN 329-260-01. As part of the proposed improvements, the northern driveway would be removed and access to the parcel would be provided by the existing southern driveway and a new driveway connecting to Industrial Drive along the north parcel boundary.

At the Missouri Flat Road/Enterprise Drive intersection, the existing driveways serving APNs 329-261-17 (currently occupied by Idle Wheels RV Center) and 329-261-18 (currently occupied by Advanced Gases and Equipment) along the east side of Missouri Flat Road would be combined into a single driveway aligned with the signalized intersection. Curbs would be installed along Missouri Flat Road adjacent to the parcels in order to restrict illegal turning movements around the intersection and facilitate traffic through the signal.

With completion of the aforementioned access modifications, substantial impairment to access would not occur at existing businesses, turning radii onto adjacent properties would be improved, and illegal turning movements would be restricted, such that the proposed project would not result in any substantial hazards due to design features (e.g., sharp curves or dangerous intersections) or incompatible uses.

Conclusion

The installation of a traffic signal would provide operational benefits at both Missouri Flat Road/Industrial Drive and Missouri Flat Road/Enterprise Drive. The traffic signals would improve both intersections from LOS F to LOS B or better under Existing and Cumulative 2040 conditions.

The intersection of Missouri Flat Road/China Garden Road operates at LOS F today and will require improvements to achieve acceptable LOS. This impact was identified in the 2016 EIR and mitigation required to reduce the impact to a less-than-significant level. The Traffic Operations Analysis prepared for this Addendum clarifies that the alternative mitigation strategy identified in the EIR related to restricting the eastbound and westbound approaches to right turns only is the preferred mitigation. This would restore the intersection to acceptable LOS during both peak hours.

Based on the above, the proposed project would not result in any changes, new circumstances, or new information that would involve new significant impacts or substantially more severe impacts related to transportation and circulation from what has been anticipated for the project site in the 2016 EIR.

Prior CEQA Mitigation Measures (as modified in this Addendum):

The following mitigation measures from the 2016 EIR, as modified in this Addendum, would remain applicable to the proposed project: 4.10-1, 4.10-2(b), 4.10-3(b), 4.10-4, and 4.10-7(b).

4.10-1 *Prior to the beginning of construction, the contractor shall prepare a construction traffic management plan to the satisfaction of the County Traffic Engineer. The plan shall ensure that acceptable operating conditions on local roadways are maintained. At a minimum, the plan shall include the following:*

- *Description of trucks including: number and size of trucks per day (e.g., 85 trucks per day), coordination of expected arrival/departure times, designation of truck circulation patterns.*
- *Description of staging area including: location, maximum number of trucks simultaneously permitted in staging area, use of traffic control personnel, specific signage.*
- *Description of street closures and/or bicycle and pedestrian facility closures including: duration, advance warning and posted signage, safe and efficient access routes for existing businesses and emergency vehicles, and use of manual traffic control.*
- *Description of driveway access plan including: provisions for maintained access to surrounding businesses, provisions for safe vehicular, pedestrian, and bicycle travel, minimum distance from any open trench, special signage, and private vehicle accesses.*

4.10-2(a) *Missouri Flat Road / China Garden Road. Prior to issuance of any building permits, the project applicant shall pay the countywide TIM fees for the project consistent with the County's CIP program.*

~~Installation of a traffic signal at the Missouri Flat Road / China Garden Road intersection will improve the LOS at the intersection to LOS B with a delay of 16.1 seconds. Alternatively~~, r~~R~~estricting the eastbound and westbound approaches to right-turns only would result in acceptable operations in both peak hours.

Therefore, appropriate mitigation would include payment of traffic impact mitigation fees to satisfy the project's fair share obligation towards this improvement if it is included in the 20-Year CIP, or construction of the improvement with reimbursement or fee credit for costs that exceed the project's proportional share if the improvement is needed but not included in future updates to the 20-Year CIP or constructed by others, as determined by CDA.

4.10-3(a) *Missouri Flat Road / China Garden Road. Implement Mitigation Measure 4.10-2(a) regarding payment of TIM fees for the project.*

The CIP improvements needed to mitigate this intersection impact in the Year 2025 condition are already identified in Mitigation Measure 4.10-2(a). ~~Signalization will improve the LOS at this intersection to LOS B during both peak hours in the Year 2025 condition. Alternatively~~, r~~R~~estricting the eastbound and westbound approaches to right-turns only would result in acceptable ~~LOS C~~ operations in both peak hours in the Year 2025 condition.

4.10-4 *The project applicant shall fund and construct the traffic signal at the Missouri Flat Road / Industrial Drive intersection. The traffic signal improvement shall be shown on the project improvement plans prior to their approval by the El Dorado County Community Development ~~Agency~~Services. The signal project is included in the County's CIP as Project #73366) and programmed for Fiscal Year 2020/2021. Thus, the signal shall be installed prior to 2022. Installation of a new traffic signal would improve the operating conditions to LOS B (17.5 seconds) in the AM peak hour and LOS B (13.4 seconds) in the PM peak hour. As part of the signal improvements, the non-native vegetation located within sight lines north of the intersection shall be removed so as to improve safety.*

4.10-7(a) *Missouri Flat Road / China Garden Road. Implement Mitigation Measure 4.10-2(a) regarding payment of TIM fees for the project.*

The CIP improvements needed to mitigate this intersection impact in the Year 2035 condition are already identified in Mitigation Measure 4.10-2(a). ~~Signalization will improve the LOS at this intersection to LOS B during both peak hours in the Year 2035 condition. Alternatively~~, r~~R~~estricting the eastbound and westbound approaches to right-turns only would result in acceptable ~~LOS C~~ operations in both peak hours in the Year 2035 condition.

REMAINING CEQA TOPICS

In addition to the CEQA topics discussed in the previous sections of this Addendum, the Public Safety Facility Project EIR included analysis of the following issue areas:

- Aesthetics;
- Biological Resources;
- Geology and Soils;
- Hazards and Hazardous Materials;
- Hydrology and Water Quality;
- Land Use and Planning; and
- Utilities.

Because the scope of the proposed project is limited to improvements at two existing stop-controlled intersections, the project would not result in new or more severe impacts beyond what was analyzed in the Public Safety Facility Project EIR for the issue areas listed above. For example, the proposed signal projects would not have adverse effects related to aesthetics. Signals are common roadway features that are prevalent along the Missouri Flat Road corridor; and the proposed signals would not substantially degrade the existing visual character or quality of the area, which is already developed and absent any scenic resources. While existing mature trees would be removed, these trees are few in number (eight) and the majority are relatively small in diameter. In addition, other trees would remain outside of the immediate limits of the proposed improvement areas.

With respect to geology and soils issues, soils testing and structural calculations would be required for all signal foundations and must be signed by a structural engineer. This would ensure that the signals would not be subject to geologic hazards that could result in structural failure of the signal that would pose a safety hazard to drivers. Hydrology and water quality concerns would be addressed by the County's design of the signal projects, which include installation of new drainage inlets and regrading of existing urban roadside ditches to ensure that off-site flooding would not be induced by the signal projects and associated repaving of the portions of the roadways within the project footprint. Land use and planning issues are not directly relevant to the projects as the proposed signals are included in the County's CIP, and thus, the projects would not conflict with an adopted plan or policy. Utilities and service systems would not be impacted by the signal projects as neither water, sewer, nor solid waste systems are associated with signals.

CONCLUSION

As established in the discussions above regarding the potential effects of the proposed project, the proposed changes would not result in any new significant information of substantial importance, new impacts, new mitigation measures, new or revised alternatives, or an increase the severity of previously identified impacts that would require major revisions to the original Public Safety Facility EIR. As such, the proposed project would not result in any conditions identified in CEQA Guidelines Section 15162, and a subsequent EIR is not required.

Attachments:

A) Air Quality and GHG Modeling Results
B) Traffic Operations Analysis

ATTACHMENT A
AIR QUALITY AND GHG MODELING RESULTS

Road Construction Emissions Model, Version 8.1.0

Daily Emission Estimates for -> Public Safety Facility Intersection Improvements

Project Phases (Pounds)	ROG (lbs/day)	CO (lbs/day)	NOx (lbs/day)	Total PM10 (lbs/day)	Exhaust PM10 (lbs/day)	Fugitive Dust PM10 (lbs/day)	Total PM2.5 (lbs/day)	Exhaust PM2.5 (lbs/day)	Fugitive Dust PM2.5 (lbs/day)	SOx (lbs/day)	CO2 (lbs/day)	CH4 (lbs/day)	N2O (lbs/day)	CO2e (lbs/day)
Grubbing/Land Clearing	1.24	10.21	14.31	32.61	0.61	32.00	7.20	0.55	6.66	0.02	2,208.15	0.59	0.02	2,230.18
Grading/Excavation	6.78	51.96	74.05	35.61	3.61	32.00	9.93	3.28	6.66	0.09	9,332.82	2.68	0.09	9,427.16
Drainage/Utilities/Sub-Grade	4.14	34.02	40.56	34.21	2.21	32.00	8.71	2.05	6.66	0.06	5,698.30	1.20	0.05	5,744.62
Paving	1.79	17.68	17.81	1.10	1.10	0.00	0.99	0.99	0.00	0.03	2,844.42	0.75	0.03	2,872.23
Maximum (pounds/day)	6.78	51.96	74.05	35.61	3.61	32.00	9.93	3.28	6.66	0.09	9,332.82	2.68	0.09	9,427.16
Total (tons/construction project)	0.04	0.28	0.38	0.30	0.02	0.28	0.08	0.02	0.06	0.00	50.81	0.01	0.00	51.29

Notes:

Project Start Year ->	2019
Project Length (months) ->	1
Total Project Area (acres) ->	3
Maximum Area Disturbed/Day (acres) ->	3
Water Truck Used? ->	Yes

	Total Material Imported/Exported Volume (yd^3/day)		Daily VMT (miles/day)			
Phase	Soil	Asphalt	Soil Hauling	Asphalt Hauling	Worker Commute	Water Truck
Grubbing/Land Clearing	2	0	4	4	200	40
Grading/Excavation	343	0	18	0	800	40
Drainage/Utilities/Sub-Grade	0	0	0	0	560	40
Paving	0	0	0	0	400	40

PM10 and PM2.5 estimates assume 50% control of fugitive dust from watering and associated dust control measures if a minimum number of water trucks are specified.

Total PM10 emissions shown in column F are the sum of exhaust and fugitive dust emissions shown in columns G and H. Total PM2.5 emissions shown in Column I are the sum of exhaust and fugitive dust emissions shown in columns J and K.

CO2e emissions are estimated by multiplying mass emissions for each GHG by its global warming potential (GWP), 1 , 25 and 298 for CO2, CH4 and N2O, respectively. Total CO2e is then estimated by summing CO2e estimates over all GHGs.

Total Emission Estimates by Phase for -> Public Safety Facility Intersection Improvements

Project Phases (Tons for all except CO2e. Metric tonnes for CO2e)	ROG (tons/phase)	CO (tons/phase)	NOx (tons/phase)	Total PM10 (tons/phase)	Exhaust PM10 (tons/phase)	Fugitive Dust PM10 (tons/phase)	Total PM2.5 (tons/phase)	Exhaust PM2.5 (tons/phase)	Fugitive Dust PM2.5 (tons/phase)	SOx (tons/phase)	CO2 (tons/phase)	CH4 (tons/phase)	N2O (tons/phase)	CO2e (MT/phase)
Grubbing/Land Clearing	0.00	0.03	0.05	0.11	0.00	0.11	0.02	0.00	0.02	0.00	7.29	0.00	0.00	6.68
Grading/Excavation	0.02	0.14	0.20	0.10	0.01	0.09	0.03	0.01	0.02	0.00	25.67	0.01	0.00	23.52
Drainage/Utilities/Sub-Grade	0.01	0.09	0.11	0.09	0.01	0.09	0.02	0.01	0.02	0.00	15.67	0.00	0.00	14.33
Paving	0.00	0.01	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.19	0.00	0.00	2.01
Maximum (tons/phase)	0.02	0.14	0.20	0.11	0.01	0.11	0.03	0.01	0.02	0.00	25.67	0.01	0.00	23.52
Total (tons/construction project)	0.04	0.28	0.38	0.30	0.02	0.28	0.08	0.02	0.06	0.00	50.81	0.01	0.00	46.53

PM10 and PM2.5 estimates assume 50% control of fugitive dust from watering and associated dust control measures if a minimum number of water trucks are specified.

Total PM10 emissions shown in column F are the sum of exhaust and fugitive dust emissions shown in columns G and H. Total PM2.5 emissions shown in Column I are the sum of exhaust and fugitive dust emissions shown in columns J and K.

CO2e emissions are estimated by multiplying mass emissions for each GHG by its global warming potential (GWP), 1 , 25 and 298 for CO2, CH4 and N2O, respectively. Total CO2e is then estimated by summing CO2e estimates over all GHGs.

The CO2e emissions are reported as metric tons per phase.

ATTACHMENT B
TRAFFIC OPERATIONS ANALYSIS

COMMUNITY DEVELOPMENT SERVICES
DEPARTMENT OF TRANSPORTATION

INTEROFFICE MEMORANDUM

Date: August 14, 2018

To: Dustin Harrington, P.E.

From: Katie Jackson, P.E., T.E.

Subject: Traffic Operations Analysis for the Missouri Flat Road Improvement Project

This memorandum summarizes the results of the traffic operations analysis for the Capital Improvement Program (CIP) Projects #73365, Enterprise Drive/Missouri Flat Road Signalization Project and CIP #73366, Industrial Drive/Missouri Flat Road Signalization Project, in Diamond Springs, California. The two projects will install traffic signals and interconnect along Missouri Flat Road. The projects will be constructed concurrently with the County's Public Safety Facility on Industrial Drive. This traffic analysis is intended to support the addendum to the *Public Safety Facility Environmental Impact Report (EIR)* (SCH# 2015062046). Figure 1 displays the study area.

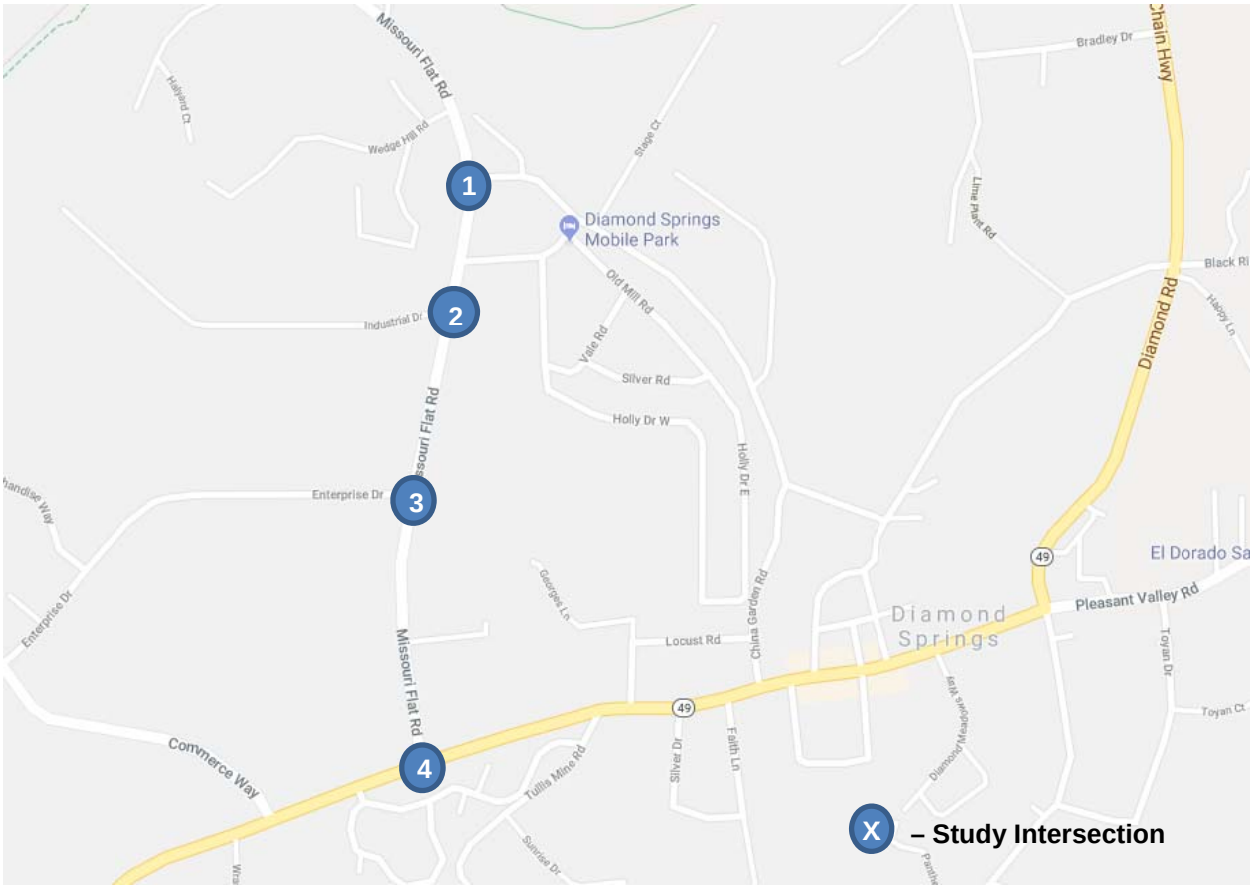


Figure 1: Study Area

Project Background and Description

These signal projects were added to the County's CIP on June 26, 2018. The intersection of Missouri Flat Road/Enterprise Drive has been on the County's Unfunded CIP project list since 2016. Construction of both signals is currently planned for Fiscal Year 2020/2021.

Additionally, the County's Public Safety Facility is currently under construction nearby. The project includes five buildings, totaling about 106,000 square feet. The project includes the Sheriff's Administration Building, County Morgue, SWAT, Search & Rescue, Training, and other vital County functions. Primary access for the facility is provided by Industrial Drive, while a private access for employees will connect to Enterprise Drive off of Merchandise Way. This project is expected to trigger/exacerbate unacceptable operations and meet signal warrants at both Missouri Flat Road/Industrial Drive and Missouri Flat Road/Enterprise Drive.

Both intersections are currently unsignalized, with stop control on the side streets (i.e. Industrial Drive and Enterprise Drive). Missouri Flat Road has a two-way left-turn lane (TWLTL) through both intersections. There is one approach lane on both side streets. Figures 2 and 3 show the existing lane configurations.

Figure 2: Existing Lane Configurations – Missouri Flat Road / Industrial Drive

Figure 3: Existing Lane Configurations – Missouri Flat Road / Enterprise Drive

The intersections are located approximately 850 feet apart. Missouri Flat Road has many private driveways that serve a variety of commercial and industrial businesses. Pacific Gas & Electric (PG&E) is located on the southwest corner of the Missouri Flat Road/Enterprise Drive intersection and has overhead utility lines along both sides of Missouri Flat Road.

The intersection improvements would include a traffic signal at both locations and various turn lanes added on Missouri Flat Road, Industrial Drive and Enterprise Drive. Figures 4 and 5 display the preliminary layout for the Missouri Flat Road/Industrial Drive and Missouri Flat Road/Enterprise Drive intersections, respectively.

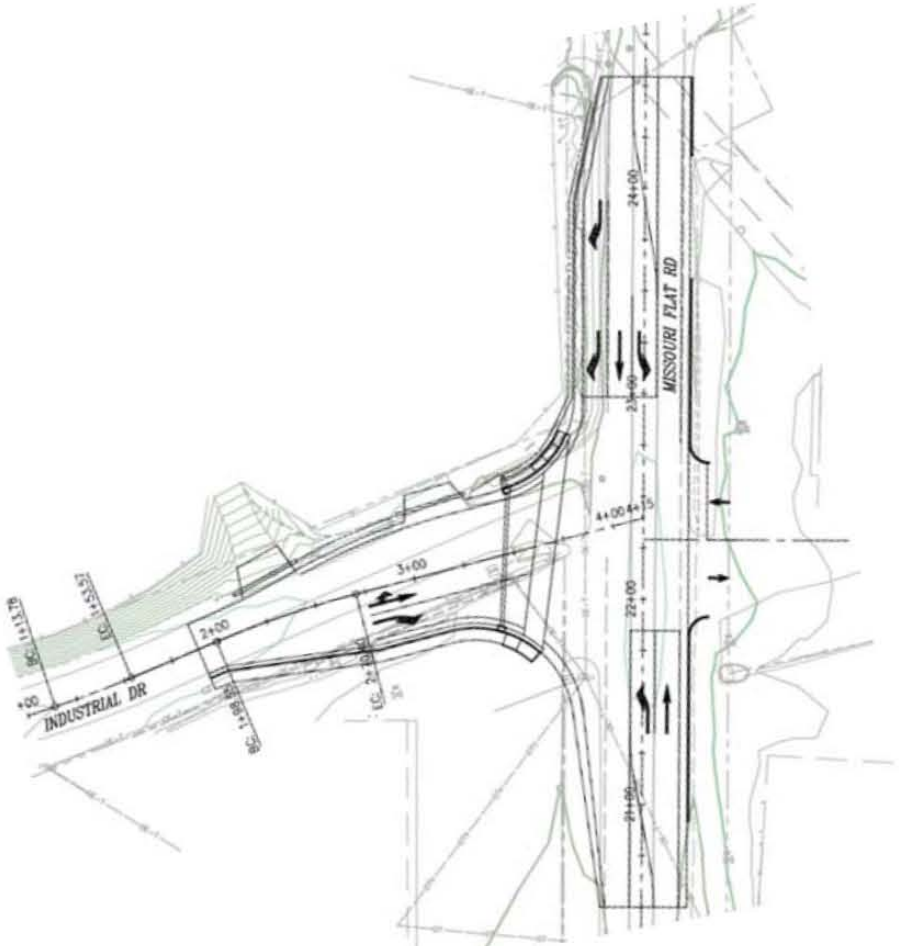


Figure 4: Preliminary Layout – Missouri Flat Road/Industrial Drive (Not to Scale)

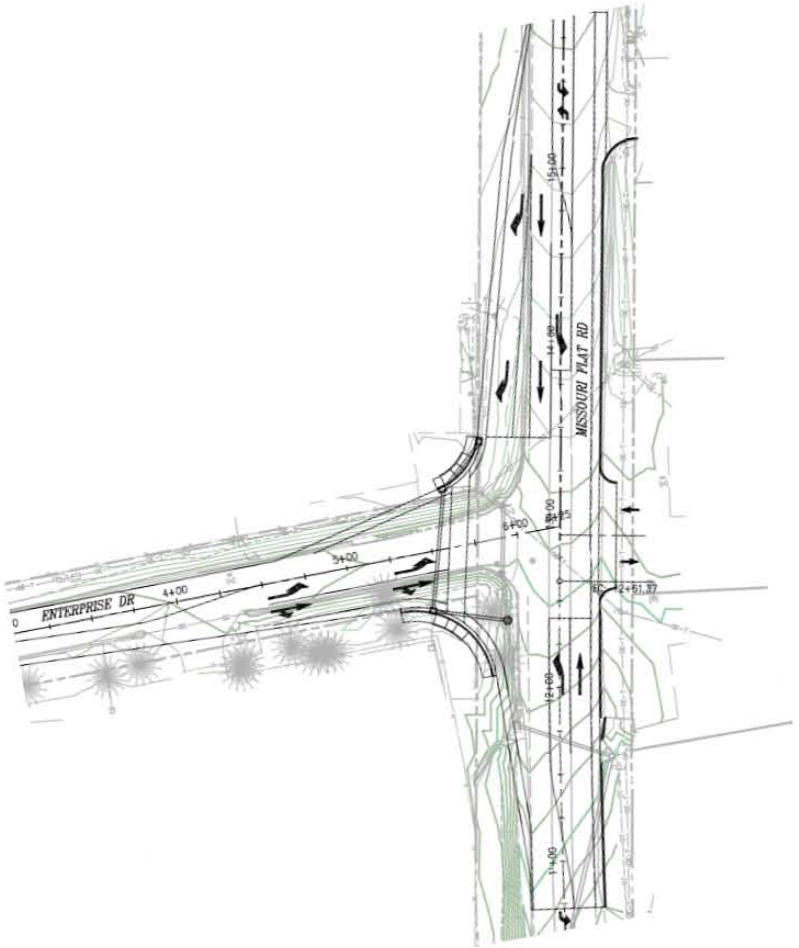


Figure 5: Preliminary Layout – Missouri Flat Road/Enterprise Drive (Not to Scale)

Analysis Methodology and LOS Standards

This analysis evaluates the intersections based on the AM and PM peak hour traffic operations. The analysis assigns a Level of Service (LOS) to the intersection for each peak hour to describe traffic operations. LOS is a qualitative measure of traffic operating conditions ranging from LOS A to LOS F. The grades are assigned based on the average duration of delay associated with a given traffic control device. In general, LOS A represents free-flow conditions with very little delay, while LOS F represents over-capacity conditions with long delays and queues. The study intersections were analyzed using the procedures and methodologies contained in the *Highway Capacity Manual (HCM)* (Transportation Research Board, 2016).

