

Appendix G

Transportation and Traffic Study

PG&E GAS OPERATIONS TECHNICAL TRAINING CENTER

Transportation Impact Study



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TABLE OF CONTENTS

EXECUTIVE SUMMARY	i
Analysis of Project Impacts.....	i
<i>Existing Plus Project Significant Impacts</i>	<i>ii</i>
<i>Existing Plus Approved Plus Project Significant Impacts</i>	<i>ii</i>
<i>Cumulative Plus Project Significant Impacts.....</i>	<i>ii</i>
Introduction	1
Analysis Scenarios and Time Periods	1
Study Intersections	2
General Plan assumptions.....	2
Environmental Setting	3
Existing Roadway System	3
<i>Existing Traffic Conditions.....</i>	<i>3</i>
<i>Transit System.....</i>	<i>5</i>
<i>Bicycle and Pedestrian System.....</i>	<i>7</i>
Regulatory Setting	8
STATE	8
<i>California Department of Transportation</i>	<i>8</i>
LOCAL	8
<i>Sacramento Area Council of Governments.....</i>	<i>8</i>
<i>City of Winters.....</i>	<i>8</i>
<i>Yolo County Transportation District</i>	<i>10</i>
Method of Analysis	11
<i>Intersection Operations</i>	<i>11</i>
Thresholds of Significance.....	11
<i>Local Roadway Network</i>	<i>12</i>
<i>Transit System.....</i>	<i>12</i>
<i>Bicycle and Pedestrian Facilities.....</i>	<i>12</i>
Existing Plus Project Scenario	13
Proposed Project	13
Trip Generation.....	13
Trip Distribution and Assignment.....	14
Impact Analysis – Existing plus project scenario	17
<i>Existing Plus Project Intersection Peak Hour Level of Service.....</i>	<i>17</i>
<i>Transit Facilities</i>	<i>17</i>
<i>Pedestrian Facilities.....</i>	<i>18</i>
<i>Bicycle Facilities.....</i>	<i>18</i>
Existing Plus Approved Developments	19
Land Use Assumptions.....	19
Network Assumptions	19
Existing Plus Approved Development Traffic Conditions	19
<i>Intersection Operations</i>	<i>20</i>
Existing Plus Approved Plus Project Scenario	23
Trip Generation, Distribution, and Assignment	23
Impact Analysis – Existing plus approved plus project scenario	23
<i>Existing Plus Approved Plus Project Intersection Peak Hour Level of Service</i>	<i>23</i>

Cumulative No Project Analysis	26
Cumulative Land Use and Roadway Network Assumptions	26
Cumulative No Project Conditions	26
<i>Intersection Operations</i>	27
Cumulative Plus Project Scenario	30
Trip Generation, Distribution, and Assignment	30
Impact Analysis – Cumulative Plus Project Scenario	30
<i>Cumulative Plus Project Intersection Peak Hour Level of Service</i>	30
Mitigation Measures	34
Existing Plus Project Conditions	34
<i>Impact T1. Intersection Level of Service</i>	34
<i>Impact T2. Transit Facilities</i>	34
<i>Impact T3. Bicycle and Pedestrian Facilities</i>	34
Existing Plus Approved Plus Project Conditions	35
<i>Impact T4. Intersection Level of Service</i>	35
cumulative Plus Project Conditions	37
<i>Impact T5. Intersection Level of Service</i>	37

Appendix: Technical Calculations (Separate cover)

EXECUTIVE SUMMARY

This study evaluates the potential transportation impacts associated with the PG&E Project in the City of Winters. The proposed project is bounded by East Grant Avenue (State Route 128) on the north, I-505 on the east, Putah Creek on the south, and existing single-family residences on the west.

The project site is approximately 38 acres with training and office facilities in the Learning Center and other smaller buildings. A total of 208 parking spaces will be provided. The project will occupy all of the Jordan property and the eastern portion of the McClish property. Of the 38 acres, the southernmost 3.75 acres will be dedicated for open space uses along Putah Creek, and the westernmost 3.97 acres will be dedicated to the City and developed as a regional drainage channel along the western boundary of the Project development area. The remainder of the McClish property will not be developed by the project.

Primary access to the project site is proposed from a new intersection on East Grant Avenue at Timber Crest Road. The project applicant will construct Timber Crest Road for a distance of approximately 400 feet south of East Grant Avenue, where it will terminate at a cul-de-sac. The east leg of the cul-de-sac will provide an access to the surface parking lot for the project. Provisions will be made for a future connection from the west leg of the cul-de-sac west to East Baker Street.

The proposed project is expected to generate 721 total daily trips, 196 total AM peak hour trips, and 144 total PM peak hour trips. Traffic operations of study intersections were evaluated for the following scenarios:

- Existing Conditions: this scenario assesses transportation conditions in the City of Winters as of November, 2013
- Existing Plus Project: this scenario assesses transportation conditions in the City of Winters as of November, 2013, along with the addition of PG&E project trips
- Existing Plus Approved Developments: this scenario assesses transportation conditions with the addition of trips generated by development projects that have received formal entitlement approvals from the City of Winters without the project
- Existing Plus Approved Developments Plus Project: this scenario assesses transportation conditions with the addition of trips generated by development projects that have received formal entitlement approvals from the City of Winters, along with the addition of PG&E project trips
- Cumulative No Project: this scenario assesses long-range transportation conditions in the City of Winters with build-out of parcels consistent with the General Plan land use designations and an average development yield, with the exception of the PG&E project site where no development is assumed
- Cumulative Plus Project: this scenario assesses long-range transportation conditions in the City of Winters with build-out of parcels consistent with the General Plan land use designations and an average development yield, along with the addition of PG&E project trips

ANALYSIS OF PROJECT IMPACTS

The project-related significant impacts are summarized below for the Existing Plus Project, Existing Plus Approved Plus Project, and Cumulative Plus Project conditions.

Existing Plus Project Impacts

- The proposed project will not result in a significant impact to any study intersections under Existing Plus Project conditions. Thus, this impact is **less-than-significant**.
- The proposed project will not result in a significant transit impact under Existing Plus Project conditions. Thus, this impact is **less-than-significant**.
- The proposed project will not result in a significant pedestrian impact under Existing Plus Project conditions. Thus, this impact is **less-than-significant**.
- The proposed project will not result in a significant bicycle impact under Existing Plus Project conditions. Thus, this impact is **less-than-significant**.
- The proposed project will result in a significant emergency vehicle access impact at the East Grant Avenue/Matsumoto Lane intersection under Existing Plus Project Conditions.

Mitigation Measure T4 would reduce impacts for this intersection to a **less-than-significant** level.

Existing Plus Approved Plus Project Impacts

- The proposed project will result in a significant impact at the following intersection under Existing Plus Approved Plus Project conditions:
 - East Grant Ave / I-505 Southbound Ramps (PM peak hour)

Mitigation Measure T5 would reduce impacts for this intersection to a **less-than-significant** level.

Cumulative Plus Project Impacts

- The proposed project will result in a significant impact at the following intersection under Cumulative Plus Project conditions:
 - East Grant Ave / Timber Crest Road (AM and PM peak hour)

Mitigation Measure T6 would reduce impacts for this intersection to a **less-than-significant** level.

INTRODUCTION

This study summarizes the results of transportation analysis prepared for the proposed PG&E Project described below. This analysis examines the transportation impacts expected to result to the existing transit system, non-motorized (i.e., pedestrian and bicycle) facilities, and from the addition of vehicle traffic generated by the proposed project to existing and future roadway facilities.

PROPOSED PROJECT

The Winters Gas Operations Technical Training Center (GOTTC) project site is approximately 38 acres with training and office facilities in the Learning Center and other smaller buildings. The project will occupy all of the Jordan property and the eastern portion of the McClish property. Of the 38 acres, the southernmost 3.75 acres will be dedicated for open space uses along Putah Creek, and the westernmost 3.97 acres will be dedicated to the City and developed as a regional drainage channel along the western boundary of the Project development area. The remainder of the McClish property will not be developed by the project. This traffic analysis does not assume any project phasing.

At the Winters GOTTC, trainees would be trained to construct, operate, and maintain natural gas pipelines, measure and control the natural gas network, detect leaks, locate and mark underground infrastructure, and maintain natural gas storage facilities. Additionally, trainees would be trained in the following activities: excavation techniques; crane operation; welding techniques; installation and operation of meters, regulators and other natural gas system controls; corrosion control technology; and, other similar natural gas transmission and distribution related functions.

A total of 208 parking spaces will be provided, and a bus stop will be constructed along the project site frontage on East Grant Avenue. A Class 1 path consistent with the Grant Avenue/SR 128/Russell Boulevard Complete Streets Concept Plan (December 2010) will be constructed along the project property frontage on East Grant Avenue from Matsumoto Lane to Timber Crest Road. The project will provide a continuous pedestrian connection from the project frontage west to the existing City sidewalk system at East Main Street.

The project transportation analysis is based on the following population forecasts for the training center facility for a typical day. A total of 210 individuals (broken down as follows) are expected to be on site during a typical day:

- 132 Trainees and 30 Instructors
- 23 Facility/Administrative Employees
- 25 Visitors/Transient Employees

ANALYSIS SCENARIOS AND TIME PERIODS

The need for transportation improvements is determined by examining peak hour operations and traffic signal warrants at key intersections. The weekday morning and evening peak hours are evaluated in this transportation study, as they represent the time periods when the combination of existing traffic and traffic generated by the project are at their highest. The morning peak hour analyzed is from 7:00 a.m. to 8:00 a.m. The evening peak hour analyzed is from 4:00 p.m. to 5:00 p.m. These peak hours were selected because they represent the highest cumulative total of existing traffic counts and project trip generation. Most students will arrive between 6:30 and 7:30 a.m., and training sessions will typically start at 7:30 a.m., on weekdays.

An evaluation of intersection performance is provided for the following conditions:

- Existing Conditions
- Existing Plus Project
- Existing Plus Approved Developments
- Existing Plus Approved Developments plus Project
- Cumulative No Project
- Cumulative Plus Project

STUDY INTERSECTIONS

This study addresses conditions at the following five intersections along East Grant Avenue:

1. East Grant Avenue / East Main Street
2. East Grant Avenue / Timber Crest Road (project access)
3. East Grant Avenue / Matsumoto Lane (formerly County Road 90)
4. East Grant Avenue / Interstate 505 (I-505) Southbound On/Off-Ramps
5. East Grant Avenue / I-505 Northbound On/Off-Ramps

GENERAL PLAN CIRCULATION NETWORK

This section provides a description of transportation network improvements identified in the Winters General Plan. The General Plan identifies long-range transportation improvements. The following is a list of improvements identified in the General Plan within the study area.

- East Grant Avenue– widen to four lanes from East Main Street to I-505
- East Main Street – extend East Main Street from East Grant Avenue to the north and as part of a Main Street “loop” road
- Timber Crest Road – construction of a new roadway both south into the McClish property and north from East Grant Avenue to planned industrial development in the northeast portion of the city
- Baker Street – extend east from its present easterly terminus to Timber Crest Road
- New traffic signals along East Grant Avenue at the East Main Street, Timber Crest Road, and I-505 southbound ramp intersections

ENVIRONMENTAL SETTING

Existing conditions for roadway, transit, bicycle, and pedestrian components of the transportation system are described below. Figure 1 shows the transportation network as well as pedestrian facilities near the project site. Figure 2 shows existing intersection turning movement counts at the following study locations.

EXISTING ROADWAY SYSTEM

I-505 is a north-south highway that provides the primary regional access to the City from Vacaville and central Solano County to the south, and from Woodland and I-5 to the north. Through the City, it is a four-lane, divided facility. I-505 has a flat alignment through Winters with a grade-separated, partial cloverleaf interchange at East Grant Avenue.

East Grant Avenue is an east-west state highway (State Route 128) that serves as the major east-west route through the City. It is currently a two-lane undivided road throughout the City. In the project vicinity, the posted speed limit is 45 miles per hour. The General Plan calls for East Grant Avenue to be widened to four lanes from East Main Street east to I-505.

East Main Street is a two-lane arterial that connects Downtown Winters with Grant Avenue at two locations. East Main Street currently forms a “half-loop” through the southern portion of Winters. The General Plan calls for Main Street to be extended to the northern portion of Winters, as new development occurs, to create a full loop road.

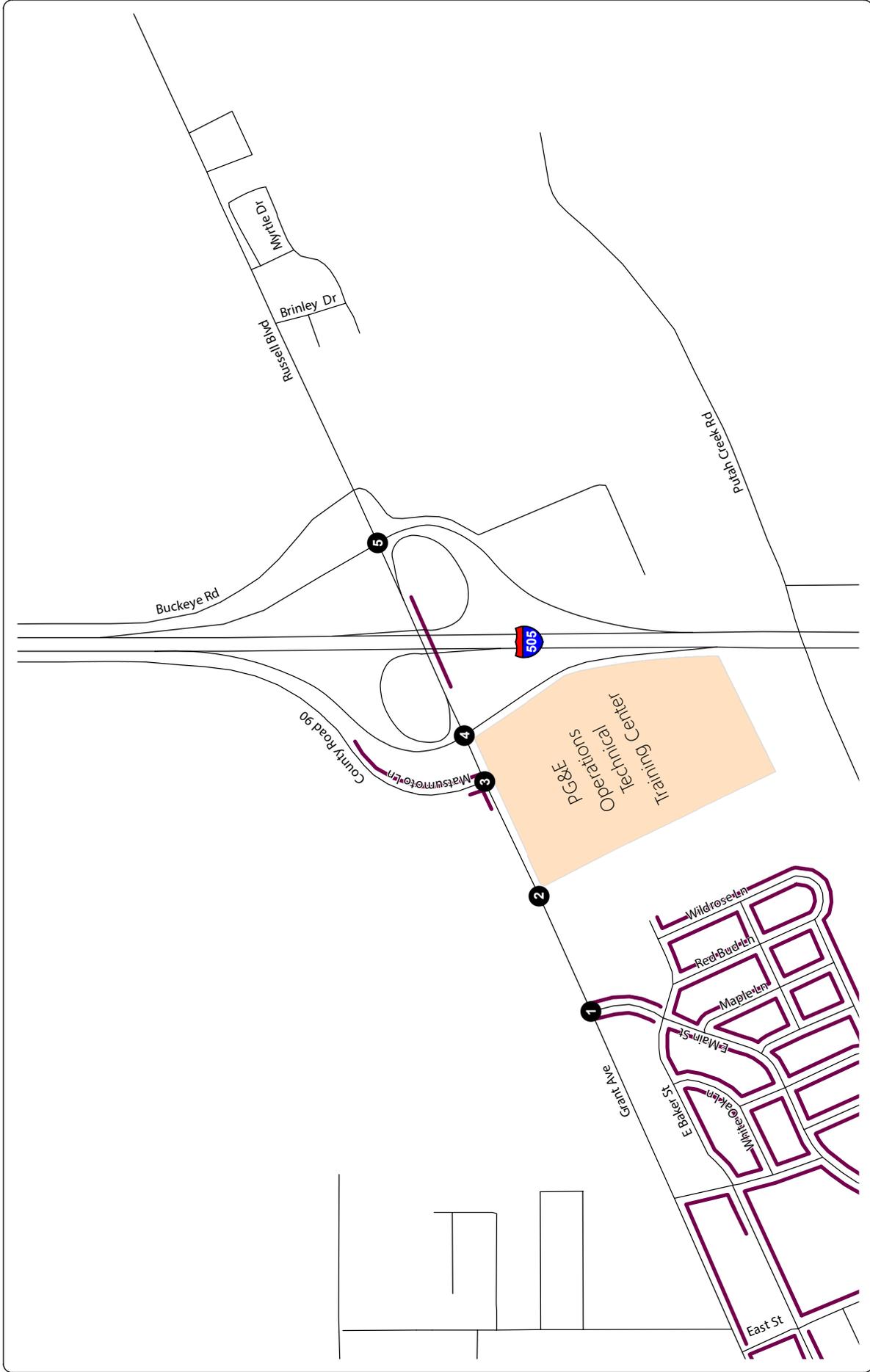
Matsumoto Lane is a north-south, two-lane facility that has its southern terminus at East Grant Avenue and extends approximately one-quarter mile to the north. Matsumoto Lane becomes County Road 90 at this point and extends about another 1.5 miles, as a frontage road on the west side of I-505, to its northern terminus point. The intersection of East Grant Avenue/Matsumoto Lane is controlled by a traffic signal.

Timber Crest Road is a two-lane gravel road that extends north from East Grant Avenue a distance of approximately one-quarter mile. The General Plan calls for this private roadway to ultimately be a two-lane collector street with a traffic signal at its junction with East Grant Avenue.

Existing Traffic Conditions

The traffic counts used in the existing conditions analysis for the study intersections were collected on November 21, 2013. The counts were taken during both the morning (between 6:00 and 9:00 AM) and afternoon (between 3:00 and 6:00 PM) peak periods. Figure 2 illustrates the existing intersection turning movement volumes and lane configurations.

Table 1 below summarizes the AM and PM peak hour levels of service at each of the study intersections. All of the study intersections operate acceptably at LOS C or better during both the AM and PM peak hours.



— Sidewalks



EXISTING PEDESTRIAN FACILITIES
FIGURE 1

**TABLE 1:
PEAK HOUR INTERSECTION OPERATIONS – EXISTING CONDITIONS**

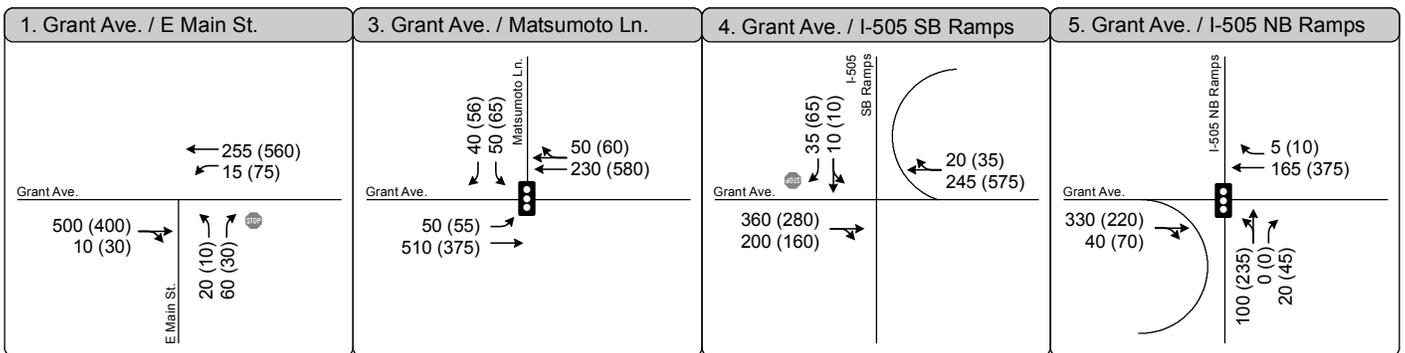
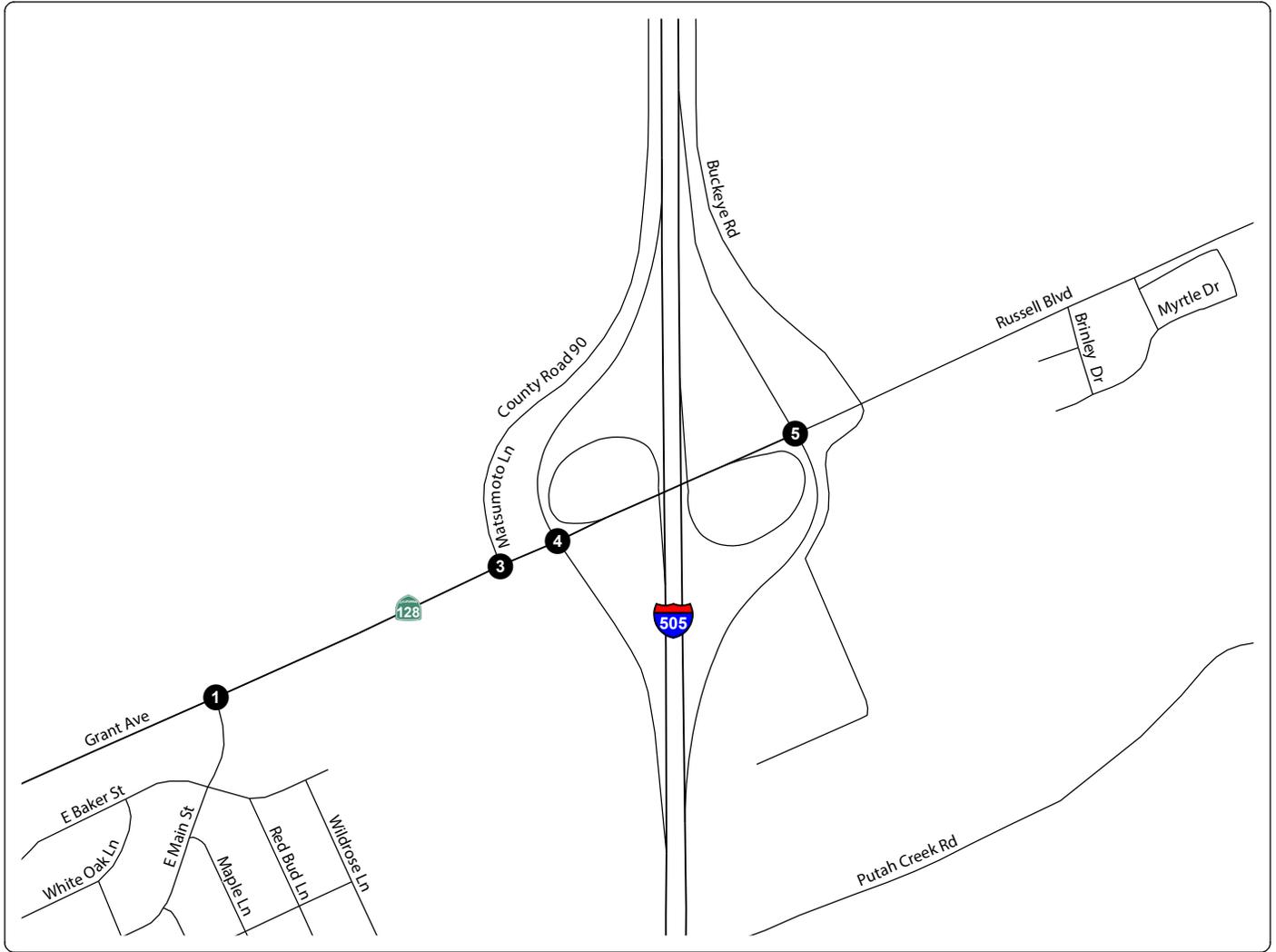
Intersection	Traffic Control	AM Peak Hour		PM Peak Hour	
		Delay ¹	LOS ²	Delay ¹	LOS ²
1. East Grant Ave / E Main St	Side Street Stop	11	B	19	C
2. East Grant Ave / Timber Crest Road	Intersection does not exist under current conditions				
3. East Grant Ave / Matsumoto Lane	Signal	5	A	7	A
4. East Grant Ave / I-505 Southbound Ramps	Side Street Stop	8	A	10	A
5. East Grant Ave / I-505 Northbound Ramps	Signal	8	A	10	A
Notes: ¹ For signalized and all-way stop-controlled intersections, the overall average intersection control delay is reported in seconds per vehicle. For side-street stop control, the average control delay for the worst movement is reported in seconds per vehicle. ² Level of Service based on <i>Highway Capacity Manual</i> (Transportation Research Board, 2010)					
Source: Fehr & Peers, 2014					

Transit System

The Yolo County Transportation District (YCTD) provides public transit service (Yolobus) in the City of Winters. No transit stops are located adjacent to the project site. The closest bus stop is located approximately one-half mile west of the project site on East Grant Avenue at Morgan Street and Blue Oak Lane. All Yolobus buses are equipped with bike racks to help facilitate the use of transit and bicycling for longer distance trips. Two Yolobus routes currently serve Winters as described below.

