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NEGATIVE DECLARATION

STATE, COUNTY AND LOCAL AGENCY REVIEW

The City of Tehachapi Planning Department has prepared a Negative Declaration for the project identified below. As mandated by State law, the minimum public review period for this document is 30 days. The comment period for this document closes on May 19, 2015.

Project Title:	Annexation No. 85 and Pre-zone to M-1, C-3 and Open Space
Project Location:	Located east and west of Tucker Road (SR 202), north of Union Pacific railroad tracks, and south of HWY 58.
Project Description:	A request to annex 153.8-acres into the City limits and a pre-zone request of 34.9 acres M-1, 79.2 acres C-3 and 39.7 acres Open Space.

For further information, please contact David James, Community Development Director at (661) 822-2200 ext. 119.

DISTRIBUTION LIST

Annexation No. 85

Local Agencies

1.____Tehachapi Unified School Dist.
2. X Tehachapi Police Dept.
3. X Tehachapi Cummings County Water Dist.
4. X Tehachapi Recreation & Parks Dist.
5.____Tehachapi Hospital
6. X Benz Sanitation
7. X Kern County Library-Tehachapi Branch
8.____Brighthouse Cable
9. X Southern California Edison
10. X Southern California Gas Company
11.____SBC Telephone Planning Dept.
12.____Tehachapi Resource Conservation Dist.
13. X Local Agency Formation Commission
14. X City of Tehachapi Public Works Dept.
15. X City of Tehachapi Engineer
16. X City of Tehachapi Airport Dept.
17.____Other

Kern County Agencies

1.____Kern County Water Agency
2. X Kern County Fire Dept.
3.____Kern County Sheriff's Dept. (Kelly Allred-Tract Maps)
4. X Kern County Sheriff's Dept.
5.____Kern County Agriculture Commissions Office
6.____Kern Council of Government
7.____Kern County Public Works & Roads Dept.
8.____Kern County Building Dept.
9. X Kern County Office of Planning
10. X Kern County Environmental Health Dept.
11. X Kern County Waste Management Dept.
12.____Air Pollution Control Dist.
13. X Kern County Department of Airports

State/Federal

1. X State Office of Planning & Research/State Clearing House
2.____Soil conservation Service, US Dept. of Agriculture
3. X Supervisor Zack Scrivner
4. X CalTrans District 9 – Gayle Rosander
5. X Native American Heritage Council of Kern County
6. X California Regional Water Quality Control Board
7. X California Department of Fish and Game
8. X Southern San Joaquin Arch Information Center
9.____Fish and Wildlife
10.____Soil Conservation Service
11.____U.S. Army Corps of Engineers
12. X Native American Heritage League

Other

1.____Audobon Society-Sacramento
2. X Sierra Club
3. X CalTrans Aeronautical Division
4. X Federal Aviation Administration
5. X County of Kern Department of Airports
6. X Harold Williams Kawaiisu Rep .
7. X Applicant

Date Mailed 4/16/15

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City of Tehachapi
115 South Robinson Street
Tehachapi, California 9356l

TO WHOM IT MAY CONCERN:

Pursuant to California Environmental Quality Act of 1970 (CEQA), State EIR Guidelines, and the Regulations Governing the Evaluation of Project and the Preparation of Environmental Statements in the City of Tehachapi, the Responsible Official has made an Initial Study of possible environmental impacts of the following described project:

APPLICANT:

Loop Ranch, LLC
1 Caryl Drive
Oxnard, CA 93033

ENGINEER:

Allan P. Henderson
Patrick & Henderson, Inc.
1965 Airport Drive
Bakersfield, CA 93308

PROJECT DESCRIPTION:

A request to annex 153.8-acres into the City limits and a pre-zone request of 34.9 acres M-1, 79.2 acres C-3 and 39.7 acres Open Space.

LOCATION:

The subject site is located east and west of Tucker Road (SR 202), north of the UP Railroad tracks, and south of HWY 58. (A portion of 223-030-03, a portion of 223-030-31, 223-110-05, 415-011-01, 223-030-05, and 223-030-17) South Loop Ranch

MITIGATION MEASURES:

Traffic/Circulation

At the development stage, the applicant will be subject to Regional Traffic Impact Fees in contributing to various regional improvements such as signal lights and road improvements.

Public Services

At the development stage, the applicant or successors will pay water and sewer connection fees to offset the incremental impacts to the City of Tehachapi's water distribution system and waste water treatment system per Resolution No. 38-04. In addition the applicant or successors will be required to pay school impact mitigation fees.

Public Facilities

At the development stage, to mitigate/off-set the incremental impact/demand on the City of Tehachapi's public safety providers, i.e. police and Kern County Fire Department, the project proponent or successors will be required to pay a Public Facilities Fee.

Cultural Resources/Archeological Resources

If cultural resources are exposed/discovered during the construction phase the applicant will be required to halt work until the resources can be properly retrieved and documented.

Seismic Safety

The applicant shall provide a geotechnical report at the building permit stage.

Air Quality

Future development shall comply with East Kern Air Pollution Control District requirements.

Airport Compatibility

Any future street lighting or security lighting shall meet the Dark Sky technology criteria in terms of light and glare and building materials will be restricted to non-glare and non-metallic finishes.

FINDINGS: It has been found that said annexation (project) in and of itself will not have a significant effect on the environment and that an Environmental Impact Report (EIR) is therefore not required pursuant to CEQA.

Any person may object to dispensing with such EIR or respond to the findings contained in the Initial Study a copy of said Initial Study and other information relating to the proposed project are on file in the office of the Community Development Department, Tehachapi City Hall located at 115 South Robinson Street, Tehachapi, California, (661) 822-2200 ext. 119. Any person desiring to examine same or to obtain a copy of the Initial Study or this document, or seek information as to the time and manner to so object or respond, may do so by inquiring at said office during regular working hours.

A copy of the Initial Study; is attached hereto.

_____

DAVID JAMES, Community Development Director

AGENCY CONSOLATION REQUIRED: __X__ Yes _____ No

AGENCIES CONSULTED: LAFCO, Tehachapi Public Works Department, Tehachapi City Engineer, Tehachapi Airport Manager

STATE CLEARING HOUSE NUMBER: N/A

INITIAL STUDY PREPARED BY: Marcia Smith

DATE POSTED:

Environmental Checklist Form

1.	Project Title:	Annexation No. 85 and pre-zone to M-1, C-3 and Open Space
2.	Lead Agency Name and Address:	City of Tehachapi 115 South Robinson Street Tehachapi, CA 93561
3.	Contact Person and Phone Number:	David James (661) 822-2200 ext. 119
4.	Project Location:	The subject site is located west and east of Tucker Road (SR 202), north of the Union Pacific (UP) railroad tracks and south of HWY 58.
5.	Applicant:	Loop Ranch, LLC
6.	General Plan Designation:	SD-1 (Special District 1)
7.	Zoning:	Pre-zone of 34.9 acres to M-1 (Light Industrial), 79.2 acres to C-3 (General Commercial) and 39.7 acres to OS (Open Space).
8.	Project Description:	A request to annex 153.8-acres of vacant land into the City limits and a pre-zone request in combination of M-1, C-3 and Open Space.
9.	Surrounding Land Uses and Setting:	North: Highway 58 Vacant Range Lands South: Union Pacific Railroad Tracks, Neighborhood Residential, Commercial, Waste Water Treatment Plan West: County Neighborhood Large Lot Residential East: Home Depot, Tractor Supply and Various Commercial and Light Industrial Buildings.
10.	Other agencies whose approval is required:	Local Agency Formation Commission (LAFCO),

Environmental Factors Potentially Affected:

The environmental factors checked below would be potentially affected by this project, involving at least one impact that is a "Potentially Significant Impact" or as indicated by the checklist on the following pages.

☐ Land Use and Planning	■ Transportation/Circulation	■ Public Services
☐ Population and Housing	■ Biological Resources	■ Utilities and Service Systems
■ Geophysical	☐ Energy and Mineral Resources	☐ Aesthetics
■ Water	☐ Hazards	■ Cultural Resources
■ Air Quality	☐ Noise	☐ Recreation
■ Airport Compatibility	☐ Mandatory Findings of Significance	

Determination:

On the basis of this initial evaluation:

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

I find that although the proposed project could have a significant effect on the environment, there will not be a significant effect in this case because the mitigation measures described on an attached sheet have been added to the project. A NEGATIVE DECLARATION will be prepared. ☐

I find that the proposed project MAY have a significant effect on the environment, and an ENVIRONMENTAL IMPACT REPORT is required. ☐

I find that the proposed project MAY have a significant effect(s) on the environment, but at least one effect 1) has been adequately analyzed in an earlier document pursuant to applicable legal standards, and 2) has been addressed by mitigation measures based on the earlier analysis as described on attached sheets, if the effect is a "potentially significant impact" or "potentially significant unless mitigated." An ENVIRONMENTAL IMPACT REPORT is required, but it must analyze only the effects that remain to be addressed. ☐

Signature of Community Development Director

4/15/15
Date Sent Out For Review

Issues:	Potentially Significant Impact	Negative Declaration Significant Unless Mitigation Incorporated	Less Than Significant Impact	No Impact
Would the proposal result in potential impacts involving:				
Land or Mudslides?	☐	☐	☐	■
I. LAND USE AND PLANNING.				
Would the proposal:				
a) Conflict with general plan designation or zoning?	☐	☐	☐	■
b) Conflict with applicable environmental plans or policies adopted by agencies with jurisdiction over the project?	☐	☐	☐	■
c) Be incompatible with existing land use in the vicinity?	☐	☐	☐	■
d) Affect agricultural resources or operations (e.g. impacts to soils or farmlands, or impacts from incompatible land uses)?	☐	☐	☐	■
e) Disrupt or divide the physical arrangement of an established community (including a low-income or minority community?	☐	☐	☐	■
II. POPULATION AND HOUSING.				
Would the proposal:				
a) Cumulatively exceed official regional or local population projections?	☐	☐	☐	■
b) Induce substantial growth in an area either directly or indirectly (e.g. through projects in an undeveloped area or extension of major infrastructure?	☐	☐	☐	■
c) Displace existing housing, especially affordable housing?	☐	☐	☐	■
III. GEOLOGICAL PROBLEMS.				
Would the proposal result in or expose people to potential impacts involving:				
a) Fault rupture?	☐	☐	☐	■
b) Seismic ground shaking?	☐	■	☐	☐
c) Seismic ground failure, including liquefaction?	☐	■	☐	☐
d) Seich, Tsumani, or volcanic hazard?	☐	☐	☐	■

Issues:	Potentially Significant Impact	Negative Declaration Significant Unless Mitigation Incorporated	Less Than Significant Impact	No Impact
e) Landslides or mudflows?	☐	☐	☐	■
f) Erosion, changes in topography or unstable soil conditions from excavation, grading, or fill?	☐	☐	■	☐
g) Subsidence of the land?	☐	☐	☐	■
h) Expansive soils?	☐	☐	■	☐
i) Unique geologic or physical features?	☐	☐	☐	■
IV. WATER. Would the proposal result in:				
a) Changes in absorption rates, drainage patterns, or the rate and amount of surface runoff?	☐	☐	■	☐
b) Exposure of people or property to water related hazards such as flooding?	☐	☐	☐	■
c) Discharge into surface water or other alteration of surface water quality e.g. temperature, dissolved oxygen or turbidity)?	☐	☐	☐	■
d) Changes in the amount of surface water in any water body?	☐	☐	☐	■
e) Changes in currents, or the course or direction of water movements?	☐	☐	■	☐
f) Change in the quantity of ground waters, either through direct additions or withdrawals, or through interception of an aquifer by cuts or excavations or through substantial loss of groundwater recharge capability?	☐	☐	■	☐
g) Altered direction or rate of flow of groundwater	☐	☐	☐	■
h) Impacts to groundwater quality?	☐	☐	■	☐
i) Substantial reduction in the amount of groundwater otherwise available for public water supplies?	☐	☐	■	☐
V. AIR QUALITY. Would the proposal:				
a) Violate any air quality standard or contribute to an existing or projected air quality violation?	☐	☐	☐	■

Issues:	Potentially Significant Impact	Negative Declaration Significant Unless Mitigation Incorporated	Less Than Significant Impact	No Impact
b) Expose sensitive receptors to pollutants?	☐	☐	☐	■
c) Alter air movement, moisture, or temperature, or cause any change in climate?	☐	☐	☐	■
d) Create objectionable odors?	☐	☐	☐	■
VI. TRANSPORTATION/CIRCULATION. Would the proposal result in.				
a) Increased vehicle trips or traffic congestion?	☐	☐	■	☐
b) Hazards to safety from design features (e.g. sharp curves or dangerous intersections) or incompatible uses (e.g. farm equipment)?	☐	☐	☐	■
c) Inadequate emergency access or access to nearby users?	☐	☐	☐	■
d) Insufficient parking capacity on-site or off-site?	☐	☐	☐	■
e) Hazards or barriers for pedestrians or bicyclists?	☐	☐	☐	■
f) Conflicts with adopted policies supporting alternative transportation (e.g. bus turnouts, bicycle racks)?	☐	☐	☐	■
g) Rail, waterborne or air traffic impacts?	☐	☐	☐	■
VII. BIOLOGICAL RESOURCES. Would the proposal result in impacts to:				
a) Endangered, threatened or rare species or their habitats (including but not limited to plants, fish, insects, animals, and birds)?	☐	☐	☐	■
b) Locally designated species (e.g. heritage trees)?	☐	☐	☐	■
c) Locally designated natural communities (e.g. oak forest, coastal habitat, etc.)?	☐	☐	☐	■
d) Wetland habitat (e.g. marsh, riparian and vernal pool)?	☐	☐	☐	■
e) Wildlife dispersal or migration corridors?	☐	☐	☐	■
VIII. ENERGY AND MINERAL RESOURCES. Would the proposal:				
a) Conflict with adopted energy conservation plans?	☐	☐	☐	■

Issues:	Potentially Significant Impact	Negative Declaration Significant Unless Mitigation Incorporated	Less Than Significant Impact	No Impact
b) Use non-renewable resources in a wasteful and inefficient manner?	☐	☐	☐	■
c) Result in the loss of availability of a known mineral resource that would be of future value to the region and the residents of the State?	☐	☐	☐	■
IX. HAZARDS. Would the proposal involve:				
a) A risk of accidental explosion or release of hazardous substances (including, but not limited to: oil, pesticides, chemicals or radiation)?	☐	☐	☐	■
b) Possible interference with an emergency response plan or emergency evacuation plan?	☐	☐	☐	■
c) The creation of any health hazard or potential health hazards?	☐	☐	☐	■
d) Exposure of people to existing sources of potential health hazards?	☐	☐	☐	■
e) Increased fire hazard in areas with flammable brush, grass, or trees?	☐	☐	☐	■
X. NOISE. Would the proposal result in:				
a) Increases in existing noise levels?	☐	☐	☐	■
b) Exposure of people to severe noise levels?	☐	☐	☐	■
XI. PUBLIC SERVICES. Would the proposal have an effect upon, or result in a need for new or altered government services in any of the following areas:				
a) Fire protection?	☐	☐	■	☐
b) Police protection?	☐	☐	■	☐
c) Schools?	☐	☐	☐	■
d) Maintenance of public facilities, including roads?	☐	☐	■	☐
e) Other governmental services?	☐	☐	■	☐

Issues:	Potentially Significant Impact	Negative Declaration Significant Unless Mitigation Incorporated	Less Than Significant Impact	No Impact
XII. UTILITIES AND SERVICE SYSTEM. Would the proposal result in a need for new systems or supplies, or substantial alterations to the following utilities:				
a) Power or natural gas?	☐	☐	☐	■
b) Communications systems?	☐	☐	☐	■
c) Local or regional water treatment or distribution facilities?	☐	☐	☐	■
d) Sewer or septic tanks?	☐	☐	■	☐
e) Storm water drainage?	☐	☐	■	☐
f) Solid waste disposal?	☐	☐	■	☐
g) Local or regional water supplies?	☐	☐	■	☐
XIII. AESTHETICS. Would the proposal:				
a) Affect a scenic vista or scenic highway?	☐	☐	☐	■
b) Have a demonstrable negative aesthetic effect?	☐	☐	☐	■
c) Create light or glare?	☐	☐	☐	■
XIV. CULTURAL RESOURCES. Would the proposal.				
a) Disturb paleontological resources?	☐	☐	☐	■
b) Disturb archaeological resources?	☐	☐	☐	■
c) Affect historical resources?	☐	☐	☐	■
d) Have the potential to cause a physical change which would affect unique ethnic cultural values?	☐	☐	☐	■
e) Restrict existing religious or sacred uses within the potential impact area?	☐	☐	☐	■
XV. RECREATION. Would the proposal.				
a) Increase the demand for neighborhood or regional parks or other recreational facilities?	☐	☐	☐	■
b) Affect Existing recreational opportunities?	☐	☐	☐	■

Issues:	Potentially Significant Impact	Negative Declaration Significant Unless Mitigation Incorporated	Less Than Significant Impact	No Impact
XVI. MANDATORY FINDINGS OF SIGNIFICANCE.				
a) Does the project have the potential to degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, reduce the number or restrict the range of a rare or endangered plant or animal or eliminate important examples of the major periods of California history or prehistory?	☐	☐	☐	■
b) Does the project have the potential to achieve short-term, to the disadvantage of long-term, environmental goals?	☐	☐	■	☐
c) Does the project have impacts that are individually limited, but cumulatively considerable? ("Cumulatively considerable" means that the incremental effects of a project are considerable when viewed in connection with the effects of past projects, the effects of other current projects, and the effects of probable future projects)	☐	☐	■	☐
d) Does the project have environmental effects which will cause substantial adverse effects on human beings, either directly or indirectly?	☐	☐	☐	■

NARRATIVE DISCUSSION OF ENVIRONMENTAL IMPACTS
ANNEXATION NO. 85
ANNEXATION OF 153.8 ACRES AND
PRE-ZONE 34.9-ACRES M-1, 79.2-ACRES C-3 and 39.7-ACRES OPEN SPACE

A. EARTH

The soil underlying the project area west of Tucker Road and south of Highway 58 is Tehachapi Sandy Loam. This soil type is very deep, well-drained and gently to strongly sloping and typically on old alluvial fans and terraces. It is a brown and grayish brown, sandy loam underlain by dark brown and yellowish brown sandy clay loam subsoil. A 4-acre section of the proposed annexation site was once utilized as a burn dump site. (Southwest corner of Section 17, T32S, R33E). The disposal operations occurred from 1943 until 1956 receiving municipal waste from the City of Tehachapi and the surrounding rural unincorporated area. Kern County Environmental Health Services Department conducted a site inspection on 1/27/04 commenting that no violation or areas of concern exist at the former burn dump site. (Please see Attachment A). The Kern County Environmental Health Services Department conducted an additional site inspection on 3/29/04 (Please see Attachment B) which restates the items in Attachment A. The former burn dump site will be restricted/utilized ultimately for parking and roadway improvements; no structures are planned or approved to be constructed over the burn dump site.

The applicant or successors in interest of this annexation shall be required to submit a geologic report at the development stage. Based on the results of future soil studies and other geotechnical considerations at the development stage the subject site may require some degree of over excavation and re-compaction particularly if liquefiable and/or expansive soil conditions are present. Other than the above, the project area does not appear to exhibit any unique geological features or topographic relief. Furthermore, subsequent projects will not create unstable earth conditions or changes in geological structures.

B. TRAFFIC/CIRCULATION

A Traffic Study was conducted on September 2, 2010 by Crenshaw Traffic Engineering and included herein as Appendix A. Regional access to the annexation area is provided via SR-58 freeway. Primary access to the site is provided by Tucker Road/SR 202 which is a north/south arterial that connects to the SR-58 freeway interchange. The proposed annexation of 153.8-acres and a pre-zone of 34.9-acres to M-1, 79.2-acres to C-3 and 39.7-acres as Open Space will not have a direct impact on traffic circulation within the proposed area. However, the approval and eventual recordation of the annexation will set the stage for potential development of commercial/light industrial related land uses that in the absence of the annexation would most likely not occur.

The estimated peak hour and daily traffic volumes expected to be generated by the potential future development were based on the data obtained from the Institute of Transportation Engineers (ITE), "Trip Generation", 2008, 8th Edition. The traffic study included as Appendix A states in accordance with the Caltrans policy, the daily traffic and peak hour volumes generated by the project's retail land uses were reduced by 15% to reflect the diversion of existing (i.e. pass by) traffic on the adjacent streets. The adjusted project traffic volumes were then reduced by an additional 5% to account for internal capture of trips (i.e. trips between the project's two land uses).

Based on the pre-zone designations of 34.9-acres to M-1, 79.2-acres to C-3 and 39.7-acres as passive Open Space, it is estimated that future light industrial will measure approximately 222,175 square feet and it is estimated that highway commercial development will measure approximately 432,115 square feet which will be accessed off new on-site roadways connecting to Tucker Road. New development may generate approximately 16,933 vehicle trips per day with an increase of 394 vehicles arriving and 349 leaving the site during the AM peak hour and an increase of 511 vehicles arriving and 617 departing during the PM peak hour per the following assumption; based on the type and intensity of future commercial uses on 79.2-acres, it is estimated that 75% of the commercial area will average 10% building coverage and the remaining acres will have approximately 20% building coverage. Future light industrial development on 34.9 acres may generate approximately 80% of the industrial area will be

covered by 12% building coverage and the remaining area is estimated to have approximately 25% building coverage. The mobility element of the General Plan identifies Tucker Road as a major arterial street, and as such, designed to carry the anticipated number of commercial/industrial related vehicles at full build out.

Mitigation Measures

Year 2015

Construct improvements at Tucker Road/Tehachapi Blvd

Conditions will require the provision of a 2nd westbound left turn lane on Tehachapi Boulevard and the conversion of both Tehachapi Boulevard approaches from one through and one right turn lane to one through and one through/right turn lane. The addition of project traffic will require the provision of a 2nd left turn lane on both Tucker Road approaches.

Construct improvements at Tucker Road/Valley Blvd

Conditions will require the conversion of both Valley Boulevard approaches from one left, one through and one right turn lane to one left, one through and one through/right turn lane. The addition of project traffic will require the provision of a 2nd eastbound left turn lane on Valley Boulevard.

Tehachapi Boulevard/Mountain View Avenue/Valley Boulevard

The addition of project traffic will require the installation of a traffic signal system.

Year 2035

Tucker Rd/SR-58 EB Ramps

Conditions will require the provision of a 2nd southbound lane (for a minimum of 500 feet) that allows the conversion of the eastbound right turn movement from the off ramp from the current Yield to a free right turn.

Tucker Rd/Tehachapi Blvd

Conditions will require the provision of signal overlaps for northbound and southbound Tucker Road right turns and widening for the westbound approach to provide for a right turn lane. The addition of project traffic will require a 3rd through lane in each direction on Tucker Road and a 2nd eastbound left turn lane on Tehachapi Boulevard.

Tucker Rd/Valley Blvd

Conditions will require the provision of a signal overlap for the southbound Tucker Road approach and for a 2nd northbound left turn lane on Tucker Road. The addition of project traffic will require the provision of a 2nd southbound left turn lane on Tucker Road and a 2nd westbound left turn lane on Valley Boulevard.

The following intersections are on the Regional Transportation Impact Fee list;

- Construct improvements at Tucker Road/SR-58 EB Ramps
- Install Traffic Signal at Tehachapi Blvd/Mountain View Avenue

This projects contribution to the construction cost of the off-site improvement not included in the Regional Transportation Impact fee list are computed as follows;

- Construct improvements at Tucker Road/Tehachapi Boulevard
  33.4% proportionate share
  (792/2,369 = 0.334 x 100 = 33.4%)
- Construct improvements at Tucker Road/Valley Blvd
  18.5% proportionate share
  (339/1,833 = 0.185 x 100 = 18.5%)

The transportation fee shall be paid at the development stage when more specific development proposals are submitted. As indicated the annexation of the subject site in and of itself will have no impact on area circulation. However, the annexation will set the stage for future potential development in combination of Light Industrial and Commercial and passive Open Space uses. The additional trips generated by the theoretical build-out/development of the subject site can be absorbed by the regional circulation network which will continue to operate at a Level of Service C or better providing the mitigation measures are implemented at the development stage. To that end, it should be noted that the theoretical impacts associated with the annexation area can be characterized as a worst case scenario given that the exact mix of land uses cannot be known at this time. Additionally the traffic study did not take into account the subject sites inherent development constraints such as topographic features that may reduce the overall building foot print (square footage) which in turn will have a corresponding reduction in trip generations. As the subject site transitions from the annexation phase to the development phase, traffic impacts will be revisited with a more precise analysis when more specific development proposals are available.