The LOS is evaluated against the 2004 General Plan Policy TC-Xd, which states in part, "Level of Service (LOS) for County-maintained roads and state highways within the unincorporated areas of the county shall not be worse than LOS E in the Community Regions." All of the study intersections are located within the El Dorado/Diamond Springs Community Region. Therefore, intersections that operate at LOS F are considered deficient. If a project causes an intersection to degrade from LOS E or better to LOS F, that is considered a significant impact. If an intersection that operates at LOS F is worsened by a project, that is also considered to be a significant impact. General Plan Policy TC-Xe defines "worsen" as any of the following:

A. A 2 percent increase in traffic during the a.m. peak hour, p.m. peak hour, or daily, or
B. The addition of 100 or more daily trips, or
C. The addition of 10 or more trips during the a.m. peak hour or the p.m. peak hour.

Since this analysis is being used to support the addendum to the *Public Safety Facility Project EIR,* the added trips are from the Public Safety Facility. The number of project trips from the Public Safety Facility was determined from the *Traffic Impact Analysis for El Dorado County Sheriff Headquarters* (KD Anderson, October 26, 2015).

At signalized intersections, LOS is based on the average control delay for the entire intersection. At side-street stop-controlled intersections, the LOS is based on the delay reported for the worst turning movement (i.e. the turning movement with the highest delay). Table 1 displays the delay range associated with each LOS category for signalized and unsignalized intersections.

Table 1: Intersection Level of Service Criteria

Level of Service	Average Control Delay (seconds/vehicle)		Description
	Signalized	Unsignalized	
A	< 10.0	< 10.0	Very low delay. At signalized intersections, most vehicles do not stop.
B	10.0 to 20.0	10.0 to 15.0	Generally good progression of vehicles. Slight delays.
C	20.1 to 35.0	15.1 to 25.0	Fair progression. At signalized intersections, increased number of stopped vehicles.
D	35.1 to 55.0	25.1 to 35.0	Noticeable congestion. At signalized intersections, large portion of vehicles stopped.
E	55.1 to 80.0	35.1 to 50.0	Poor progression. High delays and frequent cycle failure.
F	> 80.0	> 50.0	Oversaturation. Forced flow. Extensive queuing.

Source: *Highway Capacity Manual* (Transportation Research Board, 2016)

The HCM methodologies were applied using the micro-simulation software package, SimTraffic 10. Typical HCM methodology provides a calculation of LOS by accounting for traffic levels, peak hour factors, traffic signal timings, lane configurations, speed limits, and other inputs. In addition, micro-simulation analysis also accounts for turn pocket lengths, driver behavior, distance between intersections, vehicle platooning, and other traffic progression factors.

Existing Conditions

Traffic counts were collected at each of the study intersections in May 2018 when local schools were in session (see appendix). The traffic volumes were used to analyze the LOS under existing conditions without the proposed intersection improvements. The results are summarized in Table 2 and the technical calculations are contained in the appendix. During the AM peak hour, the intersection of Missouri Flat Road/Enterprise Drive operates at LOS F, while all other intersections operate acceptably at LOS E or better. During the PM peak hour, three of the four study intersections operate unacceptably at LOS F, including Missouri Flat Road/China Garden Road, Missouri Flat Road/Industrial Drive, and Missouri Flat Road/Enterprise Drive.

Existing Plus Project Conditions

For the Existing Plus Project (E+P) scenario, traffic operations are evaluated with both signals and associated intersection improvements in place. The traffic signals would be coordinated from Pleasant Valley Road (State Route (SR) 49) through Industrial Drive. The E+P scenario also assumes the Public Safety Facility is complete and fully occupied. The project trips from the Public Safety Facility were determined from the *Traffic Impact Analysis for El Dorado County Sheriff Headquarters* (KD Anderson, October 26, 2015).

The traffic signal will improve traffic operations for the side streets at both Industrial Drive and Enterprise Drive. The improvement is expected to draw more traffic on the side street at Enterprise Drive, as the road serves a major employment area in Diamond Springs. Under E+P conditions, traffic was redistributed to account for additional side street demand at this intersection.

As shown in Table 2, the proposed traffic signals would improve traffic operations during the peak hour at both Missouri Flat Road/Industrial Drive and Missouri Flat Road/Enterprise Drive to LOS B or better during both peak hours.

The traffic signals and the increase in traffic from the Public Safety Facility would further degrade traffic operations at the Missouri Flat Road/China Garden Road intersection. This is considered a significant impact because the Public Safety Facility adds more than 10 trips to the intersection during the peak hours. This impact was also identified in the *Public Safety Facility Project EIR*. A mitigation measure for that intersection is proposed below. It is important to note that the reported LOS for the Missouri Flat Road/China Garden Road intersection is based on the movement with the highest delay, in accordance with HCM methodology. In this case the westbound left turn movement operates at LOS F during the PM peak hour, while all other movements operate at LOS D or better.

Table 2: Peak Hour Intersection Traffic Operations Existing 2018 Conditions				
	No Project		**Plus Project**	
Intersection	**AM Peak Hour** (Delay / LOS)	**PM Peak Hour** (Delay / LOS)	**AM Peak Hour** (Delay / LOS)	**PM Peak Hour** (Delay / LOS)
1. Missouri Flat Road / China Garden Road	45 / E	**81 / F**	50 / E	**121 / F**
2. Missouri Flat Road / Industrial Drive	48 / E	**101 / F**	12 / B	10 / B
3. Missouri Flat Road / Enterprise Drive	**58 / F**	**130 / F**	8 / A	9 / A
4. Missouri Flat Road / Pleasant Valley Road	24 / C	34 / C	24 / C	43 / D

Notes: Analysis is based on the methodology and procedures in the Highway Capacity Manual (Transportation Research Board, 2016). Average delay is reported in seconds per vehicle. For signalized intersections, the LOS is based on the average control delay for all approaches. For side-street stop controlled intersections, LOS is based on the movement with the worst delay.
Bold text indicates LOS F traffic operations.

Table 3 shows the 95th percentile queue lengths at the two project intersections. All projected queue lengths will be accommodated within the turn lanes for both approaches on Missouri Flat Road and Enterprise Drive. On Industrial Drive, the queue may occasionally extend out of the turn pockets for both the left and right turns, however the intersection would still operate acceptably at LOS B and the queues should clear with every signal cycle.

Table 3: Peak Hour Intersection 95th Percentile Queue Length (feet) Existing Plus Project Conditions					
	Movement (AM / PM)				
Intersection	**Southbound Left**	**Southbound Right**	**Northbound Left**	**Eastbound Left[1]**	**Eastbound Right[2]**
2. Missouri Flat Road / Industrial Drive	75 / 25	50 / 50	75 / 50	75 / 150	50 / 100
3. Missouri Flat Road / Enterprise Drive	25 / 25	25 / 100	75 / 25	100 / 125	50 / 75

Notes: Analysis is based on the methodology and procedures in the Highway Capacity Manual (Transportation Research Board, 2016).
[1] At Missouri Flat Road/Industrial Drive the eastbound left-turn lane is shared with the eastbound through lane. The queue length reported includes both the left and through movements.
[2] At Missouri Flat Road/Enterprise Drive the eastbound right-turn lane is shared with the eastbound through lane. The queue length reported includes both the right and through movements.

Cumulative Year 2040 Conditions

The proposed project was also evaluated under Cumulative conditions. The traffic forecasts for the corridor were collected from the *Final Technical Memo 1-7: Future Traffic Analysis Results for the Missouri Flat Master Circulation & Financing Plan Phase II* (Kittelson & Associates, June, 22 2018). As discussed in that memo (see appendix), the cumulative year forecasts assume other roadway and development projects are in place by 2040. The forecasts assume completion of Diamond Springs Parkway, a new four-lane arterial roadway connecting SR 49 to Missouri Flat Road just north of China

Garden Road. Also, Missouri Flat Road is planned to be widened from two to four lanes between China Garden Road and Pleasant Valley Road through the study area.

The future land development projects include both approved and pending projects. Non-residential projects include the Public Safety Facility, The Crossings, Creekside Plaza, and Diamond Dorado retail centers. Traffic from residential projects, such as Piedmont Oaks and Diamond Springs Village are also included.

The Cumulative Year traffic operations results without and with the proposed project are displayed in Table 4. The technical calculations are contained in the attached appendix.

As shown, without the proposed project three of the four intersections would continue to operate at LOS F during the PM peak hour. The proposed signals would improve traffic operations to LOS A at the Missouri Flat Road/Industrial Drive and Missouri Flat Road/Enterprise Drive intersections during both peak hours. The 95th percentile queue lengths for this scenario are shown in Table 5. The queue lengths are similar to the reported lengths for the Existing Plus Project scenario. The only exception is the eastbound left-turn queue at Industrial Drive is projected to be about 25 feet longer. However, the intersections will continue to operate with very little delay, so the queuing will not result in operational issues.

Under the cumulative scenario, the intersection of Missouri Flat Road/China Garden Road operates at LOS F with and without the project. The Public Safety Facility is expected to add more than 10 trips to this intersection; therefore this is a significant impact. A mitigation measure is proposed below. This impact was also identified in the *Public Safety Facility Project EIR*.

Table 4: Peak Hour Intersection Traffic Operations
Cumulative 2040 Conditions

Intersection	No Project		Plus Project	
	AM Peak Hour (Delay / LOS)	**PM Peak Hour** (Delay / LOS)	**AM Peak Hour** (Delay / LOS)	**PM Peak Hour** (Delay / LOS)
1. Missouri Flat Road / China Garden Road	24 / C	**89 / F**	9 / A	**64 / F**
2. Missouri Flat Road / Industrial Drive	**66 / F**	**144 / F**	10 / A	6 / A
3. Missouri Flat Road / Enterprise Drive	21 / C	**157 / F**	7 / A	8 / A
4. Missouri Flat Road / Pleasant Valley Road	19 / B	32 / C	23 / B	31 C

Notes: Analysis is based on the methodology and procedures in the Highway Capacity Manual (Transportation Research Board, 2016). Average delay is reported in seconds per vehicle. For signalized intersections, the LOS is based on the average control delay for all approaches. For side-street stop controlled intersections, LOS is based on the movement with the worst delay.
Bold text indicates LOS F traffic operations.

Table 5: Peak Hour Intersection 95th Percentile Queue Length (feet) Cumulative Plus Project Conditions					
	Movement (AM / PM)				
Intersection	Southbound Left	Southbound Right	Northbound Left	Eastbound Left[1]	Eastbound Right[2]
2. Missouri Flat Road / Industrial Drive	75 / 25	50 / 25	125 / 50	75 / 125	25 / 100
3. Missouri Flat Road / Enterprise Drive	25 / 25	50 / 50	50 / 25	125 / 125	75 / 125

Notes: Analysis is based on the methodology and procedures in the Highway Capacity Manual (Transportation Research Board, 2016).
[1] At Missouri Flat Road/Industrial Drive the eastbound left-turn lane is shared with the eastbound through lane. The queue length reported includes both the left and through movements.
[2] At Missouri Flat Road/Enterprise Drive the eastbound right-turn lane is shared with the eastbound through lane. The queue length reported includes both the right and through movements.

Mitigation Measures

A mitigation measure is proposed, because the proposed signals and Public Safety Facility exacerbate the LOS F condition at the Missouri Flat Road/China Garden Road intersection. As discussed previously, the LOS F reported is for the side-street left-turn volume, not the overall intersection. To mitigate, the eastbound and westbound through and left-turns should be prohibited with signage and a painted or raised median. This would modify the side streets to right-in/right-out and left-in only. This would affect less than 20 vehicles during each peak hour.

Motorists wishing to make the eastbound left-turn can make that movement at a driveways located just north or south of the intersection, both of which have a center turn lane to help facilitate the movement. Motorists wishing to make the westbound left-turn can instead travel south on China Garden Road to Pleasant Valley Road and turn on Missouri Flat Road. The through movements had zero traffic during the May 2018 traffic counts.

As shown in Table 6, this mitigation measure would improve operations from LOS F to LOS C during the PM peak hour under Existing Plus Project conditions. As shown in Table 7, the mitigation measure would also improve the traffic operations under Cumulative Plus Project scenario from LOS F to LOS A during both peak hours.

Table 6: Peak Hour Intersection Traffic Operations Existing 2018 Conditions				
	Plus Project		**Plus Project with Mitigation**	
Intersection	**AM Peak Hour** (Delay / LOS)	**PM Peak Hour** (Delay / LOS)	**AM Peak Hour** (Delay / LOS)	**PM Peak Hour** (Delay / LOS)
1. Missouri Flat Road / China Garden Road	50 / E	**121 / F**	17 / C	26 / C
2. Missouri Flat Road / Industrial Drive	12 / B	10 / B	13 / B	9 / A
3. Missouri Flat Road / Enterprise Drive	8 / A	9 / A	8 / A	9 / A
4. Missouri Flat Road / Pleasant Valley Road	24 / C	43 / D	22 / C	41 / D

Notes: Analysis is based on the methodology and procedures in the Highway Capacity Manual (Transportation Research Board, 2016). Average delay is reported in seconds per vehicle. For signalized intersections, the LOS is based on the average control delay for all approaches. For side-street stop controlled intersections, LOS is based on the movement with the worst delay.
Bold text indicates LOS F traffic operations.

Table 7: Peak Hour Intersection Traffic Operations Cumulative 2040 Conditions				
	Plus Project		**Plus Project with Mitigation**	
Intersection	**AM Peak Hour** (Delay / LOS)	**PM Peak Hour** (Delay / LOS)	**AM Peak Hour** (Delay / LOS)	**PM Peak Hour** (Delay / LOS)
1. Missouri Flat Road / China Garden Road	9 / A	**64 / F**	6 / A	5 / A
2. Missouri Flat Road / Industrial Drive	10 / A	6 / A	11 / A	6 / A
3. Missouri Flat Road / Enterprise Drive	7 / A	8 / A	7 / A	8 / A
4. Missouri Flat Road / Pleasant Valley Road	23 / B	31 / C	23 / B	37 / D

Notes: Analysis is based on the methodology and procedures in the Highway Capacity Manual (Transportation Research Board, 2016). Average delay is reported in seconds per vehicle. For signalized intersections, the LOS is based on the average control delay for all approaches. For side-street stop controlled intersections, LOS is based on the movement with the worst delay.
Bold text indicates LOS F traffic operations.

The *Public Safety Facility Project FEIR* contains the following mitigation measure for the Missouri Flat Road/China Garden Road intersection:

> Mitigation Measure 4.10-2(a): Missouri Flat Road / China Garden Road. Prior to issuance of any building permits, the project applicant shall pay the countywide TIM fees for the project consistent with the County's CIP program. Installation of a traffic signal at the Missouri Flat Road / China Garden Road intersection will improve the LOS at the intersection to LOS B with a delay of 16.1 seconds. Alternatively, restricting the eastbound and westbound approaches to right-turns only would result in acceptable operations in both peak hours. Therefore, appropriate mitigation would include payment of traffic impact mitigation fees to satisfy the project's fair share obligation towards this improvement if it is included in the 20-Year CIP, or construction of the improvement with reimbursement or fee credit for costs that exceed the project's proportional share if the improvement is

needed but not included in future updates to the 20-Year CIP or constructed by others, as determined by CDA.

As demonstrated above, the alternate mitigation measure of restricting certain turn movements at Missouri Flat Road would provide acceptable traffic operations at the intersection through 2040. Therefore, this impact is less than significant with mitigation. Additionally, a traffic signal at Missouri Flat Road/China Garden Road intersection is not preferred, because of the close proximity to other planned signals (i.e. Missouri Flat Road/Industrial Drive, Missouri Flat Road/Enterprise Drive, and Missouri Flat Road/Diamond Springs Parkway).

Access to Existing Properties & Businesses

As noted in the *Public Safety Facility EIR*, several driveways on Missouri Flat Road could be affected by the new traffic signals. Each traffic signal has been designed to maintain and even improve access to the adjacent properties and businesses, as described below.

At the Missouri Flat Road/Industrial Drive intersection, the existing driveways serving APNs 329-261-12 (currently occupied by Stoves 'n' Stuff) and 329-261-13 (currently occupied by True Value Hardware) along the east side of Missouri Flat Road will be combined into a single driveway aligned with the signalized intersection. Curbs will be installed along Missouri Flat Road adjacent to these parcels in order to restrict illegal turning movements around the intersection and facilitate traffic through the signal. The existing driveways at the north end of 329-261-12 (Stoves 'n' Stuff) and south end of 329-261-13 (True Value Hardware) will remain and allow right-in/right-out movements only.

In the southwest quadrant of the Missouri Flat Road/Industrial Drive intersection, there is a multi-tenant retail center on APN 329-260-01. For this parcel, the northern driveway will be removed and access to this parcel will be provided by the existing southern driveway and a new driveway connecting to Industrial Drive along the north parcel boundary.

At the Missouri Flat Road/Enterprise Drive intersection, the existing driveways serving APNs 329-261-17 (currently occupied by Idle Wheels RV Center) and 329-261-18 (currently occupied by Advanced Gases and Equipment) along the east side of Missouri Flat Road will be combined into a single driveway aligned with the signalized intersection. Curbs will be installed along Missouri Flat Road adjacent to these parcels in order to restrict illegal turning movements around the intersection and facilitate traffic through the signal.

Conclusions

The installation of a traffic signal would provide operational benefits at both Missouri Flat Road/Industrial Drive and Missouri Flat Road/Enterprise Drive. The traffic signals would improve both intersections from LOS F to LOS B or better under Existing and Cumulative conditions.

The intersection of Missouri Flat Road/China Garden Road also operates at LOS F today and will require improvements to achieve acceptable LOS. The eastbound and westbound through and left-turns should be prohibited with signage and a painted or raised median. This would restore the intersection to acceptable LOS during both peak hours.