- Route 220 provides three daily round trips that link Winters with Davis and Vacaville. Service is provided Monday through Saturday. The bus stops located closest to the project site are at the Town & Country Market (East Grant Street at Morgan Street) and at the intersection of East Main Street/Blue Oak Lane. The westbound bus arrives at Town & Country Market at 8:20 am, 11:00 am, and 2:55 pm. The eastbound bus arrives at 9:55 am, 12:05 pm, and 4:00 pm. The bus line connects to the Memorial Union Terminal at UC Davis and the Vacaville Transportation Center.
- Route 220C is a commuter route that connects Winters with the City of Davis. The route has weekday service with a single run during the AM and PM peak hour. The bus stop located closest to the project site is at the intersection of East Main Street/Blue Oak Lane. The AM peak run leaves Winters at 7:15 am, while the PM peak run returns to Winters at 5:44 pm. The bus line connects to several UC Davis destinations including the Silo and Memorial Union bus terminals as well as the Sutter Davis Hospital on Covell Boulevard.

The 2006 YCTD Short Range Plan calls for enhancing Route 220 service by adding one additional AM and PM peak hour trip to give Winters' residents another option to get to work.



LEGEND

- Turn Lane
- AM (PM) Peak Hour Traffic Volume
- Study Intersection
- Traffic Signal
- Stop Sign
- Not to Scale

**PEAK HOUR TRAFFIC VOLUME
AND LANE CONFIGURATIONS -
EXISTING CONDITIONS**

Bicycle and Pedestrian System

The 2002 Bikeway Master Plan adopted by the City of Winters identifies existing and planned bikeway facilities.

- Class I Bikeway – Dedicated bike paths within an exclusive right of way
- Class II Bikeway – Striped bike lanes on roadways
- Class III Bikeway – Bike routes shared either with motor vehicles on street or with pedestrians on sidewalks

Class II bike lanes are located on East Main Street in the project vicinity.

Pedestrian facilities are generally limited and discontinuous within the study area. There are no continuous sidewalks along East Grant Avenue between I-505 and Morgan Street. The sidewalks closest to the project site are located along East Main Street. The following roadway segments currently have pedestrian facilities, as shown in Figure 1.

- East Main Street – Sidewalks are provided on both sides along the entirety of East Main Street.
- East Grant Avenue – Sidewalks are provided on the south side of East Grant Avenue from Morgan Street to Railroad Avenue. A short section of sidewalk exists on the north side of East Grant Avenue along the frontage of the Chevron service station, just west of Matsumoto Lane.
- Matsumoto Lane – Sidewalks are provided on the east side of Matsumoto Lane from East Grant Avenue to the north, for a distance of approximately 500 feet, along the frontage of the new highway commercial developments (e.g., AM/PM service station, Burger King, Taco Bell).
- Baker Street – Sidewalks are located along the south side of Baker Street from Wild Rose Lane west to Railroad Avenue.
- Morgan Street – Sidewalks are located along both sides of Morgan Street from East Grant Avenue to East Main Street.

REGULATORY SETTING

STATE

California Department of Transportation

The California Department of Transportation (Caltrans) is responsible for operating and maintaining the State highway system. In the project vicinity, I-505 and State Route 128 (East Grant Avenue) fall under Caltrans jurisdiction. Caltrans provides administrative support for transportation programming decisions made by the California Transportation Commission (CTC) for state funding programs. The State Transportation Improvement Program (STIP) is a multi-year capital improvement program that sets priorities and funds transportation projects envisioned in long-range transportation plans.

According to the *Guide for the Preparation of Traffic Impact Studies* (Caltrans, December 2002), Caltrans endeavors to maintain a target LOS at the transition between LOS C and LOS D on State highway facilities; however, it acknowledges that this may not always be feasible. For instance, if a freeway facility operates at an unacceptable LOS (e.g., LOS F), then the existing LOS should be maintained. A project impact is said to occur if the addition of project trips exacerbates existing LOS F conditions and leads to a perceptible increase in density on freeway mainline segments or ramp junctions, or a perceptible increase in service volumes in a weaving area. In addition, a project impact is said to occur when the addition of project trips causes a queue on the off-ramp approach to a ramp terminal intersection to extend beyond its storage area and onto the freeway mainline.

LOCAL

Sacramento Area Council of Governments

The Sacramento Area Council of Governments (SACOG) is an association of local governments in the six-county Sacramento Region. Its members include the counties of Sacramento, El Dorado, Placer, Sutter, Yolo, and Yuba as well as 22 cities. SACOG provides transportation planning and funding for the region, and serves as a forum for the study and resolution of regional issues. In addition to preparing the region's long-range transportation plan, SACOG assists in planning for transit, bicycle networks, clean air, and airport land uses.

Metropolitan Transportation Plan (MTP) for 2035

The Metropolitan Transportation Plan (MTP)/Sustainable Communities Strategy (SCS), or MTP/SCS, is a long-range fiscally constrained transportation plan for the six-county area that was adopted by SACOG in April, 2012. Most of this area is designated a federal non-attainment area for ozone, indicating that the transportation system is required to meet stringent air quality emissions budgets to reduce pollutant levels that contribute to ozone formation. To receive federal funding, transportation projects nominated by cities, counties, and agencies must be consistent with the MTP/SCS.

City of Winters

City of Winters General Plan

The City of Winters General Plan was adopted in 1992 and sets forth overarching goals and objectives related to transportation and circulation in the context of planned land use within the City. The General Plan guides the development of new roads and roadway modifications to serve long-term needs of Winters. The General Plan also provides direction for multimodal implementation.

All of the study intersections and roadway segments will be subject to the City of Winters' level of service (LOS) standards. The City of Winters General Plan identifies LOS C conditions as the threshold service level throughout the City, except at intersections located along East Grant Avenue (State Route 128) where service LOS D conditions are acceptable as specified in the Yolo County Congestion Management Plan.

The General Plan Circulation Exhibit calls for extension of Timber Crest Road and East Baker Street (from its present terminus to Timber Crest Road) into the McClish property.

Relevant transportation policy statements from the Transportation and Circulation chapter of the General Plan are provided below.

- Goal III.A. To create and maintain a roadway network that will ensure the safe and efficient movement of people and goods throughout the city.
- Goal III.G. To promote pedestrian and bicycle travel as alternatives to automobile use.
- Policy III.A.9. The City shall require street designs consistent with principles of interconnected network path design. The City shall insure that there are multiple, local street access points to all developments throughout the city. The City shall insure that direct access to all local streets from primary and secondary collectors is maintained. At the discretion of the City, alleys may be used in conjunction with the overall street layout.
- Policy III.A.10. Street designs should promote pedestrian and bicycle travel and should emphasize safety over travel speed and capacity. Collector streets should not be used as separators of neighborhoods.
- Policy III.B.3. The City shall require bus turnouts and shelters in higher density residential and commercial areas and other areas deemed appropriate.
- Policy III.G.1. The City shall create and maintain a safe and convenient system of pedestrian and bicycle routes that encourages walking or bicycling as an alternative to driving. The pedestrian and bicycle system shall connect all residential areas, schools, and shopping and employment areas in the city. The bicycle system shall favor on-street bike lanes over separated bike paths. New development shall be required to pay its share of the costs for development and maintenance of this system.
- Policy III.G.2. The City shall require installation of sidewalks along all streets in all newly developing areas.
- Policy III.G.6. The City shall require inclusion of bicycle parking facilities at all new major public and quasi-public facilities and commercial and employment sites. Major employers shall be encouraged to provide showers and lockers in their facilities to encourage biking.
- Policy V.A.15. The City shall pursue the development of a citywide network of pedestrian and bicycle pathways and equestrian trails. The pedestrian and bicycle pathway and trail system should be designed to link parks, schools, civic and major shopping and employment centers. The City's bicycle pathway system should be integrated with the countywide bikeway system.

City of Winters Bikeway System Master Plan

The current version of the Bikeway System Master Plan was approved by the City of Winters City Council in 2013. The applicable transportation policy statements from this document are described below.

- Goal 3. Encourage a community culture that supports the use of bicycling as a major mode of transportation throughout the city.
- Goal 4. Establish a well-connected bikeways system that is well-integrated with other modes of transportation and other alternative modes of transportation.
- Goal 6. Create a convenient and safe bikeway system that aims to reduce vehicle congestion, improve air quality and improve individual physical fitness.

The 2013 Bikeway System Master Plan identifies five priority projects as follows. A portion of the first bicycle project described below is located along the project frontage.

1. East Grant Avenue (SR 128) from East Main Street to I-505 – Class I/II bike lanes and pedestrian facilities
2. East Grant Avenue (SR 128) from Railroad Avenue to Main Street – Bike/pedestrian upgrade
3. East Grant Avenue (SR 128) from I-505 to El Rio Villa-Yolo Housing – Class I trail
4. Putah Creek Pedestrian and Bike Bridge – Class I trail
5. West Section of Main Street – Class I trail

Yolo County Transportation District

The Yolo County Transportation District (YCTD) provides public transit service (Yolobus) in the City of Winters. The 2006 Short Range Transit Plan sets the stage for implementing short-term service improvements while establishing a long term transit vision. The Short Range Plan calls for enhancing Route 220 service by adding one additional AM and PM peak hour trip to the route to give Winters' residents another option to get to work.

METHOD OF ANALYSIS

The impact analysis pertains to roadway, transit, bicycle, and pedestrian components of the transportation system. The specific methodology for intersection impact analysis is described below. For the transit, bicycle, and pedestrian systems impact analysis, the proposed project was evaluated for consistency with existing and planned service and facilities as well as consistency with related policies of the City of Winters and the YCTD.

Operating conditions of transportation facilities are frequently described in terms of their relative “level of service” (LOS). The concept of levels of service uses qualitative measures that characterize quantitative operational conditions and their perception by motorists. Six levels of service are used to characterize operating conditions with letter designations ranging from A to F. LOS A represents the best operating conditions and LOS F the worst.

Intersection Operations

The LOS criteria and methods of calculation used for this traffic study are based on the Highway Capacity Manual (2000 version) developed by the Transportation Research Board (TRB). Table 2 displays the average control delay per vehicle for each LOS threshold for signalized and unsignalized intersections. The LOS for signalized and all-way stop-controlled intersections is based on the average control delay of all vehicles traveling through the intersection. The LOS for side-street stop-controlled intersections is determined by the movement with the greatest average delay.

TABLE 2: LEVEL OF SERVICE DEFINITIONS FOR STUDY INTERSECTIONS		
Level of Service	Control Delay (seconds/vehicle)	
	Signalized	Unsignalized
A	≤ 10.0	≤ 10.0
B	10.1 – 20.0	10.1 – 15.0
C	20.1 – 35.0	15.1 – 25.0
D	35.1 – 55.0	25.1 – 35.0
E	55.1 – 80.0	35.1 – 50.0
F	> 80.0	> 50.0

Source: Highway Capacity Manual (Transportation Research Board, 2000).

Given the interaction between the study intersections within the East Grant Avenue corridor near I-505, SimTraffic simulation software was used to evaluate operating conditions for all study intersections. SimTraffic is a transportation software program that simulates the impact of closely spaced intersections on vehicle delay, and is the software used for prior analysis of the study intersections based on consultation between the Town of Winters and Caltrans.

THRESHOLDS OF SIGNIFICANCE

In accordance with CEQA, the effects of a project are evaluated to determine if they will result in a significant adverse impact on the environment. For the purposes of this analysis, an impact is considered significant if implementation of the project would have any of the effects described below.

The standards of significance in this analysis are based upon the current practice of the appropriate regulatory agencies. For most areas related to transportation and circulation, policies from the City of Winters' General Plan have been used. For the freeway system, Caltrans' standards were used.

Local Roadway Network

All of the study intersections and roadway segments are subject to City of Winters' level of service (LOS) standards. The City of Winters General Plan identifies LOS C conditions as the threshold service level throughout the City, except at intersections located along East Grant Avenue (SR 128) where service LOS D conditions are acceptable as specified in the Yolo County Congestion Management Plan. All five study locations are located along East Grant Avenue, and have LOS D conditions as the threshold.

An impact to the roadway system is considered significant if implementation of the proposed project would trigger any of the following conditions.

- Cause the existing or cumulative no project level of service at an intersection to deteriorate from A, B, C, or D, to E or F;
- Exacerbate the No Project LOS E or F conditions at an intersection by increasing the average control delay by 5 seconds or more;
- Create inconsistencies with the adopted circulation exhibit, road system policies or standards of plans adopted by the City of Winters, the YCTD, or Caltrans, including the Congestion Management Plan;
- Add substantial vehicle trips to a roadway facility that does not meet applicable design standards; or
- Create conflicts between modes of transportation (e.g., vehicles and bicycles).

Transit System

- Create demand for public transit services above that which is provided, or planned to be provided by the YCTD;
- Disrupt existing YCTD transit services or facilities;
- Interfere with planned YCTD transit services or facilities; or
- Create an inconsistency with the transit policies or standards of plans adopted by the City of Winters, the YCTD, or Caltrans.

Bicycle and Pedestrian Facilities

- Disrupt existing bicycle or pedestrian facilities;
- Fail to adequately provide for access by pedestrians;
- Interfere with planned bicycle or pedestrian facilities; or
- Create an inconsistency with the bikeway or pedestrian policies or standards of plans adopted by the City of Winters, the YCTD, or Caltrans.

EXISTING PLUS PROJECT SCENARIO

PROPOSED PROJECT

The Winters Gas Operations Technical Training Center (GOTTC) project site is approximately 38 acres with training and office facilities in the Learning Center and other smaller buildings. The project will occupy all of the Jordan property and the eastern portion of the McClish property. Of the 38 acres, the southernmost 3.75 acres will be dedicated for open space uses along Putah Creek, and the westernmost 3.97 acres will be dedicated to the City and developed as a regional drainage channel along the western boundary of the Project development area.

The project site would have training and office facilities in the Learning Center and other smaller buildings. A total of 208 parking spaces will be provided, and a bus stop will be constructed along the project site frontage on East Grant Avenue. A total of 210 individuals are expected to be on the site on a typical day, broken down as follows:

- 132 Trainees and 30 Instructors
- 23 Facility/Administrative Staff
- 25 Visitors/Transient Employees

Access to the project site would be provided by a newly constructed Timber Crest Road and a newly constructed intersection on East Grant Avenue at Timber Crest Road. The project will install left turn lanes on East Grant Avenue at the new intersection with Timber Crest Road. Timber Crest Road will be extended from East Grant Avenue south and culminate in a cul-de-sac that links vehicles with the project parking lot and emergency access lane. The project will construct a 10 foot wide meandering shared bicycle/pedestrian path along the East Grant Avenue frontage, consistent with the *East Grant Avenue/SR 128/Russell Boulevard Complete Streets Concept Plan* (December 2010).

TRIP GENERATION

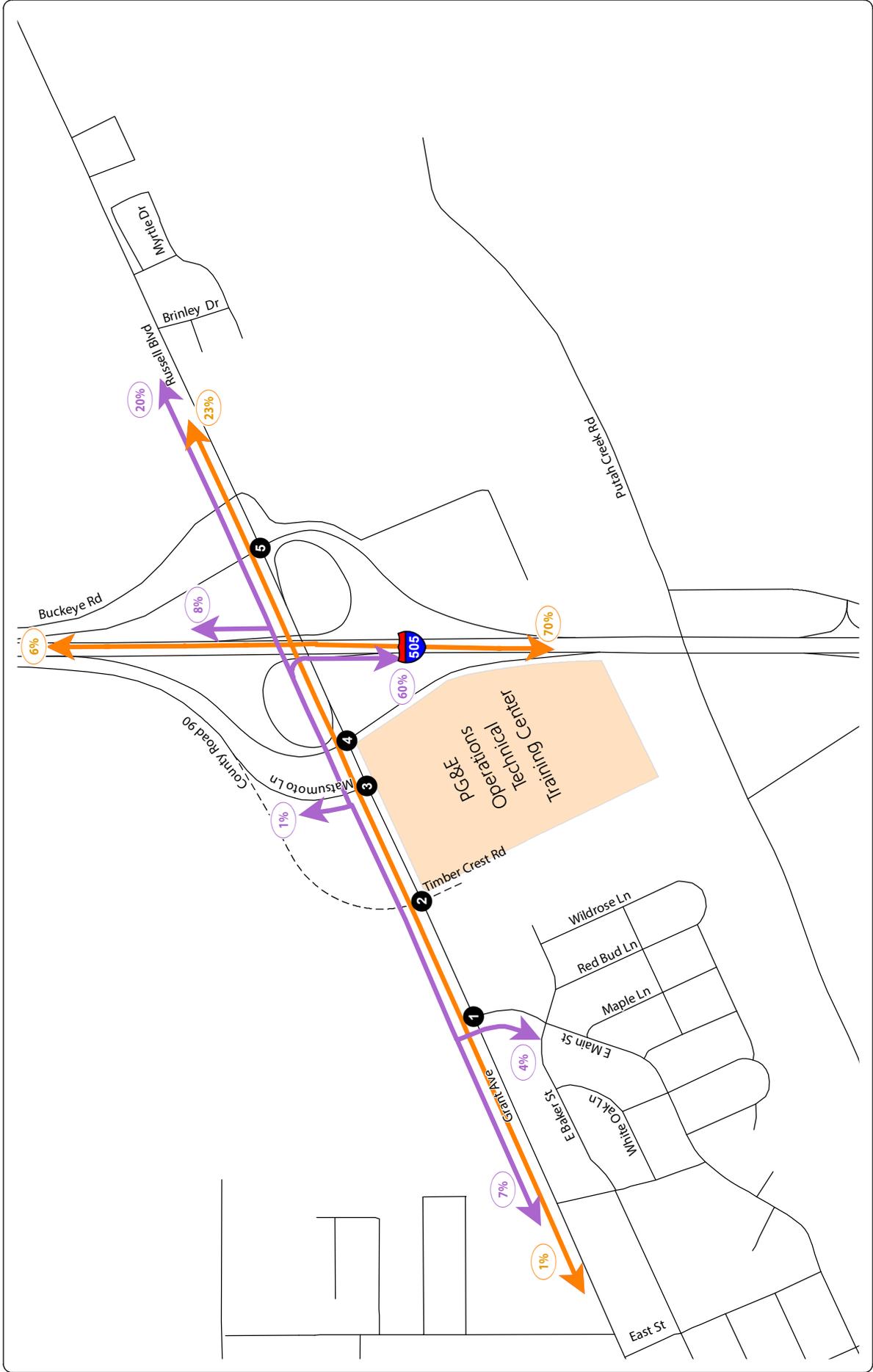
Based on the current project description, Fehr & Peers prepared trip generation estimates for the project. Table 3 provides a forecast of the number of vehicle trips generated by the project during the one hour morning and one hour afternoon peak commute periods on a typical weekday. The trip generation forecasts are based on a combination of surveys conducted at the existing PG&E Livermore training center and trip rates presented in *Trip Generation, 9th Edition* (Institute of Transportation Engineers).