C. AIR

The approval and recordation of the annexation in and of itself will not have an impact on air quality. However, the approval and eventual recordation of the 153.8-acre site will set the stage for potential development of commercial and light industrial related land uses. The development of the project area will temporarily increase the level of "fugitive dust" (particulate matter) in the air primarily during the grading phase of the project. This impact associated with particulate matter is commonly referred to as P.M. 10. In accordance with the East Kern Air Pollution Control Board the project proponents at the development stage will be required as a condition of approval to "water down" the site and/or use soil binders to reduce dust emission and implement the Districts policies. In terms of traffic related air quality issues, the project at build out is expected to generate approximately 16,933 average daily trips (ADTs). The development activity and associated traffic generation will have an incremental impact on local air quality but will not individually or collectively cause a significant decrease in the region's air quality. In addition, the City of Tehachapi's inherent compact urban form will insure that traffic/auto related air born pollution will not exceed thresholds of significance if the area continues to build-out. The subject site will have light industrial and commercial zoning and as such, future land uses within the project area could discharge air pollutants in conjunction with a yet to be specified commercial process. At this juncture, it is impossible to predict the potential for commercial/light industrial generated airborne pollutants. As such this will have to be addressed on a case-by-case basis at the development stage.

D. WATER

The annexation and pre-zone request in and of itself will not have an impact on issues associated with water quality and/or availability of domestic water. However, the approval and eventual recordation of the proposed annexation will set the stage for future commercial/retail land uses. The precise mix of land uses cannot be predicted at this time. However, based on the pre-zone designations and assuming 75% of the commercial area will average 10% building coverage and the remaining acres will have approximately 20% building coverage. 80% of the industrial area will be covered by 12% building coverage and the remaining area will have approximately 25% building coverage. The parcels could theoretically support a total of 432,115 square feet of commercial structures and 222,173 square feet of light industrial structures. (This figure also assumes all structures will be single story). Build-out of these commercial structures could consume approximately 100,139 gallons per day (GPD) as calculated below:

432,115 square feet of commercial structure x 114 gallons of water per day/1,000 sq. ft.= 49,261 gallons/day
222,175 square feet of light industrial x 229 gallons of water per day/1,000 sq. ft. = 50,878 gallons/day

The amount of water anticipated to be consumed by the project at build out will not have a significant impact on the availability of domestic water to the public. Pursuant to the adjudication the "safe yield" of the ground water basin underlying the Tehachapi region has been established at 5,500-acre feet per year (AFY). As indicated the basin has been adjudicated and the City currently has a base right/pumping right of approximately 1,847-Acre

Feet (AF) exclusive of any carryover from previous years and/or exchange pool resources. The City of Tehachapi typically uses approximately 2,182 AFY. Based on a projected 2% growth rate and General Plan build out scenarios the City should have long term adequate access to domestic water to facilitate the build out of the parcels in question. In the event of a sewer and/or water capacity issue, the City reserves the right to withhold all building permits or otherwise limit the issuance of building permits until such time as its sewer and/or water system have been expanded to accommodate the existing and anticipated demand for those services. To mitigate/offset the cost of expanding the City of Tehachapi municipal system in terms of constructing new wells, additional storage facilities, etc., the developer(s) will be required to pay an impact fee per Resolution No. 38-04 at the development stage.

In terms of water supply the project proponents will be required to connect to the City water system to provide adequate water to the subject sites for both domestic water and fire flow purposes. The City Engineer will ultimately determine the size and placement of future water lines.

With respect to water conservation practices, future commercial and light industrial uses within the project area will be required to comply with Title 20 and Title 245 of the California Administration Code relative to appliance efficiency standards such as water-conservation water closets, flow restricted heads, etc. In addition, the project will be conditioned to utilize drought tolerant and native landscaping to the greatest extent possible pursuant to AB 325 and the City of Tehachapi Landscape Guidelines.

With respect to water quality related issues, impacts can be broken down into three (3) categories; grading, construction and project occupancy. At the development stage any non-point pollution and storm water discharge associated with grading activity and/or construction activity will be regulated under the Federal Clean Water Act Section 402. In addition future-grading activity must comply with the State Water Resources Control Board, Notice of Intent (NOI). Additionally, any permit level grading activity will necessitate a National Pollution Discharge Elimination System (NPDES) permit relative to non-profit pollution associated with construction activity, processed through the Regional Water Quality Control Board (Central Valley Region). This permit will require preparing a Storm Water Pollution Prevention Program (SWPP) employing "best management practices" (BMPs) relative to the long and short term control of erosion and sedimentation, and construction staging activity. In terms of drainage, increased run-off resulting from the proposed development will drain into an outlet approved by the City Engineer.

It should be noted that as of the preparation of this document, there are not domestic water lines present at the subject site. This circumstance has no particular CEQA ramification, however before or in conjunction with the development of the subject site, water lines will need to be extended to the subject site for domestic and fire flow purposes in order for future development to tap into the domestic system. To that end, one possible scenario would be to extend an existing 12 inch water line from its terminus which services the cemetery located approximately 1,000 feet east of the subject site. This line may ultimately need to extend along Tucker Road and tie into an existing 12 inch line that terminates in Tucker Road approximately 600 feet north of the intersection of Tucker Road and Valley Boulevard. This design solution would create a loop system and avoid any water line extensions that terminate to a blow off devise.

E. SEWER

The proposed annexation and pre-zone request in and of itself will not have an impact on the City of Tehachapi's municipal wastewater treatment system in terms of existing trunk lines and/or treatment capacity. However, completion of the annexation and pre-zone process will set the stage for future commercial/light industrial development that will require connection to a municipal system as opposed to the individual septic tank alternative.

Given the subject sites General Plan Designation of SD-1 (Special District 1) the project areas could theoretically support approximately 432,115 square feet of commercial structure land uses and 222,175 of light industrial uses. However, taken the aggregate of this basic land use designation the project area at build out could generate up to 91,375 gallons/day of waste water per day as calculated below:

432,115 square feet x 104 gallons wastewater/day/1,000 sq. ft. = 44,940 gpd
222,175 square feet x 209 gallons wastewater/day/1,000 sq. ft. = 46,435 gpd

The quantity of wastewater anticipated to be generated by the project in and of itself at build-out would not have a significant effect on the Wastewater Treatment Plant. The plant is designed with a capacity to process up to 1.25 million gallons per day (MGD) and is currently operating at 80% capacity of .25 MGD available for future growth. At the development stage, the project proponents will be required to pay a sewer connection/mitigation fee per Resolution No. 38-04 to mitigate/offset the incremental increase in wastewater. Additionally, subsequent projects will be conditioned to provide the individual parcels with a domestic sewer service. The City Engineer shall ultimately determine the size and placement of sewer lines.

It should be noted that as of the preparation of this document there are no sewer lines present at the subject site. This circumstance has no particular CEQA ramifications, however before or in conjunction with the development of the subject sites, sewer lines will need to be extended to the subject site border for future development to tap into the system. To that end, one possible scenario would be to extend a 10 to 15 inch sewer trunk line parallel to State Highway 58 within a future public utility easement or right-of-way. The details of this scenario would need to be sorted out at the development stage. The sewer treatment plant is located approximately 1,000 feet east of the subject site.

F. GEOLOGY/SEISMICITY

The subject site is considered seismically active, as is most of Kern County. All proposed structures and utility installations anticipated to occur at the development stage would be designed to withstand anticipated ground acceleration within an acceptable level of risk. It is assumed that the Garlock Fault located approximately (9) miles southeast of the project area will be the design fault by which construction parameters will be established in conjunction with other Uniform Building Code (UBC) seismic standards applicable to the project site. The Garlock Fault shows the characteristic features of high-angle faults with major strike-slip component. The Garlock Fault has a Richter Magnitude potential of 8.0 and a Peak Execration range of .409 (g) to .904(g). A geotechnical report will be required at the development stage.

G. CULTURAL RESOURCES

The proposed annexation is located within the ancestral home of the Kawaiisu cultural group also known as Nuooah who are linguistically related to the Shoshonean language family. An archeological survey was conducted over the entire 1,600 acre Loop Ranch site by Mr. Robert A. Schiffman dated March 15, 1990 included herein as Appendix B. The study was conducted in association with an EIR and annexation request 1,471 acres that was ultimately tabled. The site has remained vacant and as such the archeological survey recommendations made by Mr. Schiffman are still relevant and will still apply.

Several sites were recorded over the 1,470 acre survey one of which, CA-Ker 2553 is located in the SE ¼ of Section 18 within the subject annexation area. The site is proposed to be pre-zoned as Open Space (OS) prohibiting any future development or disturbance of the site. The Archeological Survey describes a large village site consisting of several milling loci, lithic debris, ground stone tools, human remains, and a buried midden deposit. This site has been suggested to be the historic Indian Village site named Tehachapi. Recommendations made in the Archeological Survey include;

1. Partial, systematic surface collection, with each site loci collected.

2. Excavation of the test units for each loci.

As stated in the Archeological Survey, upon completion of the required field work, a report detailing this work and the results will be prepared. Suggestions were made in the Survey designed to reduce or eliminate impacts to any of the sites which include the following;

1. All remains should be left in situ, and not removed to other locations. This is in particular reference to the bedrock milling features which are often moved to the front yards of homes and businesses. This condition should be stipulated in any lands deeded to other persons.

2. Human remains buried on the property, whether Indian or Chinese, should not be disturbed or relocated without consent from the appropriate authorities or individuals.

3. Consultation with representatives from the local Native American community should take place prior to any test excavation or development on the property to insure that important cultural and religious concerns of the Indian community are considered.

4. While an on-site field survey allows researchers to draw conclusions about site presence or absence, there is always the possibility that other sites and buried remains could be found during development of the Loop Ranch. It is possible that erosional and depositional processes, and vegetation, may have obscured such resources. Therefore, should any additional site materials be found, work in the area of discovery should be stopped until the finds can be evaluated, and if necessary, mitigated prior to the resumption of construction.

5. Specifically, if any additional archaeological sites are found during the additional field work or development, appropriate actions, including surface collections, and testing, be considered.

6. Procedures should be developed to minimize impacts to cultural resources, so that once the initial development has been completed, resources present will continue to be considered and protected.

It should be noted that the annexation process in and of itself will have no impact on the above referenced archeological site. However, at the development stage when more specific information on the extend of development and associated grading are available the mitigation strategy suggested herein should be implemented to confirm that the archeological site will not be impacted directly or indirectly as a result of any future development activity.

H. PLANTLIFE/WILDLIFE

A Biological Resources Constraints Report (included herein as Appendix C) was conducted by AECOM to assess the potential for special-status species and sensitive habitats to occur on the project site. As stated in the report, land cover types on the project site include ruderal, annual grassland, oak savannah, linear aquatic features and riparian habitat. Portions of the site along the existing roadways of Highway 58 and Tucker Road are heavily and regularly disturbed by vehicles pulling off and parking along the roadway. From Highway 58, west of Tucker Road the project site slopes down to Tehachapi Creek which borders the property to the south. The creek is surrounded by riparian habitat dominated by Fremont cottonwoods. East of Tucker Road the project site slopes down to a cemetery and water treatment plant adjacent to the eastern boundary of the project site.

The Biological Resources Constraints Report further states that a total of eight (8) special-status plant species have been reported to the California Natural Diversity Database (CNDDB) within 5 miles of the project site or have been recorded by the California Native Plant Society (CNPS) within USGS quadrangles encompassing and adjacent to the project site. No special-status plants were observed during the field visit in the project area. However the field

visit was conducted outside of the blooming period for special-status plants known to occur in the project vicinity. Two of the eight special-status plants have a low potential to occur in the annual grassland habitat present on the project site west of Tucker Road. Round-leaved filaree and pale-yellow layia have no federal or state ranking but are listed by CNPS as rare or endangered in California and elsewhere with over 80% of occurrences threatened. The project site is generally considered unsuitable for the reported special-status species due to lack of appropriate habitat and the general disturbed condition of the property.

The report further explains that a total of six special-status wildlife species have been reported to the CNDDB within five (5) miles of the project alignment. Three special-status wildlife species have the potential to occur on or adjacent to the project site: Comstock's blue butterfly, tricolored blackbird and Tehachapi pocket mouse. There is a low likelihood that these three (3) species will be located on site as explained in the attached report. Furthermore, the site is generally considered unsuitable for the other special-status species due to lack of appropriate habitat.

Future development may be constrained by wetland habitats (linear aquatic feature, riparian, intermittent drainages) on the project site. Impacts to Tehachapi Creek and the riparian area along Tehachapi Creek are not anticipated due to that area being designated as open space as a pre-zone designation. Implementation of the Avoidance and Minimization Measures (AMM) listed in the Biological Report would be effective in reducing the project impacts that might otherwise be considered significant on wetlands and riparian habitat. Should impacts not be avoidable, the project proponent shall consult with the appropriate departments as listed in the Biological Report and secure any necessary permits to comply with current codes.

There are several plant and animal species in the Tehachapi region that are of special concern. However, the biological survey concluded there are no rare and/or endangered flora species, flora communities or fauna species on the subject site. The survey further states that the project applicant is encouraged to consult with the U.S. Fish and Wildlife Service and California Department of Fish and Game prior to future development to ensure that they concur with this determination.

I. DRAINAGE/HYDROLOGY

With respect to drainage, future development of the sites will increase the amount of impervious surfaces and as such create a corresponding increase in storm water run-off. At the development stage, the applicant will be required to convey the storm water run-off into a development driven storm system and ultimately into Tehachapi Creek. As such, there is no need and/or requirement to retain the subject sites incremental increase in run-off associated with the creation of impervious surfaces to be collected and retained on site. While hydrology/drainage is an issue it can be mitigated by design and storm water can be conveyed through the subject site and in a manner that will not impact down stream properties and/or cause an increase of surface flows on public streets. The applicant shall submit a drainage study for review and approval by the City Engineer prior to site grading at the development stage.

J. PUBLIC SERVICES

The annexation and pre-zone in and of itself will not have an impact on law enforcement and fire protection facilities. However, completion of the annexation process will set the stage for future development to occur in the project area regarding potential industrial and commercial land use intensities that will require an increase in public services. This incremental level of need is not significant in relation to the overall population growth in the region and will be partially offset by the increase in sales tax and property tax revenue to the City of Tehachapi produced by the future development of the commercial and industrial sites. The project area will place an incremental increase on water and sewer facilities and at the development stage, the project proponents will be required to pay an impact fee per Resolution No. 38-04 to mitigate/off-set the incremental impact/demand on the City of Tehachapi's municipal water and sewer system. The project may also have an indirect impact on local schools and as such school impact fees will be paid prior to the issuance of building permits.

K. AIRPORT COMPATIBILITY

A small section of the subject site located north of the City's Waste Water Treatment Plant is located within Flight Zone C and the portion of the subject site located south of HWY 58 and north of Enterprise Way (approximately 400 feet) is located within Flight Zone B of the Kern County Airport Compatibility map. Kern County's Airport Land Use Compatibility Plan has established criteria in terms of uses that are considered to be "prohibitive", "normally acceptable", or "not normally acceptable". (Please refer to the Tehachapi Airport Compatibility Map as Attachment C and the Kern County Airport Land Use Compatibility Plan as Attachment D). In terms of airport mitigation, future projects will be subject to complying with the City's standard conditions of approval including the submittal of Form 7460-1 to the Federal Aviation Administration for review and approval, as determined by the Airport Manager, use of non-reflective materials on all building surfaces, and on-site lighting shall be shielded and directed downwards meeting the dark skies technology.

VICINITY MAP

Kern County
Online Mapping System

Vicinity Map
Annexation No. 85 Loop Ranch

Legend

1: 27,763

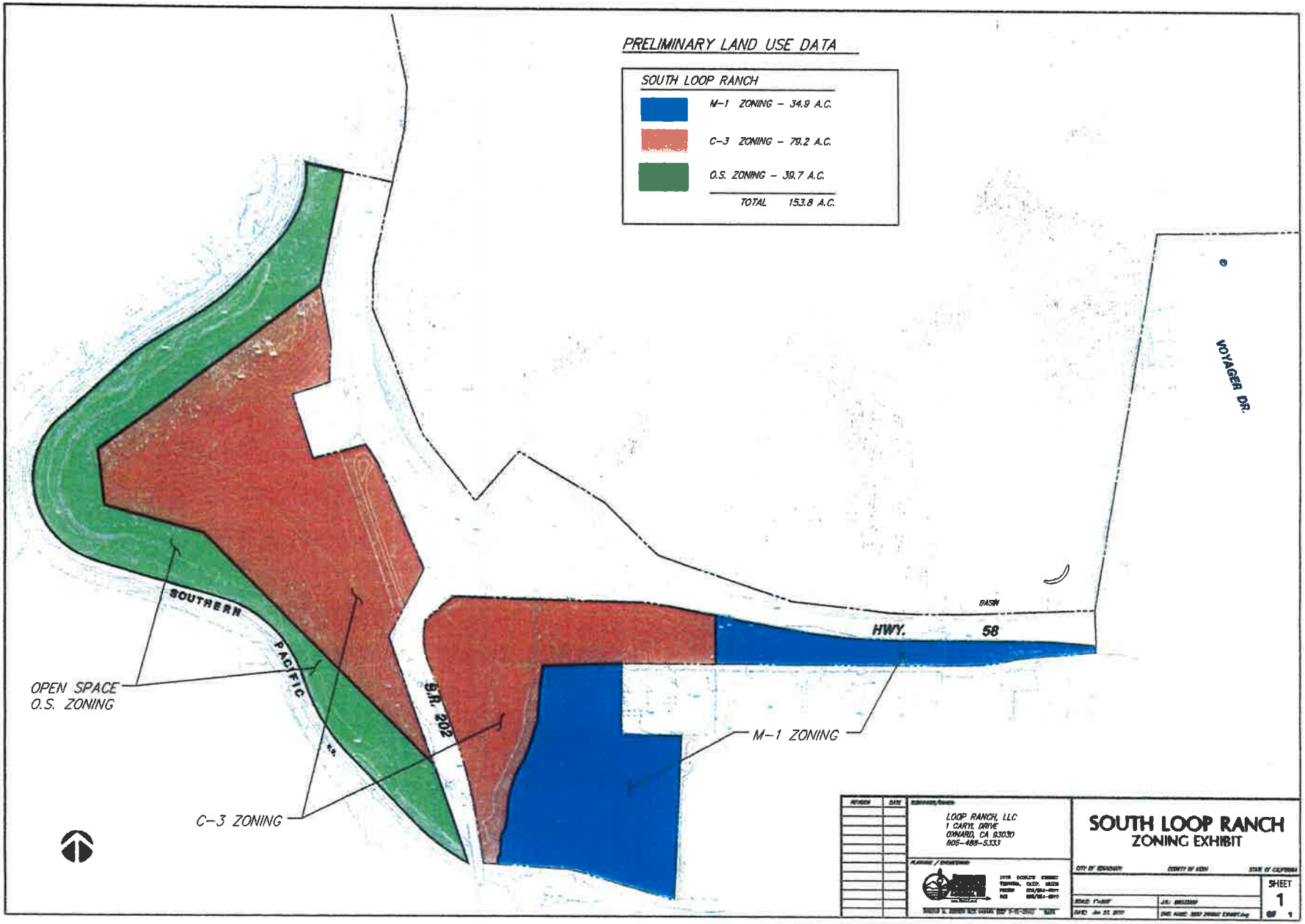
0.9 0 0.44 0.9 Miles

WGS_1984_Web_Mercator_Auxiliary_Sphere

Notes

Add notes here

PRE-ZONE MAP


PRELIMINARY LAND USE DATA
SOUTH LOOP RANCH
M-1 ZONING - 34.9 A.C.
C-3 ZONING - 79.2 A.C.
O.S. ZONING - 39.7 A.C.
TOTAL 153.8 A.C.
VOYAGER DR.
BASIN
HWY. 58
SOUTHERN PACIFIC R.R.
S.R. 202
OPEN SPACE
O.S. ZONING
M-1 ZONING
C-3 ZONING
LOOP RANCH, LLC
1 CARYL DRIVE
OXNARD, CA 93030
805-488-5333
SOUTH LOOP RANCH
ZONING EXHIBIT
SHEET
1

Annexation No. 85 and Pre-Zone Request of 34.9 acres to M-1(Light Industrial), 79.2 acres to C-3 (General Commercial) and 39.7 acres to OS (Open Space)
Summary of Potential Impacts and Proposed Mitigation Measures And Mitigation Monitoring Program

Impact	Mitigation Measure	Level of Significance After Mitigation	Monitoring Program Agency Responsibility
LAND USE AND PLANNING			
Potential conflict with applicable land use plan, policy or regulation of the City of Tehachapi.	The project is consistent with the policies of the General Plan which provide for orderly growth and development in the City in a manner that prevents this impact.	Less than significant	City of Tehachapi Community Development Department in conjunction with the development review process.
GEOLOGY/SEISMIC/SAFETY			
The subject is located in a seismically active area. The Garlock Fault is the design fault by which construction parameters are established in conjunction with the Uniform Building Code.	The project proponent is required to submit a geotechnical report for review by the City Engineer at the project submittal phase.	Less than significant	City of Tehachapi, City Engineer and City of Tehachapi Building Department.

Impact	Mitigation Measure	Level of Significance After Mitigation	Monitoring Program Agency Responsibility
WATER			
The annexation in and of itself will not have an impact on issues associated with water quality and/or availability of domestic water. However, the approval and eventual recordation of the proposed annexation will set the stage for future light industrial/commercial development. Build-out of these theoretical commercial uses could consume 100,139 gallons per day. The project individually or collectively when considered in conjunction with other known projects will exceed the City of Tehachapi's pumping rights of 1,847 af/year. However in addition to pumping rights, the City also has banked water reserves, carry overs and water transfers that when taken in the aggregate will provide sufficient water resources to accommodate future developments.	The applicant will be required to pay water connection fees per Resolution No. 38-04 to offset the cost of providing domestic water service and pay an equivalent in-lieu fee to offset water pumping right. Common areas will be irrigated using non-potable water and the use of drought tolerant and/or native plant species. The use of drought tolerant landscaping per the City standards will reduce water consumption related to irrigation.	Less than significant	City of Tehachapi Community Development Department. Payment of water connection fees at the building permit stage. Staff will review and approve landscape plans. City Staff to review all landscape plans for common area landscaping to confirm that appropriate plant materials are utilized. City of Tehachapi Building Department to enforce Title 24 regulations in conjunction with the building permit process to insure the use of low flush toilets and low flow showerheads.

Impact	Mitigation Measure	Level of Significance After Mitigation	Monitoring Program Agency Responsibility
SEWER			
The annexation in and of itself will not have an impact on issues associated with the generation of wastewater. However, the approval and eventual recordation of the proposed annexation will set the stage for future commercial development. Build-out of these theoretical uses could generate an estimated 91,375 gallons of wastewater per day. Treatment capacity is 1.25 million gallons per day advance secondly.	The applicant will pay a sewer connection fee per Resolution No. 38-04 to offset the incremental increase in wastewater generation at the building permit stage. In the event of a sewer and/or water capacity issue, the City reserves the right to withhold all building permits or otherwise limit the issuance of building permits until such time as its sewer and/or water system have been expanded to accommodate the existing and anticipated demand for those services.	Less than significant	City of Tehachapi Community Development Department. Sewer connection fees to be paid at the building permit stage. Plant operator to monitor plant capacity on an ongoing basis. In the event of a sewer and/or water capacity issue, the City reserves the right to withhold all building permits.
TRANSPORTATION AND CIRCULATION			
The annexation request will not in and of itself impact traffic circulation within the proposed area. However the approval of the annexation will set the stage for future commercial development. At full build out the project may generate approximately 16,933 vehicle trips per day.	The applicant will be subject to Regional Traffic Impact Fees in contributing to various regional improvements such as signal lights and road improvements at the development stage. Additionally, the applicant will be responsible for paying their fare share towards the construction cost of two (2) intersections off-site improvements.	Less than significant	City of Tehachapi Community Development Department.

Impact	Mitigation Measure	Level of Significance After Mitigation	Monitoring Program Agency Responsibility
BIOLOGICAL RESOURCES			
The proposed project could have an impact on known sensitive flora and fauna species in the region.	A Biological Resources Constraints Report dated February 2012 determined that there are no sensitive flora or fauna species on the proposed site.	No mitigation required	No monitoring required
PUBLIC SERVICES			
Future growth associated with the annexation could exceed the ability of the City to fund urban service and facilities such as fire, law enforcement, water and sewer demand and school facilities.	Impacts to fire and law will be mitigated through the payment of fees per Resolution No. 01-05. Impacts to sewer and water will be mitigated through the payment of fees per Resolution No. 38-04. Impacts to area schools will be paid through school impact fees in the amount to be determined by the Tehachapi Unified School District. Public Service mitigation fees are applicable at the development stage.	Less than significant	City of Tehachapi Community Development Department, City of Tehachapi Building Department and Tehachapi Unified School District.