Technical Appendix

Traffic Operations Analysis for Missouri Flat Road Signals

TM Count: Missouri Flat Rd / China Garden Rd

Start Date: 5/23/2018
Start Time: 8:00:00 AM

	From North			From East			From South			From West		
Start Time	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left
08:00 AM	0	128	23	36	0	3	5	123	0	0	0	0
08:15 AM	0	158	25	32	0	3	8	211	0	0	0	0
08:30 AM	0	150	16	46	0	4	12	206	0	0	0	0
08:45 AM	1	159	34	49	0	1	8	204	0	0	0	0
09:00 AM	1	175	34	38	0	4	5	163	0	0	0	0
09:15 AM	0	147	32	27	0	6	7	194	0	0	0	1
09:30 AM	1	139	35	38	0	1	7	183	1	0	0	0
09:45 AM	0	164	36	39	1	4	7	197	0	0	0	0
10:00 AM												
10:15 AM												
10:30 AM												
10:45 AM												
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01:15 PM												
01:30 PM												
01:45 PM												
02:00 PM												
02:15 PM												
02:30 PM												
02:45 PM												
03:00 PM	0	163	36	32	0	1	5	153	1	1	1	0
03:15 PM	0	299	37	44	0	4	4	193	0	0	0	0
03:30 PM	0	242	36	35	0	4	5	169	0	0	0	0
03:45 PM	0	266	37	32	0	4	8	176	0	0	0	0
04:00 PM	2	308	42	46	0	5	10	188	0	0	0	0
04:15 PM	0	259	33	38	0	7	7	161	0	0	0	1
04:30 PM	0	293	34	40	0	2	4	188	1	0	0	0
04:45 PM	0	254	44	35	0	1	10	173	0	0	0	0
05:00 PM	0	262	37	49	0	2	1	174	0	0	0	0
05:15 PM	0	278	40	31	0	4	5	144	0	0	0	0
05:30 PM	0	257	23	46	0	2	14	224	0	0	0	0
05:45 PM	1	249	28	30	0	1	8	218	0	0	0	0

TM COUNT: Missouri Flat Rd / Enterprise Dr

Start Date: 5/23/2018

Start Time: 6:45:00 AM

	From North			From East			From South			From West		
Start Time	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left
06:45 AM	21	45	0	0	0	0	0	175	6	0	0	2
07:00 AM	18	73	0	0	0	0	0	165	2	1	0	9
07:15 AM	15	119	0	0	0	0	0	212	2	3	0	4
07:30 AM	17	117	1	0	0	0	0	223	5	3	0	7
07:45 AM	21	120	2	0	0	0	0	261	8	0	0	13
08:00 AM	29	133	1	0	0	0	0	161	7	3	0	11
08:15 AM	16	147	2	1	0	0	1	203	3	5	0	11
08:30 AM	14	105	4	0	0	0	0	185	5	1	0	6
08:45 AM	20	108	1	0	0	1	3	219	8	11	0	19
09:00 AM	18	112	1	0	0	0	1	149	5	5	0	11
09:15 AM	18	100	2	0	0	0	0	191	8	3	0	16
09:30 AM	22	115	3	0	0	0	0	155	4	2	0	16
09:45 AM	24	96	1	1	0	0	0	191	11	2	1	18
10:00 AM												
10:15 AM												
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02:15 PM												
02:30 PM												
02:45 PM												
03:00 PM	20	204	2	0	0	0	0	192	8	7	0	13
03:15 PM	24	220	1	2	0	0	0	182	6	11	0	12
03:30 PM	17	199	3	1	0	0	0	164	4	7	0	22
03:45 PM	22	224	0	0	0	0	0	141	7	5	0	14
04:00 PM	18	267	2	0	0	0	1	137	2	9	0	22
04:15 PM	22	244	2	1	0	0	0	168	2	4	0	19
04:30 PM	9	270	0	0	0	0	1	148	5	10	0	15
04:45 PM	8	222	2	0	0	0	0	139	1	4	0	19
05:00 PM	20	253	2	0	0	0	0	129	0	4	0	12
05:15 PM	6	243	1	1	0	0	0	148	1	5	0	14
05:30 PM	5	246	0	3	0	0	0	224	1	6	0	16
05:45 PM	8	205	0	0	0	0	0	197	0	3	0	9

TM Count: Missouri Flat Rd / Industrial Dr

Start Date: 5/24/2018
Start Time: 7:00:00 AM

	From North			From East			From South			From West		
Start Time	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left
07:00 AM	6	64	2	0	0	1	5	124	3	0	0	3
07:15 AM	18	119	2	3	0	1	0	225	8	2	0	4
07:30 AM	5	117	6	5	0	3	6	164	3	0	0	2
07:45 AM	13	138	2	3	0	2	0	212	11	6	0	5
08:00 AM	13	139	8	4	0	2	2	145	8	11	0	12
08:15 AM	15	128	0	6	0	2	7	196	9	6	0	10
08:30 AM	10	129	13	4	0	0	1	217	1	4	0	11
08:45 AM	5	155	7	4	0	2	4	205	4	3	0	6
09:00 AM	7	161	9	5	0	8	3	197	2	2	1	5
09:15 AM	11	131	6	8	0	7	5	176	5	3	0	3
09:30 AM	12	161	9	10	0	3	11	199	4	4	0	9
09:45 AM	10	146	7	4	0	5	6	168	8	6	0	7
10:00 AM												
10:15 AM												
10:30 AM												
10:45 AM												
11:00 AM												
11:15 AM												
11:30 AM												
11:45 AM												
12:00 PM												
12:15 PM												
12:30 PM												
12:45 PM												
01:00 PM												
01:15 PM												
01:30 PM												
01:45 PM												
02:00 PM												
02:15 PM												
02:30 PM												
02:45 PM												
03:00 PM	1	126	0	1	0	0	0	114	3	4	2	8
03:15 PM	3	262	2	2	0	2	0	200	1	4	0	3
03:30 PM	5	222	0	3	0	0	1	200	7	7	0	3
03:45 PM	7	225	2	0	0	0	2	153	6	5	0	6
04:00 PM	3	237	0	1	0	2	0	172	3	10	0	9
04:15 PM	5	257	0	0	0	0	0	176	0	5	0	7
04:30 PM	7	269	1	0	0	1	0	169	3	5	0	4
04:45 PM	1	276	1	0	0	0	0	162	0	11	0	6
05:00 PM	1	314	1	2	0	0	2	174	3	5	0	6
05:15 PM	3	345	0	0	0	0	0	204	1	10	0	7
05:30 PM	4	342	3	0	0	0	0	179	4	1	0	4
05:45 PM	2	292	0	1	0	0	1	160	0	1	0	7

TM Count: Missouri Flat Rd / Pleasant Valley Rd

Start Date: 5/23/2018
Start Time: 7:00:00 AM

	From North		From East		From West	
Start Time	Right	Left	Thru	Right	Thru	Left
	1	2	3	4	5	6
07:00 AM	69	55	117	218	41	74
07:15 AM	88	53	105	156	47	92
07:30 AM	60	62	90	154	79	83
07:45 AM	46	60	79	141	61	105
08:00 AM	60	64	84	134	47	83
08:15 AM	38	67	70	142	45	69
08:30 AM	44	63	73	168	59	67
08:45 AM	61	71	65	165	50	79
09:00 AM	51	71	53	119	38	45
09:15 AM	44	86	54	178	43	61
09:30 AM	55	52	45	42	27	60
09:45 AM	40	73	61	132	52	73
10:00 AM						
10:15 AM						
10:30 AM						
10:45 AM						
11:00 AM						
11:15 AM						
11:30 AM						
11:45 AM						
12:00 PM						
12:15 PM						
12:30 PM						
12:45 PM						
01:00 PM						
01:15 PM						
01:30 PM						
01:45 PM						
02:00 PM						
02:15 PM						
02:30 PM						
02:45 PM	86	138	84	104	62	86
03:00 PM	64	177	79	120	98	100
03:15 PM	103	161	85	110	88	90
03:30 PM	69	158	86	98	76	73
03:45 PM	93	156	61	89	62	55
04:00 PM	117	201	75	99	59	58
04:15 PM	95	159	57	90	86	62
04:30 PM	80	160	55	75	66	56
04:45 PM	74	194	64	93	67	66
05:00 PM	85	169	65	83	71	47
05:15 PM	75	181	64	61	91	86
05:30 PM	66	173	63	68	127	150
05:45 PM	49	165	48	68	101	125

1 = Missouri Flat Rd S/B to Pleasant Valley Rd W/B
2 = Missouri Flat Rd S/B to Pleasant Valley Rd E/B
3 = Pleasant Valley Rd W/B Thru
4 = Pleasant Valley Rd W/B to Missouri Flat Rd N/B
5 = Pleasant Valley Rd E/B Thru
6 = Pleasant Valley Rd E/B to Missouri Flat Rd N/B

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TECHNICAL MEMORANDUM 1-7

Missouri Flat Master Circulation & Financing Plan Phase II

Future Traffic Analysis Results

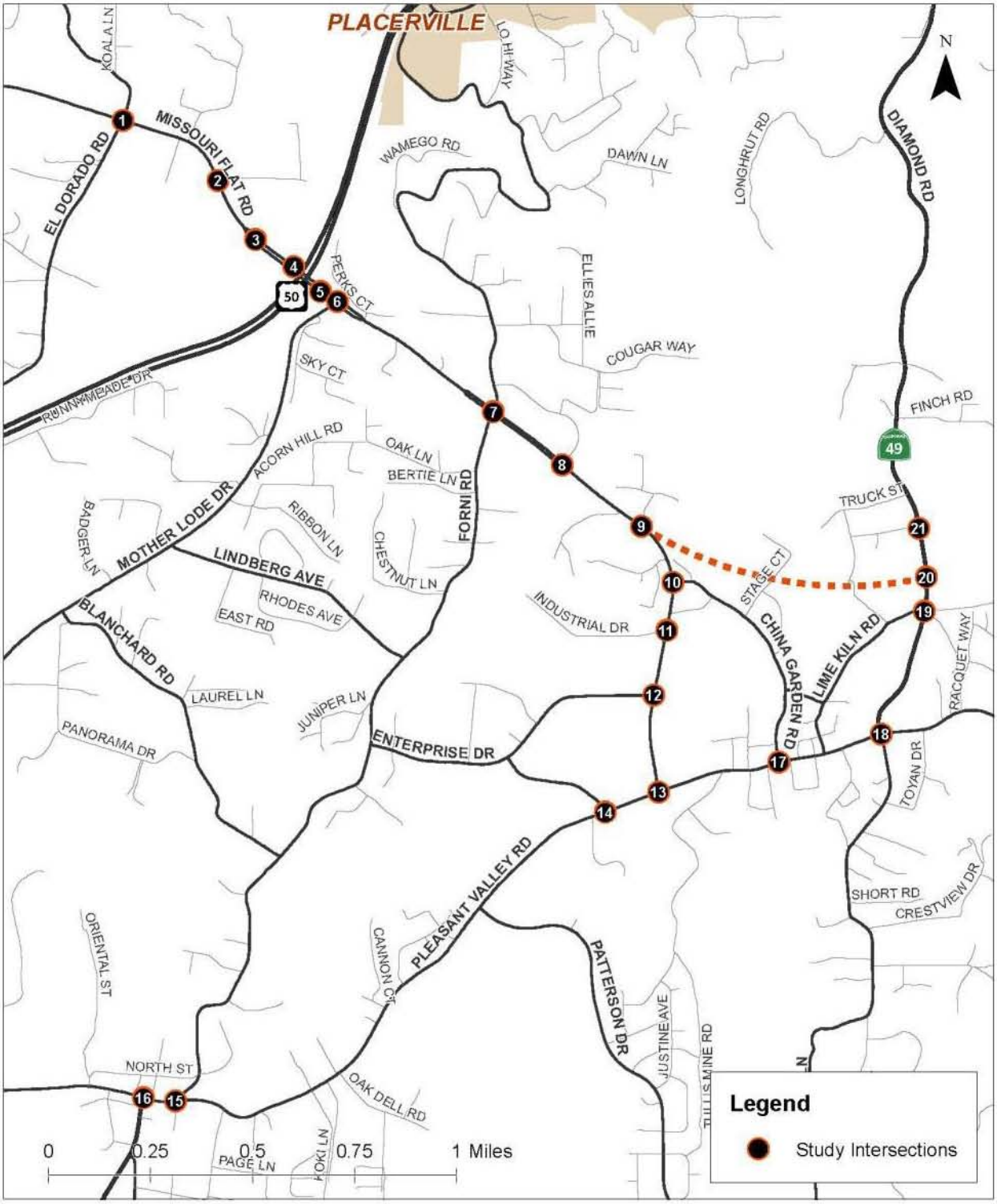
Date:	June 22, 2018 (finalized June 22, 2018)	Project #: 18048
To:	Ms. Natalie Porter, El Dorado County	
From:	Mike Aronson, P.E., Aaron Elias, T.E.	
cc:		

This technical memorandum summarizes the future transportation conditions for the Missouri Flat Master Circulation and Financing Plan Phase II (MC&FP-II) project. The study area includes 23 study intersections, with a particular focus on the operations of the US 50 freeway interchange at Missouri Flat Road (Figure 1).

SUMMARY

- Traffic forecasts were updated for 2035 and 2040 consistent with the current El Dorado County General Plan and market forecasts of potential commercial development.
- Current El Dorado County market-based growth forecasts are lower than those used in studies prior to the 2008 economic recession, averaging closer to one percent annual growth rather than three percent annual growth in prior forecasts.
- 2040 traffic forecasts are relatively consistent with the 2040 traffic forecasts used for the Diamond Springs Parkway traffic studies.

Figure 1: Study Area



Note: The intersections of US 50 EB Ramps/El Dorado Road and US 50 WB Ramps/El Dorado Road are included in the analysis, but not shown on this figure.

TRAFFIC FORECASTS

Traffic forecasts were updated for this evaluation for the 2035 horizon year. The 2035 forecasts were also extrapolated to a 2040 study year. The traffic forecasts were compared with traffic forecasts prepared for the "Diamond Springs Parkway Phase 1B Transportation Analysis Report" (Fehr & Peers, July, 2016).

The traffic forecasts are based on the El Dorado County travel model, starting with the version used for the most recent El Dorado County General Plan and Traffic Impact Mitigation Fee (TIMF). The model includes the roadway network and land use updates described below.

Road Network Updates

The 2035 road network was modified to include the planned widening of Missouri Flat Road from two to four lanes between China Garden and SR 49. The 2035 network also includes the completion of Diamond Springs Parkway as a four lane facility (Figure 2).

Land Use Updates

Future land use assumptions were updated in the Missouri Flat area to account for known development projects including the proposed Crossings, Creekside Plaza, and Diamond Dorado shopping centers. They also included residential projects such as Piedmont Oaks and the Diamond Springs Village. The proposed Public Safety complex on Industrial Drive was also added. The overall commercial growth assumed is somewhat higher (about 100,000 square feet) than the market demand analysis prepared by Economic and Planning Systems.

Development assumptions by transportation analysis zone (TAZ) are summarized in Figure 3, Figure 4 and Figure 5.

Figure 2: El Dorado County Model TAZs and 2035 Number of Through Lanes in Each Direction