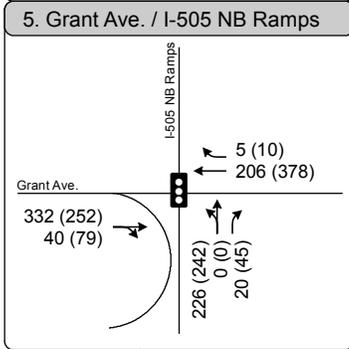
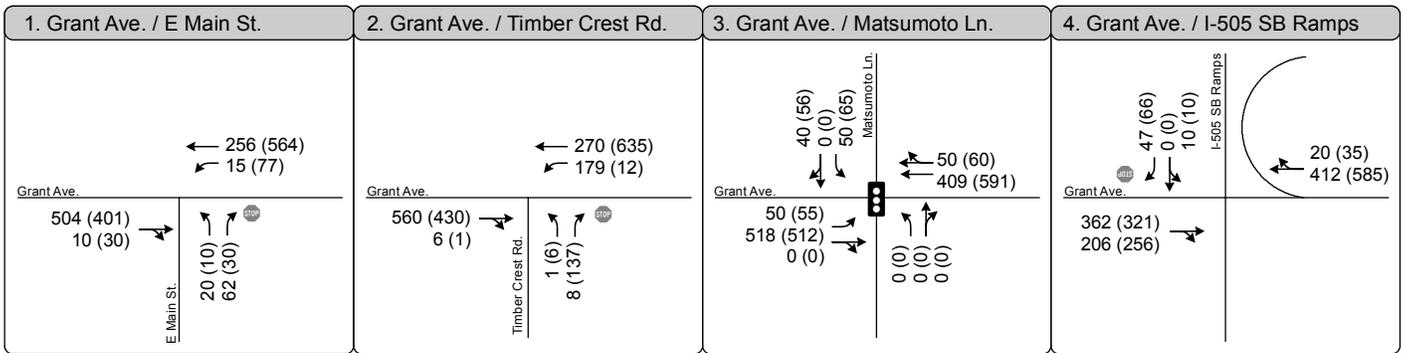
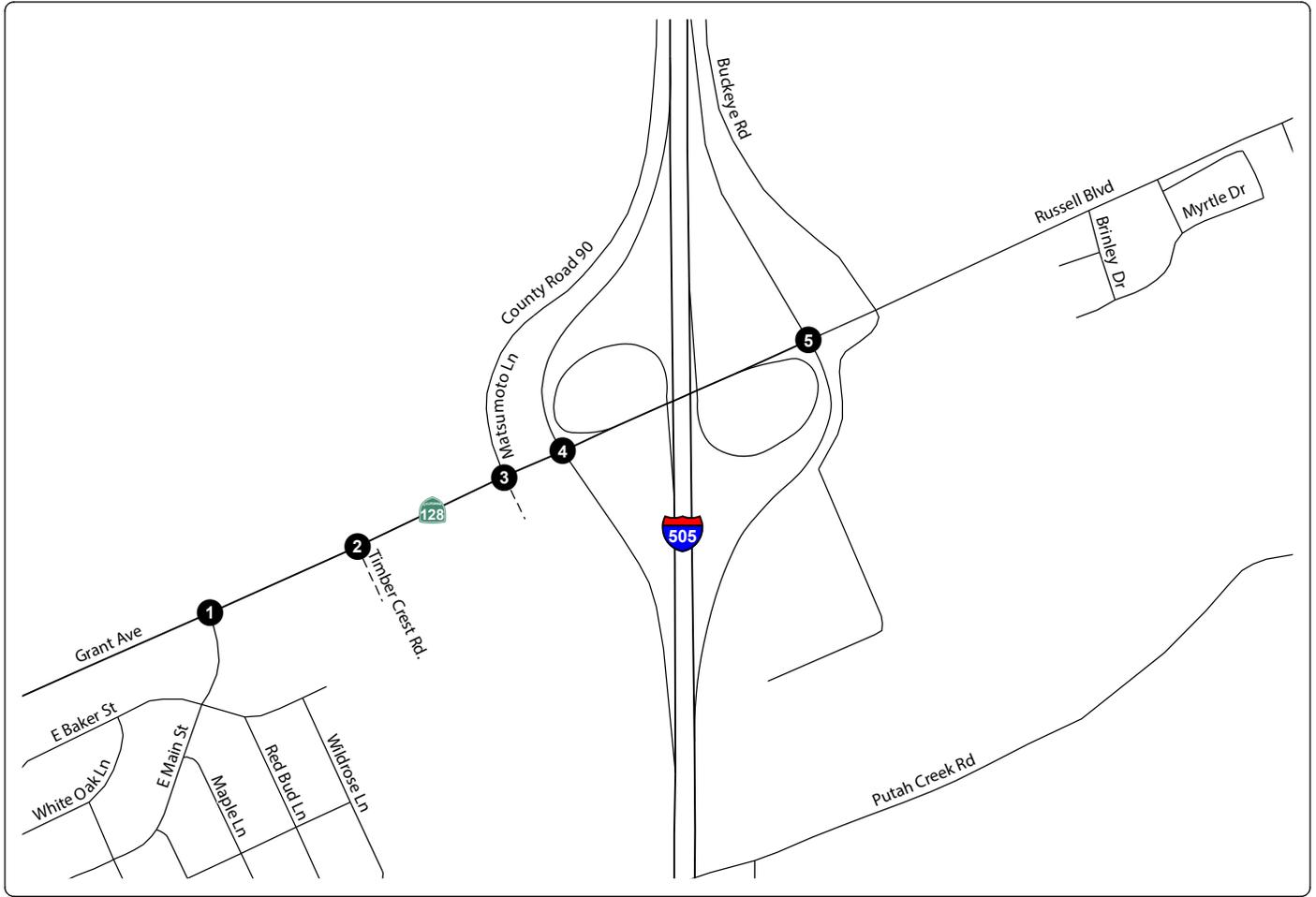
Project Elements	Quantity	Units	AM Peak Hour	PM Peak Hour
Trainees	132	Persons	151	102
Instructors	30	Persons		
Facility/Administrative Employees	48	Persons	43	54
Commercial Driver Training (CDLA) Trucks	2	Trucks	2	0
Total Vehicle Trips			196	156

TRIP DISTRIBUTION AND ASSIGNMENT

Figure 3 provides trip distribution assumptions for trainees as well as facility employees. This near-term distribution assumes trainees would travel to the site either from their own homes or from hotels located in nearby cities such as Vacaville, Davis, and Woodland. A small percent of trips are expected to be generated from within the City of Winters in the near-term.

Project trips were assigned to study facilities in accordance with the trip generation and distribution assumptions. Figure 4 shows study intersection turning movements with project trips added to the network.





LEGEND

- Turn Lane
- AM (PM)** Peak Hour Traffic Volume
- Study Intersection
- Traffic Signal
- Stop Sign
- Future Road



**PEAK HOUR TRAFFIC VOLUME
AND LANE CONFIGURATIONS -
EXISTING PLUS PROJECT CONDITIONS**

IMPACT ANALYSIS – EXISTING PLUS PROJECT SCENARIO

Existing Plus Project Intersection Peak Hour Level of Service

Table 4 summarizes intersection LOS results associated with the proposed project. All of the study intersections are projected to operate at acceptable LOS during the AM or PM peak hours. The maximum queue length for the new westbound left turn pocket that would be constructed by the project at the new East Grant Avenue/Timber Crest Road intersection is 150 feet for Existing plus Project conditions to 280 feet under Cumulative plus Project conditions. To avoid significant queuing impacts, a left turn pocket with storage of 280 feet shall be provided. As such, the project does not result in any significant impact to study intersections under this scenario.

Intersection	Existing					Existing Plus Project				
	Traffic Control	AM Peak Hour		PM Peak Hour		Traffic Control	AM Peak Hour		PM Peak Hour	
		Delay ¹	LOS ²	Delay ¹	LOS ²		Delay ¹	LOS ²	Delay ¹	LOS ²
1. East Grant Avenue (SR 128) / E. Main Street	Side-Street Stop	11	B	13	B	Side-Street Stop	11	B	12	B
2. East Grant Avenue (SR 128) / Timber Crest Road	Intersection does not exist under current conditions					Side-Street Stop	7	A	6	A
3. East Grant Avenue (SR 128) / Matsumoto Lane	Signal	5	A	7	A	Signal	6	A	7	A
4. East Grant Avenue (SR 128) / I-505 Southbound Ramps	Side-Street Stop	8	A	10	A	Side-Street Stop	12	B	17	C
5. East Grant Avenue (SR 128) / I-505 Northbound Ramps	Signal	8	A	10	A	Signal	9	A	9	A

Notes: ¹ For signalized and all-way stop-controlled intersections, the overall average intersection control delay is reported in seconds per vehicle. For side-street stop control, the average control delay for the worst movement is reported in seconds per vehicle.
² Level of Service based on *Highway Capacity Manual* (Transportation Research Board, 2000)
BOLD text indicates that the intersection operates unacceptably based on the operations thresholds.
SHADED text indicates that the project significantly impacts the intersection.

Source: Fehr & Peers, 2014

The project will not provide a connection to the current eastern terminus of East Baker Street. This analysis assigns all project traffic to East Grant Avenue.

Transit Facilities

Yolobus Route 220 provides three daily runs to Winters, including one early morning (arrives 8:19 am, departs 9:55 am), one mid-day (arrives 10:59 am, departs 12:05 pm), and one afternoon (arrives 2:54 pm, departs 4:00 pm) trip between Winters and Davis. Yolobus is in the process of adding one additional round trip that will occur during the morning commute (from Davis to Winters) and the evening commute (from Winters to Davis). The nearest bus stop for Route 220 is approximately one-half mile to the west of

the project site. The project, with approximately 60 employees, would create additional demand for public transit services. It is not anticipated that trainees will take public transportation to the project site given the hours of bus service provided. As part of the project, PG&E will identify a location for and construct a bus stop along its East Grant Avenue frontage after consulting with the City of Winters Public Works Department and the YCTD. PG&E would construct the bus stop prior to opening day.

Pedestrian Facilities

As shown on Figure 1, there are no existing sidewalks along the project frontage on East Grant Avenue. The project applicant would construct a Class I path along its entire East Grant Avenue frontage. The project will also provide a continuous pedestrian connection from the project frontage west to the existing City sidewalk system at East Main Street. The project does not create an inconsistency with policies from the City General Plan or plans adopted by YCTD or Caltrans. Thus, the project impacts on pedestrian facilities would be less than significant.

Bicycle Facilities

The Winters Bikeway System Master Plan calls for the construction of a Class I bicycle trail along the south side of East Grant Avenue (from East Main Street to I-505). The project constructs the planned Class 1 bike trail along its East Grant Avenue frontage. The project does not disrupt existing bicycle facilities or interfere with planned bicycle facilities. The project does not create an inconsistency with policies from the City General Plan or plans adopted by YCTD or Caltrans. As such, the project does not result in a significant bicycle impact.

Emergency Vehicle Access

Primary access to the project site is proposed from a new intersection on East Grant Avenue at Timber Crest Road. An emergency vehicle access and gate will be provided on the south leg of the existing signalized intersection of East Grant Avenue and Matsumoto Lane. A 35 foot wide emergency vehicle access easement will be constructed through the project site that connects the East Grant Avenue/Matsumoto Lane intersection with the Timber Crest Road/East Baker Street Extension intersection. A 24-foot wide internal service/fire road will connect these two intersections.

The existing traffic signal at the East Grant Avenue and Matsumoto Lane does not currently have signal indications for northbound traffic. Emergency vehicle traffic exiting the project at this location would not have signal indications, resulting in a significant emergency vehicle access impact. This can be addressed by adding signal indications for northbound traffic movements at the intersection.

EXISTING PLUS APPROVED DEVELOPMENTS

The following section provides a description of near-term transportation conditions without the project. This scenario assesses transportation conditions with the addition of trips generated by development projects that have received formal entitlement approvals from the City of Winters.

LAND USE ASSUMPTIONS

The following entitled, but unbuilt, developments are included in the “Existing Plus Approved Developments” scenario. Trips generated by these developments are added to the existing traffic volumes, as these projects are entitled and could be constructed in the near future.

- Highlands, Callahan Estates, Ogando-Hudson & Creekside Estates
- Winters Commercial Center
- Anderson Place (former Brzeski) Project

NETWORK ASSUMPTIONS

No modifications to the existing roadway network in the study area are assumed.

EXISTING PLUS APPROVED DEVELOPMENT TRAFFIC CONDITIONS

This section provides the analysis of the Existing Plus Approved Development Scenario at the five study intersections listed below in Table 5. Figure 5 illustrates the forecast intersection turning movement volumes and lane configurations.

Intersection Operations

Table 5 below summarizes the operations performance of the study intersections under Existing Plus Approved Development conditions.

Intersection	Traffic Control	AM Peak Hour		PM Peak Hour	
		Delay ¹	LOS ²	Delay ¹	LOS ²
1. East Grant Ave / E Main St	Side Street Stop	29	D	36	E
2. East Grant Ave / Timber Crest Road	Intersection does not exist under this scenario				
3. East Grant Ave / Matsumoto Lane	Signal	6	A	6	A
4. East Grant Ave / I-505 Southbound Ramps	Side Street Stop	10	B	27	D
5. East Grant Ave / I-505 Northbound Ramps	Signal	9	A	14	B
Notes: ¹ For signalized and all-way stop-controlled intersections, the overall average intersection control delay is reported in seconds per vehicle. For side-street stop control, the average control delay for the worst movement is reported in seconds per vehicle. ² Level of Service based on <i>Highway Capacity Manual</i> (Transportation Research Board, 2010) BOLD text indicates that the intersection operates unacceptably based on the operations thresholds.					
Source: Fehr & Peers, 2014					

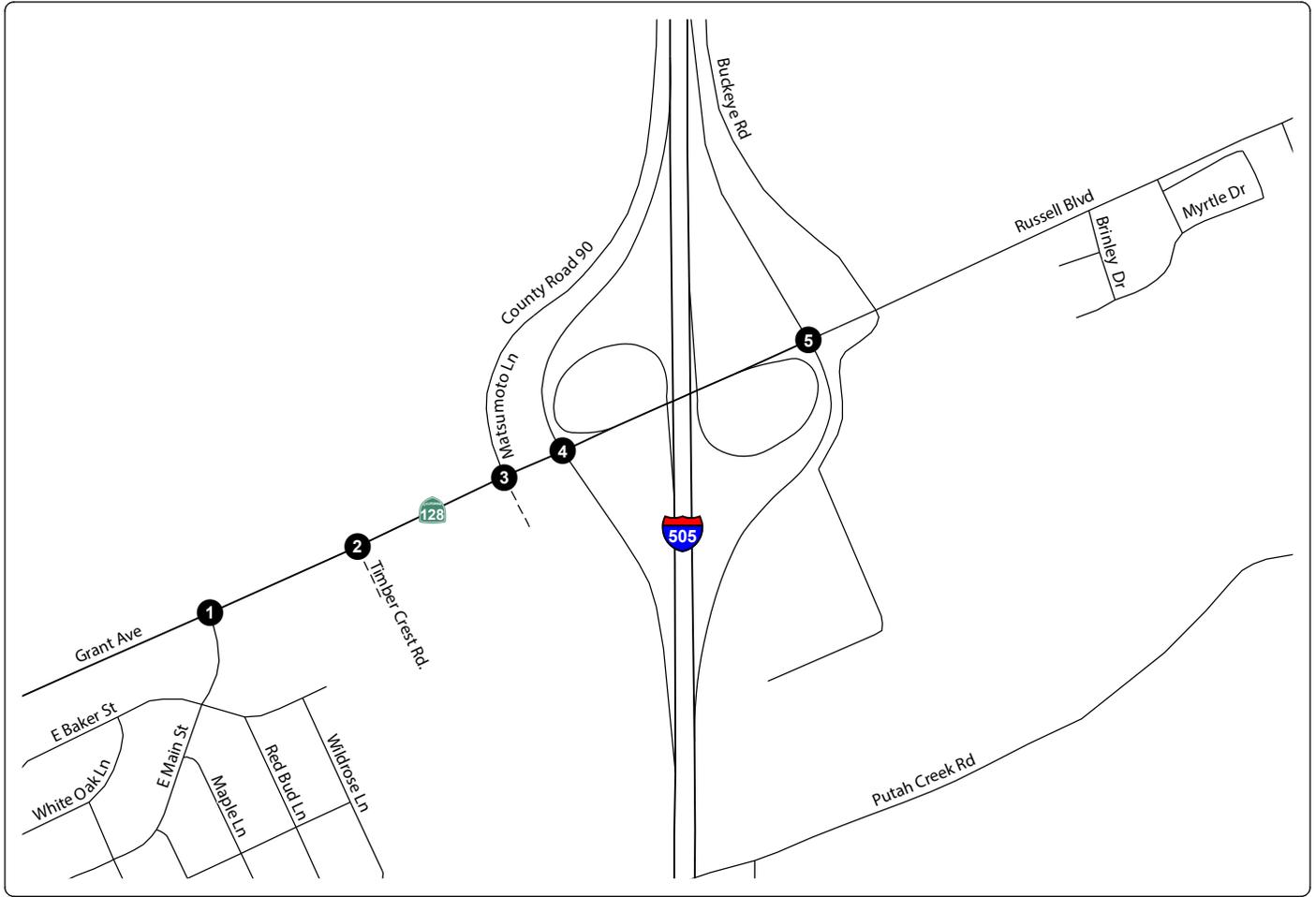
The following stop controlled intersections would operate at LOS E conditions under the Existing plus Approved Development scenario:

- East Grant Ave/E Main St: The intersection would operate at LOS E conditions under Existing Plus Approved conditions.

The installation of a traffic signal at each of the above intersections would yield acceptable conditions. The transportation development fee program for the City of Winters includes installation of a traffic signal at East Grant Avenue/East Main Street

The installation of a traffic signal at the East Grant Avenue/East Main Street intersection will be triggered by a combination of new development activity in the I-505/Grant Avenue planning area and/or the addition of through trips generated by other cumulative development. As described in the following section, the project does not create a significant impact at this location. The signal would be triggered by the first development on the Skreedon parcel or 70 percent of approved developments plus a total of 880 pm peak hour trips generated by development within the I-505/Grant Avenue planning area. When these future volume triggers are met, a formal traffic signal warrant analysis should be prepared to evaluate all the designated criteria and determine if sufficient warrants are met, or if additional growth can occur. When it is determined that the installation of a traffic signal is warranted, the analysis should be submitted to Caltrans for review as Grant Avenue is a state highway (SR 128). The installation of a traffic signal at

this intersection is included in the Grant Avenue/SR 128/Russell Boulevard Complete Streets Concept Plan (December 2010) that was prepared for Caltrans and the City of Winters, and adopted by the Winters City Council in February 2011.



1. Grant Ave. / E Main St.	3. Grant Ave. / Matsumoto Ln.	4. Grant Ave. / I-505 SB Ramps	5. Grant Ave. / I-505 NB Ramps

LEGEND

- Turn Lane
- AM (PM) Peak Hour Traffic Volume
- Study Intersection
- Traffic Signal
- Stop Sign
- Future Road



Not to Scale

EXISTING PLUS APPROVED PLUS PROJECT SCENARIO

This section provides an analysis of transportation conditions with approved development and the project.

TRIP GENERATION, DISTRIBUTION, AND ASSIGNMENT

The project trips assigned under this scenario are shown in Table 3. The distribution assumptions for this scenario are the same as those shown in Figure 3.

For this Existing Plus Approved Development Plus Project scenario, project trips are assigned to the Timber Crest Road access to the project site. The second project access route to Gateway Drive/Matsumoto Lane is for emergency access only, and for freight and heavy vehicles accessing the facility. There would be no connection between the project and the existing eastern terminus of East Baker Street in the Existing Plus Approved Development Plus Project Scenario. Figure 6 shows study intersection turning movements with project trips added to the network.

IMPACT ANALYSIS – EXISTING PLUS APPROVED PLUS PROJECT SCENARIO

Existing Plus Approved Plus Project Intersection Peak Hour Level of Service

Table 6 summarizes intersection LOS results associated with the proposed project. The project would not result in significant impacts at four of the five study intersections including at East Main Street, Matsumoto Lane, the I-505 southbound ramps, and the I-505 northbound ramps.

The project results in a significant impact at the following intersection under the Existing plus Approved plus Project scenario, as it causes the intersection operations to change from LOS D to E.

- East Grant Avenue (SR 128) / I-505 Southbound Ramps – PM peak hour

The installation of a traffic signals at the East Grant Avenue/I-505 southbound ramps intersection, as called for in the General Plan and included in the City's Traffic Impact Fee program, would improve conditions at this location. The installation of a traffic signal at this intersection is included in the Grant Avenue/SR 128/Russell Boulevard Complete Streets Concept Plan (December 2010) that was prepared for Caltrans and the City of Winters, and adopted by the Winters City Council in February 2011.