Impact	Mitigation Measure	Level of Significance After Mitigation	Monitoring Program Agency Responsibility
CULTURAL RESOURCES			
The subject site is located within the ancestral home of the Kawaiisu cultural group. The development of the site could impact archaeological resources.	Several sites were recorded in the Archeological Survey dated 1990 however these sites are located in the area pre-zoned as Open Space prohibiting any future development or disturbance of the site. Mitigation measures listed in the Archeological Survey are required to be implemented to eliminate any potential impacts to these sites. Additionally, if resources are excavated during the construction phase, the project would be conditioned to cease grading and other construction activity until such time as the resources can be recovered and properly documented.	Less than significant	City of Tehachapi Community Development Department and Native American Heritage Commission if subsurface resources are discovered.
STORM WATER			
The annexation request will not impact the ground water. However, the approval of the annexation request will set the stage for future light industrial/commercial related land uses. Long term impacts associated with grading and the creation of impervious surfaces will increase the quantity of run off and potentially decrease water quality associated with urban pollutants.	In conjunction with the grading plan the applicant will be required to procure a National Pollution Discharge Elimination System Permit from the Regional Water Quality Control Board. The permit will require Storm Water Pollution Prevention Program (SWPP) for the control of erosion and sedimentation. Techniques to control erosion are often temporary sumps, sand bags and other devices that check and hold runoff. Excess run-off shall be conveyed to a regional storm drain system.	Less than significant	City of Tehachapi Community Development Director, Regional Water Quality Control Board and City Engineer.

Impact	Mitigation Measure	Level of Significance After Mitigation	Monitoring Program Agency Responsibility
AIR QUALITY			
The future development of the subject site for commercial and light industrial uses may cause a temporary increase in dust during grading activity. Long term air quality issues are associated with the incremental increase in traffic generation.	The project proponents will be required to water the sites down during the grading activity to keep fugitive dust to a minimum. The project proponents shall abide by the East Kern Air Pollution Control District requirements.	Less than significant	Future grading approval will be conditioned to keep site watered down during grading activity. City Engineer will monitor in conjunction with grading management.
AIRPORT COMPATIBILITY			
A small section of the project site is located within Flight Zones B1 and C of the Kern County Airport Compatibility Map	In terms of airport mitigation, the project applicant shall submit Form 7460-1 to the FAA as for review and approval prior to construction determined by the Airport Manager. Non-reflective materials are required on all building surfaces. Lighting on site shall be shielded and directed downward.	Less than significant	City of Tehachapi Community Development Department and the City's Airport Manager.

STATE OF CALIFORNIA
CIWMB-55 (9/97)

Closed Site Inspection Report

CALIFORNIA INTEGRATED WASTE MANAGEMENT BOARD

Enforcement Agency: Kern County Environmental Health Services Department

FACILITY FILE NUMBER	PROGRAM CODE (LOCAL = L STATE = S)	INSPECTION DATE (MM DD YY)	TIME IN / TIME OUT	INSPECTION TIME
15-CR-0084	L	1 27 04		1

FACILITY NAME: West Tehachapi Burn Dump	RECEIVED BY (OPERATOR)
FACILITY LOCATION: T33S R33E Sec 17, Hwy 58 x RTE 202 LAT. 35.1396N LON. 118.4665W	OWNER: Loop Ranch & KCWMD
INSPECTOR: William O'Rullian REHS — INSPECTOR SIGNATURE: William O'Rullian	ALSO PRESENT

THE ABOVE FACILITY WAS INSPECTED FOR COMPLIANCE WITH APPLICABLE SECTIONS OF DIVISION 30 OF THE PUBLIC RESOURCES CODE (PRC) and TITLE 27 CALIFORNIA CODE OF REGULATIONS (CCR).

THE STANDARDS BELOW ARE CONSIDERED IN COMPLIANCE UNLESS OTHERWISE MARKED WITH ONE OF THE FOLLOWING: V = VIOLATION A = AREA OF CONCERN NA = NOT APPLICABLE

SITES NOT SUBJECT TO ARTICLE 2 STANDARDS

	V	A	NA
20530 - SITE SECURITY			
20650 - GRADING OF FILL SURFACES			
20750 - SITE MAINTENANCE			
20790 - LEACHATE CONTROL			
20820 - DRAINAGE / EROSION CONTROL			
20830 - LITTER CONTROL			
20919 - GAS CONTROL			
21190(c) - POSTCLOSURE LAND USE			
OTHER			

RECEIVED FEB - 4 2004 CITY OF TEHACHAPI

COMMENTS (USE SWIS-03 FOR ADDITIONAL SPACE)

NO VIOLATIONS OR AREAS OF CONCERN

Comments:

1. Burn ash was consolidated in 2002. Ash is buried 8 feet + deep and is not subject to erosion, scavenging or drainage.

2. The site has been regraded in 2002, and drainage structures were installed. No evidence of ponding in 2004 over waste consolidation area.

3. The consolidation and grading project concerning the West Tehachapi Burn dump is part of a large scale commercial use project, wherein the consolidation area will be ultimately paved over for parking. No structures over ash consolidation is planned or approved.

4. The site is undergoing annexation by the City of Tehachapi.

SPACE FOR ADDITIONAL COMMENTS, DIAGRAMS, OR NOTES.

DISTRIBUTION: TOP - CIWMB MIDDLE - EA BOTTOM - OPERATOR

ATTACHMENT A

STATE OF CALIFORNIA
CIWMB-55 (9/97)

Closed Site Inspection Report

RECEIVED
CALIFORNIA INTEGRATED WASTE MANAGEMENT BOARD
JUN - 1 2004

Enforcement Agency: Kern County Environmental Health Services Department

FACILITY FILE NUMBER	PROGRAM CODE (LOCAL = L STATE = S)	INSPECTION DATE (MM DD YY)	TIME IN / TIME OUT	INSPECTION TIME
15-CR-0084	L	3 29 04	CITY OF TEHACHAPI	1

FACILITY NAME: West Tehachapi Burn Dump	RECEIVED BY (OPERATOR)
FACILITY LOCATION: T33S R33E, Sec 17; Hwy 58 & Rte 202	OWNER: John S. Broome
INSPECTOR: William O'Rullian REHS	INSPECTOR SIGNATURE: William O'Rullian / ALSO PRESENT

THE ABOVE FACILITY WAS INSPECTED FOR COMPLIANCE WITH APPLICABLE SECTIONS OF DIVISION 30 OF THE PUBLIC RESOURCES CODE (PRC) and TITLE 27 CALIFORNIA CODE OF REGULATIONS (CCR).

THE STANDARDS BELOW ARE CONSIDERED IN COMPLIANCE UNLESS OTHERWISE MARKED WITH ONE OF THE FOLLOWING: V = VIOLATION A = AREA OF CONCERN NA = NOT APPLICABLE

SITES NOT SUBJECT TO ARTICLE 2 STANDARDS

	V	A	NA
20530 - SITE SECURITY			
20650 - GRADING OF FILL SURFACES			
20750 - SITE MAINTENANCE			
20790 - LEACHATE CONTROL			
20820 - DRAINAGE / EROSION CONTROL			
20830 - LITTER CONTROL			
20919 - GAS CONTROL			
21190(c) - POSTCLOSURE LAND USE			
OTHER			

COMMENTS (USE SWIS-03 FOR ADDITIONAL SPACE)

NO VIOLATIONS OR AREAS OF CONCERN

Comments:

1. Burn ash was consolidated and covered at a depth of 8 feet. (2002)
2. No evidence of scavenging, erosion or ponding has occured since the closure/regrading project in 2002.
3. A settlement agreement was entered between the County of Kern and John S. Broome trustee of the Broome Family Trust on March 2, 2004, concerning the West Tehachapi Burn Dump Remediation Project.
4. The LEA will prepare a Site Identification Project and request annual inspection of this facility.

SPACE FOR ADDITIONAL COMMENTS, DIAGRAMS, OR NOTES.

DISTRIBUTION: TOP - CIWMB MIDDLE - EA BOTTOM - OPERATOR

ATTACHMENT B

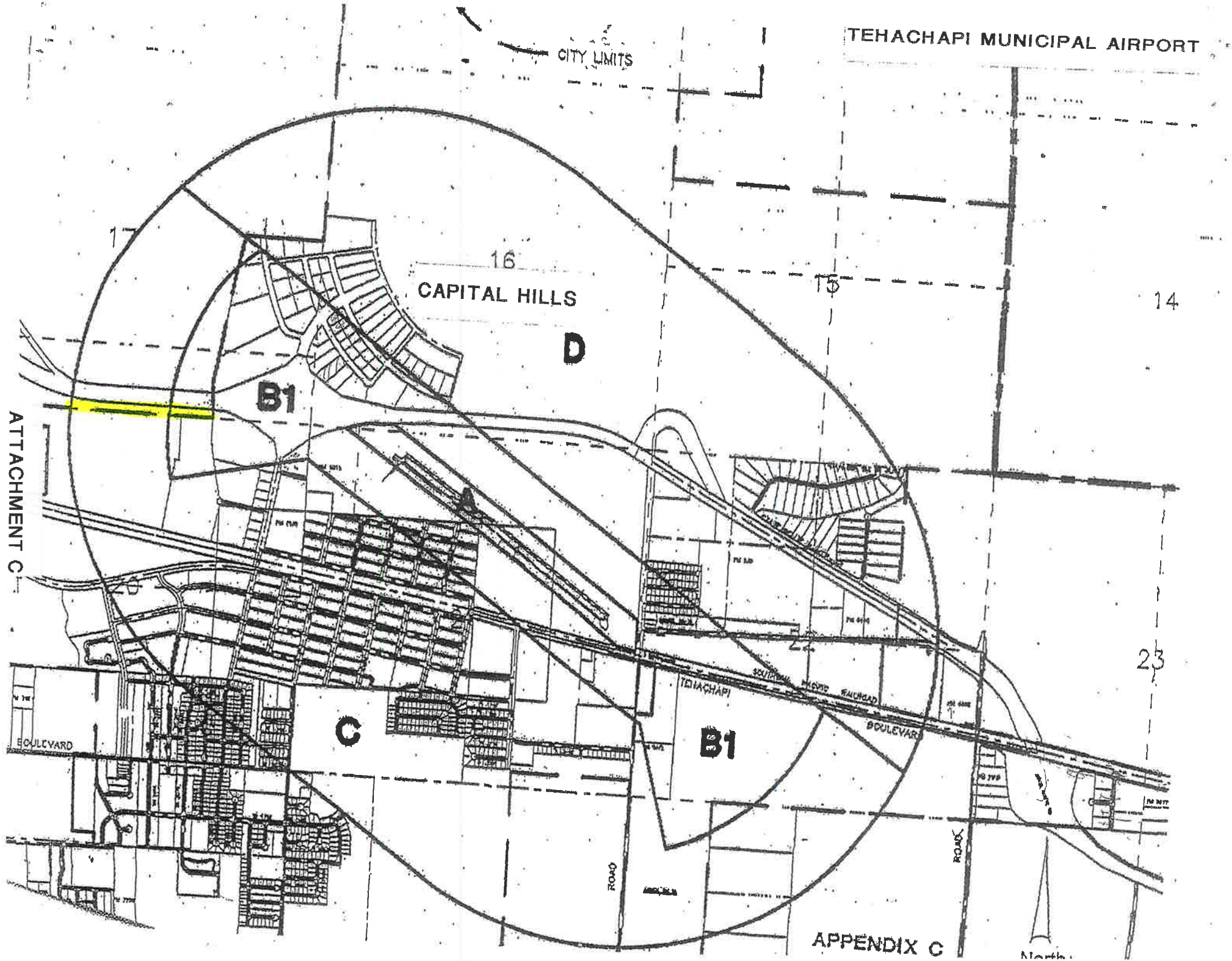

CITY LIMITS
TEHACHAPI MUNICIPAL AIRPORT
16
CAPITAL HILLS
15
14
D
B1
C
B1
23
TEHACHAPI
BOULEVARD
BOULEVARD
ROAD
ROAD
APPENDIX C
ATTACHMENT C

Table 2A

Compatibility Criteria

Kern County Airport Land Use Compatibility Plan

Zone	Location[1]	Impact Elements	Maximum Densities		Required Open Land[3]
			Residential[2] (du/ac)	Other Uses (people/ac)[3]	
A	Runway Protection Zone or within Building Restriction Line	• High risk • High noise levels	0	10	All Remaining
B1	Approach/Departure Zone and Adjacent to Runway	• Substantial risk — aircraft commonly below 400 ft. AGL or within 1,000 ft. of runway • Substantial noise	0.1	60	30%
B2	Extended Approach/Departure Zone	• Significant risk — aircraft commonly below 800 ft. AGL • Significant noise	0.5	60	30%
C	Common Traffic Pattern	• Limited risk — aircraft at or below 1,000 ft. AGL • Frequent noise intrusion	15	150	15%
D	Other Airport Environs	• Negligible risk • Potential for annoyance from overflights	No Limit	No Limit	No Requirement

Zone	Additional Criteria		Examples	
	Prohibited Uses[4]	Other Development Conditions[4]	Normally Acceptable Uses[7]	Uses Not Normally Acceptable[10]
A	• All structures except ones with location set by aeronautical function • Assemblages of people • Objects exceeding FAR Part 77 height limits • Hazards to flight[8]	• Dedication of aviga-tion easement	• Aircraft tiedown apron • Pastures, field crops, vineyards • Automobile parking	• Heavy poles, signs, large trees, etc.
B1 and B2	• Schools, day care centers, libraries • Hospitals, nursing homes • Highly noise-sensitive uses (e.g. amphi-theaters) • Storage of highly flammable materials[7] • Hazards to flight[5]	• Locate structures maximum distance from extended runway centerline • Dedication of aviga-tion easement	• Uses in Zone A • Any agricultural use except ones attracting bird flocks • Warehousing, truck terminals • Two-story offices • Single-family homes on an existing lot	• Residential subdivisions • Intensive retail uses • Intensive manufacturing or food processing uses • Offices with more than two stories • Hotels and motels
C	• Schools • Hospitals, nursing homes • Hazards to flight[6]	• Dedication of over-flight easement for residential uses	• Uses in Zone B • Parks, playgrounds • Most retail uses • Duplexes and medium-density apartments • Two-story motels	• Large shopping malls • Theaters, auditoriums • Large sports stadiums • Hi-rise office buildings with more than four stories
D	• Hazards to flight[5]	• Deed notice required for residential development	• All except ones hazardous to flight	

Source: Comprehensive Airport Land Use Plan (1996)

ATTACHMENT D

Zones / Land Use	Compatibility A	B1/B2	C	D
Residential and Institutional				
Rural Residential - 10 acres or more	–	+	+	+
Low Density Residential - 2 to 10 acre lots	–	0/+	+	+
Single Family Residential - lots under 2 acres	–	–	0	+
Multi Family Residential	–	–	0	+
Mobile Home Parks	–	–	0	+
Schools, Colleges and Universities	–	–	–	+
Day Care Centers	–	–	0	+
Hospitals and Residential Care Facilities	–	–	–	+
Recreational				
Golf Course	0	+	+	+
Parks - low intensity; no group activities	0	+	+	+
Playgrounds and Picnic Areas	–	0	+	+
Athletic Fields	–	0	+	+
Riding Stables	–	0	+	+
Marinas and Water Recreation	–	0	+	+
Health Clubs and Spas	–	–	0	+
Tennis Courts	–	0	+	+
Swimming Pools	–	0	0	+
Fairgrounds and Race Tracks	–	–	–	+
Resorts and Group Camps	–	–	0	+
Industrial				
Research and Development Laboratories	–	0	+	+
Warehouses and Distribution Facilities	–	0	+	+
Manufacturing and Assembly	–	0	0	+
Cooperage and Bottling Plants	–	0	+	+
Printing, Publishing and Allied Services	–	0	+	+
Chemical, Rubber and Plastic Products	–	–	0	+
Food Processing	–	–	0	+

– Incompatible
0 Potentially compatible with restrictions
+ Compatible

Zones / Land Use	Compatibility A	B1/B2	C	D
Commercial Uses				
Large Shopping Malls (500,000+ sq.ft.)	–	–	0	+
Retail Stores (one story)	–	0	0	+
Retail Stores (two story)	–	–	0	+
Restaurants and Drinking Establishments (no take out)	–	0	0	+
Food Take-Outs	–	–	0	+
Auto and Marine Services	–	0	+	+
Building Materials, Hardware and Heavy Equipment	–	0	+	+
Office Buildings (one story)	–	0	+	+
Multiple-story Retail, Office, and Financial	–	–	0	+
Banks and Financial Institutions	–	0	+	+
Repair Services	–	0	+	+
Gas Stations	–	0	+	+
Government Services/Public Buildings	–	0	+	+
Motels (one story)	–	0	0	+
Hotels and Motels (two story)	–	–	0	+
Theaters, Auditoriums, and Assembly Halls	–	–	0	+
Outdoor Theaters	–	–	0	+
Memorial Parks/Cemeteries	–	+	+	+
Truck Terminals	–	+	+	+
Transportation, Communications, and Utilities				
Automobile Parking	0	+	+	+
Highway & Street Right-of-ways	0	+	+	+
Railroad and Public Transit Facilities	0	+	+	+
Taxi, Bus & Train Terminals	–	0	+	+
Reservoirs	–	0	0	+
Power Lines	–	0	0	+
Water Treatment Facilities	–	0	+	+
Sewage Treatment and Disposal Facilities	–	0	0	+
Electrical Substations	–	0	0	+
Power Plants	–	–	0	+
Sanitary Landfills	–	–	–	0

– Incompatible
0 Potentially compatible with restrictions
+ Compatible

TRAFFIC IMPACT STUDY

Tehachapi Loop Ranch

East and West of Tucker Road
South of the SR-58 Freeway

City of Tehachapi, California

September 2, 2010

PREPARED FOR:

City of Tehachapi
115 South Robinson Street
Tehachapi, CA 93561

CTE CRENSHAW TRAFFIC ENGINEERING Traffic and Transportation Consulting

6025 Crestmore Street Bakersfield, CA 93308 Bus (661) 399-3027
Fax 661 399-0151 e-mail crenshaweng @hotmail.com

APPENDIX A

TRAFFIC IMPACT STUDY

Tehachapi Loop Ranch

East and West of Tucker Road
South of the SR-58 Freeway

City of Tehachapi, California

September 2, 2010

PREPARED FOR:

City of Tehachapi
115 South Robinson Street
Tehachapi, CA 93561

PREPARED BY:

Crenshaw Traffic Engineering

Wallace W. Crenshaw, P.E. TR # 0366

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TRAFFIC IMPACT STUDY

Tehachapi Loop Ranch

East and West of Tucker Road
South of the SR-58 Freeway

City of Tehachapi, California

September 2, 2010

I. INTRODUCTION

This traffic study has been prepared to determine the impact on the local roadway system from traffic generated by the proposed development of retail and industrial land uses on the east and west sides of Tucker Road, south of the SR-58 Freeway in the City of Tehachapi, California. The traffic (trips) estimated to be generated by this project has been added to the existing on-street traffic volumes and its impact has been analyzed on the existing and proposed street network at key intersections in the general vicinity of the site. Any future known traffic volumes from other developments have also been added to this scenario. The following material sets forth existing traffic counts, estimated trip generation, distribution of project related traffic and capacity analysis at the key intersections and street segments for projected conditions before and after the proposed mixed land use development is constructed.

II. EXISTING CONDITIONS

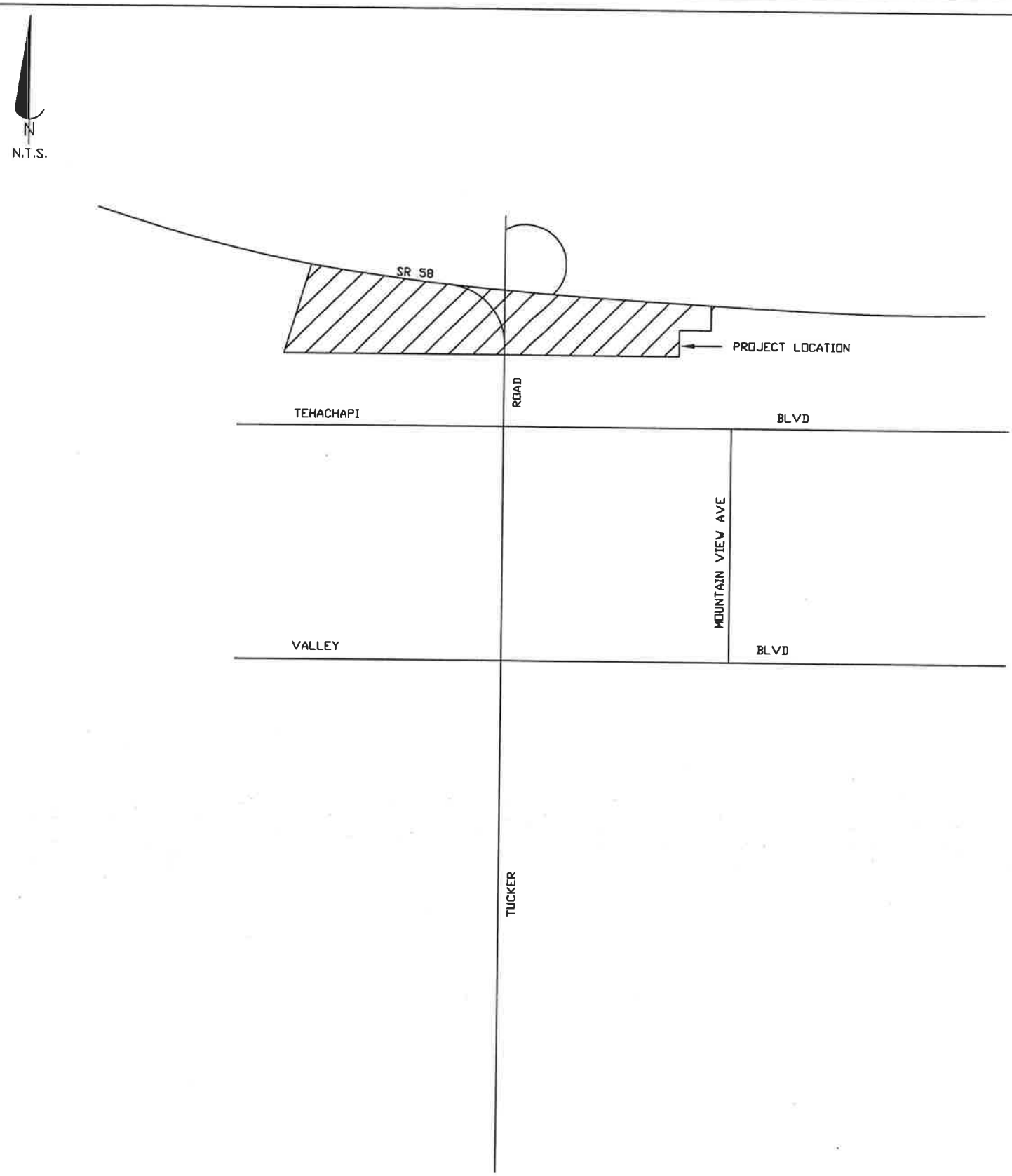
The project will accommodate retail and industrial park land uses. The site is presently undeveloped and vacant of structures.

Site Location

The proposed development is located in the City of Tehachapi, California on the east and west sides of Tucker Road, south of the SR-58 Freeway. Primary access to the site is expected to be via new on-site roadways connecting to Tucker Road. See Exhibits1and 2.

Traffic and Circulation

Regional access to this area is provided via the SR-58 freeway. The primary access to the site will be provided by Tucker road which has an interchange with the SR-58 freeway just north of the project site. Access to Tucker Road is also provided by Tehachapi Boulevard and Valley Boulevard. Tehachapi Boulevard and Valley Boulevard in turn, provide access to nearby commercial, educational, residential and employment centers.