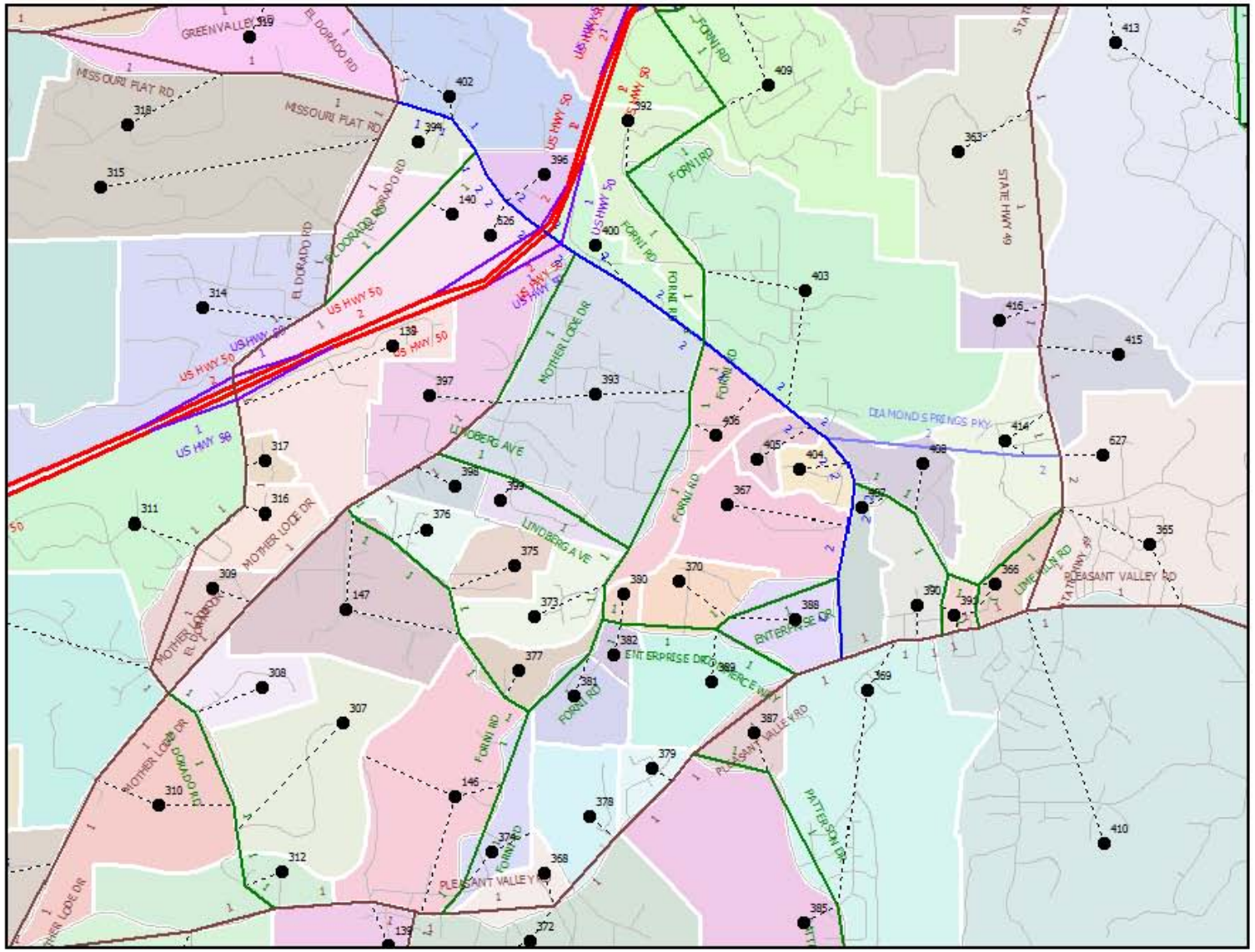


Figure 3: Growth in Housing Units, 2010 to 2035

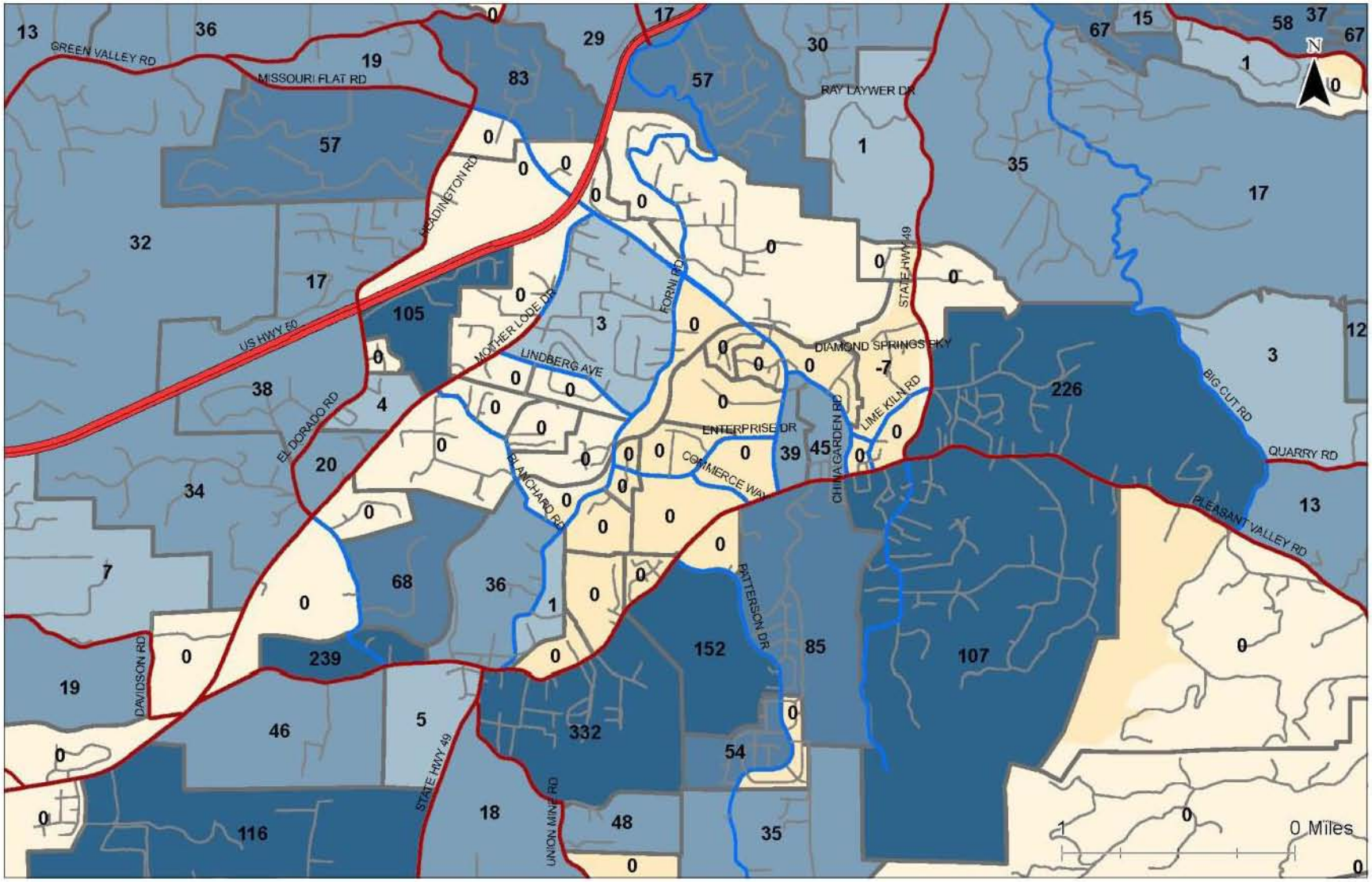


Figure 4: Growth in Retail Square Footage (1000s), 2010 to 2035

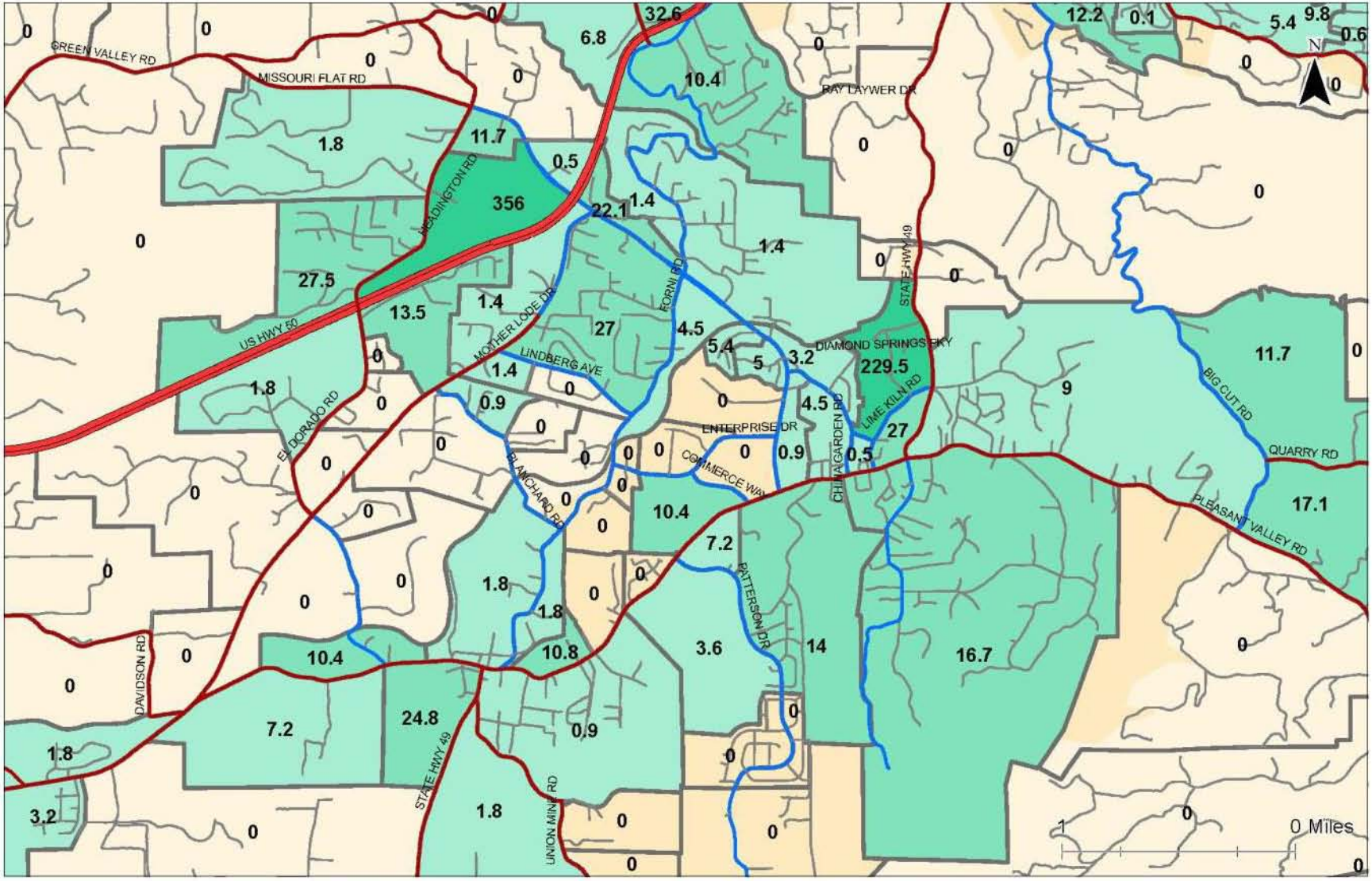
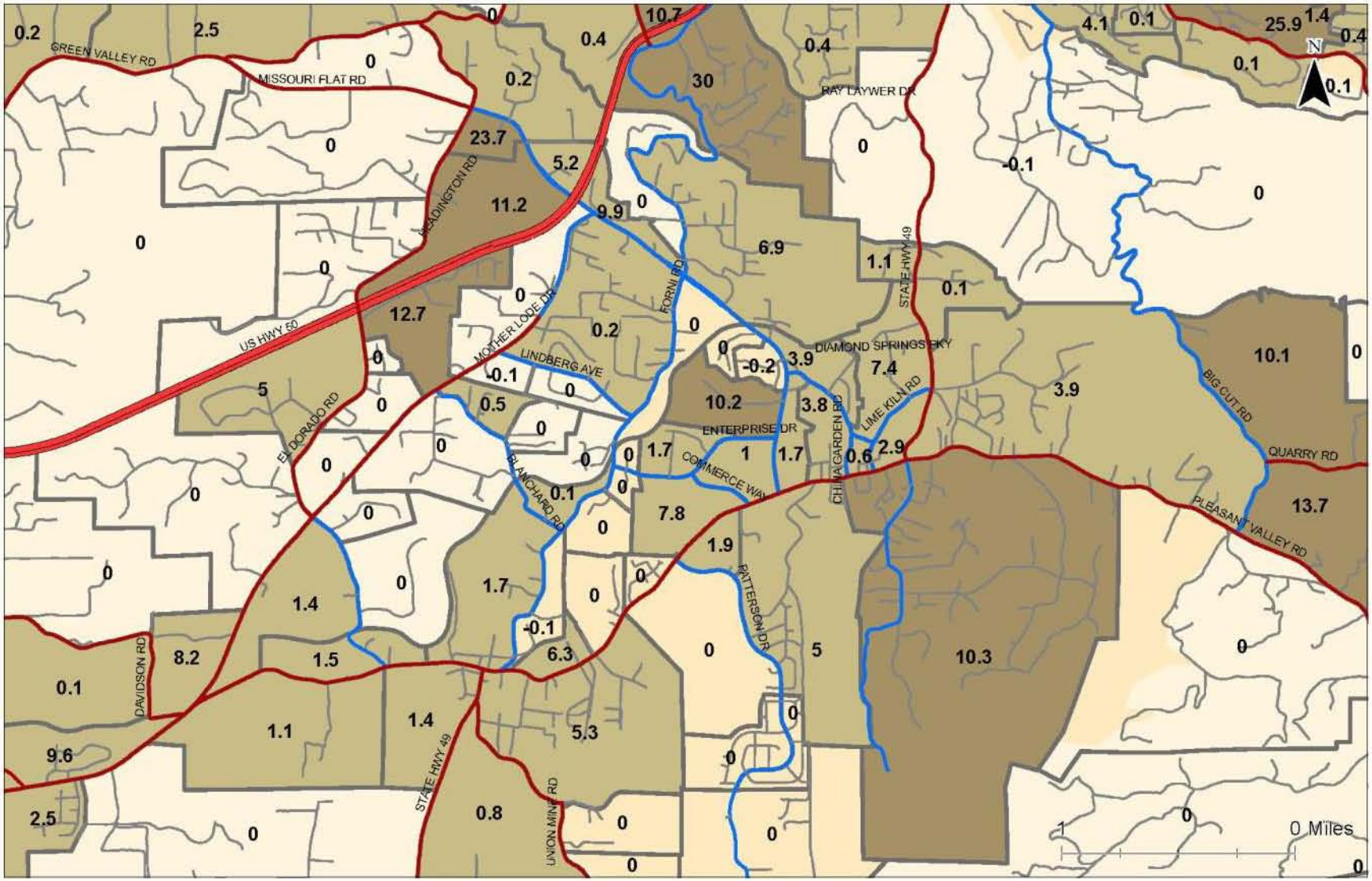


Figure 5: Growth in Non-Retail Square Footage (1000s), 2010 to 2035



2035 Traffic Forecasts

The El Dorado County model was run with the updated 2035 assumptions. Peak hour turn movements were extracted for each of the study intersections. These turn movements were not used directly, but were adjusted incrementally based on the following:

2035 turn movement = 2015 traffic count + (2035 model – 2015 model)

This incremental adjustment compensates for errors in the base year model and provides continuity of traffic flow for the future projections. Traffic forecasts at the four interchange study intersections are summarized in Table 1 and Table 2.

2040 Traffic Forecasts

The 2040 traffic forecasts on each turn movement were extrapolated from the 2035 forecasts:

2040 turn movement = 2015 traffic count + (2035 model – 2015 model)*25/20

This extrapolation methodology is similar to the methodology recently reviewed by Caltrans District 3 for the Cameron Park Drive interchange study.

The updated 2035 traffic forecasts show about 30 percent growth compared to 2015 traffic counts at the interchange intersections, averaging about 1.5 percent annual growth. The 1.5 percent annual growth is projected to continue through 2040.

The updated 2040 traffic forecasts are relatively consistent with the 2040 traffic forecasts used in the Diamond Springs Parkway TAR. The updated MC&FP forecasts are higher on some of the turn movements to and from freeway ramps, and are lower on certain through movements on Missouri Flat Road. Where volumes are lower in the updated MC&FP forecasts, they are most likely related to updates in land use forecasts for specific development areas (outside the immediate Missouri Flat study area) that were made in the El Dorado County travel model for the TIMF based on more current information that became available after the modeling was done for the Diamond Springs Parkway.

Intersection Volumes

Intersection turn volumes for the 2015 base year, 2035 and 2040 forecast years are attached.

Table 1: Intersection Volume Comparison, Interchange Area, AM Peak Hour

	Intersection	Northbound			Southbound			Eastbound			Westbound			
		Left	Through	Right	Left	Through	Right	Left	Through	Right	Left	Through	Right	TOTAL
3	Missouri Flat Road & Plaza Drive													
	2015 Count	101	413	294	34	290	7	7	7	83	228	23	50	**1,537**
	2035 MFC&FP	114	706	301	47	498	25	22	3	87	227	19	61	**2,111**
	2040 MFC&FP	117	780	303	50	550	29	25	3	88	227	19	63	**2,256**
	2040 Diamond Springs Parkway TAR	110	870	300	50	580	50	30	10	90	230	30	60	**2,410**
4	Missouri Flat Road & US 50 WB Ramps													
	2015 Count	368	519	0	0	485	116	0	0	0	487	1	289	**2,265**
	2035 MFC&FP	489	723	0	0	696	119	0	0	0	398	1	405	**2,830**
	2040 MFC&FP	519	774	0	0	748	119	0	0	0	398	1	434	**2,994**
	2040 Diamond Springs Parkway TAR	490	820			780	120				490	10	460	**3,170**
5	Missouri Flat Road & US 50 EB Ramps													
	2015 Count	0	766	71	161	811	0	119	0	358	0	0	0	**2,286**
	2035 MFC&FP	0	1,060	96	235	858	0	150	0	564	0	0	0	**2,964**
	2040 MFC&FP	0	1,134	102	254	870	0	158	0	616	0	0	0	**3,133**
	2040 Diamond Springs Parkway TAR		1,160	80	250	1,020		150	10	550				**3,220**
6	Missouri Flat Road & Mother Lode Drive													
	2015 Count	44	720	0	0	1,094	75	119	0	40	0	0	0	**2,092**
	2035 MFC&FP	50	983	0	0	1,335	88	140	0	56	0	0	0	**2,651**
	2040 MFC&FP	51	1,049	0	0	1,395	92	145	0	60	0	0	0	**2,791**
	2040 Diamond Springs Parkway TAR	50	1,120			1,490	80	120		40				**2,900**

Table 2: Intersection Volume Comparison, Interchange Area, PM Peak Hour

	Intersection	Northbound			Southbound			Eastbound			Westbound			
		Left	Through	Right	Left	Through	Right	Left	Through	Right	Left	Through	Right	TOTAL
3	Missouri Flat Road & Plaza Drive													
	2015 Count	336	292	419	47	338	19	28	51	331	432	43	50	**2,386**
	2035 MFC&FP	347	622	417	68	714	61	73	44	357	437	36	71	**3,245**
	2040 MFC&FP	350	705	417	73	808	71	84	44	363	438	36	76	**3,464**
	2040 Diamond Springs Parkway TAR	340	760	420	60	810	50	80	60	340	440	60	70	**3,490**
4	Missouri Flat Road & US 50 WB Ramps													
	2015 Count	366	653			914	187				636	0	394	**3,150**
	2035 MFC&FP	572	872			1,285	223				594	0	513	**4,058**
	2040 MFC&FP	623	927			1,377	232				594	0	543	**4,296**
	2040 Diamond Springs Parkway TAR	560	950			1,400	190				680	10	570	**4,360**
5	Missouri Flat Road & US 50 EB Ramps													
	2015 Count		828	106	376	1,174		191	4	587				**3,266**
	2035 MFC&FP		1,245	149	502	1,377		199	4	757				**4,233**
	2040 MFC&FP		1,350	160	533	1,427		201	4	800				**4,475**
	2040 Diamond Springs Parkway TAR		1,310	110	540	1,540		200	10	750				**4,460**
6	Missouri Flat Road & Mother Lode Drive													
	2015 Count	52	766			1,545	216	168		64				**2,811**
	2035 MFC&FP	73	1,092			1,893	241	187		74				**3,559**
	2040 MFC&FP	78	1,174			1,979	248	192		76				**3,747**
	2040 Diamond Springs Parkway TAR	60	1,250			2,070	220	170		60				**3,830**

INTERSECTION TRAFFIC COUNTS
2015 Counts
AM Peak Hour

Intersection			Northbound			Southbound			Eastbound			Westbound			
No.	Street (N-S)	Street (E-W)	Left	Through	Right	Left	Through	Right	Left	Through	Right	Left	Through	Right	TOTAL
1	El Dorado Road	Missouri Flat Road	132	19	22	50	27	4	3	257	60	16	445	43	1078
2	Missouri Flat Road	Headington Road	0	457	21	41	293	0	0	0	0	15	0	36	863
3	Missouri Flat Road	Plaza Drive	101	413	294	34	290	7	7	7	83	228	23	50	1537
4	Missouri Flat Road	US 50 WB Ramps	368	519	0	0	485	116	0	0	0	487	1	289	2265
5	Missouri Flat Road	US 50 EB Ramps	0	766	71	161	811	0	119	0	358	0	0	0	2286
6	Missouri Flat Road	Mother Lode Drive	44	720	0	0	1,094	75	119	0	40	0	0	0	2092
7	Missouri Flat Road	Forni Road	24	841	58	226	692	216	205	75	14	53	41	162	2607
8	Missouri Flat Road	Golden Center Drive	39	867	93	114	624	3	4	5	10	35	5	8	1807
9	Missouri Flat Road	Diamond Springs Parkway	0	999	0	0	645	0	0	0	0	0	0	0	1644
10	Missouri Flat Road	China Garden Road	0	904	10	105	540	0	1	0	0	6	0	107	1673
11	Missouri Flat Road	Industrial Drive	11	896	0	0	541	22	13	0	12	0	0	0	1495
12	Missouri Flat Road	Enterprise Drive	17	844	6	4	419	94	51	0	13	1	0	4	1453
13	Missouri Flat Road	Pleasant Valley Road (SR 49)	0	0	0	185	0	205	304	178	0	0	392	533	1797
14	Commerce Way	Pleasant Valley Road (SR 49)	0	0	0	18	0	19	31	464	0	0	518	79	1129
15	Forni Road	Pleasant Valley Road (SR 49)	0	0	0	50	0	101	135	337	0	0	323	33	979
16	Golden Chain Hwy (SR 4	Pleasant Valley Road	224	0	238	0	0	0	0	243	85	141	287	0	1218
17	China Garden Road	Pleasant Valley Road (SR 49)	0	0	0	3	0	9	11	359	0	0	883	50	1315
18	Fowler Ln/Diamond Rd	Pleasant Valley Road	88	23	10	60	5	105	97	258	25	19	780	154	1624
19	Diamond Road (SR 49)	Lime Kiln Rd/Black Rice Ln	31	188	15	12	193	29	23	3	10	7	4	2	517
20	Diamond Road (SR 49)	Diamond Springs Parkway	0	213	0	0	234	0	0	0	0	0	0	0	447
21	Diamond Road (SR 49)	Bradley Drive	35	198	0	0	217	13	5	0	17	0	0	0	485
22	El Dorado Road	US 50 WB Ramps	105	178	0	0	56	62	0	0	0	124	0	22	547
23	El Dorado Road	US 50 EB Ramps	0	193	87	24	156	0	90	2	98	0	0	0	650
24	Missouri Flat Road	US 50 EB Slip Ramp	0	764	446	0	1,134	0	0	0	0	0	0	0	2344

INTERSECTION TRAFFIC COUNTS
2015 Counts
PM Peak Hour

Intersection			Northbound			Southbound			Eastbound			Westbound			
No.	Street (N-S)	Street (E-W)	Left	Through	Right	Left	Through	Right	Left	Through	Right	Left	Through	Right	TOTAL
1	El Dorado Road	Missouri Flat Road	43	49	38	83	31	8	9	222	36	27	299	139	984
2	Missouri Flat Road	Headington Road	0	408	12	29	317	0	0	0	0	26	0	59	851
3	Missouri Flat Road	Plaza Drive	336	292	419	47	338	19	28	51	331	432	43	50	2386
4	Missouri Flat Road	US 50 WB Ramps	366	653	0	0	914	187	0	0	0	636	0	394	3150
5	Missouri Flat Road	US 50 EB Ramps	0	828	106	376	1,174	0	191	4	587	0	0	0	3266
6	Missouri Flat Road	Mother Lode Drive	52	766	0	0	1,545	216	168	0	64	0	0	0	2811
7	Missouri Flat Road	Forni Road	47	758	22	146	1,136	327	461	34	42	31	48	179	3231
8	Missouri Flat Road	Golden Center Drive	70	698	51	96	1,028	7	14	9	81	105	14	57	2230
9	Missouri Flat Road	Diamond Springs Parkway	0	819	0	0	1,169	0	0	0	0	0	0	0	1988
10	Missouri Flat Road	China Garden Road	2	682	29	142	1,026	1	2	0	0	12	1	140	2037
11	Missouri Flat Road	Industrial Drive	7	663	0	0	1,021	11	18	0	18	0	0	0	1738
12	Missouri Flat Road	Enterprise Drive	7	573	2	4	934	62	78	1	30	1	1	1	1694
13	Missouri Flat Road	Pleasant Valley Road (SR 49)	0	0	0	717	0	304	232	259	0	0	253	327	2092
14	Commerce Way	Pleasant Valley Road (SR 49)	0	0	0	52	0	48	14	508	0	0	517	40	1179
15	Forni Road	Pleasant Valley Road (SR 49)	0	0	0	22	0	147	88	402	0	0	331	36	1026
16	Golden Chain Hwy (SR 4	Pleasant Valley Road	99	0	148	0	0	0	0	324	205	211	265	0	1252
17	China Garden Road	Pleasant Valley Road (SR 49)	0	0	0	9	0	15	9	890	0	0	583	45	1551
18	Fowler Ln/Diamond Rd	Pleasant Valley Road	65	25	27	213	32	113	93	775	76	19	415	114	1967
19	Diamond Road (SR 49)	Lime Kiln Rd/Black Rice Ln	40	212	20	20	357	50	79	9	35	6	3	2	833
20	Diamond Road (SR 49)	Diamond Springs Parkway	0	293	0	0	427	0	0	0	0	0	0	0	720
21	Diamond Road (SR 49)	Bradley Drive	29	264	0	0	395	8	17	0	32	0	0	0	745
22	El Dorado Road	US 50 WB Ramps	98	160	0	0	88	53	0	0	0	82	0	38	519
23	El Dorado Road	US 50 EB Ramps	0	152	95	43	127	0	106	0	113	0	0	0	636
24	Missouri Flat Road	US 50 EB Slip Ramp	0	818	588	0	1,609	0	0	0	0	0	0	0	3015

ADJUSTED TURN MOVEMENT FORECAST
2035 Land Use Alt. 1
AM Peak Hour

Intersection			Northbound			Southbound			Eastbound			Westbound			
No.	Street (N-S)	Street (E-W)	Left	Through	Right	Left	Through	Right	Left	Through	Right	Left	Through	Right	TOTAL
1	El Dorado Road	Missouri Flat Road	139	36	42	71	31	6	5	313	66	43	460	34	1246
2	Missouri Flat Road	Headington Road	294	488	21	41	361	47	24	0	181	15	0	36	1509
3	Missouri Flat Road	Plaza Drive	114	706	301	47	498	25	22	3	87	227	19	61	2111
4	Missouri Flat Road	US 50 WB Ramps	489	723	0	0	696	119	0	0	0	398	1	405	2830
5	Missouri Flat Road	US 50 EB Ramps	0	1060	96	235	858	0	150	0	564	0	0	0	2964
6	Missouri Flat Road	Mother Lode Drive	50	983	0	0	1335	88	140	0	56	0	0	0	2651
7	Missouri Flat Road	Forni Road	15	1110	71	179	966	225	219	67	6	63	36	146	3102
8	Missouri Flat Road	Golden Center Drive	120	1116	93	114	894	3	4	5	61	35	5	8	2457
9	Missouri Flat Road	Diamond Springs Parkway	0	525	96	498	490	0	0	0	0	151	0	875	2635
10	Missouri Flat Road	China Garden Road	0	918	11	24	743	0	1	0	0	4	0	14	1715
11	Missouri Flat Road	Industrial Drive	88	908	0	0	693	190	5	0	30	0	0	0	1914
12	Missouri Flat Road	Enterprise Drive	17	837	6	4	519	140	79	0	13	1	0	4	1620
13	Missouri Flat Road	Pleasant Valley Road (SR 4	0	0	0	209	0	281	411	220	0	0	381	419	1921
14	Commerce Way	Pleasant Valley Road (SR 4	0	0	0	10	0	21	35	635	0	0	608	54	1364
15	Forni Road	Pleasant Valley Road (SR 4	0	0	0	52	0	103	146	435	0	0	432	38	1205
16	Golden Chain Hwy (SR 49)	Pleasant Valley Road	292	0	281	0	0	0	0	319	108	176	366	0	1541
17	China Garden Road	Pleasant Valley Road (SR 4	0	0	0	3	0	9	12	438	0	0	723	50	1235
18	Fowler Ln/Diamond Rd	Pleasant Valley Road	14	115	14	274	52	94	119	139	17	31	372	608	1849
19	Diamond Road (SR 49)	Lime Kiln Rd/Black Rice Ln	31	590	65	122	479	14	0	0	26	0	0	189	1516
20	Diamond Road (SR 49)	Diamond Springs Parkway	783	164	23	18	213	171	60	26	368	18	35	16	1894
21	Diamond Road (SR 49)	Bradley Drive	1	231	0	0	402	95	47	0	0	0	0	0	775
22	El Dorado Road	US 50 WB Ramps	124	351	0	0	83	155	0	0	0	150	0	32	896
23	El Dorado Road	US 50 EB Ramps	0	280	132	29	204	0	196	2	119	0	0	0	963
24	Missouri Flat Road	US 50 EB Slip Ramp	0	1033	411	0	1390	0	0	0	0	0	0	0	2834