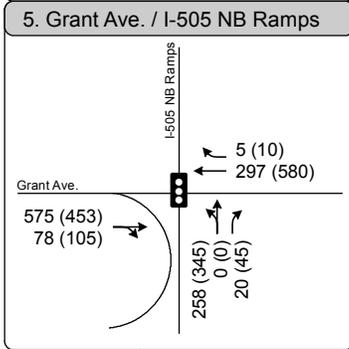
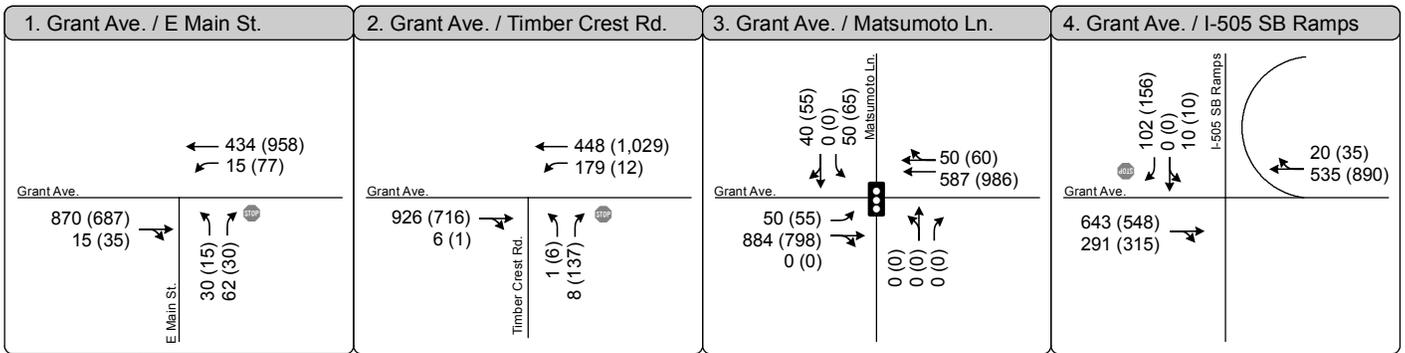
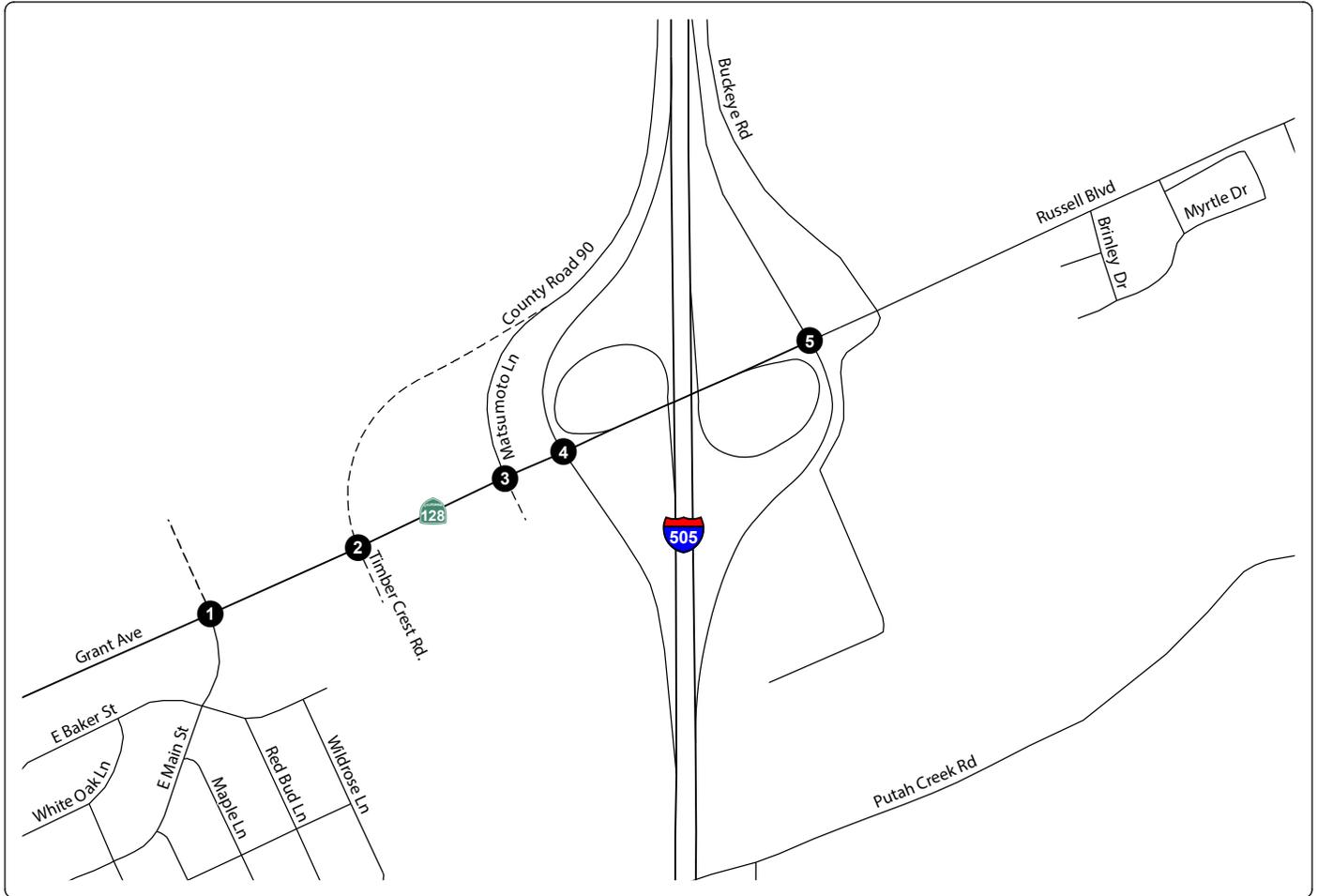
Accordingly, payment of the requisite impact fee to the City's fee program would mitigate the project's impact to less than significant at the intersection of East Grant Avenue (SR 128) / East Main Street.

TABLE 6: PEAK HOUR INTERSECTION OPERATIONS – EXISTING PLUS APPROVED PLUS PROJECT SCENARIO

Intersection	Existing Plus Approved					Existing Plus Approved Plus Project				
	Traffic Control	AM Peak Hour		PM Peak Hour		Traffic Control	AM Peak Hour		PM Peak Hour	
		Delay ¹	LOS ²	Delay ¹	LOS ²		Delay ¹	LOS ²	Delay ¹	LOS ²
1. East Grant Avenue (SR 128) / E. Main Street	Side-Street Stop	29	D	36	E	Side-Street Stop	30	D	37	E
2. East Grant Avenue (SR 128) / Timber Crest Road	Intersection does not exist under this scenario					Side-Street Stop	23	C	29	D
3. East Grant Avenue (SR 128) / Matsumoto Lane	Signal	6	A	6	A	Signal	6	A	7	A
4. East Grant Avenue (SR 128) / I-505 Southbound Ramps	Side-Street Stop	10	B	27	D	Side-Street Stop	25	D	44	E
5. East Grant Avenue (SR 128) / I-505 Northbound Ramps	Signal	9	A	14	B	Signal	13	B	14	B

Notes: ¹ For signalized and all-way stop-controlled intersections, the overall average intersection control delay is reported in seconds per vehicle. For side-street stop control, the average control delay for the worst movement is reported in seconds per vehicle.
² Level of Service based on *Highway Capacity Manual* (Transportation Research Board, 2000)
BOLD text indicates that the intersection operates unacceptably based on the operations thresholds.
SHADED text indicates that the project significantly impacts the intersection.

Source: Fehr & Peers, 2014



LEGEND

- Turn Lane
- AM (PM)** Peak Hour Traffic Volume
- 1** Study Intersection
- Traffic Signal
- Stop Sign
- Future Road



**PEAK HOUR TRAFFIC VOLUME
AND LANE CONFIGURATIONS -
EXISTING PLUS APPROVED PLUS PROJECT CONDITIONS**

CUMULATIVE NO PROJECT ANALYSIS

The Cumulative No Project scenario assesses long-range transportation conditions in the City of Winters with build-out of parcels consistent with the General Plan land use designations and an average development yield, with the exception of the PG&E project site where no development is assumed.

CUMULATIVE LAND USE AND ROADWAY NETWORK ASSUMPTIONS

To account for changes in traffic patterns associated with planned transportation and land use development projects near the project site, cumulative traffic forecasts were developed and traffic operations were analyzed with and without the project. Cumulative land use and network assumptions are consistent with the City of Winters General Plan and Winters' citywide travel model.

The project will occupy all of the Jordan property and the eastern portion of the McClish property. The remainder of the McClish property will be developed by others. For the Cumulative No Project Scenario, the Jordan property is assumed to be vacant. The remainder portion of the McClish property, to be developed by others, is assumed to be occupied by 216,046 square feet of light industrial uses.

The Circulation Element of the Winters General Plan includes the following transportation improvements that would affect conditions at the study intersections.

- East Grant Avenue— widen to four lanes (included in current road fee program)
- East Main Street – extend East Main Street from East Grant Avenue to the north and as part of a Main Street “loop” road
- Timber Crest Road – construction of a new roadway (i.e., Matsumoto Road realignment) extending north from East Grant Avenue and connecting with Matsumoto Road and industrial development in the northeast portion of the city
- Baker Street – extend east from its present easterly terminus through the McClish property to the Jordan property
- New traffic signals along East Grant Avenue at the East Main Street , and I-505 southbound ramp intersections (East Main Street and I-505 southbound ramp signals included in current road fee program)

The cumulative analysis assumes almost all of the above improvements are in place, as most are included in the city transportation development fee program. This includes the widening of East Grant Avenue to four lanes between East Main Street and Matsumoto Lane. New traffic signals are assumed to be in place along East Grant Avenue at East Main Street and the southbound I-505 ramp intersections, as they are included in the city transportation fee program. A new traffic signal is not assumed to be in place at the East Grant Avenue / Timber Crest Road intersection (the main project access) to determine under what scenario the signal would be triggered. .

CUMULATIVE NO PROJECT CONDITIONS

This section provides the analysis of the Cumulative No Project Scenario at the five study intersections. Figure 7 illustrates the forecast intersection turning movement volumes and lane configurations. The projected volumes for the Cumulative No Project scenario assume no development on the PG&E project site.

Intersection Operations

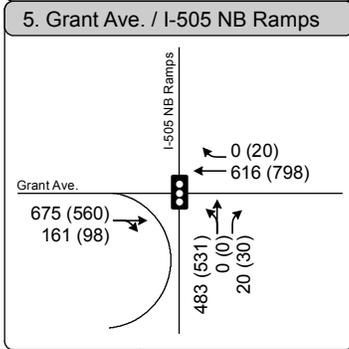
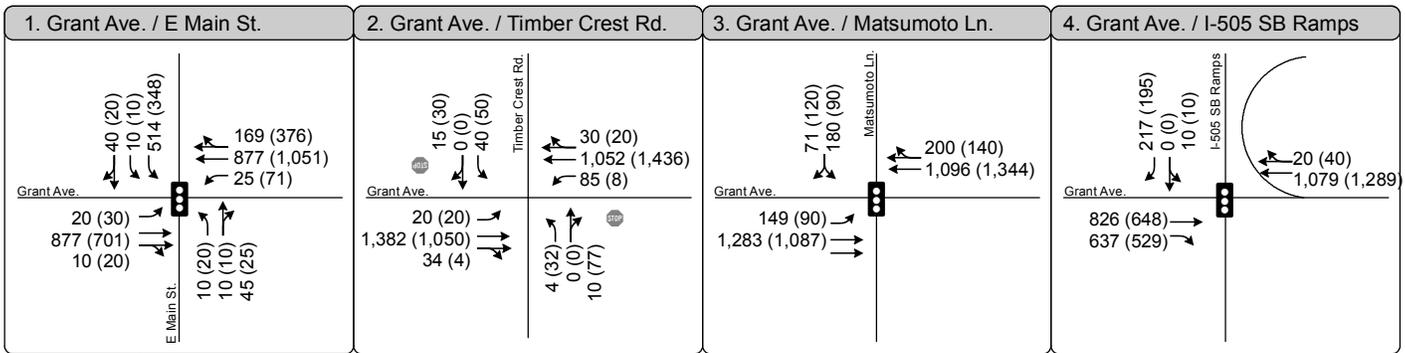
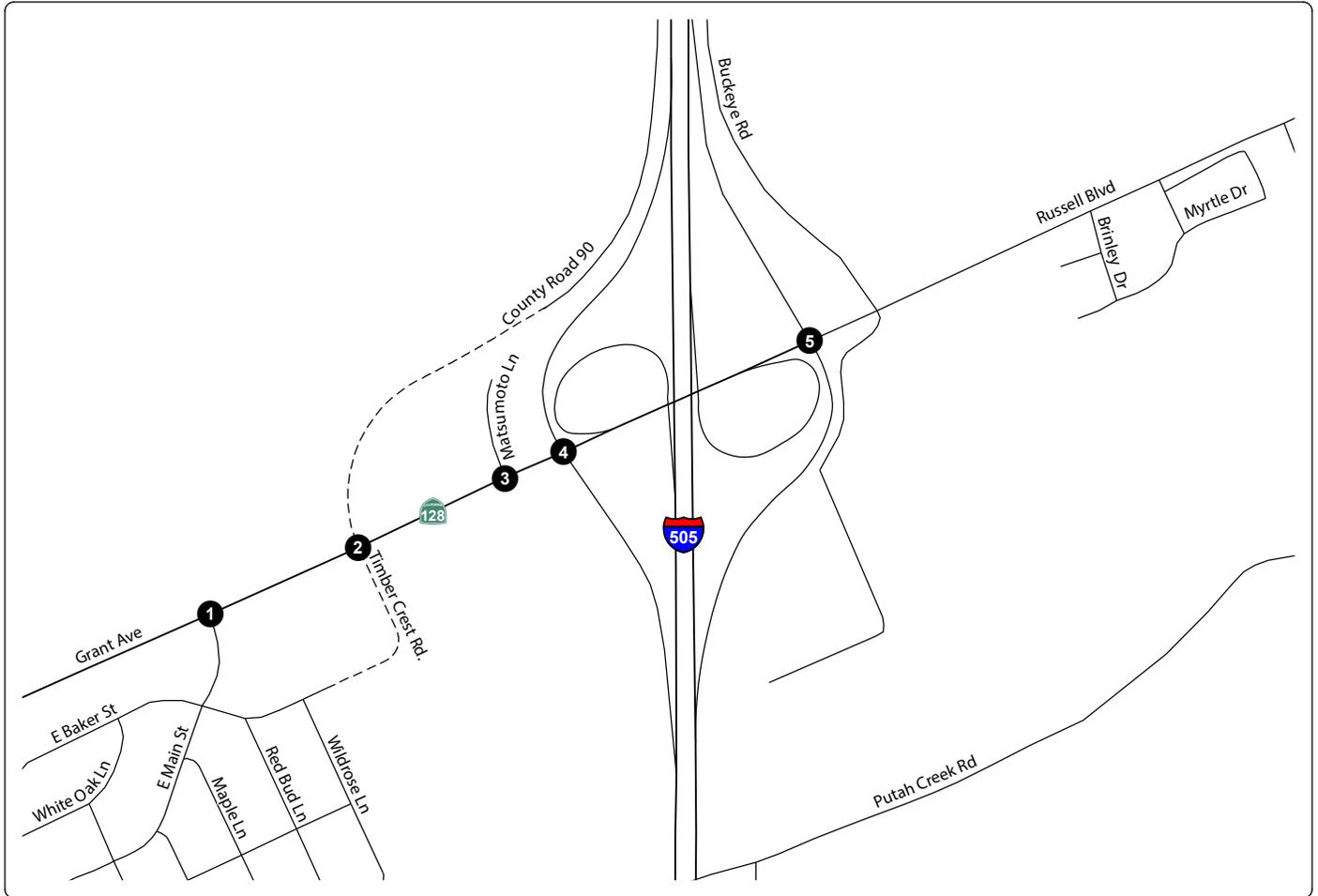
Table 7 below summarizes the operations performance of the study intersections under Cumulative No Project Conditions. As shown in Table 8, all of the study intersections would operate at LOS D or better conditions under the Cumulative No Project scenario except for East Grant Avenue /Timber Crest Road. This intersection would operate at LOS F during both the AM and PM peak hours.

**TABLE 7:
PEAK HOUR INTERSECTION OPERATIONS – CUMULATIVE NO PROJECT SCENARIO**

Intersection	Traffic Control	AM Peak Hour		PM Peak Hour	
		Delay ¹	LOS ²	Delay ¹	LOS ²
1. East Grant Ave / East Main St	Signal	22	C	24	C
2. East Grant Ave / Timber Crest Road	Side-Street Stop	91	F	55	F
3. East Grant Ave / Matsumoto Lane	Signal	16	B	14	B
4. East Grant Ave / I-505 Southbound Ramps	Signal	3	A	3	B
5. East Grant Ave / I-505 Northbound Ramps	Signal	32	C	35	D

Notes: ¹ For signalized and all-way stop-controlled intersections, the overall average intersection control delay is reported in seconds per vehicle. For side-street stop control, the average control delay for the worst movement is reported in seconds per vehicle.
² Level of Service based on *Highway Capacity Manual* (Transportation Research Board, 2010)
BOLD text indicates that the intersection operates unacceptably based on the operations thresholds.

Source: Fehr & Peers, 2014



LEGEND

- Turn Lane
- AM (PM)** Peak Hour Traffic Volume
- 1** Study Intersection
- Traffic Signal
- Stop Sign
- Future Road



Not to Scale

**PEAK HOUR TRAFFIC VOLUME
AND LANE CONFIGURATIONS -
CUMULATIVE NO PROJECT CONDITIONS**

CUMULATIVE PLUS PROJECT SCENARIO

The Cumulative plus Project scenario assesses long-range transportation conditions in the City of Winters with build-out of parcels consistent with the General Plan land use designations and an average development yield, along with the addition of PG&E project trips.

TRIP GENERATION, DISTRIBUTION, AND ASSIGNMENT

The project trips assigned under this scenario are shown in Table 3.

The project's distribution assumptions for cumulative conditions, shown in Figure 8, differ from those used for the previous project scenarios for the following reasons. Under cumulative conditions, a portion of trips by trainees are projected to have local origins/destinations given plans to develop hotels in the downtown area and in the Gateway area near I-505. For the near-term scenarios, all trainees are projected to stay at hotels in adjacent cities while 10 percent of trainees are expected to stay at local hotels in Winters under the cumulative scenario.

For this Cumulative plus Project scenario, the project trips were assigned to Timber Crest Road as well as the East Baker Street Extension for access to the project site. The second project access at Gateway Drive/ Matsumoto Lane is limited to access for emergency vehicles, freight and heavy equipment. The Cumulative plus Project scenario assumes there is a connection between the project and the existing eastern terminus of East Baker Street. Figure 9 shows study intersection turning movements with project trips added to the cumulative network.

The Cumulative plus Project scenario assumes the same lane configurations and signal control types as in the Cumulative no Project scenario. Traffic signal timings were optimized for Cumulative plus Project scenario volumes.

IMPACT ANALYSIS – CUMULATIVE PLUS PROJECT SCENARIO

Cumulative Plus Project Intersection Peak Hour Level of Service

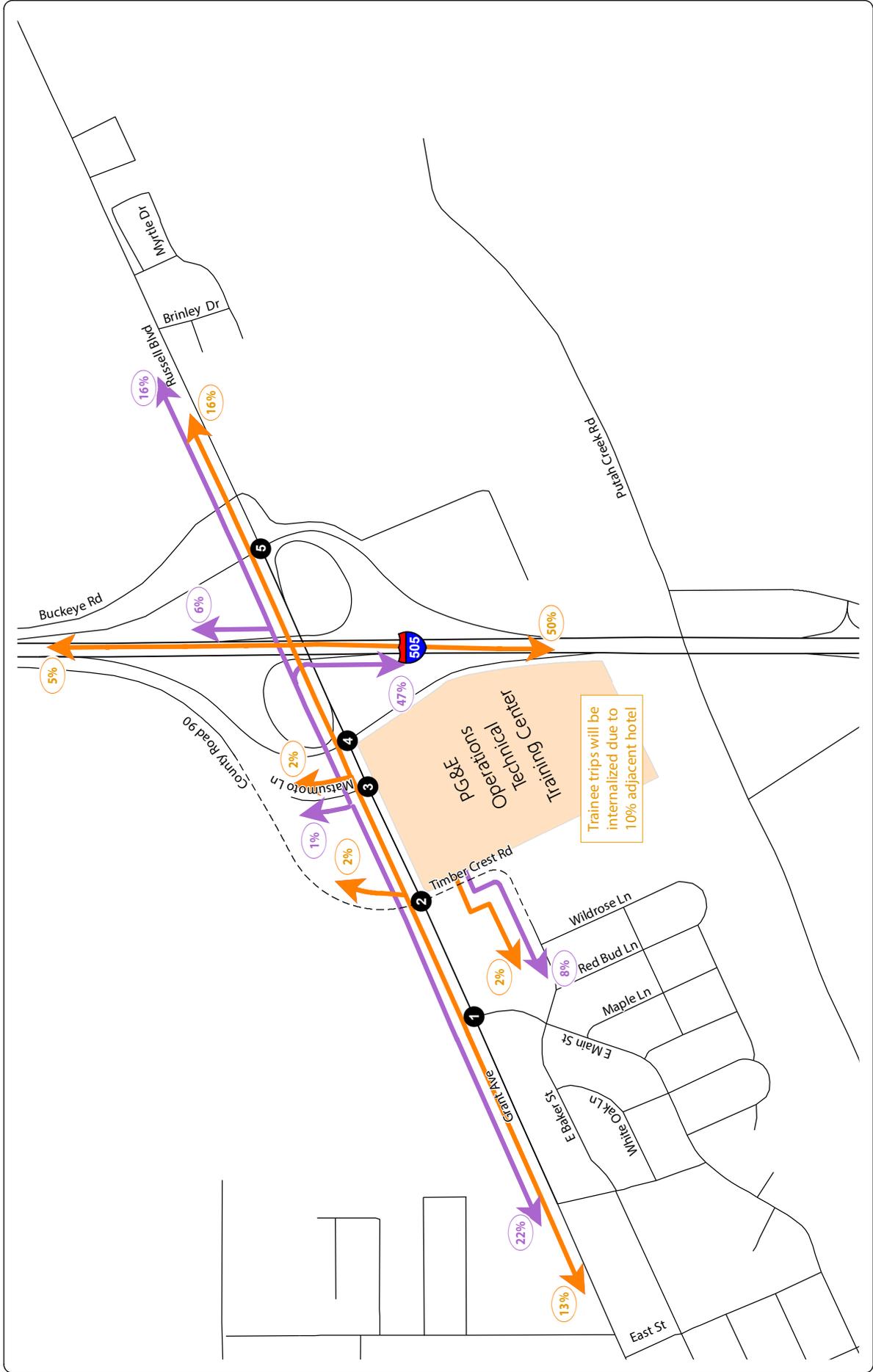
Table 8 summarizes intersection LOS results associated with the Cumulative plus Project scenario. All of the study intersections are projected to operate at acceptable LOS during the AM or PM peak hours except for East Grant Avenue / Timber Crest Road. This intersection will operate at LOS F during both the AM and PM peak hours, and the project would add more than 5 seconds of delay to cumulative no project conditions. As such, the project will result in a significant impact to this study intersection under the Cumulative plus Project scenario.