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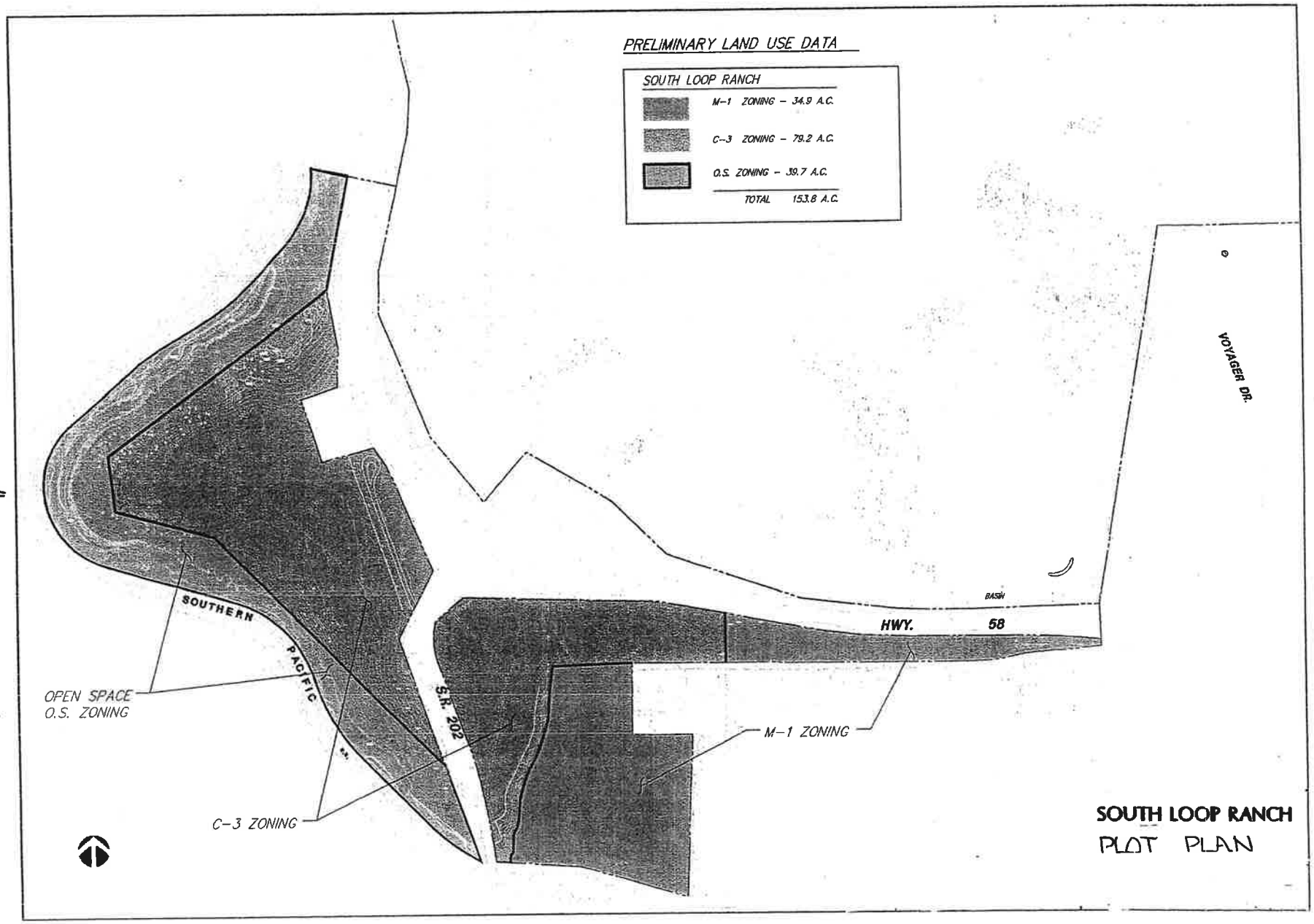
LOCATION PLAN

EXHIBIT 1


PRELIMINARY LAND USE DATA
SOUTH LOOP RANCH
M-1 ZONING - 34.9 A.C.
C-3 ZONING - 79.2 A.C.
O.S. ZONING - 39.7 A.C.
TOTAL 153.8 A.C.
VOYAGER DR.
SOUTHERN PACIFIC R.R.
S.R. 202
HWY. 58
BASIN
OPEN SPACE
O.S. ZONING
C-3 ZONING
M-1 ZONING
SOUTH LOOP RANCH
PLOT PLAN

Streets and Highways

The following is a summary description of the streets and highways which will serve the proposed project, and which could be affected by project traffic.

State Route 58 (SR-58) is an east-west 4 lane freeway in the Tehachapi area. It provides access to Mojave to the east and to the Bakersfield area to the west.

Tucker Road is a two/four lane north-south arterial that provides access to the SR-58 freeway to the north and to the many commercial land uses between Tehachapi Boulevard and Valley Boulevard.

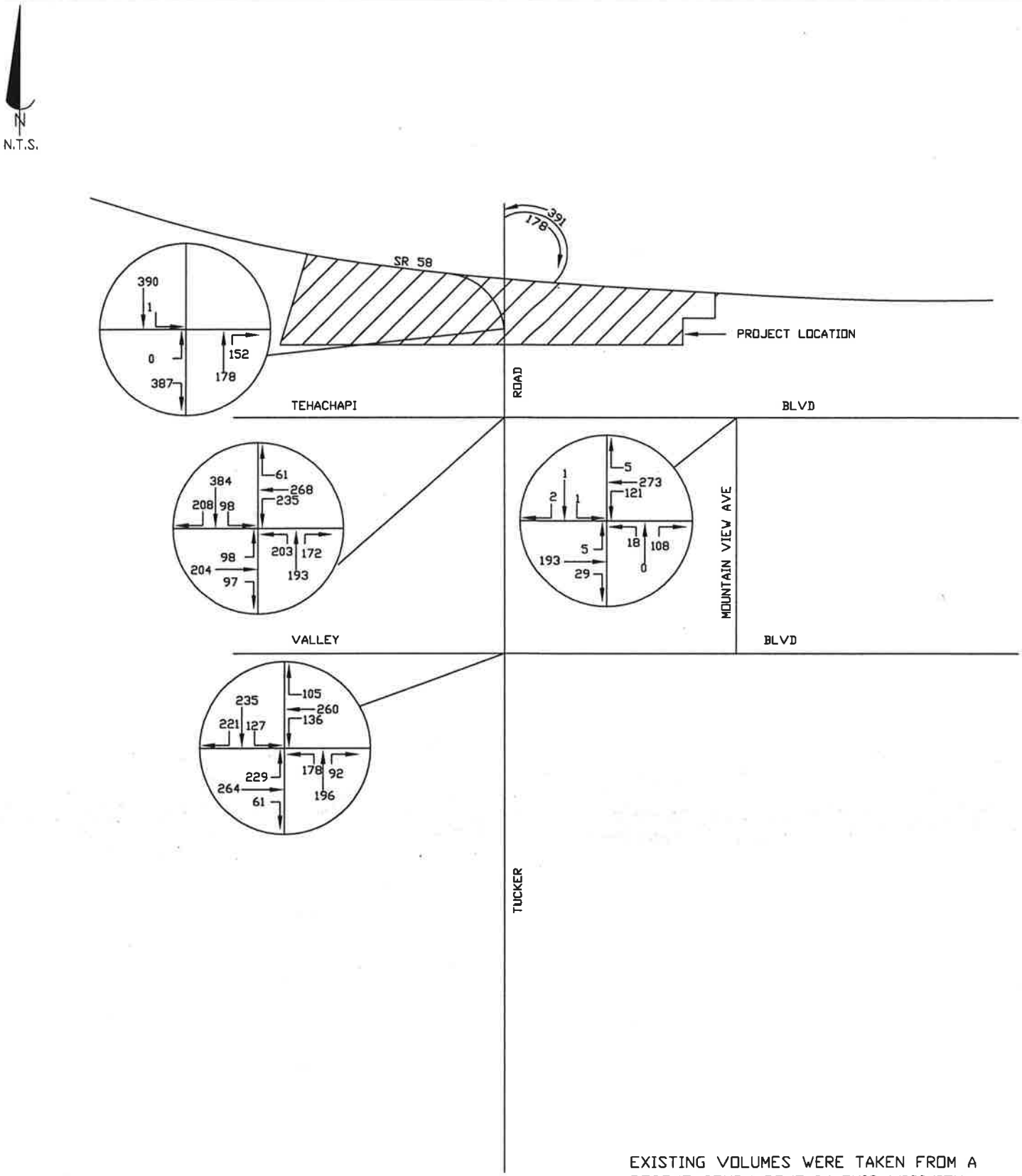
Tehachapi Boulevard is an east-west two lane divided arterial street in the vicinity of the site. It provides access to Golden Hills to the west and to the City of Tehachapi to the east.

Valley Boulevard is an east-west two lane divided arterial street in the vicinity of the site. It provides access to Bear Valley Springs to the west and to the City of Tehachapi to the east.

Recent Area Traffic Counts

Traffic volumes on major arterial thoroughfares in the area show typical peak periods associated with major streets in the Tehachapi area. The volumes show a peak during the morning commuter period, another peak during the noon hour, and a third peak during the evening commuter period.

Manual counts were conducted in December 2008 and January 2009 during the PM (i.e. 4-6 pm) peak period at the four study intersections to determine the peak hour turning movement volumes. These volumes are shown on Exhibit 3 and were used in the intersection operation, street segment and traffic signal warrant analyses.



EXISTING VOLUMES WERE TAKEN FROM A RECENT STUDY DONE IN THIS VICINITY WITH THE PERMISSION OF THE CITY OF TEHACHAPI

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PM PEAK HOUR DISTRIBTION
EXISTING VOLUMES

EXHIBIT 3

III. TRAFFIC GENERATION AND DISTRIBUTION

The proposed project includes 432,115 square feet (s.f.) of retail and 222,175 s.f .of industrial park land uses. The estimated peak hour and daily traffic volumes expected to be generated by the project were based on the data obtained from the Institute of Transportation Engineers (ITE), "Trip Generation", 2008, 8th Edition.

Table 1 lists the daily and peak hour generation factors and resulting trip ends for the several types of land uses in the proposed project. In accordance with the current Caltrans current policy, the traffic daily and peak hour volumes generated by the project's retail land uses were reduced by 15 percent to reflect the diversion of existing (i.e. pass by) traffic on the adjacent streets. The adjusted project traffic volumes were then reduced by an additional 5 percent to account of internal capture of trips (i.e. trips between the project's two land uses). Table 1 shows that at full build out, it is estimated that this project will generate a total of 16,933 new vehicular trip ends per day. Table 1 also shows an increase of 394 vehicles arriving and 349 leaving the site during the AM peak hour and an increase of 511 vehicles arriving and 617 departing during the PM peak hour.

The expected project-related traffic volumes were distributed onto the local roadway system based on manual count data, observations of peak hour traffic movements, the characteristics of the nearby road system, and the population distribution of the region. Exhibit 4 shows percentage of regional distribution of project traffic. Exhibit 5 shows the project related traffic distribution on the local roadway system during the PM peak hour.

TABLE 1
TRIP GENERATION-MIXED LAND USE

Specialty Retail (ITE Land Use Code # 814)

432,115 Square Feet			
Average Total Daily Trips:	Factor	44.32 Trips/TSF	
	Volume	19,151 Trips per Day	
(Reduce by 15% for Pass By)		16,278 Trips per Day	
AM Peak Hour Trips:	Factor	1.62 Trips/TSF	
(44% in; 56% out)	Total Volume	700 Trips AM Peak Hour	
	Volume In	308	(262)
	Volume Out	392	(333)
(Reduce by 15% for Pass By)			
PM Peak Hour trips:	Factor	2.71 Trips/TSF	
(50% in; 50% out)	Total Volume	1,171 Trips PM Peak Hour	
	Volume In	586	(498)
	Volume Out	585	(498)
(Reduce by 15% for Pass By)			

Industrial Park (ITE Land Use Code # 130)

222,175 Square Feet			
Average Total Daily Trips:	Factor	6.96 Trips/TSF	
	Volume	1,546 Trips per Day	
AM Peak Hour Trips:	Factor	0.84 Trips/TSF	
(82% in; 18% out)	Total Volume	187 Trips AM Peak Hour	
	Volume In	153	
	Volume Out	34	
PM Peak Hour trips:	Factor	0.86 Trips/TSF	
(21% in; 79% out)	Total Volume	191 Trips PM Peak Hour	
	Volume In	40	
	Volume Out	151	

TABLE 1 (Continued)
TRIP GENERATION-MIXED LAND USE

PROJECT TOTALS

	Total	Adjusted for Pass By*	Adjusted for Internal Capture
Average Total Daily Trips	29,697	17,884	16,933
AM Peak Hour In	461	415	394
AM Peak Hour Out	426	367	349
PM Peak Hour In	626	538	511
PM Peak Hour Out	736	649	617

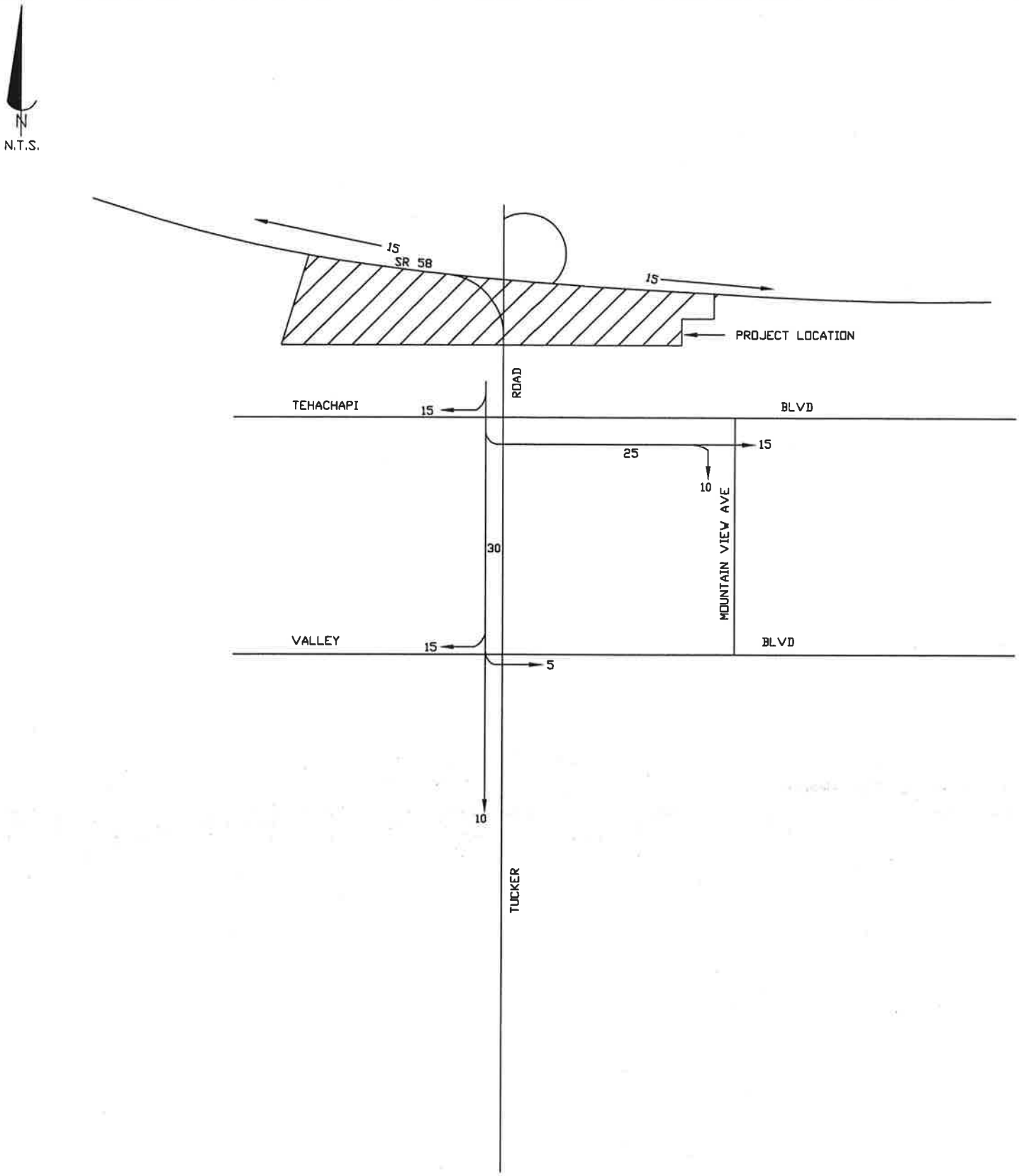
Notes: Based on rates in ITE's "Trip Generation", 8th Edition, 2008

TSF-thousand square feet of floor area

In accordance with Caltrans policies, retail daily and peak hour trip generation volumes were reduced by 15 percent to reflect pass by traffic.

The adjusted total was then reduced by 5 percent to reflect internal capture of trips (i.e. trips between the several land uses in the project).

* Specialty Retail trips only



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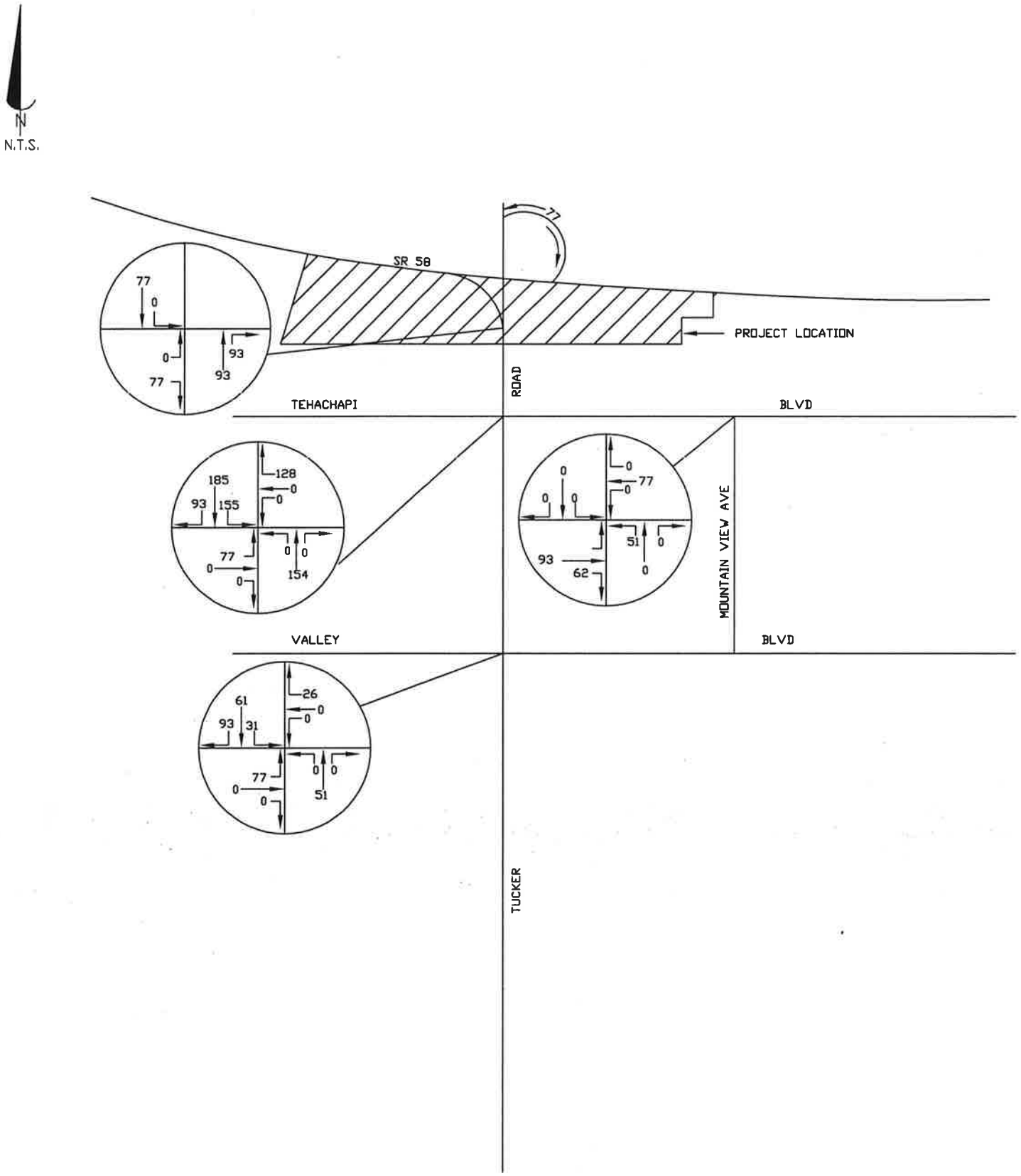
PM PEAK HOUR PERCENT PROJECT DISTRIBUTION

EXHIBIT 4



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PM PEAK HOUR DISTRIBUTION
PROJECT VOLUMES

EXHIBIT 5

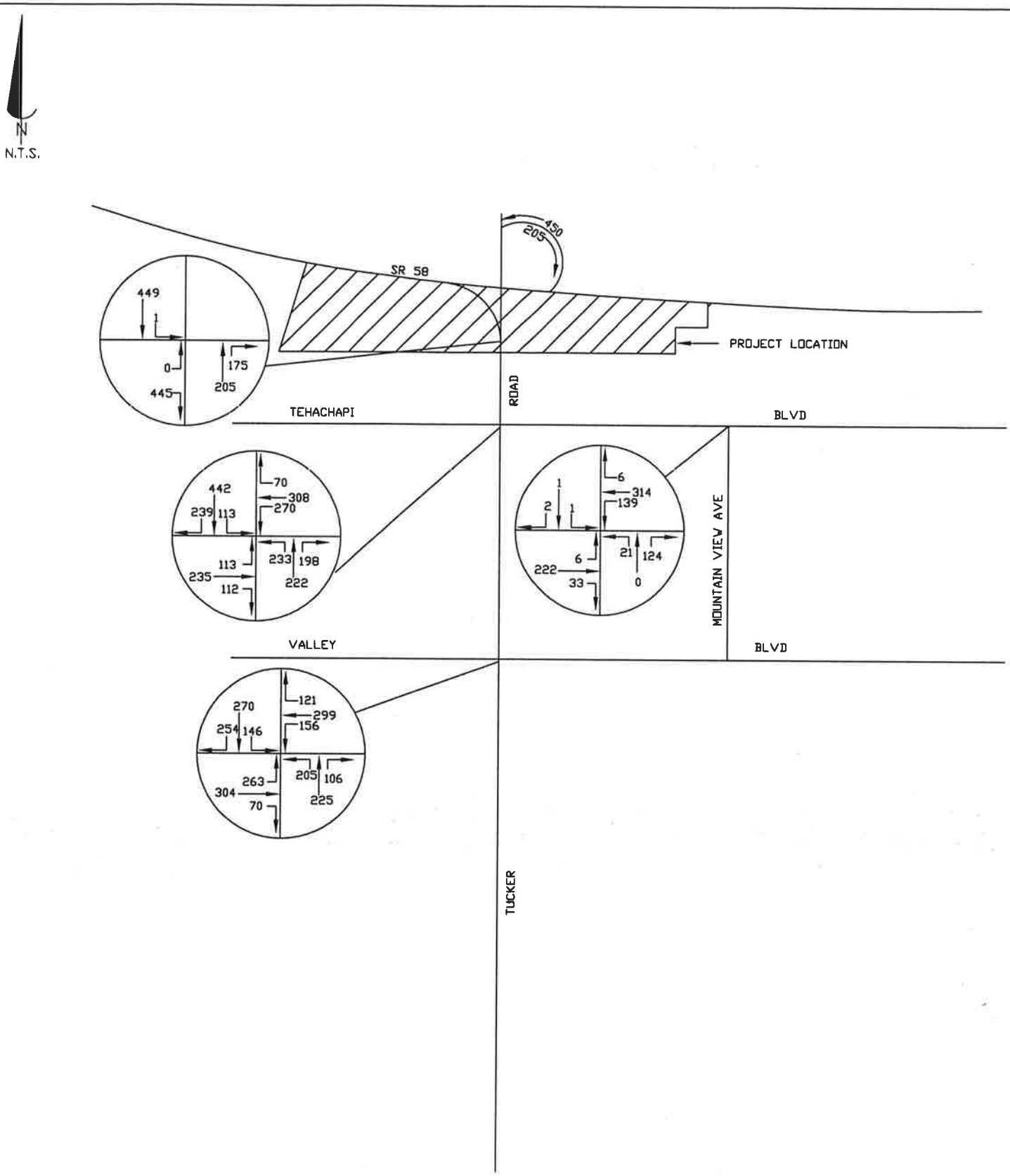
Other Known Projects and Growth Rate

In accordance with the City of Tehachapi requirements, the impact of project generated traffic was evaluated in the year 2015 (the expected year of project build out) and in the year 2035.

To reflect future development in the vicinity of the project an ambient growth rate (i.e. 2.0 percent per year) was used to establish the year 2015 and year 2035 background volumes (i.e. without the project traffic).

The future PM peak hour trips generated with the growth factor are titled "Future Year 2015 Without Project" (Exhibit 6) and "Future Year 2035 Without Project" (Exhibit 8).

The future PM peak hour volumes with project added are shown on Trip Distribution maps, Exhibit 7 for year 2015 and Exhibit 9 for 2035.