ADJUSTED TURN MOVEMENT FORECAST
2035 No Build
PM Peak Hour

Intersection			Northbound			Southbound			Eastbound			Westbound			
No.	Street (N-S)	Street (E-W)	Left	Through	Right	Left	Through	Right	Left	Through	Right	Left	Through	Right	TOTAL
1	El Dorado Road	Missouri Flat Road	51	59	76	86	36	9	10	256	44	63	365	179	1235
2	Missouri Flat Road	Headington Road	317	487	12	29	364	45	77	0	391	26	0	59	1807
3	Missouri Flat Road	Plaza Drive	347	622	417	68	714	61	73	44	357	437	36	71	3245
4	Missouri Flat Road	US 50 WB Ramps	572	872	0	0	1285	223	0	0	0	594	0	513	4058
5	Missouri Flat Road	US 50 EB Ramps	0	1245	149	502	1377	0	199	4	757	0	0	0	4233
6	Missouri Flat Road	Mother Lode Drive	73	1092	0	0	1893	241	187	0	74	0	0	0	3559
7	Missouri Flat Road	Forni Road	23	1092	34	135	1475	346	484	25	14	48	37	146	3860
8	Missouri Flat Road	Golden Center Drive	160	1020	51	96	1344	7	14	9	187	105	14	57	3065
9	Missouri Flat Road	Diamond Springs Parkway	0	598	164	933	714	0	0	0	0	135	0	653	3197
10	Missouri Flat Road	China Garden Road	2	878	29	22	1118	1	2	0	0	10	1	37	2099
11	Missouri Flat Road	Industrial Drive	22	817	0	0	1089	49	160	0	114	0	0	0	2251
12	Missouri Flat Road	Enterprise Drive	9	668	2	4	962	106	133	1	30	1	1	1	1917
13	Missouri Flat Road	Pleasant Valley Road (SR 4	0	0	0	642	0	407	319	281	0	0	308	337	2294
14	Commerce Way	Pleasant Valley Road (SR 4	0	0	0	24	0	52	16	645	0	0	686	29	1452
15	Forni Road	Pleasant Valley Road (SR 4	0	0	0	28	0	157	84	530	0	0	437	38	1273
16	Golden Chain Hwy (SR 49)	Pleasant Valley Road	128	0	213	0	0	0	0	391	311	242	362	0	1647
17	China Garden Road	Pleasant Valley Road (SR 4	0	0	0	9	0	16	9	812	0	0	643	45	1534
18	Fowler Ln/Diamond Rd	Pleasant Valley Road	25	108	31	669	136	105	103	394	40	36	294	371	2311
19	Diamond Road (SR 49)	Lime Kiln Rd/Black Rice Ln	40	456	83	200	945	32	0	0	88	0	0	164	2008
20	Diamond Road (SR 49)	Diamond Springs Parkway	493	259	22	18	339	75	165	43	800	37	53	31	2335
21	Diamond Road (SR 49)	Bradley Drive	7	447	0	0	435	80	119	0	0	0	0	0	1089
22	El Dorado Road	US 50 WB Ramps	122	347	0	0	171	196	0	0	0	174	0	47	1057
23	El Dorado Road	US 50 EB Ramps	0	227	128	51	293	0	242	0	137	0	0	0	1079
24	Missouri Flat Road	US 50 EB Slip Ramp	0	1165	473	0	1966	0	0	0	0	0	0	0	3604

ADJUSTED TURN MOVEMENT FORECAST			Count Yr	2015												
2040 Land Use Alt. 1			Model Yr	2035												
AM Peak Hour			Future Yr	2040												
Intersection			**Northbound**			**Southbound**			**Eastbound**			**Westbound**				
No.	**Street (N-S)**	**Street (E-W)**	**Left**	**Through**	**Right**	**Left**	**Through**	**Right**	**Left**	**Through**	**Right**	**Left**	**Through**	**Right**	**TOTAL**	
1	El Dorado Road	Missouri Flat Road	141	41	47	76	32	7	6	326	68	50	463	34	1290	
2	Missouri Flat Road	Headington Road	368	496	21	41	378	59	30	0	227	15	0	36	1670	
3	Missouri Flat Road	Plaza Drive	117	780	303	50	550	29	25	3	88	227	19	63	2256	
4	Missouri Flat Road	US 50 WB Ramps	519	774	0	0	748	119	0	0	0	398	1	434	2994	
5	Missouri Flat Road	US 50 EB Ramps	0	1134	102	254	870	0	158	0	616	0	0	0	3133	
6	Missouri Flat Road	Mother Lode Drive	51	1049	0	0	1395	92	145	0	60	0	0	0	2791	
7	Missouri Flat Road	Forni Road	15	1177	75	179	1034	228	223	67	6	65	36	146	3249	
8	Missouri Flat Road	Golden Center Drive	140	1178	93	114	962	3	4	5	73	35	5	8	2620	
9	Missouri Flat Road	Diamond Springs Parkway	0	525	119	623	490	0	0	0	0	189	0	1094	3040	
10	Missouri Flat Road	China Garden Road	0	921	11	24	793	0	1	0	0	4	0	14	1769	
11	Missouri Flat Road	Industrial Drive	107	911	0	0	731	232	5	0	34	0	0	0	2020	
12	Missouri Flat Road	Enterprise Drive	17	837	6	4	544	152	86	0	13	1	0	4	1664	
13	Missouri Flat Road	Pleasant Valley Road (SR 4	0	0	0	215	0	300	437	230	0	0	381	419	1983	
14	Commerce Way	Pleasant Valley Road (SR 4	0	0	0	10	0	22	36	677	0	0	630	54	1430	
15	Forni Road	Pleasant Valley Road (SR 4	0	0	0	52	0	103	148	460	0	0	460	39	1261	
16	Golden Chain Hwy (SR 49)	Pleasant Valley Road	308	0	291	0	0	0	0	337	114	184	386	0	1622	
17	China Garden Road	Pleasant Valley Road (SR 4	0	0	0	3	0	9	12	458	0	0	723	50	1255	
18	Fowler Ln/Diamond Rd	Pleasant Valley Road	14	138	15	328	64	94	125	139	17	34	372	721	2060	
19	Diamond Road (SR 49)	Lime Kiln Rd/Black Rice Ln	31	690	78	149	551	14	0	0	30	0	0	236	1779	
20	Diamond Road (SR 49)	Diamond Springs Parkway	979	164	29	23	213	214	75	32	459	22	44	19	2273	
21	Diamond Road (SR 49)	Bradley Drive	1	239	0	0	448	116	57	0	0	0	0	0	861	
22	El Dorado Road	US 50 WB Ramps	129	395	0	0	90	178	0	0	0	157	0	34	983	
23	El Dorado Road	US 50 EB Ramps	0	302	144	30	217	0	222	2	125	0	0	0	1041	
24	Missouri Flat Road	US 50 EB Slip Ramp	0	1100	411	0	1454	0	0	0	0	0	0	0	2965	

ADJUSTED TURN MOVEMENT FORECAST			Count Yr	2015											
2040 Land Use Alt. 1			Model Yr	2035											
PM Peak Hour			Future Yr	2040											

Intersection			Northbound			Southbound			Eastbound			Westbound			
No.	**Street (N-S)**	**Street (E-W)**	**Left**	**Through**	**Right**	**Left**	**Through**	**Right**	**Left**	**Through**	**Right**	**Left**	**Through**	**Right**	**TOTAL**
1	El Dorado Road	Missouri Flat Road	53	62	86	87	37	10	11	265	45	72	382	189	1298
2	Missouri Flat Road	Headington Road	396	507	12	29	376	56	97	0	489	26	0	59	2046
3	Missouri Flat Road	Plaza Drive	350	705	417	73	808	71	84	44	363	438	36	76	3464
4	Missouri Flat Road	US 50 WB Ramps	623	927	0	0	1377	232	0	0	0	594	0	543	4296
5	Missouri Flat Road	US 50 EB Ramps	0	1350	160	533	1427	0	201	4	800	0	0	0	4475
6	Missouri Flat Road	Mother Lode Drive	78	1174	0	0	1979	248	192	0	76	0	0	0	3747
7	Missouri Flat Road	Forni Road	23	1175	37	135	1560	351	490	25	14	53	37	146	4046
8	Missouri Flat Road	Golden Center Drive	183	1101	51	96	1422	7	14	9	214	105	14	57	3273
9	Missouri Flat Road	Diamond Springs Parkway	0	598	204	1166	714	0	0	0	0	169	0	816	3668
10	Missouri Flat Road	China Garden Road	2	927	29	22	1141	1	2	0	0	10	1	37	2171
11	Missouri Flat Road	Industrial Drive	26	855	0	0	1106	58	195	0	138	0	0	0	2379
12	Missouri Flat Road	Enterprise Drive	9	691	2	4	969	118	146	1	30	1	1	1	1973
13	Missouri Flat Road	Pleasant Valley Road (SR 4	0	0	0	642	0	432	340	287	0	0	322	339	2363
14	Commerce Way	Pleasant Valley Road (SR 4	0	0	0	24	0	53	17	680	0	0	729	29	1530
15	Forni Road	Pleasant Valley Road (SR 4	0	0	0	30	0	159	84	562	0	0	463	38	1336
16	Golden Chain Hwy (SR 49)	Pleasant Valley Road	135	0	230	0	0	0	0	408	338	250	387	0	1746
17	China Garden Road	Pleasant Valley Road (SR 4	0	0	0	9	0	16	9	812	0	0	658	45	1549
18	Fowler Ln/Diamond Rd	Pleasant Valley Road	25	129	31	783	162	105	105	394	40	40	294	435	2544
19	Diamond Road (SR 49)	Lime Kiln Rd/Black Rice Ln	40	517	99	245	1092	32	0	0	101	0	0	204	2330
20	Diamond Road (SR 49)	Diamond Springs Parkway	616	259	27	23	339	94	206	54	1000	47	67	38	2770
21	Diamond Road (SR 49)	Bradley Drive	7	493	0	0	446	98	145	0	0	0	0	0	1189
22	El Dorado Road	US 50 WB Ramps	129	394	0	0	192	232	0	0	0	196	0	49	1192
23	El Dorado Road	US 50 EB Ramps	0	246	136	53	335	0	277	0	143	0	0	0	1189
24	Missouri Flat Road	US 50 EB Slip Ramp	0	1251	473	0	2056	0	0	0	0	0	0	0	3780

1: Missouri Flat Road & China Garden Road Performance by movement

Movement	EBL	WBL	WBR	NBT	NBR	SBL	SBT	SBR	All
Denied Delay (hr)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Denied Del/Veh (s)		0.0	0.0	0.0	0.0	0.0	0.0		0.0
Total Delay (hr)	0.0	0.0	0.2	0.2	0.0	0.1	0.1	0.0	0.6
Total Del/Veh (s)		45.3	20.0	2.6	0.8	8.1	1.4	0.2	4.4
Vehicles Entered	0	3	43	212	8	33	166	0	465
Vehicles Exited	0	3	43	212	8	34	165	1	466
Hourly Exit Rate	0	12	172	848	32	136	660	4	1864
Input Volume	1	16	168	855	34	122	664	2	1862
% of Volume	0	75	102	99	94	111	99	200	100
Denied Entry Before	0	0	0	0	0	0	0	0	0
Denied Entry After	0	0	0	0	0	0	0	0	0

2: Missouri Flat Road & Industrial Ave Performance by movement

Movement	EBL	EBT	EBR	WBL	WBR	NBL	NBT	NBR	SBL	SBT	SBR	All
Denied Delay (hr)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Denied Del/Veh (s)	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (hr)	0.1	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.4
Total Del/Veh (s)	47.9		19.3	26.9	16.9	3.2	1.9	0.6	4.8	0.8	0.3	3.0
Vehicles Entered	6	0	3	6	6	4	234	7	7	159	2	434
Vehicles Exited	6	0	3	5	6	4	234	7	7	158	2	432
Hourly Exit Rate	24	0	12	20	24	16	936	28	28	632	8	1728
Input Volume	25	1	13	22	29	16	949	25	33	643	4	1760
% of Volume	96	0	92	91	83	100	99	112	85	98	200	98
Denied Entry Before	0	0	0	0	0	0	0	0	0	0	0	0
Denied Entry After	0	0	0	0	0	0	0	0	0	0	0	0

3: Missouri Flat Road & Enterprise Drive Performance by movement

Movement	EBL	EBR	WBR	NBL	NBT	NBR	SBL	SBT	SBR	All
Denied Delay (hr)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Denied Del/Veh (s)	0.0	0.0		0.0	0.0		0.4	0.0	0.1	0.0
Total Delay (hr)	0.2	0.0	0.0	0.0	0.1	0.0	0.0	0.1	0.0	0.4
Total Del/Veh (s)	58.3	22.3		4.6	1.1		8.2	2.5	0.9	3.3
Vehicles Entered	12	3	0	8	255	0	1	140	23	442
Vehicles Exited	11	3	0	7	254	0	1	139	24	439
Hourly Exit Rate	44	12	0	28	1016	0	4	556	96	1756
Input Volume	47	12	1	26	1017	1	7	574	92	1777
% of Volume	94	100	0	108	100	0	57	97	104	99
Denied Entry Before	0	0	0	0	0	0	0	0	0	0
Denied Entry After	0	0	0	0	0	0	0	0	0	0

4: SR 49 / Pleasant Valley Road & Missouri Flat Road Performance by movement

Movement	EBL	EBT	WBT	WBR	SBL	SBT	SBR	All
Denied Delay (hr)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Denied Del/Veh (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (hr)	0.8	0.2	1.2	1.3	0.3	0.0	0.1	3.9
Total Del/Veh (s)	28.9	9.8	40.7	25.4	21.3	0.7	4.7	23.6
Vehicles Entered	96	54	99	173	56	20	67	565
Vehicles Exited	94	55	98	171	54	20	66	558
Hourly Exit Rate	376	220	392	684	216	80	264	2232
Input Volume	361	233	399	683	235	83	268	2262
% of Volume	104	94	98	100	92	96	99	99
Denied Entry Before	0	0	0	0	0	0	0	0
Denied Entry After	0	0	0	0	0	0	0	0

Total Network Performance

Denied Delay (hr)	0.2
Denied Del/Veh (s)	0.9
Total Delay (hr)	6.0
Total Del/Veh (s)	27.3
Vehicles Entered	720
Vehicles Exited	708
Hourly Exit Rate	2832
Input Volume	17038
% of Volume	17
Denied Entry Before	0
Denied Entry After	0

Intersection: 1: Missouri Flat Road & China Garden Road

Movement	EB	WB	WB	NB	SB
Directions Served	LTR	LT	R	TR	L
Maximum Queue (ft)	3	138	73	4	70
Average Queue (ft)	0	51	56	1	38
95th Queue (ft)	6	158	83	7	68
Link Distance (ft)	71	834		563	
Upstream Blk Time (%)					
Queuing Penalty (veh)					
Storage Bay Dist (ft)			50		200
Storage Blk Time (%)		2	24		
Queuing Penalty (veh)		4	4		

Intersection: 2: Missouri Flat Road & Industrial Ave

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	L	L
Maximum Queue (ft)	60	67	17	28
Average Queue (ft)	32	35	4	11
95th Queue (ft)	71	71	17	32
Link Distance (ft)	783	160		
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)			100	150
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 3: Missouri Flat Road & Enterprise Drive

Movement	EB	WB	NB	B23	SB	SB
Directions Served	LTR	LTR	L	T	L	TR
Maximum Queue (ft)	90	6	26	5	19	2
Average Queue (ft)	51	1	14	1	3	0
95th Queue (ft)	110	10	35	10	17	4
Link Distance (ft)	929	93		663		760
Upstream Blk Time (%)						
Queuing Penalty (veh)						
Storage Bay Dist (ft)			100		150	
Storage Blk Time (%)						
Queuing Penalty (veh)						

Intersection: 4: SR 49 / Pleasant Valley Road & Missouri Flat Road

Movement	EB	EB	EB	WB	WB	B5	SB	SB
Directions Served	L	L	T	T	R	T	L	R
Maximum Queue (ft)	149	163	166	720	175	19	156	102
Average Queue (ft)	101	119	66	457	169	0	93	43
95th Queue (ft)	165	177	173	812	205	0	157	99
Link Distance (ft)			942	887		174		663
Upstream Blk Time (%)				1		0		
Queuing Penalty (veh)				0		0		
Storage Bay Dist (ft)	150	150			150		600	
Storage Blk Time (%)	0	5	0	23	8			
Queuing Penalty (veh)	1	11	0	157	32			

Network Summary

Network wide Queuing Penalty: 207

1: Missouri Flat Road & China Garden Road Performance by movement

Movement	WBL	WBR	NBT	NBR	SBL	SBT	SBR	All
Denied Delay (hr)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Denied Del/Veh (s)	0.0	0.0	0.1	0.0	0.0	0.0		0.0
Total Delay (hr)	0.1	0.2	0.2	0.0	0.1	0.3	0.0	0.9
Total Del/Veh (s)	81.0	17.1	2.8	1.2	12.9	3.8		5.4
Vehicles Entered	2	44	204	8	34	300	0	592
Vehicles Exited	2	43	204	8	34	298	0	589
Hourly Exit Rate	8	172	816	32	136	1192	0	2356
Input Volume	10	175	854	31	144	1175	1	2390
% of Volume	80	98	96	103	94	101	0	99
Denied Entry Before	0	0	0	0	0	0	0	0
Denied Entry After	0	0	0	0	0	0	0	0

2: Missouri Flat Road & Industrial Ave Performance by movement

Movement	EBL	EBR	WBR	NBL	NBT	NBR	SBL	SBT	SBR	All
Denied Delay (hr)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Denied Del/Veh (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (hr)	0.1	0.1	0.0	0.0	0.1	0.0	0.0	0.1	0.0	0.4
Total Del/Veh (s)	100.9	43.7	3.3	15.1	1.2	0.4	6.0	1.5	0.4	2.7
Vehicles Entered	3	5	1	3	202	1	1	296	2	514
Vehicles Exited	3	5	1	3	202	1	1	295	2	513
Hourly Exit Rate	12	20	4	12	808	4	4	1180	8	2052
Input Volume	13	19	3	9	844	3	4	1170	11	2076
% of Volume	92	105	133	133	96	133	100	101	73	99
Denied Entry Before	0	0	0	0	0	0	0	0	0	0
Denied Entry After	0	0	0	0	0	0	0	0	0	0

3: Missouri Flat Road & Enterprise Drive Performance by movement

Movement	EBL	EBR	WBR	NBL	NBT	SBL	SBT	SBR	All
Denied Delay (hr)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Denied Del/Veh (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (hr)	0.6	0.2	0.0	0.0	0.1	0.0	0.4	0.0	1.2
Total Del/Veh (s)	129.9	118.2	17.7	15.9	1.2	4.2	4.8	2.4	8.4
Vehicles Entered	15	5	1	1	194	1	280	13	510
Vehicles Exited	11	4	1	1	194	1	277	13	502
Hourly Exit Rate	44	16	4	4	776	4	1108	52	2008
Input Volume	58	20	5	2	793	3	1118	44	2043
% of Volume	76	80	80	200	98	133	99	118	98
Denied Entry Before	0	0	0	0	0	0	0	0	0
Denied Entry After	0	0	0	0	0	0	0	0	0

4: SR 49 / Pleasant Valley Road & Missouri Flat Road Performance by movement

Movement	EBL	EBT	WBT	WBR	SBL	SBT	SBR	All
Denied Delay (hr)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Denied Del/Veh (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (hr)	1.2	0.6	0.6	0.2	3.4	0.0	0.1	6.2
Total Del/Veh (s)	37.8	19.4	34.6	10.4	63.9	4.1	6.9	34.3
Vehicles Entered	110	110	62	77	180	8	76	623
Vehicles Exited	110	110	61	76	166	8	76	607
Hourly Exit Rate	440	440	244	304	664	32	304	2428
Input Volume	448	429	264	308	756	38	302	2545
% of Volume	98	103	92	99	88	84	101	95
Denied Entry Before	0	0	0	0	0	0	0	0
Denied Entry After	0	0	0	0	0	0	0	0

Total Network Performance

Denied Delay (hr)	0.4
Denied Del/Veh (s)	1.7
Total Delay (hr)	10.2
Total Del/Veh (s)	42.1
Vehicles Entered	797
Vehicles Exited	754
Hourly Exit Rate	3016
Input Volume	20042
% of Volume	15
Denied Entry Before	0
Denied Entry After	2

Intersection: 1: Missouri Flat Road & China Garden Road

Movement	WB	WB	NB	SB
Directions Served	LT	R	TR	L
Maximum Queue (ft)	123	74	6	86
Average Queue (ft)	46	62	1	43
95th Queue (ft)	136	83	7	86
Link Distance (ft)	842		563	
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)		50		200
Storage Blk Time (%)	5	22		
Queuing Penalty (veh)	9	2		

Intersection: 2: Missouri Flat Road & Industrial Ave

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	L	L
Maximum Queue (ft)	83	16	25	13
Average Queue (ft)	38	3	6	2
95th Queue (ft)	103	18	24	12
Link Distance (ft)	783	160		
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)			100	150
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 3: Missouri Flat Road & Enterprise Drive

Movement	EB	WB	NB	SB	SB
Directions Served	LTR	LTR	L	L	TR
Maximum Queue (ft)	186	22	14	14	71
Average Queue (ft)	104	6	3	2	13
95th Queue (ft)	228	25	17	12	123
Link Distance (ft)	929	93			760
Upstream Blk Time (%)					
Queuing Penalty (veh)					
Storage Bay Dist (ft)			100	150	
Storage Blk Time (%)					2
Queuing Penalty (veh)					0

Intersection: 4: SR 49 / Pleasant Valley Road & Missouri Flat Road

Movement	EB	EB	EB	WB	WB	SB	SB	B23
Directions Served	L	L	T	T	R	L	R	T
Maximum Queue (ft)	160	174	331	329	164	617	718	210
Average Queue (ft)	134	152	191	171	100	489	277	56
95th Queue (ft)	185	199	372	365	187	721	794	264
Link Distance (ft)			942	790			663	449
Upstream Blk Time (%)							10	1
Queuing Penalty (veh)							107	8
Storage Bay Dist (ft)	150	150			150	600		
Storage Blk Time (%)	2	10	6	12	0	15	1	
Queuing Penalty (veh)	8	43	27	37	1	45	8	