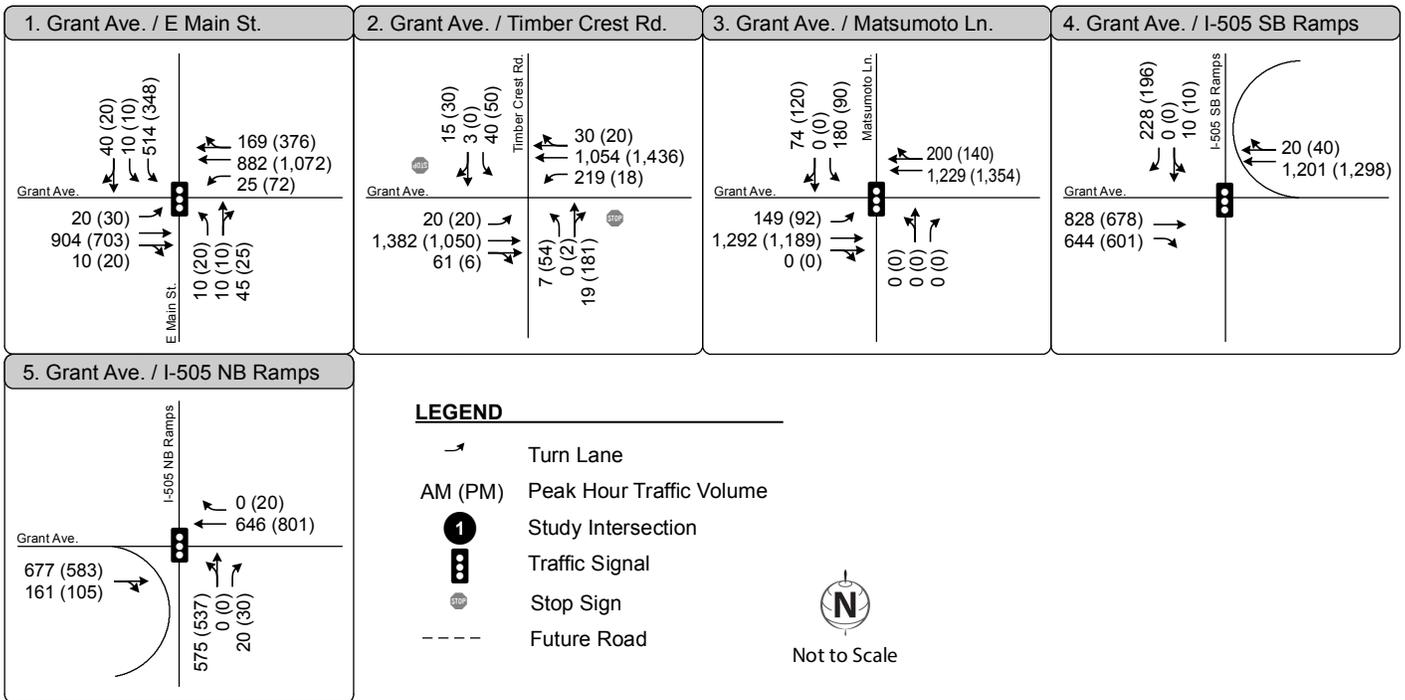
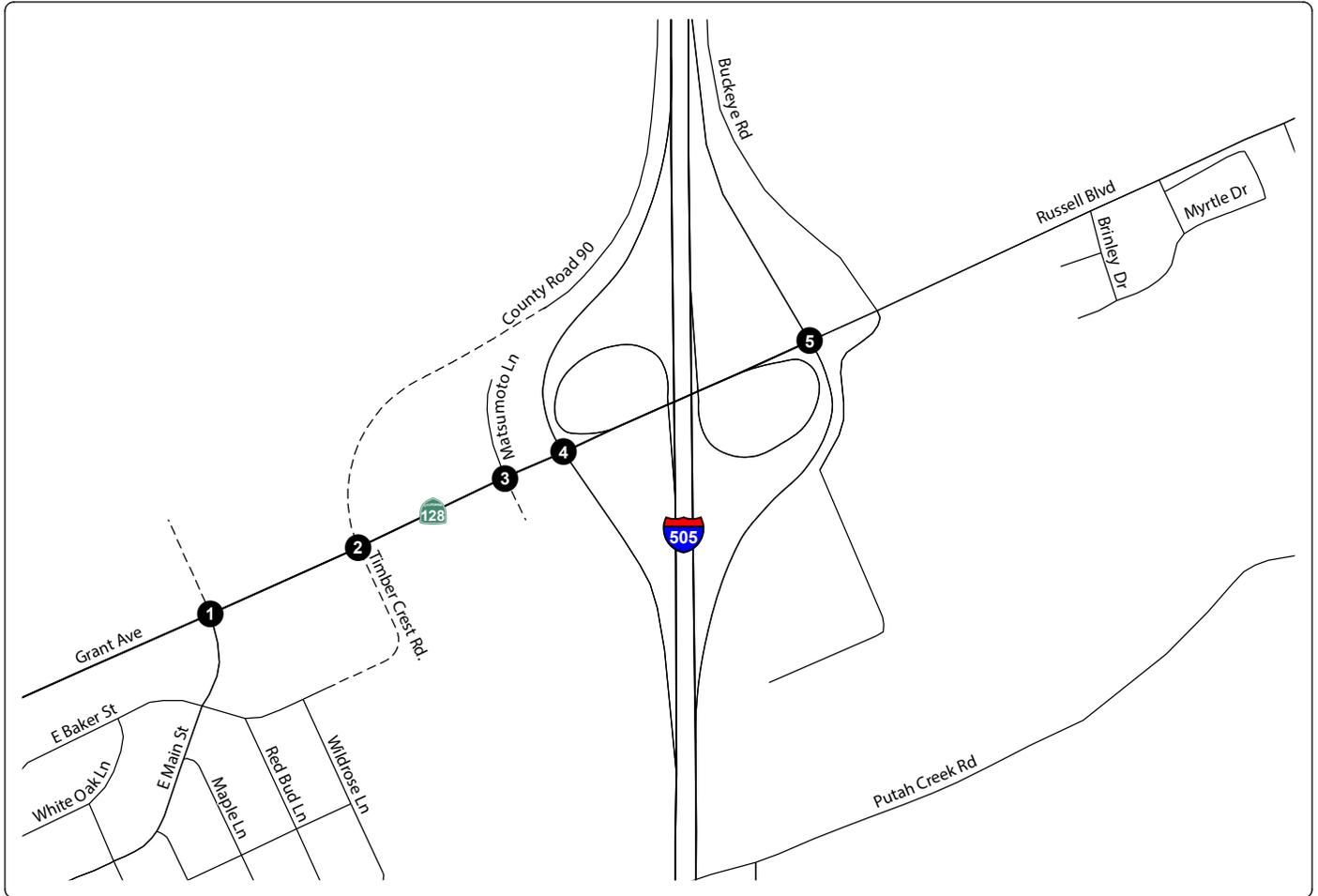
TABLE 8: PEAK HOUR INTERSECTION OPERATIONS – CUMULATIVE SCENARIOS

Intersection	Cumulative No Project				Cumulative Plus Project					
	Traffic Control	AM Peak Hour		PM Peak Hour		Traffic Control	AM Peak Hour		PM Peak Hour	
		Delay ¹	LOS ²	Delay ¹	LOS ²		Delay ¹	LOS ²	Delay ¹	LOS ²
1. Grant Avenue (SR 128) / E. Main Street	Signal	22	C	24	C	Signal	22	C	24	C
2. Grant Avenue (SR 128) / Timber Crest Road	Side-Street Stop	91	F	55	F	Side-Street Stop	260	F	79	F
3. Grant Avenue (SR 128) / Matsumoto Lane	Signal	16	B	14	B	Signal	15	B	12	B
4. Grant Avenue (SR 128) / I-505 Southbound Ramps	Signal	3	A	3	B	Signal	3	A	3	A
5. Grant Avenue (SR 128) / I-505 Northbound Ramps	Signal	32	C	35	D	Signal	54	D	47	D

Notes: ¹ For signalized and all-way stop-controlled intersections, the overall average intersection control delay is reported in seconds per vehicle. For side-street stop control, the average control delay for the worst movement is reported in seconds per vehicle.
² Level of Service based on *Highway Capacity Manual* (Transportation Research Board, 2000)
BOLD text indicates that the intersection operates unacceptably based on the operations thresholds.
SHADED text indicates that the project significantly impacts the intersection.

Source: Fehr & Peers, 2014





**PEAK HOUR TRAFFIC VOLUME
AND LANE CONFIGURATIONS -
CUMULATIVE PLUS PROJECT CONDITIONS**

MITIGATION MEASURES

This section describes project impacts and feasible transportation mitigation measures under each of the traffic scenarios studied.

EXISTING PLUS PROJECT CONDITIONS

Impact T1. Intersection Level of Service

Under Existing Plus Project conditions, traffic volumes at the five study intersections would increase. All of the intersections would operate at LOS D or better. Thus, this impact is considered ***less than significant***.

Mitigation Measure T1

- None required.

Impact T2. Transit Facilities

The proposed project would increase demand for public transit as there are no bus stops in the 140 acre I-505/Grant Avenue Planning Area in which the project is located. Policy III.B.3 of the General Plan specifies that “The City shall require bus turnouts and shelters in higher density residential and commercial areas and other areas deemed appropriate”.

The proposed project will construct a bus stop along the project site frontage on East Grant Avenue. Thus, this impact is considered ***less than significant***.

Mitigation Measure T2

- None required.

Impact T3. Bicycle and Pedestrian Facilities

The proposed project would include the construction of a Class I path along its East Grant Avenue frontage. The project results in a ***less-than-significant*** impact to the bicycle system.

The proposed project would include the construction of a Class I path along its existing East Grant Avenue frontage. The project will also provide a continuous pedestrian connection from the project frontage west to the existing City sidewalk system at East Main Street. The project results in a ***less-than-significant*** impact to the pedestrian system.

Mitigation Measure T3

- None required.

Impact T4. Emergency Vehicle Access

The project will provide two access points for emergency vehicles. A new intersection will be constructed at East Grant Avenue and Timber Crest Road. This intersection would provide the westernmost access to the project site. A new south leg used for emergency access only added to the existing signalized intersection of East Grant Avenue and Matsumoto Lane would provide the easternmost access to the project site. A 24-foot wide internal service/fire road will connect these two intersections.

These two new access points from East Grant Avenue, at Timber Crest Road and Matsumoto Lane, will provide adequate emergency vehicle access to the proposed project site. Further, the internal service/fire road will provide for adequate emergency vehicle access throughout the project site.

The existing traffic signal at the East Grant Avenue and Matsumoto Lane does not currently have signal indications for northbound traffic. Emergency vehicle traffic exiting the project at this location would not have signal indications, resulting in a significant emergency vehicle access impact.

The project's impact on emergency vehicle access is considered **significant**.

Mitigation Measure T4

- *East Grant Avenue/Matsumoto Lane* – Project applicant shall install traffic signal equipment (i.e., mast arm, signal indications, detection equipment, conduit and wiring to controller cabinet, signage, and striping) for the northbound intersection approach prior to opening day. Implementation of these improvements will provide acceptable emergency vehicle access resulting in a **less-than-significant** impact.

EXISTING PLUS APPROVED PLUS PROJECT CONDITIONS

Impact T5. Intersection Level of Service

Under Existing Plus Approved Plus Project conditions, traffic volumes at study intersections would increase. At the following location, project-related traffic will cause traffic conditions to change from LOS D to unacceptable LOS E conditions:

- East Grant Avenue (SR 128) / I-505 Southbound Ramps (PM peak hour)

This impact is considered **significant**.

Mitigation Measure T5

East Grant Avenue (SR 128) / I-505 Southbound Ramps—Since the installation of a traffic signal is included in the City's Traffic Impact Fee Program, payment of the transportation impact fee by the project applicant will address the project's mitigation responsibility. Applicant shall pay the Traffic Impact Fee prior to opening day.

The installation of a traffic signal at this location will be triggered by a combination of new development activity in the I-505/Grant Avenue planning area and/or the addition of through trips generated by other cumulative development. The signal would be triggered by 50 percent of approved developments plus a total of 630 pm peak hour trips generated by development within the I-505/Grant Avenue planning area. When these future volume triggers are met, a formal traffic signal warrant analysis should be prepared to evaluate all the designated criteria and determine if sufficient warrants are met, or if additional growth can occur. When it is determined that the installation of a traffic signal is warranted, the analysis should be submitted to Caltrans for review as Grant Avenue is a state highway (SR 128). The installation of a traffic signal at this intersection is included in the Grant Avenue/SR 128/Russell Boulevard Complete Streets Concept Plan (December 2010) that was prepared for Caltrans and the City of Winters, and adopted by the Winters City Council in February 2011.

- Implementation of these improvements will provide LOS A operations during the AM peak hour and LOS C during the PM peak hour resulting in a **less-than-significant** impact.

TABLE 10: PEAK HOUR INTERSECTION OPERATIONS – EXISTING PLUS APPROVED PLUS PROJECT WITH MITIGATIONS

Intersection	Existing Plus Approved Plus Project					Existing Plus Approved Plus Project Mitigated				
	Traffic Control	AM Peak Hour		PM Peak Hour		Traffic Control	AM Peak Hour		PM Peak Hour	
		Delay ¹	LOS ²	Delay ¹	LOS ²		Delay ¹	LOS ²	Delay ¹	LOS ²
1. East Grant Avenue (SR 128) / E. Main Street	Side-Street Stop	30	D	37	E	Side-Street Stop	30	D	37	E
2. East Grant Avenue (SR 128) / Timber Crest Road	Side-Street Stop	23	C	29	D	Side-Street Stop	21	C	31	D
3. East Grant Avenue (SR 128) / Matsumoto Lane	Signal	6	A	7	A	Signal	7	A	13	B
4. East Grant Avenue (SR 128) / I-505 Southbound Ramps	Side-Street Stop	25	D	44	E	Signal	6	A	20	C
5. East Grant Avenue (SR 128) / I-505 Northbound Ramps	Signal	13	B	14	B	Signal	13	B	14	B

Notes: ¹ For signalized and all-way stop-controlled intersections, the overall average intersection control delay is reported in seconds per vehicle. For side-street stop control, the average control delay for the worst movement is reported in seconds per vehicle.
² Level of Service based on *Highway Capacity Manual* (Transportation Research Board, 2000)
BOLD text indicates that the intersection operates unacceptably based on the operations thresholds.
SHADED text indicates that the project significantly impacts the intersection.

Source: Fehr & Peers, 2014

CUMULATIVE PLUS PROJECT CONDITIONS

Impact T6. Intersection Level of Service

Under Cumulative Plus Project conditions, traffic volumes at the five study intersections would increase. The intersection at East Grant Avenue / Timber Crest Road would operate unacceptably during both the AM and PM peak periods. While the Cumulative No Project conditions would also operate unacceptably at East Grant Avenue / Timber Crest Road, the Cumulative Plus Project conditions would exacerbate the delays at this intersection by more than 5 seconds, causing a significant impact. Therefore, this impact is considered **significant**.

Mitigation Measure T6

East Grant Avenue / Timber Crest Road – Project applicant shall install a traffic signal at this intersection prior to opening day.

- Implementation of a traffic signal will provide LOS C operations during the AM and PM peak hours, resulting in a **less-than-significant** impact.

Intersection	Cumulative Plus Project				Cumulative Plus Project					
	Traffic Control	AM Peak Hour		PM Peak Hour		Traffic Control	AM Peak Hour		PM Peak Hour	
		Delay ¹	LOS ²	Delay ¹	LOS ²		Delay ¹	LOS ²	Delay ¹	LOS ²
1. Grant Avenue (SR 128) / E. Main Street	Signal	22	C	24	C	Signal	24	C	28	C
2. Grant Avenue (SR 128) / Timber Crest Road	Side-Street Stop	260	F	79	F	Signal	25	C	20	C
3. Grant Avenue (SR 128) / Matsumoto Lane	Signal	15	B	12	B	Signal	20	B	13	B
4. Grant Avenue (SR 128) / I-505 Southbound Ramps	Signal	3	A	3	A	Signal	4	A	4	A
5. Grant Avenue (SR 128) / I-505 Northbound Ramps	Signal	54	D	47	D	Signal	54	D	45	D

Notes: ¹ For signalized and all-way stop-controlled intersections, the overall average intersection control delay is reported in seconds per vehicle. For side-street stop control, the average control delay for the worst movement is reported in seconds per vehicle.
² Level of Service based on *Highway Capacity Manual* (Transportation Research Board, 2000)
BOLD text indicates that the intersection operates unacceptably based on the operations thresholds.
SHADED text indicates that the project significantly impacts the intersection.

Source: Fehr & Peers, 2014

Attachment A – Existing Conditions Technical Calculations

SimTraffic LOS & Delay Analysis – Existing Conditions AM

SimTraffic Post-Processor
 Average Results from 10 Runs
 Volume and Delay by Movement

Winter PG&E Training Center
 Existing Conditions
 AM Peak Hour

Intersection 1 E Main St/Grant Ave

Side Street Stop

Direction	Movement	Volume (veh/hr)			Total Delay (sec/veh)		
		Demand	Served	% Served	Average	Std. Dev.	LOS
NB	Left Turn	24	20	83.3%	11.0	3.0	B
	Through						
	Right Turn	68	74	108.2%	6.0	1.2	A
	Subtotal	92	94	101.7%	7.1	1.3	A
SB	Left Turn						
	Through						
	Right Turn						
	Subtotal						
EB	Left Turn						
	Through	576	563	97.8%	2.1	0.4	A
	Right Turn	12	12	100.0%	1.3	1.4	A
	Subtotal	588	575	97.8%	2.1	0.4	A
WB	Left Turn	16	15	95.0%	4.6	4.1	A
	Through	292	297	101.8%	1.2	0.4	A
	Right Turn						
	Subtotal	308	312	101.4%	1.3	0.4	A
Total		988	981	99.3%	2.3	0.3	A

Intersection 3

Matsumoto Ln/Grant Ave

Signal

Direction	Movement	Volume (veh/hr)			Total Delay (sec/veh)		
		Demand	Served	% Served	Average	Std. Dev.	LOS
NB	Left Turn						
	Through						
	Right Turn						
	Subtotal						
SB	Left Turn	56	54	95.7%	16.9	2.4	B
	Through						
	Right Turn	44	52	117.3%	6.7	0.8	A
	Subtotal	100	105	105.2%	11.8	1.3	B
EB	Left Turn	56	52	92.1%	17.0	4.0	B
	Through	588	586	99.7%	2.4	0.5	A
	Right Turn						
	Subtotal	644	638	99.0%	3.5	0.6	A
WB	Left Turn						
	Through	264	263	99.7%	4.4	1.4	A
	Right Turn	56	54	95.7%	1.0	0.4	A
	Subtotal	320	317	99.0%	3.9	1.2	A
Total		1,064	1,060	99.6%	4.5	0.5	A

Intersection 4

I-505 SB Ramp/Grant Ave

Side Street Stop

Direction	Movement	Volume (veh/hr)			Total Delay (sec/veh)		
		Demand	Served	% Served	Average	Std. Dev.	LOS
NB	Left Turn						
	Through						
	Right Turn						
	Subtotal						
SB	Left Turn	12	11	90.0%	7.6	2.7	A
	Through						
	Right Turn	40	41	103.0%	5.0	1.0	A
	Subtotal	52	52	100.0%	5.7	0.9	A
EB	Left Turn						
	Through	412	402	97.5%	2.4	0.5	A
	Right Turn	228	231	101.4%	1.0	0.2	A
	Subtotal	640	633	98.9%	1.9	0.3	A
WB	Left Turn						
	Through	280	277	98.9%	3.0	0.5	A
	Right Turn	24	22	93.3%	5.4	1.2	A
	Subtotal	304	299	98.4%	3.2	0.6	A
Total		996	984	98.8%	2.5	0.2	A

Intersection 5

I-505 NB Ramp/Grant Ave

Signal

Direction	Movement	Volume (veh/hr)			Total Delay (sec/veh)		
		Demand	Served	% Served	Average	Std. Dev.	LOS
NB	Left Turn	116	104	90.0%	8.7	2.1	A
	Through						
	Right Turn	24	20	81.7%	3.5	1.2	A
	Subtotal	140	124	88.6%	7.9	1.9	A
SB	Left Turn						
	Through						
	Right Turn						
	Subtotal						
EB	Left Turn						
	Through	380	366	96.2%	10.0	1.0	A
	Right Turn	44	44	99.1%	4.2	0.6	A
	Subtotal	424	409	96.5%	9.4	0.8	A
WB	Left Turn						
	Through	192	203	105.6%	6.0	1.0	A
	Right Turn						
	Subtotal	192	203	105.6%	6.1	0.9	A
Total		756	736	97.4%	8.2	0.5	A

SimTraffic LOS & Delay Analysis – Existing Conditions PM

SimTraffic Post-Processor
 Average Results from 10 Runs
 Volume and Delay by Movement

Winter PG&E Training Center
 Existing Conditions
 PM Peak Hour

Intersection 1 E Main St/Grant Ave

Side Street Stop

Direction	Movement	Volume (veh/hr)			Total Delay (sec/veh)		
		Demand	Served	% Served	Average	Std. Dev.	LOS
NB	Left Turn	12	13	106.7%	13.4	6.1	B
	Through						
	Right Turn	32	36	113.8%	4.3	1.9	A
	Subtotal	44	49	111.8%	7.2	2.4	A
SB	Left Turn						
	Through						
	Right Turn						
	Subtotal						
EB	Left Turn						
	Through	424	423	99.8%	2.0	0.3	A
	Right Turn	32	37	115.0%	1.2	1.0	A
	Subtotal	456	460	100.9%	1.9	0.3	A
WB	Left Turn	80	94	117.5%	5.0	0.8	A
	Through	596	587	98.5%	2.6	0.4	A
	Right Turn						
	Subtotal	676	681	100.7%	2.9	0.4	A
Total		1,176	1,190	101.2%	2.7	0.3	A

Intersection 3

Matsumoto Ln/Grant Ave

Signal

Direction	Movement	Volume (veh/hr)			Total Delay (sec/veh)		
		Demand	Served	% Served	Average	Std. Dev.	LOS
NB	Left Turn						
	Through						
	Right Turn						
	Subtotal						
SB	Left Turn	68	65	95.3%	20.5	4.5	C
	Through						
	Right Turn	60	65	108.7%	7.3	3.6	A
	Subtotal	128	130	101.6%	13.8	3.7	B
EB	Left Turn	60	60	100.7%	22.1	3.6	C
	Through	400	398	99.6%	2.5	0.6	A
	Right Turn						
	Subtotal	460	459	99.7%	5.1	0.9	A
WB	Left Turn						
	Through	616	622	100.9%	8.4	0.7	A
	Right Turn	64	72	111.9%	1.0	0.3	A
	Subtotal	680	693	101.9%	7.6	0.8	A
Total		1,268	1,282	101.1%	7.3	0.9	A

Intersection 4

I-505 SB Ramp/Grant Ave

Side Street Stop

Direction	Movement	Volume (veh/hr)			Total Delay (sec/veh)		
		Demand	Served	% Served	Average	Std. Dev.	LOS
NB	Left Turn						
	Through						
	Right Turn						
	Subtotal						
SB	Left Turn	12	7	56.7%	10.2	6.0	B
	Through						
	Right Turn	68	68	100.6%	5.7	1.7	A
	Subtotal	80	75	94.0%	6.3	2.0	A
EB	Left Turn						
	Through	296	294	99.3%	1.9	0.4	A
	Right Turn	172	168	97.7%	0.7	0.1	A
	Subtotal	468	462	98.7%	1.5	0.3	A
WB	Left Turn						
	Through	612	619	101.1%	5.9	1.1	A
	Right Turn	36	41	114.4%	6.5	0.7	A
	Subtotal	648	660	101.9%	5.9	1.0	A
Total		1,196	1,197	100.1%	4.2	0.6	A