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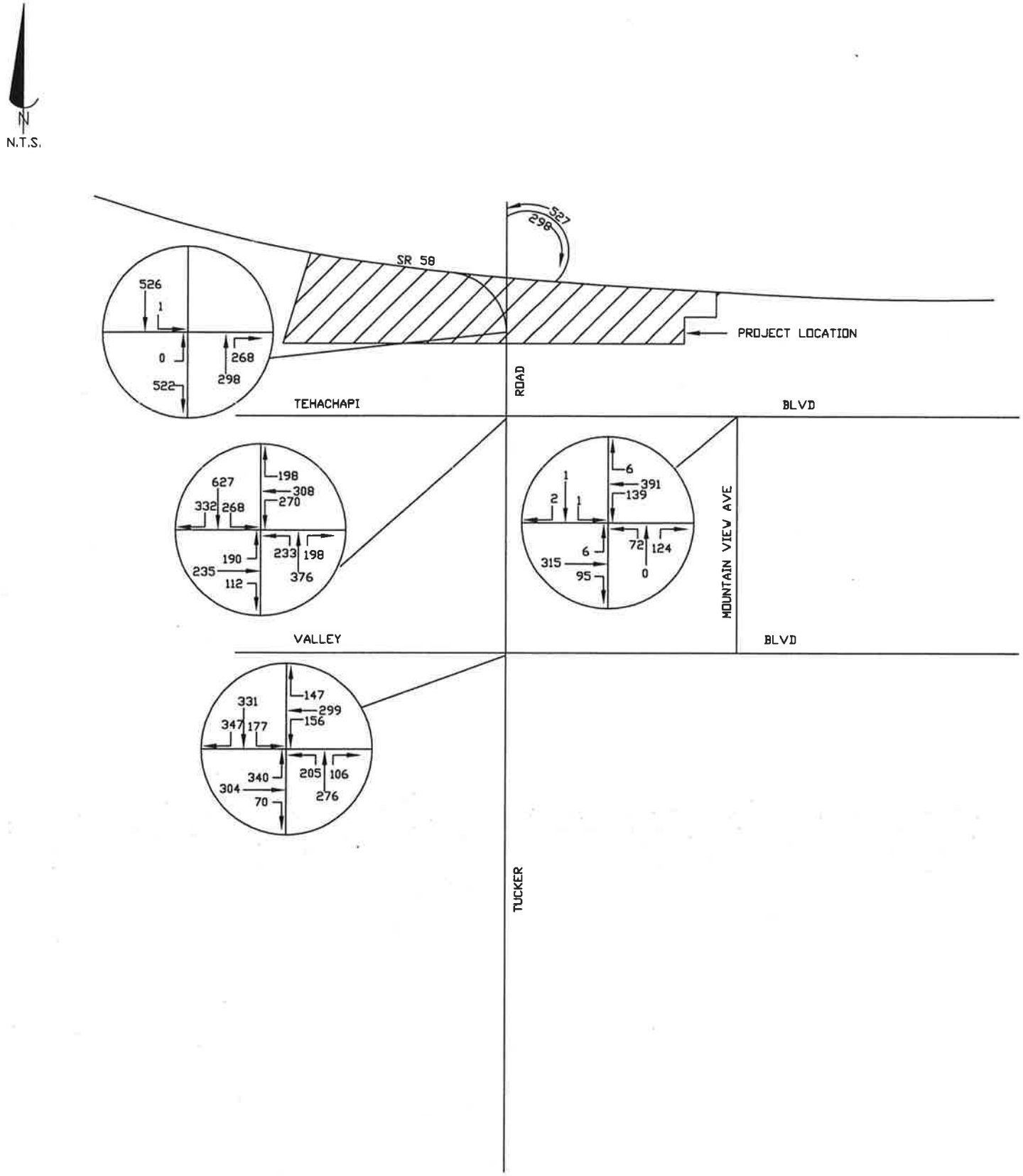
PM PEAK HOUR DISTRIBUTION
2015 WITHOUT PROJECT

EXHIBIT 6



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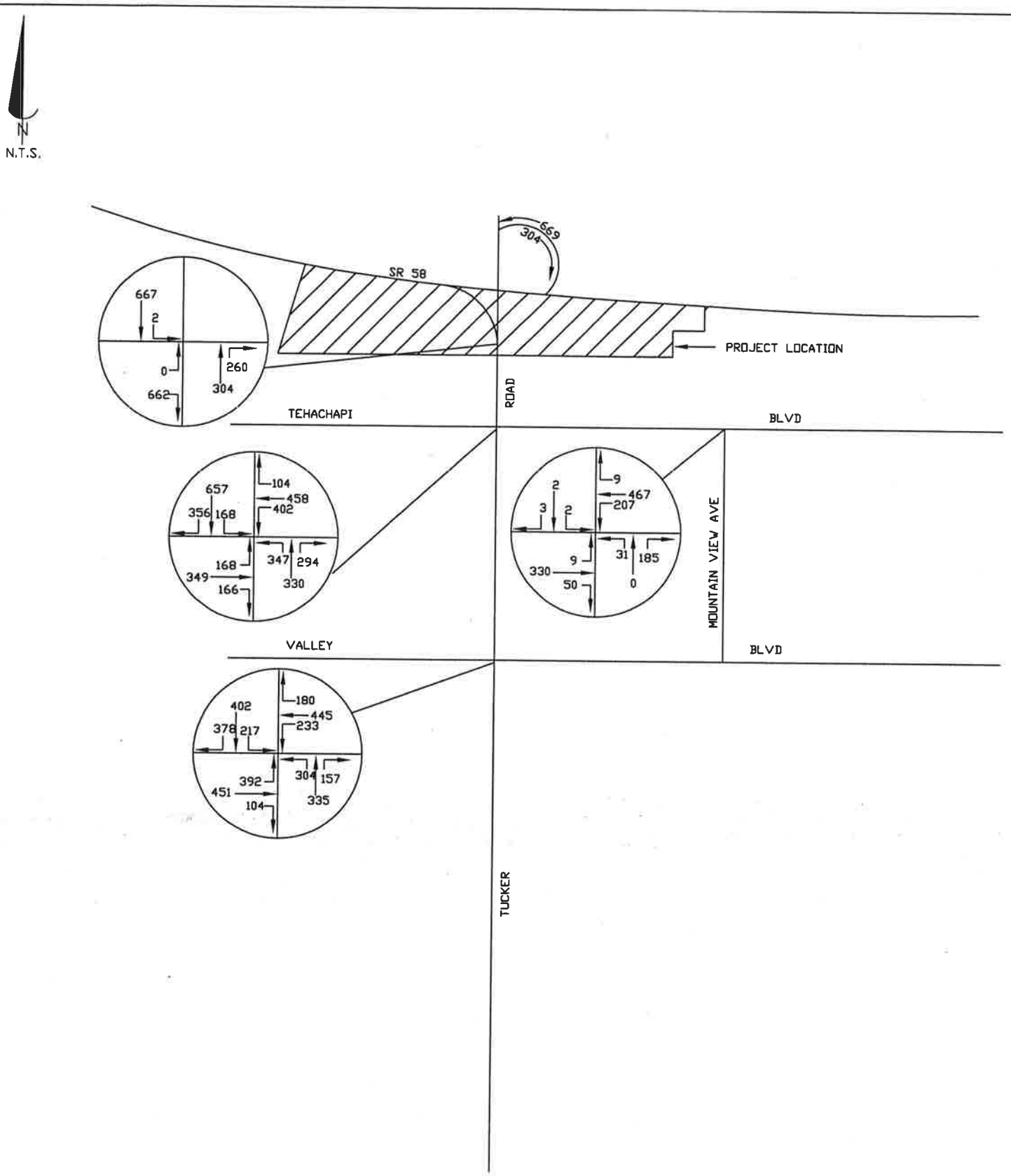
PM PEAK HOUR DISTRIBUTION
2015 WITH PROJECT

EXHIBIT 7



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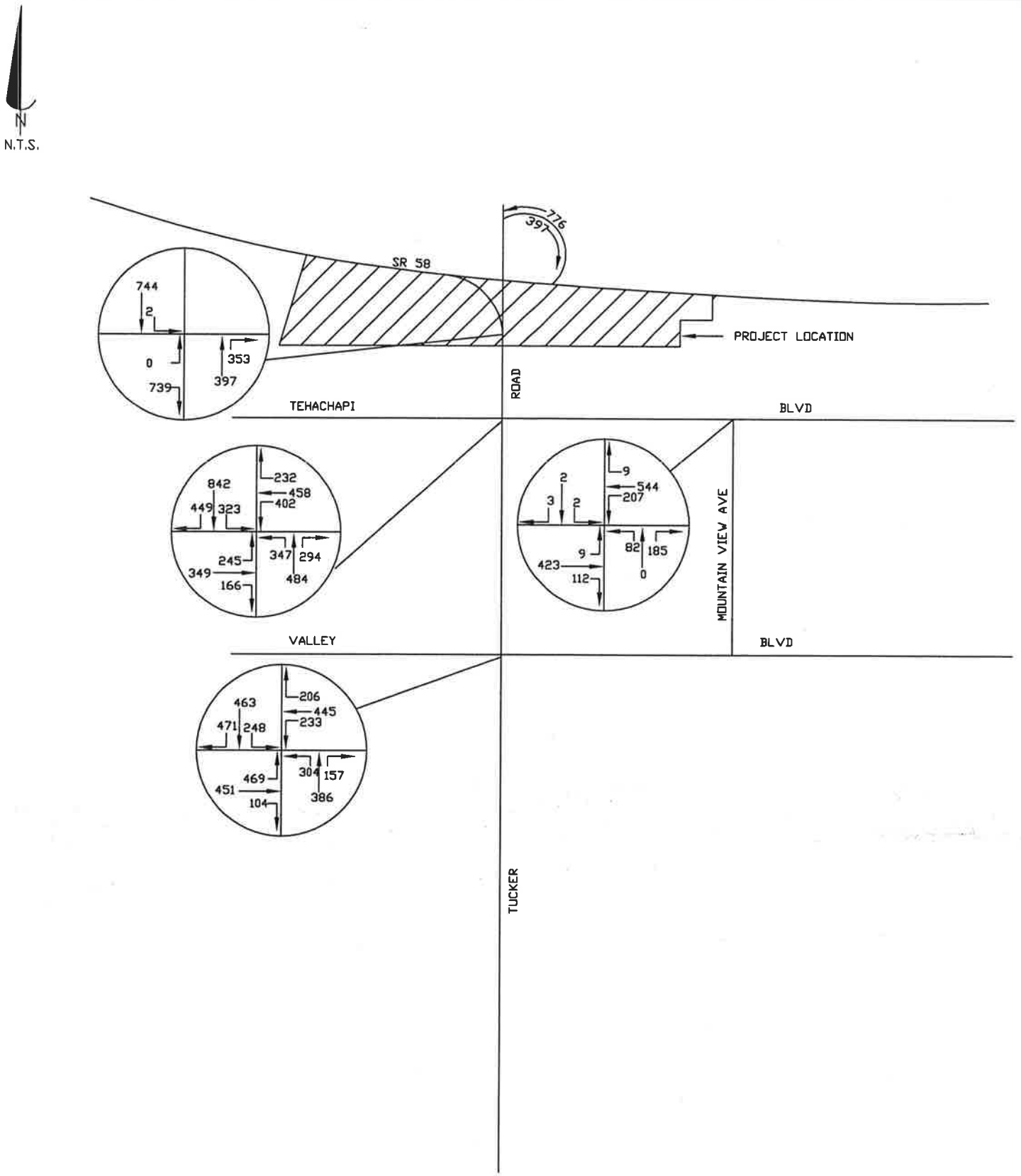
PM PEAK HOUR DISTRIBUTION
2035 WITHOUT PROJECT

EXHIBIT 8



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AM PEAK HOUR DISTRIBUTION
2035 WITH PROJECT

EXHIBIT 9

IV. TRAFFIC ANALYSIS AND IMPACT

The traffic impact analysis is based on the following assumptions:

1. The proposed development will be completed by 2015.
2. The primary access to and from the site will be off of Tucker Road.
3. The actual PM peak hour traffic conditions are appropriate for the analysis.

Intersection Analysis

The intersection analysis was based on the existing number of approach lanes, the existing traffic control devices and the PM peak hour turning movement volumes at these key intersections:

Tucker Road/SR-58 Eastbound Ramps
Tucker Road/Tehachapi Boulevard
Tucker Road/Valley Boulevard
Tehachapi Boulevard/Mountain View Avenue

Level of Service

Intersections

The capacity and level of service (LOS) of the study intersections was determined for existing conditions and conditions in year 2015 and 2035 both with and without the project, using the 2000 Highway Capacity Manual method for signalized and un-signalized intersections. Table 2 summarizes the tabulation of Levels of Service. (The worksheets are included in the Appendix).

As noted on Table 2, the study intersections are currently operating at LOS C or better during the PM peak hour.

TABLE 2
PM PEAK HOUR LEVELS OF SERVICE (LOS)
INTERSECTIONS

INTERSECTION	Exist Volume	2015 w/o Proj	2015 w/Proj	2035 w/o Proj	2035 w/Proj	With Mitigation
Unsignalized Intersections						
Two Way Stop Intersections						
Tucker Road/SR 58 EB Ramps						
S/B	A	A	A	A	A	* With Modifications
E/B	B	C	C	E/-	_	See Page 27
Tehachapi Blvd/Mountain View Ave						
EB	A	A	A			
WB	A	A	A			* With Improvements
N/B	B	B	D			See Page 27
S/B	B	C	C			
Signalized Intersection LOS			C*	C	C	
Signalized Intersections						
Tucker Road/Tehachapi Blvd Intersection LOS	C	D/C*	D/C**	D/C**	D/C**	* With Modifications See Page 26 ** With Modifications See Page 27
Tucker Road/Valley Blvd Intersection LOS	C	D/C*	D/C**	D/C**	D/C**	*With Modifications See Page 27 **With Modifications See Page 28

Traffic Signal Warrant Analysis

The PM peak hour volumes at the two STOP sign controlled study intersections were compared with the minimums needed to satisfy the California Manual on Uniform Traffic Control Devices (MUTCD) Peak Hour Signal Warrant for the following scenarios:

Existing Conditions-Year 2008

Year 2015 w/o Project

Year 2015 with Project

Year 2035 w/o Project

Year 2035 with Project

The results are summarized in Table 3 and show that the Peak Hour warrant is satisfied for Year 2035 with Project conditions at Tehachapi Boulevard/Mountain View Avenue. If an intersection meets the signal warrant, worksheets for subsequent scenarios were not created.

Notes:

1. The Peak Hour Traffic Signal Warrant requires a minimum of 300 vehicles on the major street (total of both directions) and 75 vehicles per hour on the highest volume minor street approach. If the approach volumes were less than these minimums, a signal warrant worksheet was not created.)
2. Caltrans typically does not include the minor street right turn volumes in the signal warrant analysis.

TABLE 3
SIGNAL WARRANT ANALYSIS
PM PEAK HOUR VOLUMES

INTERSECTION	2008 Existing Volumes	2015 w/o Project Volumes	2015 w/Project Volumes	2035 w/o Project Volumes	2035 w/Project Volumes
	PEAK HOUR SIGNAL WARRANT SATISFIED				
Tucker Road/ SR 58 EB Ramps	No	No	No	No	No
Tehachapi Blvd/ Mountain View Ave	No	No	No	No	Yes*

* Worksheet in Appendix

Street Segment Analysis

Descriptions of Assumed Roadway Capacities

The capacity of a roadway is affected by a number of factors, including the width of the roadway, the number of crossing arterials and collectors, the amount of green time given to the street at each signal, the presence or absence of on-street parking, the number of turning lanes at each intersection and the number of driveways.

An urban major arterial provides higher capacity than a normal major arterial does. The higher capacity accounts for higher geometric standards, fewer access points to abutting properties, greater running speed as a result of signal coordination, raised curb median islands, and wider travel lanes. Level of Service "E" is considered to be the ultimate capacity of the street.

Arterial Operations

Table 4 contains a complete capacity analysis of existing volumes for all of the major and minor arterials in the general vicinity of the project. For each arterial and its various distinct segments, this table identifies the facility type and the levels of service.

As noted in Table 4, the arterial network in the general vicinity of the project currently operates at Level of Service "D" or better during the PM peak hour.

Future without Project

This section describes the future circulation and operating conditions and potential capacity deficiencies in the study area, based on the forecast volumes without the project, to year 2015 (build out) and 2035. Table 4 depicts the results of this analysis.

Future with Project

In order to assess the effect of developing this project on the highway system, the volume, generated by the development, were added to the future without project (wp) volumes year 2015 and year 2035.

The capacity analysis for this scenario is shown in Table 4 entitled "Future With Project" (p). The analysis assumes that the same geometrical patterns that are now installed will be in place for future years 2015 and 2035.

TABLE 4
PM PEAK HOUR LEVELS OF SERVICE (LOS)
STREET SEGMENTS

	Striping/ Geometrics	Facility Type		LOS	
Tucker Road				**Two-Way**	
From SR-58 EB Ramps	2 Lane	Undivided	Existing	D	
To Tehachapi Blvd		Arterial	2015 wp	D	
			2015 p	E	
			2035 wp	E	
			2035 p	E	
				SB	**NB**
From Tehachapi Blvd	4 Lane	Divided	Existing	A	A
To Valley Blvd		Arterial	2015 wp	A	A
			2015 p	A	A
			2035 wp	B	A
			2035 p	B	B
Tehachapi Blvd				**Two-Way**	
From Tucker Road	2 Lane	Undivided	Existing	C	
To Mountain View Avenue		Arterial	2015 wp	C	
			2015 p	D	
			2035 wp	D	
			2035 p	D	

wp- Does not include project traffic
p- Includes project traffic

V. MITIGATION MEASURES

Year 2015

Street Construction

Construct the adjacent street improvements along Tucker Road to the satisfaction of the City of Tehachapi and Caltrans.

Off-Site Improvements

Table 2 shows that several off-site improvements will be needed to result in acceptable levels of service (i.e. LOS C or better) for Year 2015 conditions at the following locations:

- Tucker Road/Tehachapi Boulevard-Background conditions will require the provision of a 2nd westbound left turn lane on Tehachapi Boulevard and the conversion of both Tehachapi Boulevard approaches from one through and one right turn lane to one through and one through/right turn lane. The addition of project traffic will require the provision of a 2nd left turn lane on both Tucker Road approaches.

- Tucker Road/Valley Boulevard-Background conditions will require the conversion of both Valley Boulevard approaches from one left, one through and one right turn lane to one left, one through and one

through/right turn lane. The addition of project traffic will require the provision of a 2nd eastbound left turn lane on Valley Boulevard.

- Tehachapi Boulevard/Mountain View Avenue/Valley Boulevard-The addition of project traffic will require the installation of a traffic signal system.

VI. Year 2035

Table 2 also shows that additional improvements will be needed to result in acceptable levels of service (i.e. LOS C or better) for Year 2035 conditions at the following locations:

- Tucker Road/SR-58 EB Ramps-Background conditions will require the provision of a 2nd southbound lane (for a minimum of 500 feet) the allow the conversion of the eastbound right turn movement from the off ramp from the current Yield to a free right turn.

- Tucker Road/Tehachapi Blvd-Background conditions will require the provision of signal overlaps for northbound and southbound Tucker Road right turns and widening for the westbound approach to provide for a right turn lane. The addition of project traffic will require a 3rd through lane in each direction on Tucker Road and a 2nd eastbound left turn lane on Tehachapi Boulevard.

- Tucker Road/Valley Blvd-Background conditions will require the provision of a signal overlap for the southbound Tucker Road approach and for a 2nd northbound left turn lane on Tucker Road. The addition of project traffic will require the provision of a 2nd southbound left turn lane on Tucker Road and a 2nd westbound left turn lane on Valley Boulevard.

VII. CONCLUSIONS

This development should comply with all requirements of the Congestion Management Plan for the City of Tehachapi. This may include, but is not limited to: trip reduction, deficiency plan, traffic and public transportation requirements and improvements, and impact fees as applicable.

Although the following intersections are on the Regional Transportation Impact Fee list the proportionate share of Mitigation is as follows:

$$\frac{\text{Project Volume (PM Peak Hour)}}{\text{(PM Project Volume + Other Future Increases to Year 2035)}}$$

- Construct improvements at Tucker Road/SR-58 EB Ramps

$$\frac{340}{1{,}127} = 0.302 \times 100 = 30.2\%$$

- Install Traffic Signal at Tehachapi Blvd/Mountain View Ave

$$\frac{283}{820} = 0.345 \times 100 = 34.5\%$$

Proportionate share of Mitigation

This projects contribution to the construction cost of the off-site improvement not included in the Transportation Impact fee program as listed on page 26 through 28 are computed as follows:

- Construct improvements at Tucker Road/Tehachapi Blvd

$$\frac{792}{2{,}369} = 0.334 \times 100 = 33.4\%$$

- Construct improvements at Tucker Road/Valley Blvd

$$\frac{339}{1{,}833} = 0.185 \times 100 = 18.5\%$$

APPENDIX

INTERSECTION LEVELS OF SERVICE

TWO-WAY STOP CONTROL SUMMARY

General Information		Site Information	
Analyst	GRH	Intersection	Tucker Rd/SR58 EB Ramps
Agency/Co.	CTE	Jurisdiction	City of Tehachapi
Date Performed	8/27/2010	Analysis Year	2008
Analysis Time Period	PM Peak Hour		

Project Description: 2008 Existing Conditions

East/West Street: SR 58 EB Ramps | North/South Street: Tucker Road

Intersection Orientation: North-South | Study Period (hrs): 0.25

Vehicle Volumes and Adjustments

Major Street	Northbound			Southbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume (veh/h)		178	152	1	390	
Peak-Hour Factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90
Hourly Flow Rate, HFR (veh/h)	0	197	168	1	433	0
Percent Heavy Vehicles	2	--	--	2	--	--
Median Type	Undivided					
RT Channelized			0			0
Lanes	0	1	0	0	1	0
Configuration			TR	LT		
Upstream Signal		0			0	

Minor Street	Eastbound			Westbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume (veh/h)	0	0	194			
Peak-Hour Factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90
Hourly Flow Rate, HFR (veh/h)	0	0	215	0	0	0
Percent Heavy Vehicles	2	0	0	2	0	0
Percent Grade (%)		0			0	
Flared Approach		N			N	
Storage		0			0	
RT Channelized			1			0
Lanes	0	1	1	0	0	0
Configuration	LT		R			

Delay, Queue Length, and Level of Service

Approach	Northbound	Southbound	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration		LT				LT		R
v (veh/h)		1				0		215
C (m) (veh/h)		1194						627
v/c		0.00						0.34
95% queue length		0.00						1.52
Control Delay (s/veh)		8.0						13.7
LOS		A						B
Approach Delay (s/veh)	--	--						
Approach LOS	--	--						

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TWO-WAY STOP CONTROL SUMMARY

General Information

Analyst	GRH
Agency/Co.	CTE
Date Performed	8/27/2010
Analysis Time Period	PM Peak Hour

Site Information

Intersection	Tehachapi-Mountain View
Jurisdiction	City of Tehachapi
Analysis Year	2008

Project Description: 2008 Existing Conditions

East/West Street: Tehachapi Blvd | North/South Street: Mountain View Avenue

Intersection Orientation: East-West | Study Period (hrs): 0.25

Vehicle Volumes and Adjustments

Major Street	Eastbound			Westbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume (veh/h)	5	193	29	121	273	5
Peak-Hour Factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90
Hourly Flow Rate, HFR (veh/h)	5	214	32	134	303	5
Percent Heavy Vehicles	2	--	--	2	--	--
Median Type	Undivided					
RT Channelized			1			0
Lanes	1	2	0	1	1	0
Configuration	L	T	TR	L		TR
Upstream Signal		0			0	

Minor Street	Northbound			Southbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume (veh/h)	18	0	108	1	1	2
Peak-Hour Factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90
Hourly Flow Rate, HFR (veh/h)	20	0	120	1	1	2
Percent Heavy Vehicles	2	2	2	2	2	2
Percent Grade (%)		0			0	
Flared Approach		N			N	
Storage		0			0	
RT Channelized			0			0
Lanes	0	1	1	0	1	0
Configuration	LT		R		LTR	

Delay, Queue Length, and Level of Service

Approach	Eastbound	Westbound	Northbound			Southbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration	L	L	LT		R		LTR	
v (veh/h)	5	134	20		120		4	
C (m) (veh/h)	1249	1353	247		927		399	
v/c	0.00	0.10	0.08		0.13		0.01	
95% queue length	0.01	0.33	0.26		0.44		0.03	
Control Delay (s/veh)	7.9	8.0	20.9		9.5		14.1	
LOS	A	A	C		A		B	
Approach Delay (s/veh)	--	--	11.1			14.1		
Approach LOS	--	--	B			B		

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SHORT REPORT

General Information		Site Information	
Analyst	GRH	Intersection	Tucker Rd-Techachapi Bl
Agency or Co.	CTE	Area Type	All other areas
Date Performed	8/24/2010	Jurisdiction	City of Tehachapi
Time Period	PM Peak Hour	Analysis Year	2008 Existing Conditions

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of Lanes	1	1	1	1	1	1	1	2	1	1	2	1
Lane Group	L	T	R	L	T	R	L	T	R	L	T	R
Volume (vph)	98	204	97	235	268	61	203	193	172	98	384	203
% Heavy Vehicles	9	9	9	9	9	9	9	9	9	9	9	9
PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Pretimed/Actuated (P/A)	A	A	A	A	A	A	A	A	A	A	A	A
Startup Lost Time	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Extension of Effective Green	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Arrival Type	3	3	3	3	3	3	3	3	3	3	3	3
Unit Extension	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Ped/Bike/RTOR Volume	0	0	50	0	0	40	0	0	100	0	0	125
Lane Width	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0
Parking/Grade/Parking	N	0	N	N	0	N	N	0	N	N	0	N
Parking/Hour												
Bus Stops/Hour	0	0	0	0	0	0	0	0	0	0	0	0
Minimum Pedestrian Time		3.2			3.2			3.2			3.2	

Phasing	Excl. Left	Thru & RT	03	04	Excl. Left	Thru & RT	07	08
Timing	G = 16.4	G = 18.2	G =	G =	G = 14.7	G = 14.7	G = 0.0	G = 0.0
	Y = 4	Y = 4	Y =	Y =	Y = 4	Y = 4	Y = 0	Y = 0
Duration of Analysis (hrs) = 0.25						Cycle Length C = 80.0		