Network Summary

Network wide Queuing Penalty: 295

1: Missouri Flat Road & China Garden Road Performance by movement

Movement	EBL	WBL	WBR	NBT	NBR	SBL	SBT	SBR	All
Denied Delay (hr)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Denied Del/Veh (s)		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (hr)	0.0	0.1	0.2	0.2	0.0	0.1	0.1	0.0	0.7
Total Del/Veh (s)		49.7	16.5	4.1	2.1	10.7	2.0	0.7	5.3
Vehicles Entered	0	4	44	205	10	33	181	1	478
Vehicles Exited	0	3	43	206	10	33	182	1	478
Hourly Exit Rate	0	12	172	824	40	132	728	4	1912
Input Volume	1	16	168	865	34	122	726	2	1934
% of Volume	0	75	102	95	118	108	100	200	99
Denied Entry Before	0	0	0	0	0	0	0	0	0
Denied Entry After	0	0	0	0	0	0	0	0	0

2: Missouri Flat Road & Industrial Ave Performance by movement

Movement	EBL	EBT	EBR	WBL	WBR	NBL	NBT	NBR	SBL	SBT	SBR	All
Denied Delay (hr)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Denied Del/Veh (s)	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (hr)	0.1	0.0	0.0	0.1	0.1	0.3	0.6	0.0	0.2	0.3	0.0	1.6
Total Del/Veh (s)	48.1		6.8	57.0	26.3	62.1	8.8	8.4	56.8	6.4	2.8	12.2
Vehicles Entered	9	0	4	5	7	15	226	6	9	158	18	457
Vehicles Exited	8	0	4	4	6	13	227	6	9	157	18	452
Hourly Exit Rate	32	0	16	16	24	52	908	24	36	628	72	1808
Input Volume	35	1	15	22	29	57	950	25	33	641	68	1876
% of Volume	91	0	107	73	83	91	96	96	109	98	106	96
Denied Entry Before	0	0	0	0	0	0	0	0	0	0	0	0
Denied Entry After	0	0	0	0	0	0	0	0	0	0	0	0

3: Missouri Flat Road & Enterprise Drive Performance by movement

Movement	EBL	EBR	WBR	NBL	NBT	NBR	SBL	SBT	SBR	All
Denied Delay (hr)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Denied Del/Veh (s)	0.0	0.0		0.0	0.0		0.4	0.1	0.4	0.1
Total Delay (hr)	0.3	0.0	0.0	0.1	0.3	0.0	0.0	0.3	0.0	1.0
Total Del/Veh (s)	39.4	5.5		43.6	4.6		72.8	7.8	3.6	8.2
Vehicles Entered	21	3	0	7	243	0	1	138	22	435
Vehicles Exited	21	3	0	7	244	0	1	140	22	438
Hourly Exit Rate	84	12	0	28	976	0	4	560	88	1752
Input Volume	82	13	1	28	1021	1	7	577	92	1822
% of Volume	102	92	0	100	96	0	57	97	96	96
Denied Entry Before	0	0	0	0	0	0	0	0	0	0
Denied Entry After	0	0	0	0	0	0	0	0	0	0

4: SR 49 / Pleasant Valley Road & Missouri Flat Road Performance by movement

Movement	EBL	EBT	WBT	WBR	SBL	SBT	SBR	All
Denied Delay (hr)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Denied Del/Veh (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (hr)	1.1	0.2	1.1	1.1	0.3	0.0	0.1	3.8
Total Del/Veh (s)	43.4	11.9	38.5	21.6	15.6	0.7	4.8	23.8
Vehicles Entered	81	58	97	173	60	22	61	552
Vehicles Exited	79	58	97	171	59	22	61	547
Hourly Exit Rate	316	232	388	684	236	88	244	2188
Input Volume	342	233	399	708	237	85	268	2272
% of Volume	92	100	97	97	100	104	91	96
Denied Entry Before	0	0	0	0	0	0	0	0
Denied Entry After	0	0	0	0	0	0	0	0

Total Network Performance

Denied Delay (hr)	0.5
Denied Del/Veh (s)	2.2
Total Delay (hr)	8.0
Total Del/Veh (s)	35.4
Vehicles Entered	733
Vehicles Exited	722
Hourly Exit Rate	2888
Input Volume	17647
% of Volume	16
Denied Entry Before	0
Denied Entry After	3

Intersection: 1: Missouri Flat Road & China Garden Road

Movement	EB	WB	WB	NB	SB
Directions Served	LTR	LT	R	TR	L
Maximum Queue (ft)	8	125	75	4	84
Average Queue (ft)	2	39	58	0	41
95th Queue (ft)	11	123	82	3	79
Link Distance (ft)	71	834		562	
Upstream Blk Time (%)					
Queuing Penalty (veh)					
Storage Bay Dist (ft)			50		200
Storage Blk Time (%)		2	22		
Queuing Penalty (veh)		3	4		

Intersection: 2: Missouri Flat Road & Industrial Ave

Movement	EB	EB	WB	NB	NB	SB	SB	SB
Directions Served	LT	R	LTR	L	TR	L	T	R
Maximum Queue (ft)	87	45	81	90	297	73	243	73
Average Queue (ft)	33	16	29	41	116	35	106	13
95th Queue (ft)	82	53	72	87	291	84	256	61
Link Distance (ft)	781		141		741		562	
Upstream Blk Time (%)			0					
Queuing Penalty (veh)			0					
Storage Bay Dist (ft)		75		75		75		100
Storage Blk Time (%)	5	0		3	9	4	8	0
Queuing Penalty (veh)	1	0		27	5	28	8	0

Intersection: 3: Missouri Flat Road & Enterprise Drive

Movement	EB	EB	WB	NB	NB	SB	SB	SB
Directions Served	L	TR	LTR	L	TR	L	T	R
Maximum Queue (ft)	103	43	8	68	195	24	233	45
Average Queue (ft)	63	12	1	26	94	6	67	7
95th Queue (ft)	111	46	11	68	206	26	215	26
Link Distance (ft)		924	94		440		741	
Upstream Blk Time (%)								
Queuing Penalty (veh)								
Storage Bay Dist (ft)	100			100		100		175
Storage Blk Time (%)	6			0	3		4	
Queuing Penalty (veh)	1			4	1		4	

Intersection: 4: SR 49 / Pleasant Valley Road & Missouri Flat Road

Movement	EB	EB	EB	WB	WB	B5	SB	SB
Directions Served	L	L	T	T	R	T	L	R
Maximum Queue (ft)	149	166	152	659	175	46	161	88
Average Queue (ft)	108	127	79	371	160	16	90	39
95th Queue (ft)	172	178	157	811	221	107	166	94
Link Distance (ft)			942	887		174		663
Upstream Blk Time (%)				4		3		
Queuing Penalty (veh)				0		0		
Storage Bay Dist (ft)	150	150			150		600	
Storage Blk Time (%)	1	6	0	17	5			
Queuing Penalty (veh)	2	14	1	121	21			

Network Summary

Network wide Queuing Penalty: 244

1: Missouri Flat Road & China Garden Road Performance by movement

Movement	WBL	WBR	NBT	NBR	SBL	SBT	SBR	All
Denied Delay (hr)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Denied Del/Veh (s)	0.0	0.0	0.1	0.2	0.0	0.0		0.1
Total Delay (hr)	0.1	0.4	0.2	0.0	0.2	0.5	0.0	1.3
Total Del/Veh (s)	121.2	28.2	3.8	1.6	14.9	5.6		7.7
Vehicles Entered	2	44	220	8	35	291	0	600
Vehicles Exited	2	43	222	8	35	288	0	598
Hourly Exit Rate	8	172	888	32	140	1152	0	2392
Input Volume	10	175	915	31	144	1193	1	2469
% of Volume	80	98	97	103	97	97	0	97
Denied Entry Before	0	0	0	0	0	0	0	0
Denied Entry After	0	0	0	0	0	0	0	0

2: Missouri Flat Road & Industrial Ave Performance by movement

Movement	EBL	EBR	WBR	NBL	NBT	NBR	SBL	SBT	SBR	All
Denied Delay (hr)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Denied Del/Veh (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (hr)	0.3	0.1	0.0	0.0	0.3	0.0	0.0	0.8	0.0	1.5
Total Del/Veh (s)	51.6	25.7	4.8	59.6	5.2	1.2	55.4	9.5	5.7	10.3
Vehicles Entered	18	17	0	3	197	1	1	283	6	526
Vehicles Exited	19	17	1	3	198	1	1	281	6	527
Hourly Exit Rate	76	68	4	12	792	4	4	1124	24	2108
Input Volume	73	60	3	11	845	3	4	1170	29	2198
% of Volume	104	113	133	109	94	133	100	96	83	96
Denied Entry Before	0	0	0	0	0	0	0	0	0	0
Denied Entry After	0	0	0	0	0	0	0	0	0	0

3: Missouri Flat Road & Enterprise Drive Performance by movement

Movement	EBL	EBR	WBR	NBL	NBT	SBL	SBT	SBR	All
Denied Delay (hr)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Denied Del/Veh (s)	0.0	0.0	0.0	0.4	0.1	0.0	0.0	0.0	0.0
Total Delay (hr)	0.3	0.0	0.0	0.0	0.2	0.0	0.7	0.0	1.3
Total Del/Veh (s)	43.7	18.9	9.9	52.8	4.2	83.3	8.6	5.3	9.1
Vehicles Entered	23	6	1	1	179	1	278	12	501
Vehicles Exited	23	5	1	1	178	1	276	11	496
Hourly Exit Rate	92	20	4	4	712	4	1104	44	1984
Input Volume	93	20	5	6	761	3	1156	47	2091
% of Volume	99	100	80	67	94	133	96	94	95
Denied Entry Before	0	0	0	0	0	0	0	0	0
Denied Entry After	0	0	0	0	0	0	0	0	0

4: SR 49 / Pleasant Valley Road & Missouri Flat Road Performance by movement

Movement	EBL	EBT	WBT	WBR	SBL	SBT	SBR	All
Denied Delay (hr)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Denied Del/Veh (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (hr)	2.3	1.9	1.3	0.6	1.8	0.0	0.1	7.9
Total Del/Veh (s)	71.9	58.5	61.8	24.9	33.3	1.6	5.3	42.7
Vehicles Entered	105	110	65	77	186	9	75	627
Vehicles Exited	108	114	68	75	178	9	74	626
Hourly Exit Rate	432	456	272	300	712	36	296	2504
Input Volume	418	429	264	311	782	40	315	2559
% of Volume	103	106	103	96	91	90	94	98
Denied Entry Before	0	0	0	0	0	0	0	0
Denied Entry After	0	0	0	0	0	0	0	0

Total Network Performance

Denied Delay (hr)	0.4
Denied Del/Veh (s)	1.7
Total Delay (hr)	13.4
Total Del/Veh (s)	52.3
Vehicles Entered	826
Vehicles Exited	806
Hourly Exit Rate	3224
Input Volume	20700
% of Volume	16
Denied Entry Before	1
Denied Entry After	2

Intersection: 1: Missouri Flat Road & China Garden Road

Movement	WB	WB	NB	SB	SB	B10
Directions Served	LT	R	TR	L	TR	T
Maximum Queue (ft)	165	74	6	105	93	12
Average Queue (ft)	74	61	1	50	8	0
95th Queue (ft)	193	90	6	104	104	0
Link Distance (ft)	834		562		816	93
Upstream Blk Time (%)					0	0
Queuing Penalty (veh)					0	0
Storage Bay Dist (ft)		50		200		
Storage Blk Time (%)	7	34			1	
Queuing Penalty (veh)	13	3			1	

Intersection: 2: Missouri Flat Road & Industrial Ave

Movement	EB	EB	WB	NB	NB	SB	SB	SB
Directions Served	LT	R	LTR	L	TR	L	T	R
Maximum Queue (ft)	134	96	8	46	164	17	316	36
Average Queue (ft)	80	58	2	11	60	4	149	6
95th Queue (ft)	155	107	11	46	165	19	327	41
Link Distance (ft)	781		141		741		562	
Upstream Blk Time (%)							1	
Queuing Penalty (veh)							12	
Storage Bay Dist (ft)		75		75		75		100
Storage Blk Time (%)	14	4			4		11	
Queuing Penalty (veh)	9	3			0		4	

Intersection: 3: Missouri Flat Road & Enterprise Drive

Movement	EB	EB	WB	NB	NB	SB	SB	SB
Directions Served	L	TR	LTR	L	TR	L	T	R
Maximum Queue (ft)	104	54	16	19	192	21	252	71
Average Queue (ft)	69	20	3	5	63	4	116	13
95th Queue (ft)	120	71	16	21	197	21	282	89
Link Distance (ft)		924	94		440		741	
Upstream Blk Time (%)					0			
Queuing Penalty (veh)					2			
Storage Bay Dist (ft)	100			100		100		175
Storage Blk Time (%)	7				2		7	0
Queuing Penalty (veh)	1				0		4	0

Intersection: 4: SR 49 / Pleasant Valley Road & Missouri Flat Road

Movement	EB	EB	EB	B8	WB	WB	SB	SB	B23
Directions Served	L	L	T	T	T	R	L	R	T
Maximum Queue (ft)	159	175	736	27	486	175	523	275	31
Average Queue (ft)	133	168	533	6	323	156	349	95	5
95th Queue (ft)	189	200	917	48	562	220	608	411	50
Link Distance (ft)			942	135	887			663	440
Upstream Blk Time (%)			3	1				1	
Queuing Penalty (veh)			0	0				10	
Storage Bay Dist (ft)	150	150				150	600		
Storage Blk Time (%)	6	15	34		34	3	2	0	
Queuing Penalty (veh)	26	65	144		106	8	7	0	

Network Summary

Network wide Queuing Penalty: 419

1: Missouri Flat Road & China Garden Road Performance by movement

Movement	EBL	WBL	WBR	NBT	NBR	SBL	SBT	SBR	All
Denied Delay (hr)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Denied Del/Veh (s)		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (hr)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1
Total Del/Veh (s)		23.5	5.9	0.6	0.4	5.4	0.7	0.1	0.8
Vehicles Entered	0	1	4	264	3	6	218	1	497
Vehicles Exited	0	1	4	264	3	6	219	1	498
Hourly Exit Rate	0	4	16	1056	12	24	876	4	1992
Input Volume	1	4	15	1032	12	25	835	2	1926
% of Volume	0	100	107	102	100	96	105	200	103
Denied Entry Before	0	0	0	0	0	0	0	0	0
Denied Entry After	0	0	0	0	0	0	0	0	0

2: Missouri Flat Road & Industrial Ave Performance by movement

Movement	EBL	EBT	EBR	WBL	WBR	NBL	NBT	NBR	SBL	SBT	SBR	All
Denied Delay (hr)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Denied Del/Veh (s)	0.0		0.0	0.0	0.0	0.4	0.0	0.0	0.4	0.0	0.0	0.0
Total Delay (hr)	0.1	0.0	0.0	0.1	0.1	0.1	0.1	0.0	0.0	0.1	0.0	0.5
Total Del/Veh (s)	41.3		23.1	66.2	24.6	6.5	1.2	0.4	6.5	1.4	0.7	3.2
Vehicles Entered	9	0	3	4	7	29	252	6	9	203	19	541
Vehicles Exited	8	0	3	4	7	28	251	6	9	203	19	538
Hourly Exit Rate	32	0	12	16	28	112	1004	24	36	812	76	2152
Input Volume	35	1	15	22	29	115	980	25	33	786	68	2109
% of Volume	91	0	80	73	97	97	102	96	109	103	112	102
Denied Entry Before	0	0	0	0	0	0	0	0	0	0	0	0
Denied Entry After	0	0	0	0	0	0	0	0	0	0	0	0

3: Missouri Flat Road & Enterprise Drive Performance by movement

Movement	EBL	EBR	WBR	NBL	NBT	NBR	SBL	SBT	SBR	All
Denied Delay (hr)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Denied Del/Veh (s)	0.0	0.0	0.0	0.4	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (hr)	0.1	0.0	0.0	0.0	0.1	0.0	0.0	0.1	0.0	0.4
Total Del/Veh (s)	21.3	8.7	11.8	5.0	1.4	1.4	6.3	1.9	1.4	2.5
Vehicles Entered	21	3	1	6	244	2	1	164	44	486
Vehicles Exited	21	3	1	6	242	2	1	164	44	484
Hourly Exit Rate	84	12	4	24	968	8	4	656	176	1936
Input Volume	96	14	4	26	930	7	4	650	169	1901
% of Volume	88	86	100	92	104	114	100	101	104	102
Denied Entry Before	0	0	0	0	0	0	0	0	0	0
Denied Entry After	0	0	0	0	0	0	0	0	0	0

4: SR 49 / Pleasant Valley Road & Missouri Flat Road Performance by movement

Movement	EBL	EBT	WBT	WBR	SBL	SBT	SBR	All
Denied Delay (hr)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Denied Del/Veh (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (hr)	0.9	0.2	0.9	0.5	0.4	0.0	0.1	2.9
Total Del/Veh (s)	26.6	9.6	29.3	14.1	23.9	0.4	6.7	18.5
Vehicles Entered	112	61	101	119	55	22	76	546
Vehicles Exited	113	61	100	116	56	22	74	542
Hourly Exit Rate	452	244	400	464	224	88	296	2168
Input Volume	446	235	389	428	219	94	306	2117
% of Volume	101	104	103	108	102	94	97	102
Denied Entry Before	0	0	0	0	0	0	0	0
Denied Entry After	0	0	0	0	0	0	0	0

Total Network Performance

Denied Delay (hr)	0.1
Denied Del/Veh (s)	0.5
Total Delay (hr)	4.3
Total Del/Veh (s)	19.4
Vehicles Entered	727
Vehicles Exited	717
Hourly Exit Rate	2868
Input Volume	15892
% of Volume	18
Denied Entry Before	0
Denied Entry After	0

Intersection: 1: Missouri Flat Road & China Garden Road

Movement	EB	WB	WB	SB
Directions Served	LTR	LT	R	L
Maximum Queue (ft)	3	15	33	29
Average Queue (ft)	0	4	14	11
95th Queue (ft)	6	20	40	35
Link Distance (ft)	59	822		
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)			50	200
Storage Blk Time (%)		0	0	
Queuing Penalty (veh)		0	0	

Intersection: 2: Missouri Flat Road & Industrial Ave

Movement	EB	WB	NB	NB	SB	SB	SB
Directions Served	LTR	LTR	L	TR	L	T	TR
Maximum Queue (ft)	72	80	53	0	42	1	6
Average Queue (ft)	34	40	28	0	15	0	1
95th Queue (ft)	74	90	57	0	44	3	6
Link Distance (ft)	770	148		754		560	560
Upstream Blk Time (%)		1					
Queuing Penalty (veh)		0					
Storage Bay Dist (ft)			100		150		
Storage Blk Time (%)			0				
Queuing Penalty (veh)			0				

Intersection: 3: Missouri Flat Road & Enterprise Drive

Movement	EB	WB	NB	SB	SB
Directions Served	LTR	LTR	L	L	TR
Maximum Queue (ft)	86	26	30	9	6
Average Queue (ft)	50	6	10	2	1
95th Queue (ft)	87	26	31	15	11
Link Distance (ft)	913	81			754
Upstream Blk Time (%)					
Queuing Penalty (veh)					
Storage Bay Dist (ft)			100	150	
Storage Blk Time (%)					
Queuing Penalty (veh)					

Intersection: 4: SR 49 / Pleasant Valley Road & Missouri Flat Road

Movement	EB	EB	EB	WB	WB	SB	SB
Directions Served	L	L	T	T	R	L	R
Maximum Queue (ft)	157	170	200	409	175	167	121
Average Queue (ft)	111	133	70	256	145	102	59
95th Queue (ft)	178	186	184	518	214	172	128
Link Distance (ft)			933	887		1169	1169
Upstream Blk Time (%)							
Queuing Penalty (veh)							
Storage Bay Dist (ft)	150	150			150		
Storage Blk Time (%)	1	6	0	16	2		
Queuing Penalty (veh)	2	13	0	68	8		

Network Summary

Network wide Queuing Penalty: 92

1: Missouri Flat Road & China Garden Road Performance by movement

Movement	EBL	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	All
Denied Delay (hr)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Denied Del/Veh (s)		0.0		0.0		0.0	0.0	0.0	0.0		0.0
Total Delay (hr)	0.0	0.1	0.0	0.0	0.0	0.1	0.0	0.0	0.1	0.0	0.3
Total Del/Veh (s)		89.1		5.5		0.8	0.3	5.9	1.0		1.7
Vehicles Entered	0	4	0	10	0	242	8	6	320	0	590
Vehicles Exited	0	3	0	9	0	242	8	6	318	0	586
Hourly Exit Rate	0	12	0	36	0	968	32	24	1272	0	2344
Input Volume	2	11	1	42	2	1042	33	25	1282	1	2441
% of Volume	0	109	0	86	0	93	97	96	99	0	96
Denied Entry Before	0	0	0	0	0	0	0	0	0	0	0
Denied Entry After	0	0	0	0	0	0	0	0	0	0	0

2: Missouri Flat Road & Industrial Ave Performance by movement

Movement	EBL	EBR	WBR	NBL	NBT	NBR	SBL	SBT	SBR	All
Denied Delay (hr)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Denied Del/Veh (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (hr)	0.8	0.7	0.0	0.0	0.1	0.0	0.0	0.1	0.0	1.7
Total Del/Veh (s)	144.4	134.9	3.4	11.3	0.8	0.1	6.4	1.5	0.6	10.1
Vehicles Entered	19	16	1	8	223	1	1	303	16	588
Vehicles Exited	14	13	1	8	223	1	1	303	17	581
Hourly Exit Rate	56	52	4	32	892	4	4	1212	68	2324
Input Volume	77	60	3	29	940	3	4	1225	64	2405
% of Volume	73	87	133	110	95	133	100	99	106	97
Denied Entry Before	0	0	0	0	0	0	0	0	0	0
Denied Entry After	0	0	0	0	0	0	0	0	0	0