Intersection 5

I-505 NB Ramp/Grant Ave

Signal

Direction	Movement	Volume (veh/hr)			Total Delay (sec/veh)		
		Demand	Served	% Served	Average	Std. Dev.	LOS
NB	Left Turn	252	245	97.3%	11.9	1.3	B
	Through						
	Right Turn	48	52	109.2%	4.4	0.9	A
	Subtotal	300	298	99.2%	10.6	1.0	B
SB	Left Turn						
	Through						
	Right Turn						
	Subtotal						
EB	Left Turn						
	Through	236	237	100.5%	10.3	1.8	B
	Right Turn	76	68	89.5%	3.9	0.3	A
	Subtotal	312	305	97.8%	8.9	1.3	A
WB	Left Turn						
	Through	412	427	103.7%	9.5	1.0	A
	Right Turn						
	Subtotal	412	427	103.7%	9.5	1.0	A
Total		1,024	1,030	100.6%	9.7	0.6	A

Attachment B – Existing Plus Project Conditions Technical Calculations

SimTraffic LOS & Delay Analysis – Existing Plus Project Conditions AM

SimTraffic Post-Processor
 Average Results from 10 Runs
 Volume and Delay by Movement

Winter PG&E Training Center
 Existing Plus Project Conditions
 AM Peak Hour

Intersection 1

E Main St/Grant Ave

Side Street Stop

Direction	Movement	Volume (veh/hr)			Total Delay (sec/veh)		
		Demand	Served	% Served	Average	Std. Dev.	LOS
NB	Left Turn	24	29	121.7%	10.5	2.2	B
	Through						
	Right Turn	72	68	95.0%	6.5	1.2	A
	Subtotal	96	98	101.7%	7.7	1.5	A
SB	Left Turn						
	Through						
	Right Turn						
	Subtotal						
EB	Left Turn						
	Through	584	586	100.3%	2.4	0.2	A
	Right Turn	12	9	73.3%	1.0	1.2	A
	Subtotal	596	595	99.8%	2.4	0.2	A
WB	Left Turn	16	19	120.0%	3.2	1.7	A
	Through	296	305	103.0%	0.8	0.1	A
	Right Turn						
	Subtotal	312	324	103.8%	0.9	0.2	A
Total		1,004	1,016	101.2%	2.4	0.2	A

Intersection 2

Timbercrest Ave/Grant Ave

Side Street Stop

Direction	Movement	Volume (veh/hr)			Total Delay (sec/veh)		
		Demand	Served	% Served	Average	Std. Dev.	LOS
NB	Left Turn						
	Through						
	Right Turn	16	10	60.0%	7.1	5.9	A
	Subtotal	16	10	60.0%	7.1	5.9	A
SB	Left Turn						
	Through						
	Right Turn						
	Subtotal						
EB	Left Turn						
	Through	644	645	100.1%	1.9	0.2	A
	Right Turn	12	7	60.0%	1.1	1.3	A
	Subtotal	656	652	99.4%	1.9	0.2	A
WB	Left Turn	288	221	76.7%	6.8	0.8	A
	Through	312	324	103.8%	0.9	0.1	A
	Right Turn						
	Subtotal	600	545	90.8%	3.3	0.6	A
Total		1,272	1,206	94.8%	2.6	0.3	A

Intersection 3

Matsumoto Ln/Grant Ave

Signal

Direction	Movement	Volume (veh/hr)			Total Delay (sec/veh)		
		Demand	Served	% Served	Average	Std. Dev.	LOS
NB	Left Turn						
	Through						
	Right Turn						
	Subtotal						
SB	Left Turn	56	62	110.7%	21.8	4.1	C
	Through						
	Right Turn	48	49	102.5%	3.4	1.0	A
	Subtotal	104	111	106.9%	13.8	3.6	B
EB	Left Turn	56	54	96.4%	17.2	4.2	B
	Through	600	593	98.9%	3.2	0.3	A
	Right Turn						
	Subtotal	656	647	98.7%	4.4	0.5	A
WB	Left Turn						
	Through	552	503	91.1%	7.1	1.7	A
	Right Turn	56	55	98.6%	1.4	0.6	A
	Subtotal	608	558	91.8%	6.5	1.5	A
Total		1,368	1,316	96.2%	6.0	0.7	A

Intersection 4

I-505 SB Ramp/Grant Ave

Side Street Stop

Direction	Movement	Volume (veh/hr)			Total Delay (sec/veh)		
		Demand	Served	% Served	Average	Std. Dev.	LOS
NB	Left Turn						
	Through						
	Right Turn						
	Subtotal						
SB	Left Turn	12	11	93.3%	11.9	3.9	B
	Through						
	Right Turn	60	66	110.0%	5.9	0.6	A
	Subtotal	72	77	107.2%	6.9	1.1	A
EB	Left Turn						
	Through	420	420	100.1%	2.6	0.3	A
	Right Turn	240	232	96.5%	0.9	0.2	A
	Subtotal	660	652	98.8%	2.0	0.2	A
WB	Left Turn						
	Through	576	512	89.0%	3.4	0.4	A
	Right Turn						
	Subtotal	576	512	89.0%	3.3	0.4	A
Total		1,308	1,242	94.9%	2.8	0.2	A

Intersection 5

I-505 NB Ramp/Grant Ave

Signal

Direction	Movement	Volume (veh/hr)			Total Delay (sec/veh)		
		Demand	Served	% Served	Average	Std. Dev.	LOS
NB	Left Turn	316	256	81.1%	11.4	0.8	B
	Through						
	Right Turn	24	18	73.3%	5.4	3.6	A
	Subtotal	340	274	80.6%	11.1	0.8	B
SB	Left Turn						
	Through						
	Right Turn						
	Subtotal						
EB	Left Turn						
	Through	384	382	99.6%	9.1	1.2	A
	Right Turn	48	51	105.8%	4.3	0.4	A
	Subtotal	432	433	100.3%	8.6	1.1	A
WB	Left Turn						
	Through	256	258	100.6%	6.6	1.4	A
	Right Turn	4	4	110.0%	4.2	3.1	A
	Subtotal	260	262	100.8%	6.5	1.3	A
Total		1,032	969	93.9%	8.7	0.5	A

SimTraffic LOS & Delay Analysis – Existing Plus Project Conditions PM

SimTraffic Post-Processor
 Average Results from 10 Runs
 Volume and Delay by Movement

Winter PG&E Training Center
 Existing Plus Project Conditions
 AM Peak Hour

Intersection 1

E Main St/Grant Ave

Side Street Stop

Direction	Movement	Volume (veh/hr)			Total Delay (sec/veh)		
		Demand	Served	% Served	Average	Std. Dev.	LOS
NB	Left Turn	24	12	48.3%	11.6	5.3	B
	Through						
	Right Turn	72	33	45.6%	4.1	1.1	A
	Subtotal	96	44	46.3%	6.1	1.6	A
SB	Left Turn						
	Through						
	Right Turn						
	Subtotal						
EB	Left Turn						
	Through	584	412	70.5%	2.1	0.4	A
	Right Turn	12	32	270.0%	0.8	0.6	A
	Subtotal	596	444	74.6%	2.0	0.3	A
WB	Left Turn	16	86	540.0%	3.6	0.9	A
	Through	296	578	195.4%	1.3	0.2	A
	Right Turn						
	Subtotal	312	665	213.1%	1.6	0.2	A
Total		1,004	1,154	114.9%	1.9	0.2	A

Intersection 2

Timbercrest Ave/Grant Ave

Side Street Stop

Direction	Movement	Volume (veh/hr)			Total Delay (sec/veh)		
		Demand	Served	% Served	Average	Std. Dev.	LOS
NB	Left Turn						
	Through						
	Right Turn	16	142	887.5%	6.4	1.1	A
	Subtotal	16	142	887.5%	6.4	1.1	A
SB	Left Turn						
	Through						
	Right Turn						
	Subtotal						
EB	Left Turn						
	Through	644	446	69.2%	1.6	0.2	A
	Right Turn	12	1	6.7%	0.0	0.1	A
	Subtotal	656	446	68.0%	1.6	0.2	A
WB	Left Turn	288	16	5.4%	3.1	1.9	A
	Through	312	658	210.8%	0.8	0.2	A
	Right Turn						
	Subtotal	600	673	112.2%	0.8	0.2	A
Total		1,272	1,262	99.2%	1.8	0.3	A

Intersection 3

Matsumoto Ln/Grant Ave

Signal

Direction	Movement	Volume (veh/hr)			Total Delay (sec/veh)		
		Demand	Served	% Served	Average	Std. Dev.	LOS
NB	Left Turn						
	Through						
	Right Turn						
	Subtotal						
SB	Left Turn	56	64	115.0%	25.0	5.1	C
	Through						
	Right Turn	48	60	125.8%	4.1	0.9	A
	Subtotal	104	125	120.0%	14.9	2.9	B
EB	Left Turn	56	59	105.7%	18.1	3.2	B
	Through	600	526	87.7%	3.8	1.3	A
	Right Turn						
	Subtotal	656	586	89.3%	5.2	1.4	A
WB	Left Turn						
	Through	552	616	111.7%	7.8	1.3	A
	Right Turn	56	64	113.6%	2.0	1.2	A
	Subtotal	608	680	111.8%	7.3	1.3	A
Total		1,368	1,390	101.6%	7.1	1.1	A

Intersection 4

I-505 SB Ramp/Grant Ave

Side Street Stop

Direction	Movement	Volume (veh/hr)			Total Delay (sec/veh)		
		Demand	Served	% Served	Average	Std. Dev.	LOS
NB	Left Turn						
	Through						
	Right Turn						
	Subtotal						
SB	Left Turn	12	13	106.7%	17.0	14.8	C
	Through						
	Right Turn	60	66	109.3%	7.0	0.9	A
	Subtotal	72	78	108.9%	8.7	2.1	A
EB	Left Turn						
	Through	420	331	78.8%	2.4	0.4	A
	Right Turn	240	260	108.5%	1.0	0.2	A
	Subtotal	660	591	89.6%	1.8	0.3	A
WB	Left Turn						
	Through	576	653	113.3%	4.7	0.4	A
	Right Turn						
	Subtotal	576	653	113.3%	4.6	0.4	A
Total		1,308	1,322	101.1%	3.6	0.4	A

Intersection 5

I-505 NB Ramp/Grant Ave

Signal

Direction	Movement	Volume (veh/hr)			Total Delay (sec/veh)		
		Demand	Served	% Served	Average	Std. Dev.	LOS
NB	Left Turn	316	264	83.7%	12.4	1.0	B
	Through						
	Right Turn	24	50	206.7%	5.7	1.8	A
	Subtotal	340	314	92.4%	11.3	1.1	B
SB	Left Turn						
	Through						
	Right Turn						
	Subtotal						
EB	Left Turn						
	Through	384	259	67.5%	8.6	1.3	A
	Right Turn	48	89	185.8%	4.0	0.5	A
	Subtotal	432	348	80.6%	7.4	1.0	A
WB	Left Turn						
	Through	256	394	153.8%	7.7	1.0	A
	Right Turn	4	10	260.0%	6.4	1.5	A
	Subtotal	260	404	155.4%	7.7	1.0	A
Total		1,032	1,066	103.3%	8.6	0.7	A

Attachment C – Existing Plus Approved Conditions Technical Calculations

SimTraffic LOS & Delay Analysis – Existing Plus Approved Conditions AM

SimTraffic Post-Processor
 Average Results from 10 Runs
 Volume and Delay by Movement

Winter PG&E Training Center
 Existing Plus Approved Conditions
 AM Peak Hour

Intersection 1

E Main St/Grant Ave

Side Street Stop

Direction	Movement	Volume (veh/hr)			Total Delay (sec/veh)		
		Demand	Served	% Served	Average	Std. Dev.	LOS
NB	Left Turn	36	37	102.2%	28.7	5.9	D
	Through						
	Right Turn	68	75	110.6%	12.7	3.4	B
	Subtotal	104	112	107.7%	18.0	4.5	C
SB	Left Turn						
	Through						
	Right Turn						
	Subtotal						
EB	Left Turn						
	Through	996	952	95.5%	4.3	0.7	A
	Right Turn	16	15	95.0%	3.3	2.5	A
	Subtotal	1,012	967	95.5%	4.3	0.7	A
WB	Left Turn	16	15	92.5%	7.7	3.6	A
	Through	496	493	99.4%	0.9	0.1	A
	Right Turn						
	Subtotal	512	508	99.2%	1.1	0.1	A
Total		1,628	1,587	97.5%	4.3	0.7	A

Intersection 2

Timbercrest Ave/Grant Ave

Side Street Stop

Direction	Movement	Volume (veh/hr)			Total Delay (sec/veh)		
		Demand	Served	% Served	Average	Std. Dev.	LOS
NB	Left Turn						
	Through						
	Right Turn						
	Subtotal						
SB	Left Turn						
	Through						
	Right Turn						
	Subtotal						
EB	Left Turn						
	Through	1,064	1,018	95.6%	2.4	0.3	A
	Right Turn						
	Subtotal	1,064	1,018	95.6%	2.4	0.3	A
WB	Left Turn						
	Through	516	508	98.5%	0.4	0.1	A
	Right Turn						
	Subtotal	516	508	98.5%	0.4	0.1	A
Total		1,580	1,526	96.6%	1.7	0.3	A

Intersection 3

Matsumoto Ln-Gateway Dr/Grant Ave

Signal

Direction	Movement	Volume (veh/hr)			Total Delay (sec/veh)		
		Demand	Served	% Served	Average	Std. Dev.	LOS
NB	Left Turn						
	Through						
	Right Turn						
	Subtotal						
SB	Left Turn	56	60	107.1%	21.5	4.5	C
	Through						
	Right Turn	44	44	99.1%	2.9	0.8	A
	Subtotal	100	104	103.6%	13.6	2.9	B
EB	Left Turn	56	48	86.4%	24.1	4.1	C
	Through	1,008	962	95.4%	5.2	0.9	A
	Right Turn						
	Subtotal	1,064	1,010	95.0%	6.1	1.0	A
WB	Left Turn						
	Through	468	466	99.5%	4.6	1.2	A
	Right Turn	56	58	103.6%	1.1	0.5	A
	Subtotal	524	524	99.9%	4.2	1.1	A
Total		1,688	1,638	97.0%	6.0	0.9	A

Intersection 4

I-505 SB Ramp/Grant Ave

Side Street Stop

Direction	Movement	Volume (veh/hr)			Total Delay (sec/veh)		
		Demand	Served	% Served	Average	Std. Dev.	LOS
NB	Left Turn						
	Through						
	Right Turn						
	Subtotal						
SB	Left Turn	12	7	56.7%	10.3	5.9	B
	Through						
	Right Turn	104	100	96.5%	0.8	0.5	A
	Subtotal	116	107	92.4%	1.4	0.9	A
EB	Left Turn						
	Through	736	702	95.4%	3.9	0.3	A
	Right Turn	328	313	95.5%	1.5	0.2	A
	Subtotal	1,064	1,015	95.4%	3.1	0.2	A
WB	Left Turn						
	Through	448	443	98.8%	2.9	0.4	A
	Right Turn						
	Subtotal	448	443	98.8%	2.8	0.4	A
Total		1,628	1,565	96.1%	2.9	0.2	A

Intersection 5

I-505 NB Ramp/Grant Ave

Signal

Direction	Movement	Volume (veh/hr)			Total Delay (sec/veh)		
		Demand	Served	% Served	Average	Std. Dev.	LOS
NB	Left Turn	152	150	98.7%	14.5	1.4	B
	Through						
	Right Turn	24	21	86.7%	8.0	3.2	A
	Subtotal	176	171	97.0%	13.7	1.4	B
SB	Left Turn						
	Through						
	Right Turn						
	Subtotal						
EB	Left Turn						
	Through	660	618	93.6%	11.1	1.1	B
	Right Turn	88	86	97.7%	5.7	0.6	A
	Subtotal	748	704	94.1%	10.4	0.9	B
WB	Left Turn						
	Through	296	298	100.7%	3.9	1.0	A
	Right Turn	4	4	100.0%	3.1	2.7	A
	Subtotal	300	302	100.7%	3.9	1.0	A
Total		1,224	1,177	96.1%	9.2	0.8	A

SimTraffic LOS & Delay Analysis – Existing Plus Approved Conditions PM

SimTraffic Post-Processor
 Average Results from 10 Runs
 Volume and Delay by Movement

Winter PG&E Training Center
 Existing Plus Approved Conditions
 PM Peak Hour

Intersection 1

E Main St/Grant Ave

Side Street Stop

Direction	Movement	Volume (veh/hr)			Total Delay (sec/veh)		
		Demand	Served	% Served	Average	Std. Dev.	LOS
NB	Left Turn	16	19	117.5%	36.0	19.5	E
	Through						
	Right Turn	32	39	122.5%	6.6	2.7	A
	Subtotal	48	58	120.8%	16.4	6.4	C
SB	Left Turn						
	Through						
	Right Turn						
	Subtotal						
EB	Left Turn						
	Through	728	752	103.4%	3.6	0.5	A
	Right Turn	36	37	102.2%	2.0	0.7	A
	Subtotal	764	789	103.3%	3.5	0.5	A
WB	Left Turn	80	83	103.5%	7.1	1.9	A
	Through	1,016	969	95.4%	1.8	0.2	A
	Right Turn						
	Subtotal	1,096	1,052	95.9%	2.2	0.3	A
Total		1,908	1,899	99.5%	3.2	0.2	A

Intersection 2

Timbercrest Ave/Grant Ave

Side Street Stop

Direction	Movement	Volume (veh/hr)			Total Delay (sec/veh)		
		Demand	Served	% Served	Average	Std. Dev.	LOS
NB	Left Turn						
	Through						
	Right Turn						
	Subtotal						
SB	Left Turn						
	Through						
	Right Turn						
	Subtotal						
EB	Left Turn						
	Through	760	789	103.8%	1.6	0.2	A
	Right Turn						
	Subtotal	760	789	103.8%	1.6	0.2	A
WB	Left Turn						
	Through	1,096	1,052	96.0%	1.4	0.2	A
	Right Turn						
	Subtotal	1,096	1,052	96.0%	1.4	0.2	A
Total		1,856	1,841	99.2%	1.5	0.1	A

Intersection 3

Mastumoto Ln-Gateway Dr/Grant Ave

Signal

Direction	Movement	Volume (veh/hr)			Total Delay (sec/veh)		
		Demand	Served	% Served	Average	Std. Dev.	LOS
NB	Left Turn						
	Through						
	Right Turn						
	Subtotal						
SB	Left Turn	68	58	85.3%	22.1	3.6	C
	Through						
	Right Turn	60	51	85.3%	6.1	2.5	A
	Subtotal	128	109	85.3%	14.6	3.0	B
EB	Left Turn	60	57	94.7%	21.0	5.9	C
	Through	704	731	103.8%	3.5	1.0	A
	Right Turn						
	Subtotal	764	788	103.1%	4.7	1.2	A
WB	Left Turn						
	Through	1,036	1,007	97.2%	6.7	1.0	A
	Right Turn	64	62	96.3%	1.9	1.2	A
	Subtotal	1,100	1,069	97.2%	6.4	1.0	A
Total		1,992	1,966	98.7%	6.2	0.9	A

Intersection 4

I-S05 NB Ramp/Grant Ave

Side Street Stop

Direction	Movement	Volume (veh/hr)			Total Delay (sec/veh)		
		Demand	Served	% Served	Average	Std. Dev.	LOS
NB	Left Turn						
	Through						
	Right Turn						
	Subtotal						
SB	Left Turn	12	14	120.0%	27.4	15.7	D
	Through						
	Right Turn	164	153	93.2%	1.4	0.3	A
	Subtotal	176	167	95.0%	3.7	1.7	A
EB	Left Turn						
	Through	540	546	101.0%	2.9	0.3	A
	Right Turn	232	241	103.8%	1.0	0.3	A
	Subtotal	772	786	101.9%	2.3	0.3	A
WB	Left Turn						
	Through	972	957	98.4%	6.7	0.8	A
	Right Turn						
	Subtotal	972	957	98.4%	6.7	0.8	A
Total		1,920	1,910	99.5%	4.7	0.5	A

Intersection 5

I-505 NB Ramp/Grant Ave

Signal

Direction	Movement	Volume (veh/hr)			Total Delay (sec/veh)		
		Demand	Served	% Served	Average	Std. Dev.	LOS
NB	Left Turn	360	359	99.8%	18.9	3.8	B
	Through						
	Right Turn	48	45	93.3%	9.6	3.8	A
	Subtotal	408	404	99.0%	17.8	3.8	B
SB	Left Turn						
	Through						
	Right Turn						
	Subtotal						
EB	Left Turn						
	Through	448	449	100.2%	14.3	1.3	B
	Right Turn	104	104	99.6%	5.4	0.5	A
	Subtotal	552	552	100.1%	12.6	1.2	B
WB	Left Turn						
	Through	612	606	99.0%	12.5	1.8	B
	Right Turn	12	10	80.0%	10.1	4.7	B
	Subtotal	624	615	98.6%	12.4	1.8	B
Total		1,584	1,572	99.2%	13.9	1.5	B

Attachment D – Existing Plus Approved Plus Project Conditions Technical
Calculations

SimTraffic LOS & Delay Analysis – Existing Plus Approved Plus Project Conditions AM

SimTraffic Post-Processor
 Average Results from 10 Runs
 Volume and Delay by Movement

Winter PG&E Training Center
 Existing + Approved + Project Conditions
 AM Peak Hour