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
Adjusted Flow Rate	109	227	52	261	298	23	226	214	80	109	427	87
Lane Group Capacity	339	397	337	339	397	337	304	610	272	304	610	272
v/c Ratio	0.32	0.57	0.15	0.77	0.75	0.07	0.74	0.35	0.29	0.36	0.70	0.32
Green Ratio	0.20	0.23	0.23	0.20	0.23	0.23	0.18	0.18	0.18	0.18	0.18	0.18
Uniform Delay d_1	27.1	27.4	24.7	30.0	28.8	24.2	30.9	28.5	28.2	28.5	30.6	28.3
Delay Factor k	0.11	0.17	0.11	0.32	0.31	0.11	0.30	0.11	0.11	0.11	0.27	0.11
Incremental Delay d_2	0.6	2.0	0.2	10.4	7.8	0.1	9.5	0.4	0.6	0.7	3.6	0.7
PF Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Control Delay	27.6	29.4	25.0	40.4	36.6	24.3	40.4	28.8	28.8	29.3	34.2	29.0
Lane Group LOS	C	C	C	D	D	C	D	C	C	C	C	C
Approach Delay	28.3			37.8			33.8			32.6		
Approach LOS	C			D			C			C		
Intersection Delay	33.5			Intersection LOS						C		

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SHORT REPORT

General Information		Site Information	
Analyst	GRH	Intersection	Tucker Rd-Valley Blvd
Agency or Co.	CTE	Area Type	All other areas
Date Performed	8/24/2009	Jurisdiction	City of Tehachapi
Time Period	PM Peak Hour	Analysis Year	2008 Existing Conditions

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of Lanes	1	1	1	1	1	1	1	2	1	1	2	1
Lane Group	L	T	R	L	T	R	L	T	R	L	T	R
Volume (vph)	229	264	61	136	260	105	178	196	92	127	235	221
% Heavy Vehicles	9	9	9	9	9	9	9	9	9	9	9	9
PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Pretimed/Actuated (P/A)	A	A	A	A	A	A	A	A	A	A	A	A
Startup Lost Time	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Extension of Effective Green	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Arrival Type	3	3	3	3	3	3	3	3	3	3	3	3
Unit Extension	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Ped/Bike/RTOR Volume	0	0	30	0	0	50	0	0	40	0	0	100
Lane Width	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0
Parking/Grade/Parking	N	0	N	N	0	N	N	0	N	N	0	N
Parking/Hour												
Bus Stops/Hour	0	0	0	0	0	0	0	0	0	0	0	0
Minimum Pedestrian Time		3.2			3.2			3.2			3.2	

Phasing	Excl. Left	Thru & RT	03	04	Excl. Left	Thru & RT	07	08
Timing	G = 17.7	G = 24.3	G =	G =	G = 19.1	G = 16.9	G = 0.0	G =
	Y = 4	Y = 4	Y =	Y =	Y = 4	Y = 0	Y = 0	Y =
Duration of Analysis (hrs) = 0.25						Cycle Length C = 90.0		

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
Adjusted Flow Rate	254	293	34	151	289	61	198	218	58	141	261	134
Lane Group Capacity	326	471	400	326	471	400	351	623	278	351	623	278
v/c Ratio	0.78	0.62	0.09	0.46	0.61	0.15	0.56	0.35	0.21	0.40	0.42	0.48
Green Ratio	0.20	0.27	0.27	0.20	0.27	0.27	0.21	0.19	0.19	0.21	0.19	0.19
Uniform Delay d_1	34.3	28.8	24.5	32.0	28.7	25.0	31.7	31.8	30.9	30.5	32.2	32.6
Delay Factor k	0.33	0.21	0.11	0.11	0.20	0.11	0.16	0.11	0.11	0.11	0.11	0.11
Incremental Delay d_2	11.4	2.5	0.1	1.0	2.4	0.2	2.1	0.3	0.4	0.8	0.5	1.3
PF Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Control Delay	45.7	31.4	24.6	33.0	31.1	25.2	33.8	32.1	31.3	31.3	32.7	34.0
Lane Group LOS	D	C	C	C	C	C	C	C	C	C	C	C
Approach Delay	37.3			31.0			32.7			32.6		
Approach LOS	D			C			C			C		
Intersection Delay	33.5			Intersection LOS						C		

TWO-WAY STOP CONTROL SUMMARY

General Information

Analyst	GRH
Agency/Co.	CTE
Date Performed	8/31/2010
Analysis Time Period	PM Peak Hour

Site Information

Intersection	Tucker Rd/SR58 EB Ramps
Jurisdiction	City of Tehachapi
Analysis Year	2015

Project Description 2015 w/o Project

East/West Street: SR 58 EB Ramps | North/South Street: Tucker Road

Intersection Orientation: North-South | Study Period (hrs): 0.25

Vehicle Volumes and Adjustments

Major Street	Northbound			Southbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume (veh/h)		205	175	1	449	
Peak-Hour Factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90
Hourly Flow Rate, HFR (veh/h)	0	227	194	1	498	0
Percent Heavy Vehicles	2	--	--	2	--	--
Median Type	Undivided					
RT Channelized			0			0
Lanes	0	1	0	0	1	0
Configuration			TR	LT		
Upstream Signal		0			0	

Minor Street	Eastbound			Westbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume (veh/h)	0	0	223			
Peak-Hour Factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90
Hourly Flow Rate, HFR (veh/h)	0	0	247	0	0	0
Percent Heavy Vehicles	2	0	0	2	0	0
Percent Grade (%)		0			0	
Flared Approach		N			N	
Storage		0			0	
RT Channelized			1			0
Lanes	0	1	1	0	0	0
Configuration	LT		R			

Delay, Queue Length, and Level of Service

Approach	Northbound	Southbound	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration		LT				LT		R
v (veh/h)		1				0		247
C (m) (veh/h)		1138						576
v/c		0.00						0.43
95% queue length		0.00						2.14
Control Delay (s/veh)		8.2						15.9
LOS		A						C
Approach Delay (s/veh)	--	--						
Approach LOS	--	--						

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TWO-WAY STOP CONTROL SUMMARY

General Information		Site Information	
Analyst	GRH	Intersection	Tehachapi-Mountain View
Agency/Co.	CTE	Jurisdiction	City of Tehachapi
Date Performed	8/31/2010	Analysis Year	2015
Analysis Time Period	PM Peak Hour		

Project Description 2015 w/o Project

East/West Street: Tehachapi Blvd | North/South Street: Mountain View Avenue

Intersection Orientation: East-West | Study Period (hrs): 0.25

Vehicle Volumes and Adjustments

Major Street	Eastbound			Westbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume (veh/h)	6	222	33	139	314	6
Peak-Hour Factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90
Hourly Flow Rate, HFR (veh/h)	6	246	36	154	348	6
Percent Heavy Vehicles	2	--	--	2	--	--
Median Type	Undivided					
RT Channelized			1			0
Lanes	1	2	0	1	1	0
Configuration	L	T	TR	L		TR
Upstream Signal		0			0	

Minor Street	Northbound			Southbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume (veh/h)	21	0	124	1	1	2
Peak-Hour Factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90
Hourly Flow Rate, HFR (veh/h)	23	0	137	1	1	2
Percent Heavy Vehicles	2	2	2	2	2	2
Percent Grade (%)		0			0	
Flared Approach		N			N	
Storage		0			0	
RT Channelized			0			0
Lanes	0	1	1	0	1	0
Configuration	LT		R		LTR	

Delay, Queue Length, and Level of Service

Approach	Eastbound	Westbound	Northbound			Southbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration	L	L	LT		R		LTR	
v (veh/h)	6	154	23		137		4	
C (m) (veh/h)	1201	1317	198		906		340	
v/c	0.00	0.12	0.12		0.15		0.01	
95% queue length	0.02	0.40	0.39		0.53		0.04	
Control Delay (s/veh)	8.0	8.1	25.6		9.7		15.7	
LOS	A	A	D		A		C	
Approach Delay (s/veh)	--	--	12.0			15.7		
Approach LOS	--	--	B			C		

SHORT REPORT

General Information		Site Information	
Analyst	GRH	Intersection	Tucker Rd-Techachapi Bl
Agency or Co.	CTE	Area Type	All other areas
Date Performed	8/31/2010	Jurisdiction	City of Tehachapi
Time Period	PM Peak Hour	Analysis Year	2015 w/o Project

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of Lanes	1	1	1	1	1	1	1	2	1	1	2	1
Lane Group	L	T	R	L	T	R	L	T	R	L	T	R
Volume (vph)	113	235	112	270	308	70	233	222	198	113	442	239
% Heavy Vehicles	9	9	9	9	9	9	9	9	9	9	9	9
PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Pretimed/Actuated (P/A)	A	A	A	A	A	A	A	A	A	A	A	A
Startup Lost Time	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Extension of Effective Green	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Arrival Type	3	3	3	3	3	3	3	3	3	3	3	3
Unit Extension	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Ped/Bike/RTOR Volume	0	0	50	0	0	40	0	0	100	0	0	125
Lane Width	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0
Parking/Grade/Parking	N	0	N	N	0	N	N	0	N	N	0	N
Parking/Hour												
Bus Stops/Hour	0	0	0	0	0	0	0	0	0	0	0	0
Minimum Pedestrian Time		3.2			3.2			3.2			3.2	

Phasing	Excl. Left	Thru & RT	03	04	Excl. Left	Thru & RT	07	08
Timing	G = 16.4	G = 18.2	G =	G =	G = 14.7	G = 14.7	G = 0.0	G = 0.0
	Y = 4	Y = 4	Y =	Y =	Y = 4	Y = 4	Y = 0	Y = 0
Duration of Analysis (hrs) = 0.25						Cycle Length C = 80.0		

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
Adjusted Flow Rate	126	261	69	300	342	33	259	247	109	126	491	127
Lane Group Capacity	339	397	337	339	397	337	304	610	272	304	610	272
v/c Ratio	0.37	0.66	0.20	0.88	0.86	0.10	0.85	0.40	0.40	0.41	0.80	0.47
Green Ratio	0.20	0.23	0.23	0.20	0.23	0.23	0.18	0.18	0.18	0.18	0.18	0.18
Uniform Delay d_1	27.4	28.1	25.0	30.9	29.7	24.4	31.6	28.8	28.8	28.8	31.3	29.2
Delay Factor k	0.11	0.23	0.11	0.41	0.39	0.11	0.38	0.11	0.11	0.11	0.35	0.11
Incremental Delay d_2	0.7	4.0	0.3	23.2	17.3	0.1	20.1	0.4	1.0	0.9	7.8	1.3
PF Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Control Delay	28.1	32.0	25.3	54.0	47.0	24.5	51.7	29.2	29.7	29.8	39.1	30.4
Lane Group LOS	C	C	C	D	D	C	D	C	C	C	D	C
Approach Delay	29.9			49.0			38.8			36.0		
Approach LOS	C			D			D			D		
Intersection Delay	39.1			Intersection LOS						D		

SHORT REPORT

General Information		Site Information	
Analyst	GRH	Intersection	Tucker Rd-Techachapi Bl
Agency or Co.	CTE	Area Type	All other areas
Date Performed	8/31/2010	Jurisdiction	City of Tehachapi
Time Period	PM Peak Hour	Analysis Year	2015 w/o Project + Mitigate

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of Lanes	1	2	0	2	2	0	1	2	1	1	2	1
Lane Group	L	TR		L	TR		L	T	R	L	T	R
Volume (vph)	113	235	112	270	308	70	233	222	198	113	442	239
% Heavy Vehicles	9	9	9	9	9	9	9	9	9	9	9	9
PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Pretimed/Actuated (P/A)	A	A	A	A	A	A	A	A	A	A	A	A
Startup Lost Time	2.0	2.0		2.0	2.0		2.0	2.0	2.0	2.0	2.0	2.0
Extension of Effective Green	2.0	2.0		2.0	2.0		2.0	2.0	2.0	2.0	2.0	2.0
Arrival Type	3	3		3	3		3	3	3	3	3	3
Unit Extension	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0
Ped/Bike/RTOR Volume	0	0	50	0	0	40	0	0	100	0	0	125
Lane Width	12.0	12.0		12.0	12.0		12.0	12.0	12.0	12.0	12.0	12.0
Parking/Grade/Parking	N	0	N	N	0	N	N	0	N	N	0	N
Parking/Hour												
Bus Stops/Hour	0	0		0	0		0	0	0	0	0	0
Minimum Pedestrian Time		3.2			3.2			3.2			3.2	

Phasing	Excl. Left	Thru & RT	03	04	Excl. Left	Thru & RT	07	08
Timing	G = 17.4	G = 18.2	G =	G =	G = 16.7	G = 18.7	G = 0.0	G = 0.0
	Y = 4	Y = 4	Y =	Y =	Y = 4	Y = 4	Y = 0	Y = 0
Duration of Analysis (hrs) = 0.25						Cycle Length C = 87.0		

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
Adjusted Flow Rate	126	330		300	375		259	247	109	126	491	127
Lane Group Capacity	331	673		643	685		318	713	319	318	713	319
v/c Ratio	0.38	0.49		0.47	0.55		0.81	0.35	0.34	0.40	0.69	0.40
Green Ratio	0.20	0.21		0.20	0.21		0.19	0.21	0.21	0.19	0.21	0.21
Uniform Delay d_1	30.1	30.3		30.7	30.7		33.7	29.0	28.9	30.7	31.5	29.3
Delay Factor k	0.11	0.11		0.11	0.15		0.36	0.11	0.11	0.11	0.26	0.11
Incremental Delay d_2	0.7	0.6		0.5	0.9		15.0	0.3	0.6	0.8	2.8	0.8
PF Factor	1.000	1.000		1.000	1.000		1.000	1.000	1.000	1.000	1.000	1.000
Control Delay	30.9	30.9		31.2	31.7		48.6	29.3	29.6	31.6	34.3	30.1
Lane Group LOS	C	C		C	C		D	C	C	C	C	C
Approach Delay	30.9			31.5			37.5			33.1		
Approach LOS	C			C			D			C		
Intersection Delay	33.3			Intersection LOS						C		

SHORT REPORT

General Information		Site Information	
Analyst	GRH	Intersection	Tucker Rd-Valley Blvd
Agency or Co.	CTE	Area Type	All other areas
Date Performed	8/31/2009	Jurisdiction	City of Tehachapi
Time Period	PM Peak Hour	Analysis Year	2015 w/o Project

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of Lanes	1	1	1	1	1	1	1	2	1	1	2	1
Lane Group	L	T	R	L	T	R	L	T	R	L	T	R
Volume (vph)	263	304	70	156	299	121	205	225	106	146	270	254
% Heavy Vehicles	9	9	9	9	9	9	9	9	9	9	9	9
PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Pretimed/Actuated (P/A)	A	A	A	A	A	A	A	A	A	A	A	A
Startup Lost Time	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Extension of Effective Green	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Arrival Type	3	3	3	3	3	3	3	3	3	3	3	3
Unit Extension	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Ped/Bike/RTOR Volume	0	0	30	0	0	50	0	0	40	0	0	100
Lane Width	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0
Parking/Grade/Parking	N	0	N	N	0	N	N	0	N	N	0	N
Parking/Hour												
Bus Stops/Hour	0	0	0	0	0	0	0	0	0	0	0	0
Minimum Pedestrian Time		3.2			3.2			3.2			3.2	

Phasing	Excl. Left	Thru & RT	03	04	Excl. Left	Thru & RT	07	08
Timing	G = 17.7	G = 24.3	G =	G =	G = 19.1	G = 16.9	G = 0.0	G =
	Y = 4	Y = 4	Y =	Y =	Y = 4	Y = 0	Y = 0	Y =
Duration of Analysis (hrs) = 0.25						Cycle Length C = 90.0		

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
Adjusted Flow Rate	292	338	44	173	332	79	228	250	73	162	300	171
Lane Group Capacity	326	471	400	326	471	400	351	623	278	351	623	278
v/c Ratio	0.90	0.72	0.11	0.53	0.70	0.20	0.65	0.40	0.26	0.46	0.48	0.62
Green Ratio	0.20	0.27	0.27	0.20	0.27	0.27	0.21	0.19	0.19	0.21	0.19	0.19
Uniform Delay d_1	35.2	29.7	24.7	32.4	29.6	25.3	32.4	32.1	31.2	31.0	32.6	33.6
Delay Factor k	0.42	0.28	0.11	0.13	0.27	0.11	0.23	0.11	0.11	0.11	0.11	0.20
Incremental Delay d_2	25.7	5.2	0.1	1.7	4.8	0.2	4.2	0.4	0.5	1.0	0.6	4.0
PF Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Control Delay	60.9	35.0	24.8	34.1	34.4	25.6	36.6	32.5	31.7	31.9	33.2	37.6
Lane Group LOS	E	C	C	C	C	C	D	C	C	C	C	D
Approach Delay	45.5			33.1			34.1			34.1		
Approach LOS	D			C			C			C		
Intersection Delay	37.0			Intersection LOS						D		

SHORT REPORT

General Information		Site Information	
Analyst	*GRH*	Intersection	*Tucker Rd-Valley Blvd*
Agency or Co.	*CTE*	Area Type	*All other areas*
Date Performed	*8/31/2009*	Jurisdiction	*City of Tehachapi*
Time Period	*PM Peak Hour*	Analysis Year	*2015 w/o Project + Mitigate*

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of Lanes	1	2	0	1	2	0	1	2	1	1	2	1
Lane Group	L	TR		L	TR		L	T	R	L	T	R
Volume (vph)	263	304	70	156	299	121	205	225	106	146	270	254
% Heavy Vehicles	9	9	9	9	9	9	9	9	9	9	9	9
PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Pretimed/Actuated (P/A)	A	A	A	A	A	A	A	A	A	A	A	A
Startup Lost Time	2.0	2.0		2.0	2.0		2.0	2.0	2.0	2.0	2.0	2.0
Extension of Effective Green	2.0	2.0		2.0	2.0		2.0	2.0	2.0	2.0	2.0	2.0
Arrival Type	3	3		3	3		3	3	3	3	3	3
Unit Extension	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0
Ped/Bike/RTOR Volume	0	0	30	0	0	50	0	0	50	0	0	125
Lane Width	12.0	12.0		12.0	12.0		12.0	12.0	12.0	12.0	12.0	12.0
Parking/Grade/Parking	N	0	N	N	0	N	N	0	N	N	0	N
Parking/Hour												
Bus Stops/Hour	0	0		0	0		0	0	0	0	0	0
Minimum Pedestrian Time		3.2			3.2			3.2			3.2	

Phasing	Excl. Left	Thru & RT	03	04	Excl. Left	Thru & RT	07	08
Timing	G = 18.0	G = 24.3	G =	G =	G = 19.1	G = 16.9	G = 0.0	G =
	Y = 4	Y = 4	Y =	Y =	Y = 4	Y = 0	Y = 0	Y =
Duration of Analysis (hrs) = 0.25						Cycle Length C = 90.3		

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
Adjusted Flow Rate	292	382		173	411		228	250	62	162	300	143
Lane Group Capacity	330	878		330	867		350	621	277	350	621	277
v/c Ratio	0.88	0.44		0.52	0.47		0.65	0.40	0.22	0.46	0.48	0.52
Green Ratio	0.20	0.27		0.20	0.27		0.21	0.19	0.19	0.21	0.19	0.19
Uniform Delay d_1	35.1	27.3		32.3	27.6		32.6	32.3	31.1	31.1	32.8	33.0
Delay Factor k	0.41	0.11		0.13	0.11		0.23	0.11	0.11	0.11	0.11	0.12
Incremental Delay d_2	23.6	0.3		1.5	0.4		4.3	0.4	0.4	1.0	0.6	1.7
PF Factor	1.000	1.000		1.000	1.000		1.000	1.000	1.000	1.000	1.000	1.000
Control Delay	58.8	27.7		33.9	28.1		36.8	32.7	31.5	32.1	33.4	34.7
Lane Group LOS	E	C		C	C		D	C	C	C	C	C
Approach Delay	41.1			29.8			34.3			33.4		
Approach LOS	D			C			C			C		
Intersection Delay	34.9			Intersection LOS						C		

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TWO-WAY STOP CONTROL SUMMARY

General Information

Analyst	GRH
Agency/Co.	CTE
Date Performed	8/31/2010
Analysis Time Period	PM Peak Hour

Site Information

Intersection	Tucker Rd/SR58 EB Ramps
Jurisdiction	City of Tehachapi
Analysis Year	2015

Project Description 2015 + Project

East/West Street: SR 58 EB Ramps | North/South Street: Tucker Road

Intersection Orientation: North-South | Study Period (hrs): 0.25

Vehicle Volumes and Adjustments

Major Street	Northbound			Southbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume (veh/h)		298	268	1	526	
Peak-Hour Factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90
Hourly Flow Rate, HFR (veh/h)	0	331	297	1	584	0
Percent Heavy Vehicles	2	--	--	2	--	--
Median Type	Undivided					
RT Channelized			0			0
Lanes	0	1	0	0	1	0
Configuration			TR	LT		
Upstream Signal		0			0	

Minor Street	Eastbound			Westbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume (veh/h)	0	0	261			
Peak-Hour Factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90
Hourly Flow Rate, HFR (veh/h)	0	0	290	0	0	0
Percent Heavy Vehicles	2	0	0	2	0	0
Percent Grade (%)		0			0	
Flared Approach		N			N	
Storage		0			0	
RT Channelized			1			0
Lanes	0	1	1	0	0	0
Configuration	LT		R			

Delay, Queue Length, and Level of Service

Approach	Northbound	Southbound	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration		LT				LT		R
v (veh/h)		1				0		290
C (m) (veh/h)		954						515
v/c		0.00						0.56
95% queue length		0.00						3.44
Control Delay (s/veh)		8.8						20.6
LOS		A						C
Approach Delay (s/veh)	--	--						
Approach LOS	--	--						

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TWO-WAY STOP CONTROL SUMMARY

General Information

Analyst	GRH
Agency/Co.	CTE
Date Performed	8/31/2010
Analysis Time Period	PM Peak Hour

Site Information

Intersection	Tehachapi-Mountain View
Jurisdiction	City of Tehachapi
Analysis Year	2015

Project Description: 2015 + Project

East/West Street: Tehachapi Blvd | North/South Street: Mountain View Avenue

Intersection Orientation: East-West | Study Period (hrs): 0.25

Vehicle Volumes and Adjustments

Major Street	Eastbound			Westbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume (veh/h)	6	315	95	139	391	6
Peak-Hour Factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90
Hourly Flow Rate, HFR (veh/h)	6	350	105	154	434	6
Percent Heavy Vehicles	2	--	--	2	--	--
Median Type	Undivided					
RT Channelized			1			0
Lanes	1	2	0	1	1	0
Configuration	L	T	TR	L		TR
Upstream Signal		0			0	

Minor Street	Northbound			Southbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume (veh/h)	72	0	124	1	1	2
Peak-Hour Factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90
Hourly Flow Rate, HFR (veh/h)	80	0	137	1	1	2
Percent Heavy Vehicles	2	2	2	2	2	2
Percent Grade (%)		0			0	
Flared Approach		N			N	
Storage		0			0	
RT Channelized			0			0
Lanes	0	1	1	0	1	0
Configuration	LT		R		LTR	

Delay, Queue Length, and Level of Service

Approach	Eastbound	Westbound	Northbound			Southbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration	L	L	LT		R		LTR	
v (veh/h)	6	154	80		137		4	
C (m) (veh/h)	1116	1206	135		810		270	
v/c	0.01	0.13	0.59		0.17		0.01	
95% queue length	0.02	0.44	3.03		0.61		0.05	
Control Delay (s/veh)	8.2	8.4	64.6		10.3		18.5	
LOS	A	A	F		B		C	
Approach Delay (s/veh)	--	--	30.3			18.5		
Approach LOS	--	--	D			C		

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SHORT REPORT

General Information		Site Information	
Analyst	GRH	Intersection	Techachapi Bl-Mtn View
Agency or Co.	CTE	Area Type	All other areas
Date Performed	9/1/2010	Jurisdiction	City of Tehachapi
Time Period	PM Peak Hour	Analysis Year	2015 with Project

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of Lanes	1	2	0	1	1	0	0	1	1	0	1	0
Lane Group	L	TR		L	TR			LT	R		LTR	
Volume (vph)	6	315	95	139	391	6	72	0	124	1	1	2
% Heavy Vehicles	9	9	9	9	9	9	9	9	9	9	9	9
PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Pretimed/Actuated (P/A)	A	A	A	A	A	A	P	P	P	A	P	P
Startup Lost Time	2.0	2.0		2.0	2.0			2.0	2.0		2.0	
Extension of Effective Green	2.0	2.0		2.0	2.0			2.0	2.0		2.0	
Arrival Type	3	3		3	3			3	3		3	
Unit Extension	3.0	3.0		3.0	3.0			3.0	3.0		3.0	
Ped/Bike/RTOR Volume	0	0	25	0	0	0	0	0	25	0	0	0
Lane Width	12.0	12.0		12.0	12.0			12.0	12.0		12.0	
Parking/Grade/Parking	N	0	N	N	0	N	N	0	N	N	0	N
Parking/Hour												
Bus Stops/Hour	0	0		0	0			0	0		0	
Minimum Pedestrian Time		3.2			3.2			3.2			3.2	