3: Missouri Flat Road & Enterprise Drive Performance by movement

Movement	EBL	EBT	EBR	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	All
Denied Delay (hr)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Denied Del/Veh (s)	0.0		0.0		0.0	0.6	0.0	0.1	0.0	0.0	0.0	0.0
Total Delay (hr)	2.1	0.0	0.4	0.0	0.0	0.0	0.1	0.0	0.0	0.2	0.0	2.8
Total Del/Veh (s)	156.7		148.4		10.4	6.3	1.4	0.8	5.3	2.0	1.4	17.2
Vehicles Entered	44	0	10	0	1	2	194	1	1	279	34	566
Vehicles Exited	33	0	7	0	1	2	193	0	1	279	34	550
Hourly Exit Rate	132	0	28	0	4	8	772	0	4	1116	136	2200
Input Volume	166	1	34	1	5	10	785	2	5	1136	134	2280
% of Volume	80	0	82	0	80	80	98	0	80	98	101	96
Denied Entry Before	0	0	0	0	0	0	0	0	0	0	0	0
Denied Entry After	0	0	0	0	0	0	0	0	0	0	0	0

4: SR 49 / Pleasant Valley Road & Missouri Flat Road Performance by movement

Movement	EBL	EBT	WBT	WBR	SBL	SBR	All
Denied Delay (hr)	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Denied Del/Veh (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (hr)	1.3	0.5	1.6	0.8	1.6	0.2	5.9
Total Del/Veh (s)	47.4	20.7	61.5	27.7	31.2	6.4	31.5
Vehicles Entered	92	77	88	98	172	117	644
Vehicles Exited	91	76	81	92	171	116	627
Hourly Exit Rate	364	304	324	368	684	464	2508
Input Volume	374	315	354	373	705	475	2596
% of Volume	97	97	92	99	97	98	97
Denied Entry Before	0	0	0	0	0	0	0
Denied Entry After	0	0	0	0	0	0	0

Total Network Performance

Denied Delay (hr)	0.1
Denied Del/Veh (s)	0.6
Total Delay (hr)	11.3
Total Del/Veh (s)	44.6
Vehicles Entered	827
Vehicles Exited	781
Hourly Exit Rate	3124
Input Volume	19350
% of Volume	16
Denied Entry Before	0
Denied Entry After	0

Intersection: 1: Missouri Flat Road & China Garden Road

Movement	EB	WB	WB	NB	NB	SB
Directions Served	LTR	LT	R	L	TR	L
Maximum Queue (ft)	10	51	49	4	1	28
Average Queue (ft)	1	19	23	1	0	10
95th Queue (ft)	12	51	55	6	2	30
Link Distance (ft)	59	830			560	
Upstream Blk Time (%)						
Queuing Penalty (veh)						
Storage Bay Dist (ft)			50	150		200
Storage Blk Time (%)		5	0			
Queuing Penalty (veh)		2	0			

Intersection: 2: Missouri Flat Road & Industrial Ave

Movement	EB	WB	NB	SB	SB	SB
Directions Served	LTR	LTR	L	L	T	TR
Maximum Queue (ft)	303	16	32	14	1	7
Average Queue (ft)	187	3	11	1	0	0
95th Queue (ft)	400	20	32	11	3	2
Link Distance (ft)	770	148			560	560
Upstream Blk Time (%)						
Queuing Penalty (veh)						
Storage Bay Dist (ft)			100	150		
Storage Blk Time (%)						
Queuing Penalty (veh)						

Intersection: 3: Missouri Flat Road & Enterprise Drive

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	L	L
Maximum Queue (ft)	485	26	16	10
Average Queue (ft)	298	7	4	2
95th Queue (ft)	601	29	15	12
Link Distance (ft)	910	80		
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)			100	150
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 4: SR 49 / Pleasant Valley Road & Missouri Flat Road

Movement	EB	EB	EB	WB	WB	B5	SB	SB
Directions Served	L	L	T	T	R	T	L	R
Maximum Queue (ft)	161	174	333	684	175	50	429	132
Average Queue (ft)	129	147	182	392	151	23	317	74
95th Queue (ft)	184	200	359	766	226	161	468	143
Link Distance (ft)			934	791		308	1167	1167
Upstream Blk Time (%)				6		3		
Queuing Penalty (veh)				0		0		
Storage Bay Dist (ft)	150	150			150			
Storage Blk Time (%)	2	13	4	37	1			
Queuing Penalty (veh)	8	40	15	137	3			

Network Summary

Network wide Queuing Penalty: 205

1: Missouri Flat Road & China Garden Road Performance by movement

Movement	EBL	WBL	WBR	NBT	NBR	SBL	SBT	SBR	All
Denied Delay (hr)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Denied Del/Veh (s)			0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (hr)	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.2
Total Del/Veh (s)		8.8	5.1	1.5	0.7	5.9	0.6	0.1	1.2
Vehicles Entered	0	0	3	265	3	7	194	1	473
Vehicles Exited	0	1	3	266	3	7	194	1	475
Hourly Exit Rate	0	4	12	1064	12	28	776	4	1900
Input Volume	1	4	15	1032	12	25	835	2	1926
% of Volume	0	100	80	103	100	112	93	200	99
Denied Entry Before	0	0	0	0	0	0	0	0	0
Denied Entry After	0	0	0	0	0	0	0	0	0

2: Missouri Flat Road & Industrial Ave Performance by movement

Movement	EBL	EBT	EBR	WBL	WBR	NBL	NBT	NBR	SBL	SBT	SBR	All
Denied Delay (hr)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Denied Del/Veh (s)	0.0		0.0	0.0	0.0	0.3	0.0	0.1	0.1	0.0	0.3	0.0
Total Delay (hr)	0.1	0.0	0.0	0.1	0.0	0.4	0.4	0.0	0.1	0.3	0.0	1.4
Total Del/Veh (s)	40.0		6.6	41.0	13.0	51.0	5.5	3.0	48.7	6.2	2.8	9.5
Vehicles Entered	7	0	3	5	8	25	252	7	7	183	17	514
Vehicles Exited	7	0	3	5	7	27	254	8	6	181	16	514
Hourly Exit Rate	28	0	12	20	28	108	1016	32	24	724	64	2056
Input Volume	35	1	15	22	29	115	980	25	33	786	68	2109
% of Volume	80	0	80	91	97	94	104	128	73	92	94	97
Denied Entry Before	0	0	0	0	0	0	0	0	0	0	0	0
Denied Entry After	0	0	0	0	0	0	0	0	0	0	0	0

3: Missouri Flat Road & Enterprise Drive Performance by movement

Movement	EBL	EBR	WBR	NBL	NBT	NBR	SBL	SBT	SBR	All
Denied Delay (hr)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Denied Del/Veh (s)	0.0	0.0	0.0	0.7	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (hr)	0.3	0.0	0.0	0.1	0.2	0.0	0.0	0.2	0.0	0.9
Total Del/Veh (s)	32.1	3.9	5.4	39.4	3.4	2.5	51.1	5.3	3.4	6.7
Vehicles Entered	31	4	1	7	227	2	1	149	38	460
Vehicles Exited	29	3	1	7	233	2	1	150	40	466
Hourly Exit Rate	116	12	4	28	932	8	4	600	160	1864
Input Volume	129	14	4	26	897	7	4	650	169	1901
% of Volume	90	86	100	108	104	114	100	92	95	98
Denied Entry Before	0	0	0	0	0	0	0	0	0	0
Denied Entry After	0	0	0	0	0	0	0	0	0	0

4: SR 49 / Pleasant Valley Road & Missouri Flat Road Performance by movement

Movement	EBL	EBT	WBT	WBR	SBL	SBT	SBR	All
Denied Delay (hr)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Denied Del/Veh (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (hr)	1.0	0.2	1.2	0.7	0.2	0.0	0.1	3.5
Total Del/Veh (s)	35.1	12.9	39.5	21.3	15.4	1.1	6.6	23.4
Vehicles Entered	100	57	96	110	52	21	69	505
Vehicles Exited	97	56	100	114	52	21	69	509
Hourly Exit Rate	388	224	400	456	208	84	276	2036
Input Volume	405	235	389	428	219	94	306	2076
% of Volume	96	95	103	107	95	89	90	98
Denied Entry Before	0	0	0	0	0	0	0	0
Denied Entry After	0	0	0	0	0	0	0	0

Total Network Performance

Denied Delay (hr)	0.1
Denied Del/Veh (s)	0.5
Total Delay (hr)	6.3
Total Del/Veh (s)	29.8
Vehicles Entered	689
Vehicles Exited	683
Hourly Exit Rate	2732
Input Volume	15843
% of Volume	17
Denied Entry Before	0
Denied Entry After	0

Intersection: 1: Missouri Flat Road & China Garden Road

Movement	EB	WB	WB	SB	B10
Directions Served	LTR	LT	R	L	T
Maximum Queue (ft)	10	18	34	33	6
Average Queue (ft)	2	3	11	10	1
95th Queue (ft)	15	18	35	32	12
Link Distance (ft)	59	822			93
Upstream Blk Time (%)					
Queuing Penalty (veh)					
Storage Bay Dist (ft)			50	200	
Storage Blk Time (%)		0	0		
Queuing Penalty (veh)		0	0		

Intersection: 2: Missouri Flat Road & Industrial Ave

Movement	EB	EB	WB	NB	NB	NB	SB	SB	SB	SB
Directions Served	LT	R	LTR	L	T	TR	L	T	T	R
Maximum Queue (ft)	56	33	57	92	169	127	65	139	155	55
Average Queue (ft)	27	9	34	58	53	39	24	48	59	12
95th Queue (ft)	64	32	68	110	167	117	66	117	137	47
Link Distance (ft)	768		144		736	736		560	560	
Upstream Blk Time (%)										
Queuing Penalty (veh)										
Storage Bay Dist (ft)		75		75			75			100
Storage Blk Time (%)	2			13	2		2	3	2	0
Queuing Penalty (veh)	0			63	2		9	1	2	0

Intersection: 3: Missouri Flat Road & Enterprise Drive

Movement	EB	EB	WB	NB	NB	NB	SB	SB	SB	SB
Directions Served	L	TR	LTR	L	T	TR	L	T	T	R
Maximum Queue (ft)	118	63	16	45	70	84	19	66	83	50
Average Queue (ft)	76	19	3	18	21	28	4	30	38	17
95th Queue (ft)	124	87	19	46	67	79	18	70	92	61
Link Distance (ft)		910	82		1158	1158		736	736	
Upstream Blk Time (%)										
Queuing Penalty (veh)										
Storage Bay Dist (ft)	100			100			100			175
Storage Blk Time (%)	10				0			1	0	
Queuing Penalty (veh)	1				0			0	0	

Intersection: 4: SR 49 / Pleasant Valley Road & Missouri Flat Road

Movement	EB	EB	EB	WB	WB	B5	SB	SB
Directions Served	L	L	T	T	R	T	L	R
Maximum Queue (ft)	159	170	225	637	175	15	142	121
Average Queue (ft)	121	139	104	361	151	3	76	60
95th Queue (ft)	183	191	247	719	228	34	155	130
Link Distance (ft)			934	885		174	1158	1158
Upstream Blk Time (%)				1				
Queuing Penalty (veh)				0				
Storage Bay Dist (ft)	150	150			150			
Storage Blk Time (%)	1	7	0	27	2			
Queuing Penalty (veh)	3	16	2	114	9			

Network Summary

Network wide Queuing Penalty: 223

1: Missouri Flat Road & China Garden Road Performance by movement

Movement	EBL	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	All
Denied Delay (hr)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Denied Del/Veh (s)		0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (hr)	0.0	0.1	0.0	0.0	0.0	0.1	0.0	0.0	0.1	0.0	0.3
Total Del/Veh (s)		63.5		6.5	7.9	1.4	1.2	6.8	1.1	0.2	1.7
Vehicles Entered	0	3	0	11	1	254	9	6	322	1	607
Vehicles Exited	0	3	0	11	1	254	9	6	321	1	606
Hourly Exit Rate	0	12	0	44	4	1016	36	24	1284	4	2424
Input Volume	2	11	1	42	2	1042	33	25	1282	1	2441
% of Volume	0	109	0	105	200	98	109	96	100	400	99
Denied Entry Before	0	0	0	0	0	0	0	0	0	0	0
Denied Entry After	0	0	0	0	0	0	0	0	0	0	0

2: Missouri Flat Road & Industrial Ave Performance by movement

Movement	EBL	EBR	WBR	NBL	NBT	NBR	SBL	SBT	SBR	All
Denied Delay (hr)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Denied Del/Veh (s)	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (hr)	0.2	0.0	0.0	0.1	0.2	0.0	0.0	0.4	0.0	1.1
Total Del/Veh (s)	34.7	10.8	5.0	39.6	3.6	1.1	41.1	5.1	2.0	6.2
Vehicles Entered	19	15	1	7	230	1	1	306	17	597
Vehicles Exited	19	15	1	8	230	1	1	307	17	599
Hourly Exit Rate	76	60	4	32	920	4	4	1228	68	2396
Input Volume	77	60	3	29	940	3	4	1225	64	2405
% of Volume	99	100	133	110	98	133	100	100	106	100
Denied Entry Before	0	0	0	0	0	0	0	0	0	0
Denied Entry After	0	0	0	0	0	0	0	0	0	0

3: Missouri Flat Road & Enterprise Drive Performance by movement

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Denied Delay (hr)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Denied Del/Veh (s)	0.0		0.0			0.0	0.0	0.0	0.2	0.0	0.0	0.0
Total Delay (hr)	0.4	0.0	0.0	0.0	0.0	0.0	0.0	0.3	0.0	0.0	0.5	0.0
Total Del/Veh (s)	35.2		7.8			5.8	32.7	4.8	3.0	49.3	6.4	3.6
Vehicles Entered	40	0	8	0	0	2	2	198	1	1	284	34
Vehicles Exited	39	0	9	0	0	2	1	194	1	1	284	34
Hourly Exit Rate	156	0	36	0	0	8	4	776	4	4	1136	136
Input Volume	166	1	34	1	1	5	10	785	2	5	1136	134
% of Volume	94	0	106	0	0	160	40	99	200	80	100	101
Denied Entry Before	0	0	0	0	0	0	0	0	0	0	0	0
Denied Entry After	0	0	0	0	0	0	0	0	0	0	0	0

3: Missouri Flat Road & Enterprise Drive Performance by movement

Movement	All
Denied Delay (hr)	0.0
Denied Del/Veh (s)	0.0
Total Delay (hr)	1.3
Total Del/Veh (s)	8.0
Vehicles Entered	570
Vehicles Exited	565
Hourly Exit Rate	2260
Input Volume	2280
% of Volume	99
Denied Entry Before	0
Denied Entry After	0

4: SR 49 / Pleasant Valley Road & Missouri Flat Road Performance by movement

Movement	EBL	EBT	WBT	WBR	SBL	SBR	All
Denied Delay (hr)	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Denied Del/Veh (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (hr)	1.3	0.6	1.4	0.8	1.5	0.2	6.0
Total Del/Veh (s)	48.0	25.5	52.8	28.6	30.6	7.4	31.3
Vehicles Entered	94	82	87	96	175	118	652
Vehicles Exited	94	81	86	94	172	117	644
Hourly Exit Rate	376	324	344	376	688	468	2576
Input Volume	374	315	354	373	705	475	2596
% of Volume	101	103	97	101	98	99	99
Denied Entry Before	0	0	0	0	0	0	0
Denied Entry After	0	0	0	0	0	0	0

Total Network Performance

Denied Delay (hr)	0.1
Denied Del/Veh (s)	0.4
Total Delay (hr)	9.2
Total Del/Veh (s)	36.1
Vehicles Entered	829
Vehicles Exited	809
Hourly Exit Rate	3236
Input Volume	19350
% of Volume	17
Denied Entry Before	0
Denied Entry After	0

Intersection: 1: Missouri Flat Road & China Garden Road

Movement	EB	WB	WB	NB	NB	SB	B10
Directions Served	LTR	LT	R	L	TR	L	T
Maximum Queue (ft)	9	50	55	13	1	28	6
Average Queue (ft)	1	18	29	1	0	10	1
95th Queue (ft)	12	52	62	9	1	31	9
Link Distance (ft)	59	822			560		93
Upstream Blk Time (%)							
Queuing Penalty (veh)							
Storage Bay Dist (ft)			50	150		200	
Storage Blk Time (%)		3	1				
Queuing Penalty (veh)		1	0				

Intersection: 2: Missouri Flat Road & Industrial Ave

Movement	EB	EB	WB	NB	NB	NB	SB	SB	SB	SB
Directions Served	LT	R	LTR	L	T	TR	L	T	T	R
Maximum Queue (ft)	109	83	20	39	67	84	23	140	148	24
Average Queue (ft)	59	38	3	16	16	27	4	69	65	7
95th Queue (ft)	124	89	18	42	65	80	25	153	145	25
Link Distance (ft)	768		144		736	736		560	560	
Upstream Blk Time (%)										
Queuing Penalty (veh)										
Storage Bay Dist (ft)		75		75			75			100
Storage Blk Time (%)	8	1			1			5	2	
Queuing Penalty (veh)	5	1			0			0	1	

Intersection: 3: Missouri Flat Road & Enterprise Drive

Movement	EB	EB	WB	NB	NB	NB	SB	SB	SB	SB
Directions Served	L	TR	LTR	L	T	TR	L	T	T	R
Maximum Queue (ft)	119	104	24	16	107	107	18	141	132	33
Average Queue (ft)	90	35	8	4	39	44	4	72	63	14
95th Queue (ft)	130	116	30	18	110	114	19	148	140	36
Link Distance (ft)		912	82		1162	1162		736	736	
Upstream Blk Time (%)										
Queuing Penalty (veh)										
Storage Bay Dist (ft)	100			100			100			175
Storage Blk Time (%)	16	0			1			3	0	
Queuing Penalty (veh)	6	0			0			0	0	

Intersection: 4: SR 49 / Pleasant Valley Road & Missouri Flat Road

Movement	EB	EB	EB	WB	WB	B5	SB	SB
Directions Served	L	L	T	T	R	T	L	R
Maximum Queue (ft)	160	174	324	586	174	4	418	127
Average Queue (ft)	129	152	183	377	153	1	264	62
95th Queue (ft)	186	200	341	771	223	9	457	139
Link Distance (ft)			934	886		174	1162	1162
Upstream Blk Time (%)				1				
Queuing Penalty (veh)				0				
Storage Bay Dist (ft)	150	150			150			
Storage Blk Time (%)	3	13	7	31	4			
Queuing Penalty (veh)	11	42	25	116	15			

Network Summary

Network wide Queuing Penalty: 224

1: Missouri Flat Road & China Garden Road Performance by movement

Movement	WBR	NBT	NBR	SBL	SBT	SBR	All
Denied Delay (hr)	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Denied Del/Veh (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (hr)	0.2	0.2	0.0	0.1	0.1	0.0	0.7
Total Del/Veh (s)	16.5	3.9	2.0	12.6	1.8	0.5	4.8
Vehicles Entered	42	217	8	30	183	1	481
Vehicles Exited	42	217	8	30	183	1	481
Hourly Exit Rate	168	868	32	120	732	4	1924
Input Volume	168	865	34	122	726	2	1917
% of Volume	100	100	94	98	101	200	100
Denied Entry Before	0	0	0	0	0	0	0
Denied Entry After	0	0	0	0	0	0	0

2: Missouri Flat Road & Industrial Ave Performance by movement

Movement	EBL	EBT	EBR	WBL	WBR	NBL	NBT	NBR	SBL	SBT	SBR	All
Denied Delay (hr)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Denied Del/Veh (s)	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (hr)	0.2	0.0	0.0	0.1	0.1	0.2	0.6	0.0	0.1	0.3	0.0	1.7
Total Del/Veh (s)	56.6		8.7	53.8	21.0	62.9	9.6	8.3	55.8	7.0	2.6	12.7
Vehicles Entered	10	0	4	6	8	14	236	5	8	159	17	467
Vehicles Exited	8	0	4	5	8	12	236	5	7	160	17	462
Hourly Exit Rate	32	0	16	20	32	48	944	20	28	640	68	1848
Input Volume	35	1	15	22	29	57	950	25	33	625	68	1860
% of Volume	91	0	107	91	110	84	99	80	85	102	100	99
Denied Entry Before	0	0	0	0	0	0	0	0	0	0	0	0
Denied Entry After	0	0	0	0	0	0	0	0	0	0	0	0

3: Missouri Flat Road & Enterprise Drive Performance by movement

Movement	EBL	EBR	WBR	NBL	NBT	NBR	SBL	SBT	SBR	All
Denied Delay (hr)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Denied Del/Veh (s)	0.0	0.0		0.0	0.0		0.3	0.1	0.4	0.0
Total Delay (hr)	0.2	0.0	0.0	0.1	0.3	0.0	0.0	0.4	0.0	1.0
Total Del/Veh (s)	36.5	4.8		47.3	4.5		56.5	8.2	4.8	8.0
Vehicles Entered	21	3	0	6	253	0	2	149	24	458
Vehicles Exited	20	3	0	6	255	0	2	151	24	461
Hourly Exit Rate	80	12	0	24	1020	0	8	604	96	1844
Input Volume	82	13	1	28	1021	1	7	577	92	1822
% of Volume	98	92	0	86	100	0	114	105	104	101
Denied Entry Before	0	0	0	0	0	0	0	0	0	0
Denied Entry After	0	0	0	0	0	0	0	0	0	0

4: SR 49 / Pleasant Valley Road & Missouri Flat Road Performance by movement

Movement	EBL	EBT	WBT	WBR	SBL	SBT	SBR	All
Denied Delay (hr)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Denied Del/Veh (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (hr)	1.1	0.2	1.0	1.0	0.3	0.0	0.1	3.6
Total Del/Veh (s)	44.5	11.9	33.4	18.4	15.9	0.8	4.6	21.9
Vehicles Entered	83	59	97	178	62	22	71	572
Vehicles Exited	83	59	98	177	61	21	70	569
Hourly Exit Rate	332	236	392	708	244	84	280	2276
Input Volume	342	233	399	708	237	85	268	2272
% of Volume	97	101	98	100	103	99	104	100
Denied Entry Before	0	0	0	0	0	0	0	0
Denied Entry After	0	0	0	0	0	0	0	0