Intersection 1

E Main St/Grant Ave

Side Street Stop

Direction	Movement	Volume (veh/hr)			Total Delay (sec/veh)		
		Demand	Served	% Served	Average	Std. Dev.	LOS
NB	Left Turn	36	31	86.7%	30.1	12.3	D
	Through						
	Right Turn	72	63	87.8%	12.9	3.6	B
	Subtotal	108	94	87.4%	19.2	4.9	C
SB	Left Turn						
	Through						
	Right Turn						
	Subtotal						
EB	Left Turn						
	Through	1,000	984	98.4%	4.3	0.6	A
	Right Turn	16	14	90.0%	2.2	1.1	A
	Subtotal	1,016	998	98.2%	4.2	0.6	A
WB	Left Turn	16	11	67.5%	7.7	6.8	A
	Through	500	472	94.3%	1.0	0.1	A
	Right Turn						
	Subtotal	516	482	93.5%	1.1	0.2	A
Total		1,640	1,575	96.0%	4.2	0.6	A

Intersection 2

Timbercrest Ave/Grant Ave

Side Street Stop

Direction	Movement	Volume (veh/hr)			Total Delay (sec/veh)		
		Demand	Served	% Served	Average	Std. Dev.	LOS
NB	Left Turn						
	Through						
	Right Turn	8	8	105.0%	23.1	26.6	C
	Subtotal	8	8	105.0%	23.1	26.6	C
SB	Left Turn						
	Through						
	Right Turn						
	Subtotal						
EB	Left Turn						
	Through	1,064	1,033	97.1%	3.1	0.4	A
	Right Turn	8	5	65.0%	1.1	1.3	A
	Subtotal	1,072	1,038	96.9%	3.1	0.4	A
WB	Left Turn	204	193	94.7%	24.1	10.0	C
	Through	516	488	94.6%	1.4	0.6	A
	Right Turn						
	Subtotal	720	681	94.6%	7.8	3.1	A
Total		1,800	1,728	96.0%	5.0	1.3	A

Intersection 3

Matsumoto Ln/Grant Ave

Signal

Direction	Movement	Volume (veh/hr)			Total Delay (sec/veh)		
		Demand	Served	% Served	Average	Std. Dev.	LOS
NB	Left Turn						
	Through						
	Right Turn						
	Subtotal						
SB	Left Turn	56	50	88.6%	24.2	4.4	C
	Through						
	Right Turn	44	45	102.7%	4.5	1.5	A
	Subtotal	100	95	94.8%	14.9	3.4	B
EB	Left Turn	56	60	107.1%	22.4	3.7	C
	Through	1,016	969	95.4%	5.1	1.0	A
	Right Turn						
	Subtotal	1,072	1,029	96.0%	6.1	0.9	A
WB	Left Turn						
	Through	676	650	96.2%	5.2	1.2	A
	Right Turn	56	53	94.3%	1.1	0.7	A
	Subtotal	732	703	96.0%	4.9	1.2	A
Total		1,904	1,826	95.9%	6.1	0.7	A

Intersection 4

I-505 SB Ramp/Grant Ave

Side Street Stop

Direction	Movement	Volume (veh/hr)			Total Delay (sec/veh)		
		Demand	Served	% Served	Average	Std. Dev.	LOS
NB	Left Turn						
	Through						
	Right Turn						
	Subtotal						
SB	Left Turn	12	14	120.0%	25.0	7.6	C
	Through						
	Right Turn	116	114	98.6%	1.2	0.6	A
	Subtotal	128	129	100.6%	3.8	1.7	A
EB	Left Turn						
	Through	740	708	95.6%	3.7	0.3	A
	Right Turn	336	306	91.2%	1.6	0.2	A
	Subtotal	1,076	1,014	94.2%	3.1	0.2	A
WB	Left Turn						
	Through	640	618	96.6%	4.0	0.7	A
	Right Turn						
	Subtotal	640	618	96.6%	4.0	0.7	A
Total		1,844	1,761	95.5%	3.5	0.3	A

Intersection 5

I-505 NB Ramp/Grant Ave

Signal

Direction	Movement	Volume (veh/hr)			Total Delay (sec/veh)		
		Demand	Served	% Served	Average	Std. Dev.	LOS
NB	Left Turn	296	293	99.1%	15.6	1.0	B
	Through						
	Right Turn	24	21	86.7%	7.4	3.1	A
	Subtotal	320	314	98.1%	15.1	0.9	B
SB	Left Turn						
	Through						
	Right Turn						
	Subtotal						
EB	Left Turn						
	Through	660	635	96.2%	15.5	2.2	B
	Right Turn	88	82	93.6%	6.3	0.7	A
	Subtotal	748	718	95.9%	14.4	2.0	B
WB	Left Turn						
	Through	340	330	97.1%	6.5	1.1	A
	Right Turn	4	6	150.0%	5.6	2.7	A
	Subtotal	344	336	97.7%	6.5	1.1	A
Total		1,412	1,368	96.9%	12.6	1.1	B

SimTraffic LOS & Delay Analysis – Existing Plus Approved Plus Project Conditions PM

SimTraffic Post-Processor
 Average Results from 10 Runs
 Volume and Delay by Movement

Winter PG&E Training Center
 Existing + Approved + Project Conditions
 PM Peak Hour

Intersection 1

E Main St/Grant Ave

Side Street Stop

Direction	Movement	Volume (veh/hr)			Total Delay (sec/veh)		
		Demand	Served	% Served	Average	Std. Dev.	LOS
NB	Left Turn	16	14	87.5%	36.9	18.3	E
	Through						
	Right Turn	32	36	113.8%	10.4	11.9	B
	Subtotal	48	50	105.0%	19.1	13.3	C
SB	Left Turn						
	Through						
	Right Turn						
	Subtotal						
EB	Left Turn						
	Through	732	732	99.9%	3.6	0.8	A
	Right Turn	36	34	93.3%	2.1	0.9	A
	Subtotal	768	765	99.6%	3.5	0.7	A
WB	Left Turn	80	72	90.0%	6.8	1.2	A
	Through	1,020	994	97.4%	1.7	0.2	A
	Right Turn						
	Subtotal	1,100	1,066	96.9%	2.1	0.2	A
Total		1,916	1,881	98.2%	3.1	0.5	A

Intersection 2

Timbercrest Ave/Grant Ave

Side Street Stop

Direction	Movement	Volume (veh/hr)			Total Delay (sec/veh)		
		Demand	Served	% Served	Average	Std. Dev.	LOS
NB	Left Turn	8	5	60.0%	28.5	45.4	D
	Through						
	Right Turn	144	143	99.4%	15.8	6.2	C
	Subtotal	152	148	97.4%	17.4	7.4	C
SB	Left Turn						
	Through						
	Right Turn						
	Subtotal						
EB	Left Turn						
	Through	760	764	100.6%	2.7	0.4	A
	Right Turn						
	Subtotal	760	764	100.6%	2.7	0.4	A
WB	Left Turn	12	10	83.3%	5.2	4.1	A
	Through	1,096	1,065	97.2%	1.4	0.3	A
	Right Turn						
	Subtotal	1,108	1,075	97.0%	1.5	0.3	A
Total		2,020	1,988	98.4%	3.2	0.7	A

Intersection 3

Matsumoto Ln/Grant Ave

Signal

Direction	Movement	Volume (veh/hr)			Total Delay (sec/veh)		
		Demand	Served	% Served	Average	Std. Dev.	LOS
NB	Left Turn						
	Through						
	Right Turn						
	Subtotal						
SB	Left Turn	68	73	107.1%	24.9	3.0	C
	Through						
	Right Turn	60	58	97.3%	5.8	2.3	A
	Subtotal	128	131	102.5%	16.3	3.1	B
EB	Left Turn	60	55	92.0%	27.6	8.2	C
	Through	848	846	99.8%	4.7	1.3	A
	Right Turn						
	Subtotal	908	901	99.3%	6.1	1.4	A
WB	Left Turn						
	Through	1,048	1,011	96.5%	7.0	1.2	A
	Right Turn	64	66	102.5%	2.6	1.3	A
	Subtotal	1,112	1,077	96.8%	6.7	1.2	A
Total		2,148	2,109	98.2%	7.1	1.2	A

Intersection 4

I-505 SB Ramp/Grant Ave

Side Street Stop

Direction	Movement	Volume (veh/hr)			Total Delay (sec/veh)		
		Demand	Served	% Served	Average	Std. Dev.	LOS
NB	Left Turn						
	Through						
	Right Turn						
	Subtotal						
SB	Left Turn	12	8	63.3%	43.9	34.2	E
	Through						
	Right Turn	164	164	99.8%	1.5	0.5	A
	Subtotal	176	171	97.3%	3.3	1.4	A
EB	Left Turn						
	Through	584	586	100.3%	3.5	0.4	A
	Right Turn	336	335	99.8%	1.5	0.3	A
	Subtotal	920	921	100.1%	2.8	0.3	A
WB	Left Turn						
	Through	984	948	96.3%	6.7	1.1	A
	Right Turn						
	Subtotal	984	948	96.3%	6.7	1.1	A
Total		2,080	2,040	98.1%	4.7	0.6	A

Intersection 5

I-505 NB Ramp/Grant Ave

Signal

Direction	Movement	Volume (veh/hr)			Total Delay (sec/veh)		
		Demand	Served	% Served	Average	Std. Dev.	LOS
NB	Left Turn	368	362	98.3%	17.0	2.0	B
	Through						
	Right Turn	48	48	100.8%	9.6	2.1	A
	Subtotal	416	410	98.6%	16.2	1.9	B
SB	Left Turn						
	Through						
	Right Turn						
	Subtotal						
EB	Left Turn						
	Through	480	478	99.6%	15.2	2.3	B
	Right Turn	112	110	98.2%	5.5	0.6	A
	Subtotal	592	588	99.3%	13.4	2.0	B
WB	Left Turn						
	Through	616	584	94.8%	12.3	2.0	B
	Right Turn	12	14	113.3%	10.6	4.5	B
	Subtotal	628	598	95.2%	12.2	2.0	B
Total		1,636	1,596	97.5%	13.7	1.2	B

Attachment E – Cumulative No Project Conditions Technical Calculations

SimTraffic LOS & Delay Analysis – Cumulative No Project Conditions AM

SimTraffic Post-Processor
 Average Results from 10 Runs
 Volume and Delay by Movement

Winter PG&E Training Center
 Cumulative No Project Conditions
 AM Peak Hour

Intersection 1

E Main St/Grant Ave

Signal

Direction	Movement	Volume (veh/hr)			Total Delay (sec/veh)		
		Demand	Served	% Served	Average	Std. Dev.	LOS
NB	Left Turn	12	13	106.7%	46.2	30.2	D
	Through	12	10	83.3%	33.5	21.0	C
	Right Turn	52	42	80.8%	12.3	6.3	B
	Subtotal	76	65	85.3%	23.9	7.0	C
SB	Left Turn	592	529	89.3%	35.9	3.2	D
	Through	12	12	103.3%	21.5	17.3	C
	Right Turn	44	38	87.3%	13.8	7.7	B
	Subtotal	648	580	89.4%	34.3	3.0	C
EB	Left Turn	24	16	66.7%	53.9	23.1	D
	Through	1,008	911	90.4%	15.6	2.5	B
	Right Turn	12	12	96.7%	5.8	6.3	A
	Subtotal	1,044	939	89.9%	16.3	2.6	B
WB	Left Turn	28	20	71.4%	57.6	23.1	E
	Through	1,008	898	89.1%	19.5	2.5	B
	Right Turn	196	155	79.0%	18.8	5.2	B
	Subtotal	1,232	1,073	87.1%	20.0	3.1	B
Total		3,000	2,656	88.5%	22.0	2.0	C

Intersection 2

Timbercrest Ave/Grant Ave

Side Street Stop

Direction	Movement	Volume (veh/hr)			Total Delay (sec/veh)		
		Demand	Served	% Served	Average	Std. Dev.	LOS
NB	Left Turn	4	4	100.0%	37.5	49.5	E
	Through						
	Right Turn	12	11	90.0%	8.1	4.4	A
	Subtotal	16	15	92.5%	18.9	17.9	C
SB	Left Turn	44	42	96.4%	90.8	65.5	F
	Through						
	Right Turn	16	18	110.0%	10.3	6.9	B
	Subtotal	60	60	100.0%	71.4	49.9	F
EB	Left Turn	24	16	65.0%	11.1	5.6	B
	Through	1,588	1,441	90.8%	4.4	0.4	A
	Right Turn	40	33	82.0%	2.6	1.1	A
	Subtotal	1,652	1,490	90.2%	4.4	0.4	A
WB	Left Turn	96	89	92.5%	24.8	6.5	C
	Through	1,208	1,052	87.1%	3.9	0.4	A
	Right Turn	36	27	75.6%	4.0	1.3	A
	Subtotal	1,340	1,168	87.2%	5.6	0.7	A
Total		3,068	2,732	89.1%	6.5	1.5	A

Intersection 3

Matsumoto Ln/Grant Ave

Signal

Direction	Movement	Volume (veh/hr)			Total Delay (sec/veh)		
		Demand	Served	% Served	Average	Std. Dev.	LOS
NB	Left Turn						
	Through						
	Right Turn						
	Subtotal						
SB	Left Turn	208	189	91.0%	35.9	3.4	D
	Through						
	Right Turn	80	80	99.5%	28.7	5.7	C
	Subtotal	288	269	93.3%	33.7	3.1	C
EB	Left Turn	172	152	88.1%	57.5	16.0	E
	Through	1,476	1,342	90.9%	10.8	0.7	B
	Right Turn						
	Subtotal	1,648	1,494	90.6%	15.7	2.1	B
WB	Left Turn						
	Through	1,260	1,086	86.2%	13.9	1.9	B
	Right Turn	228	196	86.1%	10.8	2.4	B
	Subtotal	1,488	1,282	86.2%	13.4	1.9	B
Total		3,424	3,045	88.9%	16.4	1.2	B

Intersection 4

I-505 SB Ramp/Grant Ave

Signal

Direction	Movement	Volume (veh/hr)			Total Delay (sec/veh)		
		Demand	Served	% Served	Average	Std. Dev.	LOS
NB	Left Turn						
	Through						
	Right Turn						
	Subtotal						
SB	Left Turn	12	11	93.3%	30.9	16.4	C
	Through						
	Right Turn	248	201	81.0%	4.1	0.7	A
	Subtotal	260	212	81.5%	5.5	1.5	A
EB	Left Turn						
	Through	948	866	91.4%	2.9	0.3	A
	Right Turn	732	666	91.0%	2.4	0.2	A
	Subtotal	1,680	1,532	91.2%	2.7	0.2	A
WB	Left Turn						
	Through	1,240	1,089	87.8%	2.9	0.5	A
	Right Turn						
	Subtotal	1,240	1,089	87.8%	2.9	0.5	A
Total		3,180	2,833	89.1%	3.0	0.3	A

Intersection 5

I-505 NB Ramp/Grant Ave

Signal

Direction	Movement	Volume (veh/hr)			Total Delay (sec/veh)		
		Demand	Served	% Served	Average	Std. Dev.	LOS
NB	Left Turn	556	484	87.1%	62.3	13.2	E
	Through						
	Right Turn	24	22	93.3%	51.5	18.8	D
	Subtotal	580	507	87.4%	61.8	13.3	E
SB	Left Turn						
	Through						
	Right Turn						
	Subtotal						
EB	Left Turn						
	Through	776	700	90.3%	30.7	4.9	C
	Right Turn	184	178	96.7%	12.2	4.1	B
	Subtotal	960	878	91.5%	27.0	4.4	C
WB	Left Turn						
	Through	708	624	88.2%	14.4	1.7	B
	Right Turn						
	Subtotal	708	624	88.2%	14.4	1.7	B
Total		2,248	2,010	89.4%	31.9	4.3	C

SimTraffic LOS & Delay Analysis – Cumulative No Project Conditions PM

SimTraffic Post-Processor
 Average Results from 10 Runs
 Volume and Delay by Movement

Winter PG&E Training Center
 Cumulative No Project Conditions
 PM Peak Hour

Intersection 1

E Main St/Grant Ave

Signal

Direction	Movement	Volume (veh/hr)			Total Delay (sec/veh)		
		Demand	Served	% Served	Average	Std. Dev.	LOS
NB	Left Turn	24	16	65.0%	48.3	16.0	D
	Through	12	11	90.0%	33.3	21.1	C
	Right Turn	28	27	95.7%	9.4	5.1	A
	Subtotal	64	53	83.1%	26.9	10.4	C
SB	Left Turn	400	377	94.3%	39.3	2.3	D
	Through	12	11	93.3%	27.6	11.2	C
	Right Turn	24	25	103.3%	8.2	2.8	A
	Subtotal	436	413	94.8%	37.1	2.0	D
EB	Left Turn	36	28	78.9%	57.7	12.7	E
	Through	804	739	91.9%	14.1	2.0	B
	Right Turn	24	22	90.0%	6.8	4.1	A
	Subtotal	864	789	91.3%	15.6	1.9	B
WB	Left Turn	80	64	80.5%	57.8	14.4	E
	Through	1,208	1,016	84.1%	22.9	5.7	C
	Right Turn	432	375	86.9%	26.4	7.7	C
	Subtotal	1,720	1,456	84.6%	25.4	6.0	C
Total		3,084	2,711	87.9%	24.3	3.4	C

Intersection 2

Timbercrest Ave/Grant Ave

Side Street Stop

Direction	Movement	Volume (veh/hr)			Total Delay (sec/veh)		
		Demand	Served	% Served	Average	Std. Dev.	LOS
NB	Left Turn	36	38	105.6%	45.8	13.6	E
	Through						
	Right Turn	88	79	89.5%	9.4	2.4	A
	Subtotal	124	117	94.2%	21.8	5.7	C
SB	Left Turn	56	50	90.0%	54.6	19.0	F
	Through						
	Right Turn	36	37	103.3%	22.0	6.4	C
	Subtotal	92	88	95.2%	41.1	12.3	E
EB	Left Turn	24	17	71.7%	15.9	9.4	C
	Through	1,208	1,131	93.6%	3.7	0.4	A
	Right Turn	4	2	60.0%	0.6	1.4	A
	Subtotal	1,236	1,150	93.1%	3.9	0.5	A
WB	Left Turn	8	6	75.0%	15.6	16.4	C
	Through	1,652	1,408	85.2%	4.4	0.6	A
	Right Turn	24	22	93.3%	4.0	1.7	A
	Subtotal	1,684	1,436	85.3%	4.5	0.6	A
Total		3,136	2,791	89.0%	6.2	0.7	A

Intersection 3

Matsumoto Ln/Grant Ave

Signal

Direction	Movement	Volume (veh/hr)			Total Delay (sec/veh)		
		Demand	Served	% Served	Average	Std. Dev.	LOS
NB	Left Turn						
	Through						
	Right Turn						
	Subtotal						
SB	Left Turn	104	94	90.0%	39.8	8.2	D
	Through						
	Right Turn	136	117	86.2%	26.1	9.4	C
	Subtotal	240	211	87.8%	32.0	8.7	C
EB	Left Turn	104	88	84.6%	88.0	54.8	F
	Through	1,248	1,161	93.0%	6.9	1.5	A
	Right Turn						
	Subtotal	1,352	1,249	92.4%	13.1	5.9	B
WB	Left Turn						
	Through	1,544	1,332	86.3%	11.3	1.9	B
	Right Turn	160	142	88.5%	8.6	2.9	A
	Subtotal	1,704	1,474	86.5%	11.0	1.9	B
Total		3,296	2,934	89.0%	13.5	3.3	B

Intersection 4

I-505 SB Ramp/Grant Ave

Signal

Direction	Movement	Volume (veh/hr)			Total Delay (sec/veh)		
		Demand	Served	% Served	Average	Std. Dev.	LOS
NB	Left Turn						
	Through						
	Right Turn						
	Subtotal						
SB	Left Turn	12	8	70.0%	21.7	12.9	C
	Through						
	Right Turn	224	212	94.5%	4.2	1.0	A
	Subtotal	236	220	93.2%	5.0	1.3	A
EB	Left Turn						
	Through	744	707	95.1%	2.7	1.1	A
	Right Turn	608	548	90.1%	2.2	0.3	A
	Subtotal	1,352	1,255	92.8%	2.5	0.7	A
WB	Left Turn						
	Through	1,480	1,261	85.2%	3.7	0.9	A
	Right Turn						
	Subtotal	1,480	1,261	85.2%	3.7	0.9	A
Total		3,068	2,736	89.2%	3.3	0.7	A

Intersection 5

I-505 NB Ramp/Grant Ave

Signal

Direction	Movement	Volume (veh/hr)			Total Delay (sec/veh)		
		Demand	Served	% Served	Average	Std. Dev.	LOS
NB	Left Turn	612	519	84.8%	47.3	9.0	D
	Through						
	Right Turn	36	38	105.6%	40.7	11.9	D
	Subtotal	648	557	85.9%	46.9	9.0	D
SB	Left Turn						
	Through						
	Right Turn						
	Subtotal						
EB	Left Turn						
	Through	644	602	93.5%	28.7	5.6	C
	Right Turn	112	105	93.6%	9.8	2.6	A
	Subtotal	756	707	93.5%	25.9	5.0	C
WB	Left Turn						
	Through	916	799	87.2%	35.8	15.7	D
	Right Turn	24	22	91.7%	28.2	20.1	C
	Subtotal	940	821	87.3%	35.5	15.7	D
Total		2,344	2,084	88.9%	35.3	7.4	D

Attachment F – Cumulative Plus Project Conditions Technical Calculations

SimTraffic LOS & Delay Analysis – Cumulative Plus Project Conditions AM

SimTraffic Post-Processor
 Average Results from 10 Runs
 Volume and Delay by Movement