Phasing	Excl. Left	Thru & RT	03	04	NS Perm	06	07	08
Timing	G = 16.4	G = 19.2	G =	G =	G = 15.7	G = 0.0	G = 0.0	G =
	Y = 4	Y = 4	Y =	Y =	Y = 4	Y = 0	Y = 0	Y =
Duration of Analysis (hrs) = 0.25						Cycle Length C = 63.3		

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
Adjusted Flow Rate	7	428		154	441			80	110		4	
Lane Group Capacity	429	979		429	527			324	368		390	
v/c Ratio	0.02	0.44		0.36	0.84			0.25	0.30		0.01	
Green Ratio	0.26	0.30		0.26	0.30			0.25	0.25		0.25	
Uniform Delay d_1	17.4	17.7		19.2	20.6			19.1	19.3		17.9	
Delay Factor k	0.11	0.11		0.11	0.37			0.50	0.50		0.50	
Incremental Delay d_2	0.0	0.3		0.5	11.3			1.8	2.1		0.0	
PF Factor	1.000	1.000		1.000	1.000			1.000	1.000		1.000	
Control Delay	17.5	18.0		19.7	31.9			20.9	21.4		18.0	
Lane Group LOS	B	B		B	C			C	C		B	
Approach Delay	18.0			28.7			21.2			18.0		
Approach LOS	B			C			C			B		
Intersection Delay	23.7			Intersection LOS						C		

SHORT REPORT

General Information		Site Information	
Analyst	GRH	Intersection	Tucker Rd-Techachapi Bl
Agency or Co.	CTE	Area Type	All other areas
Date Performed	8/31/2010	Jurisdiction	City of Tehachapi
Time Period	PM Peak Hour	Analysis Year	2015 + Project + Mitigate

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of Lanes	1	2	0	2	2	0	1	2	1	1	2	1
Lane Group	L	TR		L	TR		L	T	R	L	T	R
Volume (vph)	190	235	112	270	308	198	233	376	198	268	627	332
% Heavy Vehicles	9	9	9	9	9	9	9	9	9	9	9	9
PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Pretimed/Actuated (P/A)	A	A	A	A	A	A	A	A	A	A	A	A
Startup Lost Time	2.0	2.0		2.0	2.0		2.0	2.0	2.0	2.0	2.0	2.0
Extension of Effective Green	2.0	2.0		2.0	2.0		2.0	2.0	2.0	2.0	2.0	2.0
Arrival Type	3	3		3	3		3	3	3	3	3	3
Unit Extension	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0
Ped/Bike/RTOR Volume	0	0	50	0	0	40	0	0	100	0	0	125
Lane Width	12.0	12.0		12.0	12.0		12.0	12.0	12.0	12.0	12.0	12.0
Parking/Grade/Parking	N	0	N	N	0	N	N	0	N	N	0	N
Parking/Hour												
Bus Stops/Hour	0	0		0	0		0	0	0	0	0	0
Minimum Pedestrian Time		3.2			3.2			3.2			3.2	

Phasing	Excl. Left	Thru & RT	03	04	Excl. Left	Thru & RT	07	08
Timing	G = 17.4	G = 18.2	G =	G =	G = 16.7	G = 18.7	G = 0.0	G = 0.0
	Y = 4	Y = 4	Y =	Y =	Y = 4	Y = 4	Y = 0	Y = 0

Duration of Analysis (hrs) = 0.25 | Cycle Length C = 87.0

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
Adjusted Flow Rate	211	330		300	518		259	418	109	298	697	230
Lane Group Capacity	331	673		643	659		318	713	319	318	713	319
v/c Ratio	0.64	0.49		0.47	0.79		0.81	0.59	0.34	0.94	0.98	0.72
Green Ratio	0.20	0.21		0.20	0.21		0.19	0.21	0.21	0.19	0.21	0.21
Uniform Delay d_1	31.9	30.3		30.7	32.6		33.7	30.7	28.9	34.6	33.9	31.7
Delay Factor k	0.22	0.11		0.11	0.33		0.36	0.18	0.11	0.45	0.48	0.28
Incremental Delay d_2	4.1	0.6		0.5	6.3		15.0	1.3	0.6	34.4	28.1	7.8
PF Factor	1.000	1.000		1.000	1.000		1.000	1.000	1.000	1.000	1.000	1.000
Control Delay	36.0	30.9		31.2	38.8		48.6	31.9	29.6	69.0	62.0	39.5
Lane Group LOS	D	C		C	D		D	C	C	E	E	D
Approach Delay	32.9			36.0			37.1			59.5		
Approach LOS	C			D			D			E		
Intersection Delay	44.3			Intersection LOS						D		

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SHORT REPORT

General Information		Site Information	
Analyst	GRH	Intersection	Tucker Rd-Techachapi Bl
Agency or Co.	CTE	Area Type	All other areas
Date Performed	8/31/2010	Jurisdiction	City of Tehachapi
Time Period	PM Peak Hour	Analysis Year	2015 + Project + Mitigate2

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of Lanes	1	2	0	2	2	0	2	2	1	2	2	1
Lane Group	L	TR		L	TR		L	T	R	L	T	R
Volume (vph)	190	235	112	270	308	198	233	376	198	268	627	332
% Heavy Vehicles	9	9	9	9	9	9	9	9	9	9	9	9
PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Pretimed/Actuated (P/A)	A	A	A	A	A	A	A	A	A	A	A	A
Startup Lost Time	2.0	2.0		2.0	2.0		2.0	2.0	2.0	2.0	2.0	2.0
Extension of Effective Green	2.0	2.0		2.0	2.0		2.0	2.0	2.0	2.0	2.0	2.0
Arrival Type	3	3		3	3		3	3	3	3	3	3
Unit Extension	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0
Ped/Bike/RTOR Volume	0	0	50	0	0	40	0	0	100	0	0	160
Lane Width	12.0	12.0		12.0	12.0		12.0	12.0	12.0	12.0	12.0	12.0
Parking/Grade/Parking	N	0	N	N	0	N	N	0	N	N	0	N
Parking/Hour												
Bus Stops/Hour	0	0		0	0		0	0	0	0	0	0
Minimum Pedestrian Time		3.2			3.2			3.2			3.2	

Phasing	Excl. Left	Thru & RT	03	04	Excl. Left	Thru & RT	07	08
Timing	G = 15.5	G = 19.2	G =	G =	G = 12.9	G = 26.4	G = 0.0	G = 0.0
	Y = 4	Y = 4	Y =	Y =	Y = 4	Y = 4	Y = 0	Y = 0

Duration of Analysis (hrs) = 0.25 | Cycle Length C = 90.0

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
Adjusted Flow Rate	211	330		300	518		259	418	109	298	697	191
Lane Group Capacity	285	686		554	672		461	974	435	461	974	435
v/c Ratio	0.74	0.48		0.54	0.77		0.56	0.43	0.25	0.65	0.72	0.44
Green Ratio	0.17	0.21		0.17	0.21		0.14	0.29	0.29	0.14	0.29	0.29
Uniform Delay d_1	35.3	31.0		34.0	33.3		35.9	25.7	24.3	36.4	28.4	25.8
Delay Factor k	0.30	0.11		0.14	0.32		0.16	0.11	0.11	0.22	0.28	0.11
Incremental Delay d_2	9.9	0.5		1.1	5.5		1.6	0.3	0.3	3.1	2.5	0.7
PF Factor	1.000	1.000		1.000	1.000		1.000	1.000	1.000	1.000	1.000	1.000
Control Delay	45.2	31.6		35.1	38.8		37.5	26.0	24.6	39.5	31.0	26.5
Lane Group LOS	D	C		D	D		D	C	C	D	C	C
Approach Delay	36.9			37.5			29.6			32.4		
Approach LOS	D			D			C			C		
Intersection Delay	33.7			Intersection LOS						C		

SHORT REPORT

General Information		Site Information	
Analyst	GRH	Intersection	Tucker Rd-Valley Blvd
Agency or Co.	CTE	Area Type	All other areas
Date Performed	8/31/2009	Jurisdiction	City of Tehachapi
Time Period	PM Peak Hour	Analysis Year	2015 + Project + Mitigate

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of Lanes	1	2	0	1	2	0	1	2	1	1	2	1
Lane Group	L	TR		L	TR		L	T	R	L	T	R
Volume (vph)	340	304	70	156	299	147	205	276	106	177	331	347
% Heavy Vehicles	9	9	9	9	9	9	9	9	9	9	9	9
PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Pretimed/Actuated (P/A)	A	A	A	A	A	A	A	A	A	A	A	A
Startup Lost Time	2.0	2.0		2.0	2.0		2.0	2.0	2.0	2.0	2.0	2.0
Extension of Effective Green	2.0	2.0		2.0	2.0		2.0	2.0	2.0	2.0	2.0	2.0
Arrival Type	3	3		3	3		3	3	3	3	3	3
Unit Extension	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0
Ped/Bike/RTOR Volume	0	0	30	0	0	70	0	0	50	0	0	175
Lane Width	12.0	12.0		12.0	12.0		12.0	12.0	12.0	12.0	12.0	12.0
Parking/Grade/Parking	N	0	N	N	0	N	N	0	N	N	0	N
Parking/Hour												
Bus Stops/Hour	0	0		0	0		0	0	0	0	0	0
Minimum Pedestrian Time		3.2			3.2			3.2			3.2	

Phasing	Excl. Left	Thru & RT	03	04	Excl. Left	Thru & RT	07	08
Timing	G = 18.0	G = 24.3	G =	G =	G = 19.1	G = 16.9	G = 0.0	G =
	Y = 4	Y = 4	Y =	Y =	Y = 4	Y = 0	Y = 0	Y =

Duration of Analysis (hrs) = 0.25 | Cycle Length C = 90.3

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
Adjusted Flow Rate	378	382		173	418		228	307	62	197	368	191
Lane Group Capacity	330	878		330	865		350	621	277	350	621	277
v/c Ratio	1.15	0.44		0.52	0.48		0.65	0.49	0.22	0.56	0.59	0.69
Green Ratio	0.20	0.27		0.20	0.27		0.21	0.19	0.19	0.21	0.19	0.19
Uniform Delay d_1	36.2	27.3		32.3	27.7		32.6	32.9	31.1	31.9	33.6	34.3
Delay Factor k	0.50	0.11		0.13	0.11		0.23	0.11	0.11	0.16	0.18	0.26
Incremental Delay d_2	95.0	0.3		1.5	0.4		4.3	0.6	0.4	2.1	1.5	7.1
PF Factor	1.000	1.000		1.000	1.000		1.000	1.000	1.000	1.000	1.000	1.000
Control Delay	131.2	27.7		33.9	28.2		36.8	33.5	31.5	33.9	35.1	41.3
Lane Group LOS	F	C		C	C		D	C	C	C	D	D
Approach Delay	79.2			29.8			34.6			36.4		
Approach LOS	E			C			C			D		
Intersection Delay	46.6			Intersection LOS						D		

SHORT REPORT

General Information		Site Information	
Analyst	GRH	Intersection	Tucker Rd-Valley Blvd
Agency or Co.	CTE	Area Type	All other areas
Date Performed	8/31/2009	Jurisdiction	City of Tehachapi
Time Period	PM Peak Hour	Analysis Year	2015 + Project + Mitigate2

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of Lanes	2	2	0	1	2	0	1	2	1	1	2	1
Lane Group	L	TR		L	TR		L	T	R	L	T	R
Volume (vph)	340	304	70	156	299	147	205	276	106	177	331	347
% Heavy Vehicles	9	9	9	9	9	9	9	9	9	9	9	9
PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Pretimed/Actuated (P/A)	A	A	A	A	A	A	A	A	A	A	A	A
Startup Lost Time	2.0	2.0		2.0	2.0		2.0	2.0	2.0	2.0	2.0	2.0
Extension of Effective Green	2.0	2.0		2.0	2.0		2.0	2.0	2.0	2.0	2.0	2.0
Arrival Type	3	3		3	3		3	3	3	3	3	3
Unit Extension	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0
Ped/Bike/RTOR Volume	0	0	30	0	0	70	0	0	50	0	0	175
Lane Width	12.0	12.0		12.0	12.0		12.0	12.0	12.0	12.0	12.0	12.0
Parking/Grade/Parking	N	0	N	N	0	N	N	0	N	N	0	N
Parking/Hour												
Bus Stops/Hour	0	0		0	0		0	0	0	0	0	0
Minimum Pedestrian Time		3.2			3.2			3.2			3.2	

Phasing	Excl. Left	Thru & RT	03	04	Excl. Left	Thru & RT	07	08
Timing	G = 18.0	G = 24.3	G =	G =	G = 19.1	G = 16.9	G = 0.0	G =
	Y = 4	Y = 4	Y =	Y =	Y = 4	Y = 0	Y = 0	Y =
Duration of Analysis (hrs) = 0.25						Cycle Length C = 90.3		

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
Adjusted Flow Rate	378	382		173	418		228	307	62	197	368	191
Lane Group Capacity	641	878		330	865		350	621	277	350	621	277
v/c Ratio	0.59	0.44		0.52	0.48		0.65	0.49	0.22	0.56	0.59	0.69
Green Ratio	0.20	0.27		0.20	0.27		0.21	0.19	0.19	0.21	0.19	0.19
Uniform Delay d_1	32.8	27.3		32.3	27.7		32.6	32.9	31.1	31.9	33.6	34.3
Delay Factor k	0.18	0.11		0.13	0.11		0.23	0.11	0.11	0.16	0.18	0.26
Incremental Delay d_2	1.4	0.3		1.5	0.4		4.3	0.6	0.4	2.1	1.5	7.1
PF Factor	1.000	1.000		1.000	1.000		1.000	1.000	1.000	1.000	1.000	1.000
Control Delay	34.2	27.7		33.9	28.2		36.8	33.5	31.5	33.9	35.1	41.3
Lane Group LOS	C	C		C	C		D	C	C	C	D	D
Approach Delay	30.9			29.8			34.6			36.4		
Approach LOS	C			C			C			D		
Intersection Delay	33.0			Intersection LOS						C		

TWO-WAY STOP CONTROL SUMMARY

General Information

Analyst	GRH
Agency/Co.	CTE
Date Performed	8/31/2010
Analysis Time Period	PM Peak Hour

Site Information

Intersection	Tucker Rd/SR58 EB Ramps
Jurisdiction	City of Tehachapi
Analysis Year	2035

Project Description 2035 w/o Project

East/West Street: SR 58 EB Ramps | North/South Street: Tucker Road

Intersection Orientation: North-South | Study Period (hrs): 0.25

Vehicle Volumes and Adjustments

Major Street	Northbound			Southbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume (veh/h)		304	260	2	667	
Peak-Hour Factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90
Hourly Flow Rate, HFR (veh/h)	0	337	288	2	741	0
Percent Heavy Vehicles	2	–	–	2	–	–
Median Type	Undivided					
RT Channelized			0			0
Lanes	0	1	0	0	1	0
Configuration			TR	LT		
Upstream Signal		0			0	

Minor Street	Eastbound			Westbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume (veh/h)	0	0	331			
Peak-Hour Factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90
Hourly Flow Rate, HFR (veh/h)	0	0	367	0	0	0
Percent Heavy Vehicles	2	0	0	2	0	0
Percent Grade (%)		0			0	
Flared Approach		N			N	
Storage		0			0	
RT Channelized			1			0
Lanes	0	1	1	0	0	0
Configuration	LT		R			

Delay, Queue Length, and Level of Service

Approach	Northbound	Southbound	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration		LT				LT		R
v (veh/h)		2				0		367
C (m) (veh/h)		956						420
v/c		0.00						0.87
95% queue length		0.01						8.88
Control Delay (s/veh)		8.8						49.8
LOS		A						E
Approach Delay (s/veh)	--	--						
Approach LOS	--	--						

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SHORT REPORT

General Information		Site Information	
Analyst	GRH	Intersection	Techachapi Bl-Mtn View
Agency or Co.	CTE	Area Type	All other areas
Date Performed	9/1/2010	Jurisdiction	City of Tehachapi
Time Period	PM Peak Hour	Analysis Year	2035 w/o Project

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of Lanes	1	2	0	1	1	0	0	1	1	0	1	0
Lane Group	L	TR		L	TR			LT	R		LTR	
Volume (vph)	9	330	50	207	467	9	31	0	185	2	2	3
% Heavy Vehicles	9	9	9	9	9	9	9	9	9	9	9	9
PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Pretimed/Actuated (P/A)	A	A	A	A	A	A	P	P	P	A	P	P
Startup Lost Time	2.0	2.0		2.0	2.0			2.0	2.0		2.0	
Extension of Effective Green	2.0	2.0		2.0	2.0			2.0	2.0		2.0	
Arrival Type	3	3		3	3			3	3		3	
Unit Extension	3.0	3.0		3.0	3.0			3.0	3.0		3.0	
Ped/Bike/RTOR Volume	0	0	25	0	0	0	0	0	50	0	0	0
Lane Width	12.0	12.0		12.0	12.0			12.0	12.0		12.0	
Parking/Grade/Parking	N	0	N	N	0	N	N	0	N	N	0	N
Parking/Hour												
Bus Stops/Hour	0	0		0	0			0	0		0	
Minimum Pedestrian Time		3.2			3.2			3.2			3.2	

Phasing	Excl. Left	Thru & RT	03	04	NS Perm	06	07	08
Timing	G = 16.4	G = 22.2	G =	G =	G = 15.7	G = 0.0	G = 0.0	G =
	Y = 4	Y = 4	Y =	Y =	Y = 4	Y = 0	Y = 0	Y =
Duration of Analysis (hrs) = 0.25						Cycle Length C = 66.3		

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
Adjusted Flow Rate	10	395		230	529			34	150		7	
Lane Group Capacity	410	1100		410	582			329	351		375	
v/c Ratio	0.02	0.36		0.56	0.91			0.10	0.43		0.02	
Green Ratio	0.25	0.33		0.25	0.33			0.24	0.24		0.24	
Uniform Delay d_1	18.9	16.7		21.8	21.1			19.8	21.5		19.4	
Delay Factor k	0.11	0.11		0.16	0.43			0.50	0.50		0.50	
Incremental Delay d_2	0.0	0.2		1.8	18.3			0.6	3.8		0.1	
PF Factor	1.000	1.000		1.000	1.000			1.000	1.000		1.000	
Control Delay	18.9	16.9		23.6	39.4			20.4	25.3		19.5	
Lane Group LOS	B	B		C	D			C	C		B	
Approach Delay	16.9			34.6			24.4			19.5		
Approach LOS	B			C			C			B		
Intersection Delay	27.8			Intersection LOS						C		

SHORT REPORT

General Information		Site Information	
Analyst	GRH	Intersection	Tucker Rd-Techachapi Bl
Agency or Co.	CTE	Area Type	All other areas
Date Performed	9/2/2010	Jurisdiction	City of Tehachapi
Time Period	PM Peak Hour	Analysis Year	2035 w/o Project + 2015 Mit

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of Lanes	1	2	0	2	2	0	2	2	1	2	2	1
Lane Group	L	TR		L	TR		L	T	R	L	T	R
Volume (vph)	168	349	166	402	458	104	347	330	294	168	657	356
% Heavy Vehicles	9	9	9	9	9	9	9	9	9	9	9	9
PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Pretimed/Actuated (P/A)	A	A	A	A	A	A	A	A	A	A	A	A
Startup Lost Time	2.0	2.0		2.0	2.0		2.0	2.0	2.0	2.0	2.0	2.0
Extension of Effective Green	2.0	2.0		2.0	2.0		2.0	2.0	2.0	2.0	2.0	2.0
Arrival Type	3	3		3	3		3	3	3	3	3	3
Unit Extension	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0
Ped/Bike/RTOR Volume	0	0	50	0	0	40	0	0	100	0	0	160
Lane Width	12.0	12.0		12.0	12.0		12.0	12.0	12.0	12.0	12.0	12.0
Parking/Grade/Parking	N	0	N	N	0	N	N	0	N	N	0	N
Parking/Hour												
Bus Stops/Hour	0	0		0	0		0	0	0	0	0	0
Minimum Pedestrian Time		3.2			3.2			3.2			3.2	

Phasing	Excl. Left	Thru & RT	03	04	Excl. Left	Thru & RT	07	08
Timing	G = 15.5	G = 19.2	G =	G =	G = 12.9	G = 26.4	G = 0.0	G = 0.0
	Y = 4	Y = 4	Y =	Y =	Y = 4	Y = 4	Y = 0	Y = 0
Duration of Analysis (hrs) = 0.25						Cycle Length C = 90.0		

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
Adjusted Flow Rate	187	517		447	580		386	367	216	187	730	218
Lane Group Capacity	285	682		554	695		461	974	435	461	974	435
v/c Ratio	0.66	0.76		0.81	0.83		0.84	0.38	0.50	0.41	0.75	0.50
Green Ratio	0.17	0.21		0.17	0.21		0.14	0.29	0.29	0.14	0.29	0.29
Uniform Delay d_1	34.8	33.2		35.8	33.9		37.5	25.3	26.3	35.1	28.8	26.3
Delay Factor k	0.23	0.31		0.35	0.37		0.37	0.11	0.11	0.11	0.30	0.11
Incremental Delay d_2	5.4	4.9		8.6	8.7		12.8	0.2	0.9	0.6	3.3	0.9
PF Factor	1.000	1.000		1.000	1.000		1.000	1.000	1.000	1.000	1.000	1.000
Control Delay	40.2	38.1		44.4	42.6		50.3	25.5	27.2	35.6	32.1	27.3
Lane Group LOS	D	D		D	D		D	C	C	D	C	C
Approach Delay	38.7			43.4			35.8			31.7		
Approach LOS	D			D			D			C		
Intersection Delay	37.1			Intersection LOS						D		

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SHORT REPORT

General Information		Site Information	
Analyst	GRH	Intersection	Tucker Rd-Techachapi Bl
Agency or Co.	CTE	Area Type	All other areas
Date Performed	9/2/2010	Jurisdiction	City of Tehachapi
Time Period	PM Peak Hour	Analysis Year	2035 w/o Project + 2035 Mit

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of Lanes	1	2	0	2	2	1	2	2	1	2	2	1
Lane Group	L	TR		L	T	R	L	T	R	L	T	R
Volume (vph)	168	349	166	402	458	104	347	330	294	168	657	356
% Heavy Vehicles	9	9	9	9	9	9	9	9	9	9	9	9
PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Pretimed/Actuated (P/A)	A	A	A	A	A	A	A	A	A	A	A	A
Startup Lost Time	2.0	2.0		2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Extension of Effective Green	2.0	2.0		2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Arrival Type	3	3		3	3	3	3	3	3	3	3	3
Unit Extension	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Ped/Bike/RTOR Volume	0	0	50	0	0	40	0	0	100	0	0	160
Lane Width	12.0	12.0		12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0
Parking/Grade/Parking	N	0	N	N	0	N	N	0	N	N	0	N
Parking/Hour												
Bus Stops/Hour	0	0		0	0	0	0	0	0	0	0	0
Minimum Pedestrian Time		3.2			3.2			3.2			3.2	

Phasing	Excl. Left	Thru & RT	03	04	Excl. Left	Thru & RT	07	08
Timing	G = 16.7	G = 21.0	G =	G =	G = 13.4	G = 24.4	G = 0.0	G = 0.0
	Y = 4	Y = 4	Y =	Y =	Y = 4	Y = 4	Y = 0	Y = 0
Duration of Analysis (hrs) = 0.25						Cycle Length C = 91.5		

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
Adjusted Flow Rate	187	517		447	509	71	386	367	216	187	730	218
Lane Group Capacity	302	733		587	762	340	471	885	730	471	885	730
v/c Ratio	0.62	0.71		0.76	0.67	0.21	0.82	0.41	0.30	0.40	0.82	0.30
Green Ratio	0.18	0.23		0.18	0.23	0.23	0.15	0.27	0.49	0.15	0.27	0.49
Uniform Delay d_1	34.5	32.4		35.5	32.1	28.5	37.9	27.7	13.8	35.4	31.5	13.8
Delay Factor k	0.20	0.27		0.31	0.24	0.11	0.36	0.11	0.11	0.11	0.36	0.11
Incremental Delay d_2	3.8	3.1		5.8	2.3	0.3	11.0	0.3	0.2	0.6	6.4	0.2
PF Factor	1.000	1.000		1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Control Delay	38.3	35.5		41.3	34.3	28.8	48.9	28.0	14.0	35.9	38.0	14.0
Lane Group LOS	D	D		D	C	C	D	C	B	D	D	B
Approach Delay	36.3			37.0			33.2			33.0		
Approach LOS	D			D			C			C		
Intersection Delay	34.7			Intersection LOS						C		

SHORT REPORT

General Information		Site Information	
Analyst	GRH	Intersection	Tucker Rd-Valley Blvd
Agency or Co.	CTE	Area Type	All other areas
Date Performed	9/2/2009	Jurisdiction	City of Tehachapi
Time Period	PM Peak Hour	Analysis Year	2035 w/o Project + Mitigate2