Total Network Performance

Denied Delay (hr)	0.2
Denied Del/Veh (s)	0.9
Total Delay (hr)	7.9
Total Del/Veh (s)	34.5
Vehicles Entered	740
Vehicles Exited	734
Hourly Exit Rate	2936
Input Volume	17597
% of Volume	17
Denied Entry Before	1
Denied Entry After	1

Intersection: 1: Missouri Flat Road & China Garden Road

Movement	WB	SB
Directions Served	R	L
Maximum Queue (ft)	121	95
Average Queue (ft)	68	43
95th Queue (ft)	135	95
Link Distance (ft)	834	
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		200
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 2: Missouri Flat Road & Industrial Ave

Movement	EB	EB	WB	NB	NB	SB	SB	SB
Directions Served	LT	R	LTR	L	TR	L	T	R
Maximum Queue (ft)	79	55	78	86	301	66	210	71
Average Queue (ft)	36	19	36	37	134	27	112	19
95th Queue (ft)	82	57	82	84	343	73	227	81
Link Distance (ft)	781		141		741		562	
Upstream Blk Time (%)			0		0			
Queuing Penalty (veh)			0		0			
Storage Bay Dist (ft)		75		75		75		100
Storage Blk Time (%)	6	0		2	10	3	8	0
Queuing Penalty (veh)	1	0		14	5	22	8	0

Intersection: 3: Missouri Flat Road & Enterprise Drive

Movement	EB	EB	WB	NB	NB	SB	SB	SB
Directions Served	L	TR	LTR	L	TR	L	T	R
Maximum Queue (ft)	101	63	3	58	176	41	253	112
Average Queue (ft)	59	17	0	23	83	8	88	23
95th Queue (ft)	107	81	7	61	185	41	245	105
Link Distance (ft)		924	94		440		741	
Upstream Blk Time (%)								
Queuing Penalty (veh)								
Storage Bay Dist (ft)	100			100		100		175
Storage Blk Time (%)	5			1	3		5	0
Queuing Penalty (veh)	1			5	1		5	0

Intersection: 4: SR 49 / Pleasant Valley Road & Missouri Flat Road

Movement	EB	EB	EB	WB	WB	B5	SB	SB
Directions Served	L	L	T	T	R	T	L	R
Maximum Queue (ft)	154	166	178	659	175	19	167	95
Average Queue (ft)	114	133	87	322	155	5	92	43
95th Queue (ft)	178	182	202	687	214	58	174	97
Link Distance (ft)			942	887		174		663
Upstream Blk Time (%)				1		1		
Queuing Penalty (veh)				0		0		
Storage Bay Dist (ft)	150	150			150		600	
Storage Blk Time (%)	2	9	0	15	4			
Queuing Penalty (veh)	4	21	1	106	16			

Network Summary

Network wide Queuing Penalty: 209

1: Missouri Flat Road & China Garden Road Performance by movement

Movement	WBR	NBT	NBR	SBL	SBT	SBR	All
Denied Delay (hr)	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Denied Del/Veh (s)	0.0	0.1	0.4	0.0	0.0		0.1
Total Delay (hr)	0.3	0.2	0.0	0.1	0.4	0.0	1.1
Total Del/Veh (s)	26.0	3.7	1.3	14.5	4.7		6.5
Vehicles Entered	45	220	7	34	295	0	601
Vehicles Exited	45	222	7	35	294	0	603
Hourly Exit Rate	180	888	28	140	1176	0	2412
Input Volume	175	915	31	144	1193	1	2459
% of Volume	103	97	90	97	99	0	98
Denied Entry Before	0	0	0	0	0	0	0
Denied Entry After	0	0	0	0	0	0	0

2: Missouri Flat Road & Industrial Ave Performance by movement

Movement	EBL	EBR	WBR	NBL	NBT	NBR	SBL	SBT	SBR	All
Denied Delay (hr)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Denied Del/Veh (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (hr)	0.2	0.1	0.0	0.1	0.3	0.0	0.0	0.7	0.0	1.4
Total Del/Veh (s)	45.8	24.6		67.1	5.1	3.1	48.7	8.1	3.5	9.2
Vehicles Entered	17	16	0	3	199	1	1	287	7	531
Vehicles Exited	17	16	0	3	201	1	1	286	7	532
Hourly Exit Rate	68	64	0	12	804	4	4	1144	28	2128
Input Volume	73	60	3	11	845	3	4	1160	29	2188
% of Volume	93	107	0	109	95	133	100	99	97	97
Denied Entry Before	0	0	0	0	0	0	0	0	0	0
Denied Entry After	0	0	0	0	0	0	0	0	0	0

3: Missouri Flat Road & Enterprise Drive Performance by movement

Movement	EBL	EBR	WBR	NBL	NBT	SBL	SBT	SBR	All
Denied Delay (hr)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Denied Del/Veh (s)	0.0	0.0	0.0	0.4	0.1	0.0	0.0	0.0	0.0
Total Delay (hr)	0.3	0.0	0.0	0.0	0.2	0.0	0.7	0.0	1.3
Total Del/Veh (s)	44.2	23.2	14.6	97.0	4.2	69.8	9.1	5.5	9.3
Vehicles Entered	21	6	1	1	180	1	285	12	507
Vehicles Exited	22	6	1	1	180	1	282	12	505
Hourly Exit Rate	88	24	4	4	720	4	1128	48	2020
Input Volume	93	20	5	6	761	3	1156	47	2091
% of Volume	95	120	80	67	95	133	98	102	97
Denied Entry Before	0	0	0	0	0	0	0	0	0
Denied Entry After	0	0	0	0	0	0	0	0	0

4: SR 49 / Pleasant Valley Road & Missouri Flat Road Performance by movement

Movement	EBL	EBT	WBT	WBR	SBL	SBT	SBR	All
Denied Delay (hr)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Denied Del/Veh (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (hr)	2.2	1.6	1.2	0.6	1.9	0.0	0.1	7.6
Total Del/Veh (s)	67.3	50.4	56.3	26.4	34.4	2.7	5.9	40.6
Vehicles Entered	107	107	68	75	190	11	76	634
Vehicles Exited	110	112	73	74	179	11	75	634
Hourly Exit Rate	440	448	292	296	716	44	300	2536
Input Volume	418	429	274	311	782	40	315	2569
% of Volume	105	104	107	95	92	110	95	99
Denied Entry Before	0	0	0	0	0	0	0	0
Denied Entry After	0	0	0	0	0	0	0	0

Total Network Performance

Denied Delay (hr)	0.3
Denied Del/Veh (s)	1.5
Total Delay (hr)	12.9
Total Del/Veh (s)	50.0
Vehicles Entered	825
Vehicles Exited	814
Hourly Exit Rate	3256
Input Volume	20710
% of Volume	16
Denied Entry Before	1
Denied Entry After	2

Intersection: 1: Missouri Flat Road & China Garden Road

Movement	WB	NB	SB
Directions Served	R	TR	L
Maximum Queue (ft)	158	4	100
Average Queue (ft)	90	1	54
95th Queue (ft)	176	5	100
Link Distance (ft)	834	562	
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)			200
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 2: Missouri Flat Road & Industrial Ave

Movement	EB	EB	WB	NB	NB	SB	SB	SB
Directions Served	LT	R	LTR	L	TR	L	T	R
Maximum Queue (ft)	117	97	8	27	162	28	263	32
Average Queue (ft)	67	53	2	8	64	4	131	4
95th Queue (ft)	129	106	10	28	165	20	271	29
Link Distance (ft)	781		141		741		562	
Upstream Blk Time (%)								
Queuing Penalty (veh)								
Storage Bay Dist (ft)		75		75		75		100
Storage Blk Time (%)	11	4			4		9	
Queuing Penalty (veh)	7	3			0		3	

Intersection: 3: Missouri Flat Road & Enterprise Drive

Movement	EB	EB	WB	NB	NB	SB	SB	SB
Directions Served	L	TR	LTR	L	TR	L	T	R
Maximum Queue (ft)	109	80	23	23	187	13	291	23
Average Queue (ft)	72	26	4	7	54	3	121	4
95th Queue (ft)	125	88	22	25	186	17	322	20
Link Distance (ft)		924	94		440		741	
Upstream Blk Time (%)								
Queuing Penalty (veh)								
Storage Bay Dist (ft)	100			100		100		175
Storage Blk Time (%)	7				2		6	
Queuing Penalty (veh)	1				0		3	

Intersection: 4: SR 49 / Pleasant Valley Road & Missouri Flat Road

Movement	EB	EB	EB	B8	WB	WB	SB	SB	B23
Directions Served	L	L	T	T	T	R	L	R	T
Maximum Queue (ft)	162	175	730	12	531	175	539	246	44
Average Queue (ft)	142	170	489	2	328	148	362	81	13
95th Queue (ft)	184	192	855	21	600	225	600	355	126
Link Distance (ft)			942	135	887			663	440
Upstream Blk Time (%)			1					1	
Queuing Penalty (veh)			0					12	
Storage Bay Dist (ft)	150	150				150	600		
Storage Blk Time (%)	6	19	31		32	4	2	0	
Queuing Penalty (veh)	24	81	128		101	11	5	3	

Network Summary

Network wide Queuing Penalty: 382

1: Missouri Flat Road & China Garden Road Performance by movement

Movement	WBR	NBT	NBR	SBL	SBT	SBR	All
Denied Delay (hr)	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Denied Del/Veh (s)	0.0	0.0	0.0	0.0	0.0		0.0
Total Delay (hr)	0.0	0.1	0.0	0.0	0.0	0.0	0.2
Total Del/Veh (s)	6.1	1.6	1.3	4.8	0.6		1.2
Vehicles Entered	4	262	3	6	207	0	482
Vehicles Exited	4	263	3	6	206	0	482
Hourly Exit Rate	16	1052	12	24	824	0	1928
Input Volume	15	1032	12	25	835	2	1921
% of Volume	107	102	100	96	99	0	100
Denied Entry Before	0	0	0	0	0	0	0
Denied Entry After	0	0	0	0	0	0	0

2: Missouri Flat Road & Industrial Ave Performance by movement

Movement	EBL	EBT	EBR	WBL	WBR	NBL	NBT	NBR	SBL	SBT	SBR	All
Denied Delay (hr)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Denied Del/Veh (s)	0.0		0.0	0.0	0.0	0.3	0.0	0.0	0.2	0.0	0.3	0.0
Total Delay (hr)	0.1	0.0	0.0	0.1	0.0	0.5	0.4	0.0	0.1	0.4	0.0	1.7
Total Del/Veh (s)	41.1		7.2	41.2	13.1	56.1	6.2	3.3	40.6	6.7	2.8	11.0
Vehicles Entered	9	0	3	6	8	32	250	6	8	192	17	531
Vehicles Exited	8	0	3	6	8	33	249	6	8	191	16	528
Hourly Exit Rate	32	0	12	24	32	132	996	24	32	764	64	2112
Input Volume	35	1	15	22	29	115	980	25	33	786	68	2109
% of Volume	91	0	80	109	110	115	102	96	97	97	94	100
Denied Entry Before	0	0	0	0	0	0	0	0	0	0	0	0
Denied Entry After	0	0	0	0	0	0	0	0	0	0	0	0

3: Missouri Flat Road & Enterprise Drive Performance by movement

Movement	EBL	EBR	WBR	NBL	NBT	NBR	SBL	SBT	SBR	All
Denied Delay (hr)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Denied Del/Veh (s)	0.0	0.0	0.0	0.3	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (hr)	0.3	0.0	0.0	0.1	0.2	0.0	0.0	0.2	0.0	0.9
Total Del/Veh (s)	30.4	4.8	8.1	36.2	3.7	3.6	26.6	5.2	3.5	6.6
Vehicles Entered	33	3	2	7	226	1	1	159	40	472
Vehicles Exited	32	3	2	7	232	1	1	161	42	481
Hourly Exit Rate	128	12	8	28	928	4	4	644	168	1924
Input Volume	129	14	4	26	897	7	4	650	169	1901
% of Volume	99	86	200	108	103	57	100	99	99	101
Denied Entry Before	0	0	0	0	0	0	0	0	0	0
Denied Entry After	0	0	0	0	0	0	0	0	0	0

4: SR 49 / Pleasant Valley Road & Missouri Flat Road Performance by movement

Movement	EBL	EBT	WBT	WBR	SBL	SBT	SBR	All
Denied Delay (hr)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Denied Del/Veh (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (hr)	1.0	0.2	1.2	0.7	0.2	0.0	0.1	3.4
Total Del/Veh (s)	36.5	13.2	39.9	19.4	14.7	1.0	6.4	22.8
Vehicles Entered	96	59	98	115	51	24	76	519
Vehicles Exited	93	58	102	116	52	24	77	522
Hourly Exit Rate	372	232	408	464	208	96	308	2088
Input Volume	405	235	393	428	219	94	306	2080
% of Volume	92	99	104	108	95	102	101	100
Denied Entry Before	0	0	0	0	0	0	0	0
Denied Entry After	0	0	0	0	0	0	0	0

Total Network Performance

Denied Delay (hr)	0.1
Denied Del/Veh (s)	0.5
Total Delay (hr)	6.6
Total Del/Veh (s)	30.5
Vehicles Entered	705
Vehicles Exited	700
Hourly Exit Rate	2800
Input Volume	15847
% of Volume	18
Denied Entry Before	0
Denied Entry After	0

Intersection: 1: Missouri Flat Road & China Garden Road

Movement	WB	SB
Directions Served	R	L
Maximum Queue (ft)	30	31
Average Queue (ft)	15	12
95th Queue (ft)	38	36
Link Distance (ft)	822	
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		200
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 2: Missouri Flat Road & Industrial Ave

Movement	EB	EB	WB	NB	NB	NB	SB	SB	SB	SB
Directions Served	LT	R	LTR	L	T	TR	L	T	T	R
Maximum Queue (ft)	71	27	70	97	194	170	64	132	148	71
Average Queue (ft)	30	9	36	68	70	58	27	59	67	17
95th Queue (ft)	76	31	73	114	213	176	68	134	148	70
Link Distance (ft)	768		144		736	736		560	560	
Upstream Blk Time (%)										
Queuing Penalty (veh)										
Storage Bay Dist (ft)		75		75			75			100
Storage Blk Time (%)	4			21	1		2	5	3	0
Queuing Penalty (veh)	1			104	1		8	2	2	0

Intersection: 3: Missouri Flat Road & Enterprise Drive

Movement	EB	EB	WB	NB	NB	NB	SB	SB	SB	SB
Directions Served	L	TR	LTR	L	T	TR	L	T	T	R
Maximum Queue (ft)	118	116	26	49	83	74	12	87	90	40
Average Queue (ft)	77	19	7	19	30	31	3	31	34	18
95th Queue (ft)	117	85	28	49	78	77	16	86	87	42
Link Distance (ft)		910	82		1158	1158		736	736	
Upstream Blk Time (%)										
Queuing Penalty (veh)										
Storage Bay Dist (ft)	100			100			100			175
Storage Blk Time (%)	7	0			0			1		
Queuing Penalty (veh)	1	0			0			0		

Intersection: 4: SR 49 / Pleasant Valley Road & Missouri Flat Road

Movement	EB	EB	EB	WB	WB	SB	SB
Directions Served	L	L	T	T	R	L	R
Maximum Queue (ft)	161	173	237	594	175	131	121
Average Queue (ft)	125	139	98	359	158	70	52
95th Queue (ft)	186	189	234	672	222	138	123
Link Distance (ft)			934	885		1158	1158
Upstream Blk Time (%)				0			
Queuing Penalty (veh)				0			
Storage Bay Dist (ft)	150	150			150		
Storage Blk Time (%)	1	7	1	28	2		
Queuing Penalty (veh)	3	16	4	119	8		

Network Summary

Network wide Queuing Penalty: 267

1: Missouri Flat Road & China Garden Road Performance by movement

Movement	WBR	NBL	NBT	NBR	SBL	SBT	SBR	All
Denied Delay (hr)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Denied Del/Veh (s)	0.0	1.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (hr)	0.0	0.0	0.1	0.0	0.0	0.1	0.0	0.2
Total Del/Veh (s)	5.1	4.5	1.5	0.7	4.2	1.0	0.3	1.3
Vehicles Entered	12	1	250	8	7	314	1	593
Vehicles Exited	11	1	250	8	7	312	1	590
Hourly Exit Rate	44	4	1000	32	28	1248	4	2360
Input Volume	42	2	1042	33	25	1282	1	2427
% of Volume	105	200	96	97	112	97	400	97
Denied Entry Before	0	0	0	0	0	0	0	0
Denied Entry After	0	0	0	0	0	0	0	0

2: Missouri Flat Road & Industrial Ave Performance by movement

Movement	EBL	EBR	WBR	NBL	NBT	NBR	SBL	SBT	SBR	All
Denied Delay (hr)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Denied Del/Veh (s)	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.1	0.0
Total Delay (hr)	0.2	0.1	0.0	0.1	0.2	0.0	0.0	0.3	0.0	0.9
Total Del/Veh (s)	38.9	11.5	5.3	47.5	3.4	2.3	43.5	4.2	1.7	5.7
Vehicles Entered	17	16	1	7	232	1	1	298	15	588
Vehicles Exited	17	16	1	7	229	1	1	296	15	583
Hourly Exit Rate	68	64	4	28	916	4	4	1184	60	2332
Input Volume	77	60	3	29	941	3	4	1216	64	2397
% of Volume	88	107	133	97	97	133	100	97	94	97
Denied Entry Before	0	0	0	0	0	0	0	0	0	0
Denied Entry After	0	0	0	0	0	0	0	0	0	0

3: Missouri Flat Road & Enterprise Drive Performance by movement

Movement	EBL	EBT	EBR	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	All
Denied Delay (hr)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Denied Del/Veh (s)	0.0		0.0		0.0	0.4	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (hr)	0.4	0.0	0.0	0.0	0.0	0.0	0.2	0.0	0.0	0.5	0.0	1.2
Total Del/Veh (s)	32.9		7.7		5.9	31.1	4.4	3.6	42.6	6.3	3.2	7.8
Vehicles Entered	41	0	9	0	2	2	192	1	1	279	33	560
Vehicles Exited	43	0	9	0	2	3	192	1	1	277	32	560
Hourly Exit Rate	172	0	36	0	8	12	768	4	4	1108	128	2240
Input Volume	166	1	34	1	5	10	786	2	5	1136	134	2281
% of Volume	104	0	106	0	160	120	98	200	80	98	96	98
Denied Entry Before	0	0	0	0	0	0	0	0	0	0	0	0
Denied Entry After	0	0	0	0	0	0	0	0	0	0	0	0

4: SR 49 / Pleasant Valley Road & Missouri Flat Road Performance by movement

Movement	EBL	EBT	WBT	WBR	SBL	SBR	All
Denied Delay (hr)	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Denied Del/Veh (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (hr)	1.6	0.7	1.9	1.1	1.5	0.3	7.0
Total Del/Veh (s)	55.6	30.1	64.8	40.1	29.5	8.2	36.5
Vehicles Entered	95	80	97	95	169	119	655
Vehicles Exited	94	80	91	90	169	119	643
Hourly Exit Rate	376	320	364	360	676	476	2572
Input Volume	374	315	365	374	705	475	2608
% of Volume	101	102	100	96	96	100	99
Denied Entry Before	0	0	0	0	0	0	0
Denied Entry After	0	0	0	0	0	0	0

Total Network Performance

Denied Delay (hr)	0.1
Denied Del/Veh (s)	0.6
Total Delay (hr)	10.1
Total Del/Veh (s)	39.3
Vehicles Entered	830
Vehicles Exited	808
Hourly Exit Rate	3232
Input Volume	19355
% of Volume	17
Denied Entry Before	0
Denied Entry After	0

Intersection: 1: Missouri Flat Road & China Garden Road

Movement	WB	NB	SB	B10
Directions Served	R	L	L	T
Maximum Queue (ft)	46	9	30	3
Average Queue (ft)	26	1	11	0
95th Queue (ft)	52	6	34	7
Link Distance (ft)	822			93
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)		150	200	
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 2: Missouri Flat Road & Industrial Ave

Movement	EB	EB	WB	NB	NB	NB	SB	SB	SB	SB
Directions Served	LT	R	LTR	L	T	TR	L	T	T	R
Maximum Queue (ft)	127	83	20	44	66	57	16	115	116	21
Average Queue (ft)	58	43	4	18	16	22	3	54	61	4
95th Queue (ft)	136	90	19	49	60	59	17	125	129	18
Link Distance (ft)	768		144		736	736		560	560	
Upstream Blk Time (%)										
Queuing Penalty (veh)										
Storage Bay Dist (ft)		75		75			75			100
Storage Blk Time (%)	7	1		1	0			3	1	
Queuing Penalty (veh)	4	1		4	0			0	1	

Intersection: 3: Missouri Flat Road & Enterprise Drive

Movement	EB	EB	WB	NB	NB	NB	SB	SB	SB	SB
Directions Served	L	TR	LTR	L	T	TR	L	T	T	R
Maximum Queue (ft)	123	175	23	31	91	104	15	134	125	31
Average Queue (ft)	93	55	6	9	36	49	3	69	64	13
95th Queue (ft)	135	162	27	31	91	109	17	144	139	35
Link Distance (ft)		912	82		1162	1162		736	736	
Upstream Blk Time (%)										
Queuing Penalty (veh)										
Storage Bay Dist (ft)	100			100			100			175
Storage Blk Time (%)	15				0			4	0	
Queuing Penalty (veh)	5				0			0	0	

Intersection: 4: SR 49 / Pleasant Valley Road & Missouri Flat Road

Movement	EB	EB	EB	WB	WB	B5	SB	SB
Directions Served	L	L	T	T	R	T	L	R
Maximum Queue (ft)	161	174	385	743	175	44	409	148
Average Queue (ft)	131	154	232	491	161	10	251	67
95th Queue (ft)	190	200	536	912	220	70	449	153
Link Distance (ft)			934	886		174	1162	1162
Upstream Blk Time (%)				5		2		
Queuing Penalty (veh)				0		0		
Storage Bay Dist (ft)	150	150			150			
Storage Blk Time (%)	5	16	9	41	4			
Queuing Penalty (veh)	15	52	34	154	15			

Network Summary

Network wide Queuing Penalty: 285