Winter PG&E Training Center
 Cumulative Plus Project Conditions
 AM Peak Hour

Intersection 1

E Main St/Grant Ave

Signal

Direction	Movement	Volume (veh/hr)			Total Delay (sec/veh)		
		Demand	Served	% Served	Average	Std. Dev.	LOS
NB	Left Turn	12	10	80.0%	46.9	14.4	D
	Through	12	8	70.0%	36.9	26.7	D
	Right Turn	52	37	71.5%	11.2	5.8	B
	Subtotal	76	55	72.6%	23.5	8.5	C
SB	Left Turn	592	534	90.3%	36.6	1.9	D
	Through	12	13	106.7%	23.0	11.9	C
	Right Turn	44	44	100.9%	13.5	4.8	B
	Subtotal	648	592	91.3%	34.6	2.3	C
EB	Left Turn	24	22	90.0%	49.7	9.2	D
	Through	1,008	929	92.1%	15.3	2.2	B
	Right Turn	12	13	110.0%	6.4	5.8	A
	Subtotal	1,044	964	92.3%	16.0	2.2	B
WB	Left Turn	28	25	88.6%	54.8	11.1	D
	Through	1,008	830	82.4%	19.7	4.0	B
	Right Turn	196	164	83.7%	19.0	3.7	B
	Subtotal	1,232	1,019	82.7%	20.4	3.6	C
Total		3,000	2,630	87.7%	22.0	2.4	C

Intersection 2

Timbercrest Ave/Grant Ave

Side Street Stop

Direction	Movement	Volume (veh/hr)			Total Delay (sec/veh)		
		Demand	Served	% Served	Average	Std. Dev.	LOS
NB	Left Turn	4	6	150.0%	137.4	145.4	F
	Through						
	Right Turn	12	19	156.7%	13.1	7.0	B
	Subtotal	16	25	155.0%	33.8	22.4	D
SB	Left Turn	44	32	71.8%	259.6	179.4	F
	Through						
	Right Turn	16	13	80.0%	39.7	59.1	E
	Subtotal	60	44	74.0%	195.7	135.7	F
EB	Left Turn	24	22	91.7%	19.9	6.4	C
	Through	1,588	1,418	89.3%	4.9	0.4	A
	Right Turn	40	62	154.0%	3.4	0.5	A
	Subtotal	1,652	1,502	90.9%	5.1	0.3	A
WB	Left Turn	96	208	216.3%	49.1	17.2	E
	Through	1,208	1,010	83.6%	4.5	0.4	A
	Right Turn	36	33	91.1%	4.3	1.2	A
	Subtotal	1,340	1,250	93.3%	11.9	3.1	B
Total		3,068	2,821	92.0%	11.2	2.8	B

Intersection 3

Matsumoto Ln/Grant Ave

Signal

Direction	Movement	Volume (veh/hr)			Total Delay (sec/veh)		
		Demand	Served	% Served	Average	Std. Dev.	LOS
NB	Left Turn						
	Through						
	Right Turn						
	Subtotal						
SB	Left Turn	208	198	95.2%	41.8	4.8	D
	Through						
	Right Turn	80	75	93.5%	11.5	5.3	B
	Subtotal	288	273	94.7%	33.6	3.0	C
EB	Left Turn	172	143	83.0%	49.6	9.5	D
	Through	1,476	1,311	88.8%	8.8	1.1	A
	Right Turn						
	Subtotal	1,648	1,454	88.2%	12.9	1.6	B
WB	Left Turn						
	Through	1,260	1,198	95.1%	13.7	1.5	B
	Right Turn	228	170	74.7%	10.0	1.6	A
	Subtotal	1,488	1,368	92.0%	13.3	1.4	B
Total		3,424	3,095	90.4%	14.9	1.2	B

Intersection 4

I-505 SB Ramp/Grant Ave

Signal

Direction	Movement	Volume (veh/hr)			Total Delay (sec/veh)		
		Demand	Served	% Served	Average	Std. Dev.	LOS
NB	Left Turn						
	Through						
	Right Turn						
	Subtotal						
SB	Left Turn	12	10	86.7%	20.0	13.5	B
	Through						
	Right Turn	248	227	91.6%	5.2	1.1	A
	Subtotal	260	238	91.4%	6.0	1.3	A
EB	Left Turn						
	Through	948	835	88.1%	3.0	0.5	A
	Right Turn	732	668	91.3%	2.6	0.3	A
	Subtotal	1,680	1,503	89.5%	2.8	0.3	A
WB	Left Turn						
	Through	1,240	1,147	92.5%	3.6	0.7	A
	Right Turn						
	Subtotal	1,240	1,147	92.5%	3.6	0.7	A
Total		3,180	2,888	90.8%	3.4	0.4	A

Intersection 5

I-505 NB Ramp/Grant Ave

Signal

Direction	Movement	Volume (veh/hr)			Total Delay (sec/veh)		
		Demand	Served	% Served	Average	Std. Dev.	LOS
NB	Left Turn	556	503	90.5%	148.1	37.1	F
	Through						
	Right Turn	24	17	70.0%	118.1	57.5	F
	Subtotal	580	520	89.7%	147.7	37.4	F
SB	Left Turn						
	Through						
	Right Turn						
	Subtotal						
EB	Left Turn						
	Through	776	688	88.7%	28.8	5.4	C
	Right Turn	184	158	85.7%	12.2	2.9	B
	Subtotal	960	846	88.1%	25.7	4.8	C
WB	Left Turn						
	Through	708	679	95.9%	17.1	3.6	B
	Right Turn						
	Subtotal	708	679	95.9%	17.1	3.6	B
Total		2,248	2,044	90.9%	54.0	9.6	D

SimTraffic LOS & Delay Analysis – Cumulative Plus Project Conditions PM

SimTraffic Post-Processor
 Average Results from 10 Runs
 Volume and Delay by Movement

Winter PG&E Training Center
 Cumulative Plus Project Conditions
 PM Peak Hour

Intersection 1

E Main St/Grant Ave

Signal

Direction	Movement	Volume (veh/hr)			Total Delay (sec/veh)		
		Demand	Served	% Served	Average	Std. Dev.	LOS
NB	Left Turn	12	21	176.7%	39.0	13.9	D
	Through	12	8	70.0%	49.7	30.5	D
	Right Turn	52	25	47.7%	16.1	18.9	B
	Subtotal	76	54	71.6%	30.4	15.9	C
SB	Left Turn	592	373	63.0%	36.5	3.0	D
	Through	12	10	83.3%	29.6	20.5	C
	Right Turn	44	24	55.5%	9.3	4.0	A
	Subtotal	648	407	62.8%	34.9	3.0	C
EB	Left Turn	24	29	120.0%	56.6	16.0	E
	Through	1,040	728	70.0%	15.6	2.3	B
	Right Turn	12	20	163.3%	12.5	7.9	B
	Subtotal	1,076	776	72.2%	17.0	2.5	B
WB	Left Turn	28	67	240.0%	60.9	23.9	E
	Through	1,012	1,118	110.5%	22.9	4.2	C
	Right Turn	196	364	185.7%	26.1	4.6	C
	Subtotal	1,236	1,549	125.3%	25.4	4.0	C
Total		3,036	2,787	91.8%	24.4	2.6	C

Intersection 2

Timbercrest Ave/Grant Ave

Side Street Stop

Direction	Movement	Volume (veh/hr)			Total Delay (sec/veh)		
		Demand	Served	% Served	Average	Std. Dev.	LOS
NB	Left Turn	8	57	715.0%	58.5	20.8	F
	Through						
	Right Turn	20	199	994.0%	17.3	4.7	C
	Subtotal	28	256	914.3%	26.3	6.1	D
SB	Left Turn	44	52	118.2%	78.6	36.0	F
	Through	4	0	0.0%	0.0	0.0	A
	Right Turn	16	33	205.0%	21.1	9.0	C
	Subtotal	64	85	132.5%	57.6	26.5	F
EB	Left Turn	24	25	103.3%	23.9	7.2	C
	Through	1,588	1,107	69.7%	3.9	0.5	A
	Right Turn	72	6	8.9%	0.7	0.8	A
	Subtotal	1,684	1,138	67.6%	4.3	0.6	A
WB	Left Turn	252	16	6.5%	10.8	8.6	B
	Through	1,212	1,478	122.0%	4.2	0.5	A
	Right Turn	36	19	52.2%	4.3	1.6	A
	Subtotal	1,500	1,514	100.9%	4.3	0.5	A
Total		3,276	2,993	91.4%	7.7	1.1	A

Intersection 3

Matsumoto Ln/Grant Ave

Signal

Direction	Movement	Volume (veh/hr)			Total Delay (sec/veh)		
		Demand	Served	% Served	Average	Std. Dev.	LOS
NB	Left Turn						
	Through						
	Right Turn						
	Subtotal						
SB	Left Turn	208	96	46.3%	41.2	10.0	D
	Through						
	Right Turn	84	119	141.4%	12.2	2.9	B
	Subtotal	292	215	73.7%	25.1	3.7	C
EB	Left Turn	172	84	48.6%	86.8	42.2	F
	Through	1,484	1,279	86.2%	6.6	2.1	A
	Right Turn						
	Subtotal	1,656	1,362	82.3%	11.8	3.2	B
WB	Left Turn						
	Through	1,412	1,392	98.6%	9.3	1.6	A
	Right Turn	228	152	66.5%	7.0	1.6	A
	Subtotal	1,640	1,543	94.1%	9.0	1.5	A
Total		3,588	3,121	87.0%	11.4	1.4	B

Intersection 4

I-505 SB Ramp/Grant Ave

Signal

Direction	Movement	Volume (veh/hr)			Total Delay (sec/veh)		
		Demand	Served	% Served	Average	Std. Dev.	LOS
NB	Left Turn						
	Through						
	Right Turn						
	Subtotal						
SB	Left Turn	12	11	90.0%	22.8	15.3	C
	Through						
	Right Turn	264	216	81.7%	4.3	0.6	A
	Subtotal	276	226	82.0%	5.3	0.9	A
EB	Left Turn						
	Through	952	720	75.6%	2.4	0.8	A
	Right Turn	740	655	88.5%	2.4	0.6	A
	Subtotal	1,692	1,375	81.3%	2.4	0.7	A
WB	Left Turn						
	Through	1,380	1,329	96.3%	3.3	1.0	A
	Right Turn						
	Subtotal	1,380	1,329	96.3%	3.3	1.0	A
Total		3,348	2,930	87.5%	3.0	0.8	A

Intersection 5

I-505 NB Ramp/Grant Ave

Signal

Direction	Movement	Volume (veh/hr)			Total Delay (sec/veh)		
		Demand	Served	% Served	Average	Std. Dev.	LOS
NB	Left Turn	660	567	85.9%	60.3	17.4	E
	Through						
	Right Turn	24	37	153.3%	50.6	21.9	D
	Subtotal	684	604	88.3%	59.7	17.5	E
SB	Left Turn						
	Through						
	Right Turn						
	Subtotal						
EB	Left Turn						
	Through	780	598	76.7%	28.9	6.3	C
	Right Turn	184	120	65.2%	12.2	7.9	B
	Subtotal	964	718	74.5%	26.1	6.4	C
WB	Left Turn						
	Through	744	822	110.5%	56.3	12.2	E
	Right Turn						
	Subtotal	744	822	110.5%	56.3	12.2	E
Total		2,392	2,144	89.6%	47.3	6.5	D

Attachment G – Cumulative Plus Project Mitigation Conditions Technical
Calculations

SimTraffic LOS & Delay Analysis – Cumulative Plus Project Mitigation Conditions AM

SimTraffic Post-Processor
 Average Results from 10 Runs
 Volume and Delay by Movement

Winter PG&E Training Center
 Cumulative Plus Project Mitigation Conditions
 AM Peak Hour

Intersection 1

E Main St/Grant Ave

Signal

Direction	Movement	Volume (veh/hr)			Total Delay (sec/veh)		
		Demand	Served	% Served	Average	Std. Dev.	LOS
NB	Left Turn	12	10	80.0%	42.9	22.3	D
	Through	12	13	110.0%	49.0	30.9	D
	Right Turn	52	41	78.5%	14.3	5.3	B
	Subtotal	76	64	83.7%	25.3	8.2	C
SB	Left Turn	592	521	88.0%	37.4	1.9	D
	Through	12	16	133.3%	26.9	10.2	C
	Right Turn	44	38	87.3%	9.7	3.1	A
	Subtotal	648	575	88.8%	35.3	2.2	D
EB	Left Turn	24	17	70.0%	56.8	18.2	E
	Through	1,040	932	89.6%	17.3	2.5	B
	Right Turn	12	10	86.7%	10.8	13.4	B
	Subtotal	1,076	959	89.1%	17.9	2.4	B
WB	Left Turn	28	20	72.9%	58.7	18.5	E
	Through	1,012	853	84.3%	21.7	2.4	C
	Right Turn	196	171	87.1%	21.5	4.0	C
	Subtotal	1,236	1,044	84.5%	22.3	2.7	C
Total		3,036	2,642	87.0%	23.6	1.4	C

Intersection 2

Timbercrest Ave/Grant Ave

Signal

Direction	Movement	Volume (veh/hr)			Total Delay (sec/veh)		
		Demand	Served	% Served	Average	Std. Dev.	LOS
NB	Left Turn	8	8	105.0%	67.3	45.4	E
	Through						
	Right Turn	20	20	98.0%	15.9	8.5	B
	Subtotal	28	28	100.0%	31.3	15.4	C
SB	Left Turn	44	41	93.6%	58.8	25.2	E
	Through	4	2	60.0%	33.8	40.3	C
	Right Turn	16	19	120.0%	10.9	11.8	B
	Subtotal	64	63	98.1%	41.3	11.0	D
EB	Left Turn	24	16	65.0%	81.0	31.3	F
	Through	1,588	1,376	86.6%	31.6	7.8	C
	Right Turn	72	58	81.1%	25.4	5.9	C
	Subtotal	1,684	1,450	86.1%	31.9	7.8	C
WB	Left Turn	252	229	90.8%	48.8	6.6	D
	Through	1,212	1,029	84.9%	10.6	2.2	B
	Right Turn	36	38	105.6%	10.0	4.2	A
	Subtotal	1,500	1,296	86.4%	17.3	2.2	B
Total		3,276	2,837	86.6%	25.3	4.2	C

Intersection 3

Matsumoto Ln/Grant Ave

Signal

Direction	Movement	Volume (veh/hr)			Total Delay (sec/veh)		
		Demand	Served	% Served	Average	Std. Dev.	LOS
NB	Left Turn						
	Through						
	Right Turn						
	Subtotal						
SB	Left Turn	208	187	89.8%	40.9	3.6	D
	Through						
	Right Turn	84	78	92.4%	9.7	2.7	A
	Subtotal	292	264	90.5%	31.5	1.5	C
EB	Left Turn	172	147	85.3%	70.9	16.3	E
	Through	1,484	1,278	86.1%	16.9	2.3	B
	Right Turn						
	Subtotal	1,656	1,425	86.1%	22.5	2.1	C
WB	Left Turn						
	Through	1,412	1,231	87.2%	15.1	2.5	B
	Right Turn	228	192	84.0%	11.7	2.6	B
	Subtotal	1,640	1,423	86.8%	14.6	2.5	B
Total		3,588	3,112	86.7%	19.7	2.0	B

Intersection 4

I-505 SB Ramp/Grant Ave

Signal

Direction	Movement	Volume (veh/hr)			Total Delay (sec/veh)		
		Demand	Served	% Served	Average	Std. Dev.	LOS
NB	Left Turn						
	Through						
	Right Turn						
	Subtotal						
SB	Left Turn	12	8	70.0%	22.5	12.9	C
	Through						
	Right Turn	264	228	86.2%	5.7	1.8	A
	Subtotal	276	236	85.5%	6.4	2.0	A
EB	Left Turn						
	Through	952	810	85.1%	3.7	1.0	A
	Right Turn	740	646	87.3%	3.0	0.5	A
	Subtotal	1,692	1,456	86.1%	3.4	0.7	A
WB	Left Turn						
	Through	1,380	1,199	86.9%	4.7	1.4	A
	Right Turn						
	Subtotal	1,380	1,199	86.9%	4.7	1.4	A
Total		3,348	2,892	86.4%	4.2	0.9	A

Intersection 5

I-505 NB Ramp/Grant Ave

Signal

Direction	Movement	Volume (veh/hr)			Total Delay (sec/veh)		
		Demand	Served	% Served	Average	Std. Dev.	LOS
NB	Left Turn	660	559	84.7%	127.4	31.0	F
	Through						
	Right Turn	24	17	71.7%	114.6	42.9	F
	Subtotal	684	576	84.2%	127.2	31.2	F
SB	Left Turn						
	Through						
	Right Turn						
	Subtotal						
EB	Left Turn						
	Through	780	661	84.7%	34.3	5.4	C
	Right Turn	184	156	84.6%	14.8	3.9	B
	Subtotal	964	816	84.7%	30.5	4.9	C
WB	Left Turn						
	Through	744	685	92.0%	19.1	2.6	B
	Right Turn						
	Subtotal	744	685	92.0%	19.1	2.6	B
Total		2,392	2,077	86.8%	53.7	7.7	D

SimTraffic LOS & Delay Analysis – Cumulative Plus Project Mitigation Conditions PM

SimTraffic Post-Processor
 Average Results from 10 Runs
 Volume and Delay by Movement

Winter PG&E Training Center
 Cumulative Plus Project Mitigation Conditions
 PM Peak Hour

Intersection 1

E Main St/Grant Ave

Signal

Direction	Movement	Volume (veh/hr)			Total Delay (sec/veh)		
		Demand	Served	% Served	Average	Std. Dev.	LOS
NB	Left Turn	12	20	170.0%	42.3	11.9	D
	Through	12	13	110.0%	44.2	17.6	D
	Right Turn	52	26	50.0%	11.1	7.3	B
	Subtotal	76	60	78.4%	29.0	6.5	C
SB	Left Turn	592	363	61.4%	38.7	3.6	D
	Through	12	10	86.7%	30.5	14.0	C
	Right Turn	44	15	33.6%	6.3	4.2	A
	Subtotal	648	388	59.9%	37.3	3.4	D
EB	Left Turn	24	27	111.7%	57.8	8.6	E
	Through	1,008	762	75.6%	16.4	3.0	B
	Right Turn	12	25	206.7%	7.5	4.5	A
	Subtotal	1,044	814	77.9%	17.5	3.0	B
WB	Left Turn	28	70	251.4%	60.3	8.9	E
	Through	1,008	1,057	104.8%	29.6	6.6	C
	Right Turn	196	386	196.9%	33.8	10.2	C
	Subtotal	1,232	1,513	122.8%	32.1	7.1	C
Total		3,000	2,775	92.5%	28.5	4.3	C

Intersection 2

Timbercrest Ave/Grant Ave

Signal

Direction	Movement	Volume (veh/hr)			Total Delay (sec/veh)		
		Demand	Served	% Served	Average	Std. Dev.	LOS
NB	Left Turn	4	53	1330.0%	48.4	9.9	D
	Through						
	Right Turn	12	181	1510.0%	12.8	4.7	B
	Subtotal	16	234	1465.0%	20.9	5.4	C
SB	Left Turn	44	45	101.8%	46.9	4.6	D
	Through						
	Right Turn	16	34	212.5%	16.4	5.1	B
	Subtotal	60	79	131.3%	33.4	4.8	C
EB	Left Turn	24	18	75.0%	54.9	14.0	D
	Through	1,588	1,145	72.1%	17.4	3.2	B
	Right Turn	40	7	18.0%	7.4	7.6	A
	Subtotal	1,652	1,170	70.8%	17.9	3.1	B
WB	Left Turn	96	21	21.7%	51.9	7.0	D
	Through	1,208	1,447	119.8%	21.2	4.0	C
	Right Turn	36	18	51.1%	15.4	10.7	B
	Subtotal	1,340	1,486	110.9%	21.6	4.0	C
Total		3,068	2,969	96.8%	20.4	3.2	C

Intersection 3

Matsumoto Ln/Grant Ave

Signal

Direction	Movement	Volume (veh/hr)			Total Delay (sec/veh)		
		Demand	Served	% Served	Average	Std. Dev.	LOS
NB	Left Turn						
	Through						
	Right Turn						
	Subtotal						
SB	Left Turn	208	86	41.5%	41.9	5.2	D
	Through						
	Right Turn	80	133	166.5%	11.8	3.1	B
	Subtotal	288	220	76.3%	23.5	2.6	C
EB	Left Turn	172	78	45.3%	77.1	35.6	E
	Through	1,476	1,287	87.2%	11.3	3.0	B
	Right Turn						
	Subtotal	1,648	1,365	82.8%	15.3	3.0	B
WB	Left Turn						
	Through	1,260	1,377	109.3%	9.9	1.9	A
	Right Turn	228	151	66.3%	7.0	2.3	A
	Subtotal	1,488	1,528	102.7%	9.6	1.9	A
Total		3,424	3,113	90.9%	13.1	1.8	B

Intersection 4

I-505 SB Ramp/Grant Ave

Signal

Direction	Movement	Volume (veh/hr)			Total Delay (sec/veh)		
		Demand	Served	% Served	Average	Std. Dev.	LOS
NB	Left Turn						
	Through						
	Right Turn						
	Subtotal						
SB	Left Turn	12	12	103.3%	27.3	8.5	C
	Through						
	Right Turn	248	211	85.2%	4.9	1.0	A
	Subtotal	260	224	86.0%	6.1	1.1	A
EB	Left Turn						
	Through	948	725	76.5%	4.0	1.1	A
	Right Turn	732	650	88.8%	3.1	0.8	A
	Subtotal	1,680	1,375	81.8%	3.5	0.9	A
WB	Left Turn						
	Through	1,240	1,316	106.1%	3.8	1.2	A
	Right Turn						
	Subtotal	1,240	1,316	106.1%	3.8	1.2	A
Total		3,180	2,914	91.6%	3.9	0.9	A

Intersection 5

I-505 NB Ramp/Grant Ave

Signal

Direction	Movement	Volume (veh/hr)			Total Delay (sec/veh)		
		Demand	Served	% Served	Average	Std. Dev.	LOS
NB	Left Turn	556	557	100.2%	65.2	25.9	E
	Through						
	Right Turn	24	30	123.3%	61.6	37.0	E
	Subtotal	580	587	101.2%	65.0	26.3	E
SB	Left Turn						
	Through						
	Right Turn						
	Subtotal						
EB	Left Turn						
	Through	776	604	77.9%	33.2	8.2	C
	Right Turn	184	116	63.3%	14.8	6.2	B
	Subtotal	960	721	75.1%	30.2	7.7	C
WB	Left Turn						
	Through	708	810	114.5%	42.7	11.1	D
	Right Turn						
	Subtotal	708	810	114.5%	42.7	11.1	D
Total		2,248	2,118	94.2%	44.8	9.7	D