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of Lanes	2	2	0	1	2	0	1	2	1	1	2	1
Lane Group	L	TR		L	TR		L	T	R	L	T	R
Volume (vph)	392	451	104	233	445	180	304	335	157	217	402	378
% Heavy Vehicles	9	9	9	9	9	9	9	9	9	9	9	9
PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Pretimed/Actuated (P/A)	A	A	A	A	A	A	A	A	A	A	A	A
Startup Lost Time	2.0	2.0		2.0	2.0		2.0	2.0	2.0	2.0	2.0	2.0
Extension of Effective Green	2.0	2.0		2.0	2.0		2.0	2.0	2.0	2.0	2.0	2.0
Arrival Type	3	3		3	3		3	3	3	3	3	3
Unit Extension	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0
Ped/Bike/RTOR Volume	0	0	30	0	0	70	0	0	50	0	0	175
Lane Width	12.0	12.0		12.0	12.0		12.0	12.0	12.0	12.0	12.0	12.0
Parking/Grade/Parking	N	0	N	N	0	N	N	0	N	N	0	N
Parking/Hour												
Bus Stops/Hour	0	0		0	0		0	0	0	0	0	0
Minimum Pedestrian Time		3.2			3.2			3.2			3.2	

Phasing	Excl. Left	Thru & RT	03	04	Excl. Left	Thru & RT	07	08
Timing	G = 18.0	G = 24.3	G =	G =	G = 19.1	G = 16.9	G = 0.0	G =
	Y = 4	Y = 4	Y =	Y =	Y = 4	Y = 0	Y = 0	Y =

Duration of Analysis (hrs) = 0.25 — Cycle Length C = 90.3

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
Adjusted Flow Rate	436	583		259	616		338	372	119	241	447	226
Lane Group Capacity	641	874		330	867		350	621	277	350	621	277
v/c Ratio	0.68	0.67		0.78	0.71		0.97	0.60	0.43	0.69	0.72	0.82
Green Ratio	0.20	0.27		0.20	0.27		0.21	0.19	0.19	0.21	0.19	0.19
Uniform Delay d_1	33.5	29.4		34.3	29.8		35.3	33.6	32.4	32.9	34.5	35.2
Delay Factor k	0.25	0.24		0.33	0.27		0.47	0.19	0.11	0.26	0.28	0.36
Incremental Delay d_2	2.9	2.0		11.8	2.7		38.9	1.6	1.1	5.6	4.1	17.0
PF Factor	1.000	1.000		1.000	1.000		1.000	1.000	1.000	1.000	1.000	1.000
Control Delay	36.4	31.4		46.1	32.6		74.2	35.2	33.5	38.5	38.5	52.2
Lane Group LOS	D	C		D	C		E	D	C	D	D	D
Approach Delay	33.5			36.6			50.9			41.9		
Approach LOS	C			D			D			D		
Intersection Delay	40.3			Intersection LOS						D		

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SHORT REPORT

General Information		Site Information	
Analyst	GRH	Intersection	Tucker Rd-Valley Blvd
Agency or Co.	CTE	Area Type	All other areas
Date Performed	9/2/2009	Jurisdiction	City of Tehachapi
Time Period	PM Peak Hour	Analysis Year	2035 w/o Project + Mitigate3

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of Lanes	2	2	0	1	2	0	2	2	1	1	2	1
Lane Group	L	TR		L	TR		L	T	R	L	T	R
Volume (vph)	392	451	104	233	445	180	304	335	157	217	402	378
% Heavy Vehicles	9	9	9	9	9	9	9	9	9	9	9	9
PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Pretimed/Actuated (P/A)	A	A	A	A	A	A	A	A	A	A	A	A
Startup Lost Time	2.0	2.0		2.0	2.0		2.0	2.0	2.0	2.0	2.0	2.0
Extension of Effective Green	2.0	2.0		2.0	2.0		2.0	2.0	2.0	2.0	2.0	2.0
Arrival Type	3	3		3	3		3	3	3	3	3	3
Unit Extension	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0
Ped/Bike/RTOR Volume	0	0	30	0	0	70	0	0	50	0	0	175
Lane Width	12.0	12.0		12.0	12.0		12.0	12.0	12.0	12.0	12.0	12.0
Parking/Grade/Parking	N	0	N	N	0	N	N	0	N	N	0	N
Parking/Hour												
Bus Stops/Hour	0	0		0	0		0	0	0	0	0	0
Minimum Pedestrian Time		3.2			3.2			3.2			3.2	

Phasing	Excl. Left	Thru & RT	03	04	Excl. Left	Thru & RT	07	08
Timing	G = 18.0	G = 24.3	G =	G =	G = 19.1	G = 16.9	G = 0.0	G =
	Y = 4	Y = 4	Y =	Y =	Y = 4	Y = 0	Y = 0	Y =
Duration of Analysis (hrs) = 0.25						Cycle Length C = 90.3		

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
Adjusted Flow Rate	436	583		259	616		338	372	119	241	447	226
Lane Group Capacity	641	874		330	867		680	621	277	350	621	573
v/c Ratio	0.68	0.67		0.78	0.71		0.50	0.60	0.43	0.69	0.72	0.39
Green Ratio	0.20	0.27		0.20	0.27		0.21	0.19	0.19	0.21	0.19	0.39
Uniform Delay d_1	33.5	29.4		34.3	29.8		31.4	33.6	32.4	32.9	34.5	20.1
Delay Factor k	0.25	0.24		0.33	0.27		0.11	0.19	0.11	0.26	0.28	0.11
Incremental Delay d_2	2.9	2.0		11.8	2.7		0.6	1.6	1.1	5.6	4.1	0.4
PF Factor	1.000	1.000		1.000	1.000		1.000	1.000	1.000	1.000	1.000	1.000
Control Delay	36.4	31.4		46.1	32.6		31.9	35.2	33.5	38.5	38.5	20.5
Lane Group LOS	D	C		D	C		C	D	C	D	D	C
Approach Delay	33.5			36.6			33.6			34.1		
Approach LOS	C			D			C			C		
Intersection Delay	34.4			Intersection LOS						C		

TWO-WAY STOP CONTROL SUMMARY

General Information		Site Information	
Analyst	GRH	Intersection	Tucker Rd/SR58 EB Ramps
Agency/Co.	CTE	Jurisdiction	City of Tehachapi
Date Performed	8/31/2010	Analysis Year	2035
Analysis Time Period	PM Peak Hour		

Project Description 2035 + Project + Mitigate

East/West Street: SR 58 EB Ramps | North/South Street: Tucker Road

Intersection Orientation: North-South | Study Period (hrs): 0.25

Vehicle Volumes and Adjustments

Major Street	Northbound			Southbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume (veh/h)		397	353	2	744	
Peak-Hour Factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90
Hourly Flow Rate, HFR (veh/h)	0	441	392	2	826	0
Percent Heavy Vehicles	2	--	--	2	--	--
Median Type	Undivided					
RT Channelized			0			0
Lanes	0	1	0	0	1	0
Configuration			TR	LT		
Upstream Signal		0			0	

Minor Street	Eastbound			Westbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume (veh/h)	0	0				
Peak-Hour Factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90
Hourly Flow Rate, HFR (veh/h)	0	0		0	0	0
Percent Heavy Vehicles	2	0	0	2	0	0
Percent Grade (%)		0			0	
Flared Approach		N			N	
Storage		0			0	
RT Channelized			1			0
Lanes	0	1	1	0	0	0
Configuration	LT		R			

Delay, Queue Length, and Level of Service

Approach	Northbound	Southbound	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration		LT				LT		R
v (veh/h)		2				0		
C (m) (veh/h)		800						375
v/c		0.00						
95% queue length		0.01						
Control Delay (s/veh)		9.5						
LOS		A						
Approach Delay (s/veh)	--	--						
Approach LOS	--	--						

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SHORT REPORT

General Information		Site Information	
Analyst	GRH	Intersection	Techachapi Bl-Mtn View
Agency or Co.	CTE	Area Type	All other areas
Date Performed	9/1/2010	Jurisdiction	City of Tehachapi
Time Period	PM Peak Hour	Analysis Year	2035 + Project

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of Lanes	1	2	0	1	1	0	0	1	1	0	1	0
Lane Group	L	TR		L	TR			LT	R		LTR	
Volume (vph)	9	423	112	207	544	9	82	0	185	2	2	3
% Heavy Vehicles	9	9	9	9	9	9	9	9	9	9	9	9
PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Pretimed/Actuated (P/A)	A	A	A	A	A	A	P	P	P	A	P	P
Startup Lost Time	2.0	2.0		2.0	2.0			2.0	2.0		2.0	
Extension of Effective Green	2.0	2.0		2.0	2.0			2.0	2.0		2.0	
Arrival Type	3	3		3	3			3	3		3	
Unit Extension	3.0	3.0		3.0	3.0			3.0	3.0		3.0	
Ped/Bike/RTOR Volume	0	0	25	0	0	0	0	0	50	0	0	0
Lane Width	12.0	12.0		12.0	12.0			12.0	12.0		12.0	
Parking/Grade/Parking	N	0	N	N	0	N	N	0	N	N	0	N
Parking/Hour												
Bus Stops/Hour	0	0		0	0			0	0		0	
Minimum Pedestrian Time		3.2			3.2			3.2			3.2	

Phasing	Excl. Left	Thru & RT	03	04	NS Perm	06	07	08
Timing	G = 16.4	G = 24.2	G =	G =	G = 15.7	G = 0.0	G = 0.0	G =
	Y = 4	Y = 4	Y =	Y =	Y = 4	Y = 0	Y = 0	Y =

Duration of Analysis (hrs) = 0.25 | Cycle Length C = 68.3

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
Adjusted Flow Rate	10	567		230	614			91	150		7	
Lane Group Capacity	398	1146		398	616			294	341		361	
v/c Ratio	0.03	0.49		0.58	1.00			0.31	0.44		0.02	
Green Ratio	0.24	0.35		0.24	0.35			0.23	0.23		0.23	
Uniform Delay d_1	19.8	17.3		22.9	22.0			21.8	22.5		20.3	
Delay Factor k	0.11	0.11		0.17	0.50			0.50	0.50		0.50	
Incremental Delay d_2	0.0	0.3		2.1	35.4			2.7	4.1		0.1	
PF Factor	1.000	1.000		1.000	1.000			1.000	1.000		1.000	
Control Delay	19.9	17.6		25.0	57.4			24.5	26.6		20.4	
Lane Group LOS	B	B		C	E			C	C		C	
Approach Delay	17.6			48.6			25.8			20.4		
Approach LOS	B			D			C			C		
Intersection Delay	34.5			Intersection LOS						C		

SHORT REPORT

General Information		Site Information	
Analyst	GRH	Intersection	Tucker Rd-Techachapi Bl
Agency or Co.	CTE	Area Type	All other areas
Date Performed	9/2/2010	Jurisdiction	City of Tehachapi
Time Period	PM Peak Hour	Analysis Year	2035 + Project + 2035 Mit

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of Lanes	1	2	0	2	2	1	2	2	1	2	2	1
Lane Group	L	TR		L	T	R	L	T	R	L	T	R
Volume (vph)	245	349	166	402	458	232	347	484	294	323	842	449
% Heavy Vehicles	9	9	9	9	9	9	9	9	9	9	9	9
PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Pretimed/Actuated (P/A)	A	A	A	A	A	A	A	A	A	A	A	A
Startup Lost Time	2.0	2.0		2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Extension of Effective Green	2.0	2.0		2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Arrival Type	3	3		3	3	3	3	3	3	3	3	3
Unit Extension	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Ped/Bike/RTOR Volume	0	0	50	0	0	40	0	0	100	0	0	160
Lane Width	12.0	12.0		12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0
Parking/Grade/Parking	N	0	N	N	0	N	N	0	N	N	0	N
Parking/Hour												
Bus Stops/Hour	0	0		0	0	0	0	0	0	0	0	0
Minimum Pedestrian Time		3.2			3.2			3.2			3.2	

Phasing	Excl. Left	Thru & RT	03	04	Excl. Left	Thru & RT	07	08
Timing	G = 16.7	G = 21.0	G =	G =	G = 13.4	G = 24.4	G = 0.0	G = 0.0
	Y = 4	Y = 4	Y =	Y =	Y = 4	Y = 4	Y = 0	Y = 0
Duration of Analysis (hrs) = 0.25						Cycle Length C = 91.5		

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
Adjusted Flow Rate	272	517		447	509	213	386	538	216	359	936	321
Lane Group Capacity	302	733		587	762	340	471	885	730	471	885	730
v/c Ratio	0.90	0.71		0.76	0.67	0.63	0.82	0.61	0.30	0.76	1.06	0.44
Green Ratio	0.18	0.23		0.18	0.23	0.23	0.15	0.27	0.49	0.15	0.27	0.49
Uniform Delay d_1	36.6	32.4		35.5	32.1	31.7	37.9	29.4	13.8	37.5	33.5	15.0
Delay Factor k	0.42	0.27		0.31	0.24	0.21	0.36	0.19	0.11	0.31	0.50	0.11
Incremental Delay d_2	28.1	3.1		5.8	2.3	3.6	11.0	1.2	0.2	7.2	46.7	0.4
PF Factor	1.000	1.000		1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Control Delay	64.6	35.5		41.3	34.3	35.3	48.9	30.6	14.0	44.7	80.2	15.4
Lane Group LOS	E	D		D	C	D	D	C	B	D	F	B
Approach Delay	45.6			37.2			33.6			59.5		
Approach LOS	D			D			C			E		
Intersection Delay	45.4			Intersection LOS						D		

SHORT REPORT

General Information		Site Information	
Analyst	GRH	Intersection	Tucker Rd-Techachapi Bl
Agency or Co.	CTE	Area Type	All other areas
Date Performed	9/2/2010	Jurisdiction	City of Tehachapi
Time Period	PM Peak Hour	Analysis Year	2035 + Project + 2035 Mit2

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of Lanes	2	2	0	2	2	1	2	3	1	2	3	1
Lane Group	L	TR		L	T	R	L	T	R	L	T	R
Volume (vph)	245	349	166	402	458	232	347	484	294	323	842	449
% Heavy Vehicles	9	9	9	9	9	9	9	9	9	9	9	9
PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Pretimed/Actuated (P/A)	A	A	A	A	A	A	A	A	A	A	A	A
Startup Lost Time	2.0	2.0		2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Extension of Effective Green	2.0	2.0		2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Arrival Type	3	3		3	3	3	3	3	3	3	3	3
Unit Extension	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Ped/Bike/RTOR Volume	0	0	50	0	0	40	0	0	100	0	0	160
Lane Width	12.0	12.0		12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0
Parking/Grade/Parking	N	0	N	N	0	N	N	0	N	N	0	N
Parking/Hour												
Bus Stops/Hour	0	0		0	0	0	0	0	0	0	0	0
Minimum Pedestrian Time		3.2			3.2			3.2			3.2	

Phasing	Excl. Left	Thru & RT	03	04	Excl. Left	Thru & RT	07	08
Timing	G = 16.7	G = 21.0	G =	G =	G = 13.4	G = 24.4	G = 0.0	G = 0.0
	Y = 4	Y = 4	Y =	Y =	Y = 4	Y = 4	Y = 0	Y = 0

Duration of Analysis (hrs) = 0.25 | Cycle Length C = 91.5

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
Adjusted Flow Rate	272	517		447	509	213	386	538	216	359	936	321
Lane Group Capacity	587	733		587	762	340	471	1266	730	471	1266	730
v/c Ratio	0.46	0.71		0.76	0.67	0.63	0.82	0.42	0.30	0.76	0.74	0.44
Green Ratio	0.18	0.23		0.18	0.23	0.23	0.15	0.27	0.49	0.15	0.27	0.49
Uniform Delay d_1	33.4	32.4		35.5	32.1	31.7	37.9	27.7	13.8	37.5	30.6	15.0
Delay Factor k	0.11	0.27		0.31	0.24	0.21	0.36	0.11	0.11	0.31	0.30	0.11
Incremental Delay d_2	0.6	3.1		5.8	2.3	3.6	11.0	0.2	0.2	7.2	2.3	0.4
PF Factor	1.000	1.000		1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Control Delay	34.0	35.5		41.3	34.3	35.3	48.9	28.0	14.0	44.7	33.0	15.4
Lane Group LOS	C	D		D	C	D	D	C	B	D	C	B
Approach Delay	35.0			37.2			32.4			32.1		
Approach LOS	C			D			C			C		
Intersection Delay	33.9			Intersection LOS						C		

SHORT REPORT

General Information		Site Information	
Analyst	GRH	Intersection	Tucker Rd-Valley Blvd
Agency or Co.	CTE	Area Type	All other areas
Date Performed	9/2/2009	Jurisdiction	City of Tehachapi
Time Period	PM Peak Hour	Analysis Year	2035 + Project + Mitigate3

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of Lanes	2	2	0	1	2	0	2	2	1	1	2	1
Lane Group	L	TR		L	TR		L	T	R	L	T	R
Volume (vph)	469	451	104	233	445	26	304	386	157	248	463	471
% Heavy Vehicles	9	9	9	9	9	9	9	9	9	9	9	9
PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Pretimed/Actuated (P/A)	A	A	A	A	A	A	A	A	A	A	A	A
Startup Lost Time	2.0	2.0		2.0	2.0		2.0	2.0	2.0	2.0	2.0	2.0
Extension of Effective Green	2.0	2.0		2.0	2.0		2.0	2.0	2.0	2.0	2.0	2.0
Arrival Type	3	3		3	3		3	3	3	3	3	3
Unit Extension	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0
Ped/Bike/RTOR Volume	0	0	30	0	0	70	0	0	50	0	0	175
Lane Width	12.0	12.0		12.0	12.0		12.0	12.0	12.0	12.0	12.0	12.0
Parking/Grade/Parking	N	0	N	N	0	N	N	0	N	N	0	N
Parking/Hour												
Bus Stops/Hour	0	0		0	0		0	0	0	0	0	0
Minimum Pedestrian Time		3.2			3.2			3.2			3.2	

Phasing	Excl. Left	Thru & RT	03	04	Excl. Left	Thru & RT	07	08
Timing	G = 18.0	G = 24.3	G =	G =	G = 19.1	G = 16.9	G = 0.0	G =
	Y = 4	Y = 4	Y =	Y =	Y = 4	Y = 0	Y = 0	Y =
Duration of Analysis (hrs) = 0.25						Cycle Length C = 90.3		

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
Adjusted Flow Rate	521	583		259	494		338	429	119	276	514	329
Lane Group Capacity	641	874		330	893		680	621	277	350	621	573
v/c Ratio	0.81	0.67		0.78	0.55		0.50	0.69	0.43	0.79	0.83	0.57
Green Ratio	0.20	0.27		0.20	0.27		0.21	0.19	0.19	0.21	0.19	0.39
Uniform Delay d_1	34.5	29.4		34.3	28.3		31.4	34.3	32.4	33.7	35.3	21.8
Delay Factor k	0.35	0.24		0.33	0.15		0.11	0.26	0.11	0.34	0.37	0.17
Incremental Delay d_2	7.9	2.0		11.8	0.8		0.6	3.3	1.1	11.5	9.1	1.4
PF Factor	1.000	1.000		1.000	1.000		1.000	1.000	1.000	1.000	1.000	1.000
Control Delay	42.4	31.4		46.1	29.1		31.9	37.5	33.5	45.2	44.4	23.3
Lane Group LOS	D	C		D	C		C	D	C	D	D	C
Approach Delay	36.6			34.9			34.9			38.4		
Approach LOS	D			C			C			D		
Intersection Delay	36.4			Intersection LOS						D		

SHORT REPORT

General Information		Site Information	
Analyst	GRH	Intersection	Tucker Rd-Valley Blvd
Agency or Co.	CTE	Area Type	All other areas
Date Performed	9/2/2009	Jurisdiction	City of Tehachapi
Time Period	PM Peak Hour	Analysis Year	2035 + Project + Mitigate4

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of Lanes	2	2	0	2	2	0	2	2	1	2	2	1
Lane Group	L	TR		L	TR		L	T	R	L	T	R
Volume (vph)	469	451	104	233	445	26	304	386	157	248	463	471
% Heavy Vehicles	9	9	9	9	9	9	9	9	9	9	9	9
PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Pretimed/Actuated (P/A)	A	A	A	A	A	A	A	A	A	A	A	A
Startup Lost Time	2.0	2.0		2.0	2.0		2.0	2.0	2.0	2.0	2.0	2.0
Extension of Effective Green	2.0	2.0		2.0	2.0		2.0	2.0	2.0	2.0	2.0	2.0
Arrival Type	3	3		3	3		3	3	3	3	3	3
Unit Extension	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0
Ped/Bike/RTOR Volume	0	0	30	0	0	70	0	0	75	0	0	175
Lane Width	12.0	12.0		12.0	12.0		12.0	12.0	12.0	12.0	12.0	12.0
Parking/Grade/Parking	N	0	N	N	0	N	N	0	N	N	0	N
Parking/Hour												
Bus Stops/Hour	0	0		0	0		0	0	0	0	0	0
Minimum Pedestrian Time		3.2			3.2			3.2			3.2	

Phasing	Excl. Left	Thru & RT	03	04	Excl. Left	Thru & RT	07	08
Timing	G = 18.0	G = 24.3	G =	G =	G = 19.1	G = 16.9	G = 0.0	G =
	Y = 4	Y = 4	Y =	Y =	Y = 4	Y = 0	Y = 0	Y =
Duration of Analysis (hrs) = 0.25						Cycle Length C = 90.3		

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
Adjusted Flow Rate	521	583		259	494		338	429	91	276	514	329
Lane Group Capacity	641	874		641	893		680	621	277	680	621	573
v/c Ratio	0.81	0.67		0.40	0.55		0.50	0.69	0.33	0.41	0.83	0.57
Green Ratio	0.20	0.27		0.20	0.27		0.21	0.19	0.19	0.21	0.19	0.39
Uniform Delay d_1	34.5	29.4		31.5	28.3		31.4	34.3	31.8	30.7	35.3	21.8
Delay Factor k	0.35	0.24		0.11	0.15		0.11	0.26	0.11	0.11	0.37	0.17
Incremental Delay d_2	7.9	2.0		0.4	0.8		0.6	3.3	0.7	0.4	9.1	1.4
PF Factor	1.000	1.000		1.000	1.000		1.000	1.000	1.000	1.000	1.000	1.000
Control Delay	42.4	31.4		31.9	29.1		31.9	37.5	32.5	31.1	44.4	23.3
Lane Group LOS	D	C		C	C		C	D	C	C	D	C
Approach Delay	36.6			30.1			34.8			34.9		
Approach LOS	D			C			C			C		
Intersection Delay	34.4			Intersection LOS						C		

TRAFFIC SIGNAL WARRANTS

Peak-hour vehicle-miles of travel, VMT_{60}(veh- *mi*)=V*L_t	*0*
Peak 15-min total travel time, TT_{15}(veh-h)= VMT_{15}/ATS	*0.0*
Notes	
1. If Vp >= 3,200 pc/h, terminate analysis-the LOS is F. 2. If highest directional split Vp>= 1,700 pc/h, terminated anlysis-the LOS is F.	

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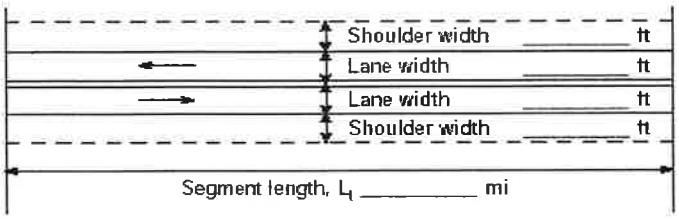
TWO-WAY TWO-LANE HIGHWAY SEGMENT WORKSHEET

General Information		Site Information	
Analyst	GRH	Highway	Tehachapi Blvd
Agency or Company	CTE	From/To	Tucker Rd to Mountain View Ave
Date Performed	9/1/2010	Jurisdiction	City of Tehachapi
Analysis Time Period	PM Peak Hour	Analysis Year	2008

Project Description: *2008 Existing volumes*

Input Data



☑ Class I highway ☐ Class II highway

Terrain ☑ Level ☐ Rolling

Two-way hourly volume	779 veh/h
Directional split	60 / 40
Peak-hour factor, PHF	0.90
No-passing zone	0
% Trucks and Buses , P_T	2 %
% Recreational vehicles, P_R	1%
Access points/ *mi*	0

Average Travel Speed

Grade adjustment factor, f_G (Exhibit 20-7)	1.00
Passenger-car equivalents for trucks, E_T (Exhibit 20-9)	1.2
Passenger-car equivalents for RVs, E_R (Exhibit 20-9)	1.0
Heavy-vehicle adjustment factor, $f_{HV}=1/(1+P_T(E_T-1)+P_R(E_R-1))$	0.996
Two-way flow rate[1], v_p (pc/h)=V/ (PHF * f_G * f_{HV})	869
v_p * highest directional split proportion[2] (pc/h)	521

Free-Flow Speed from Field Measurement		Estimated Free-Flow Speed	
Field Measured speed, S_{FM}	*mi/h*	Base free-flow speed, $BFFS_{FM}$	60.0 *mi/h*
Observed volume, V_f	*veh/h*	Adj. for lane width and shoulder width[3], f_{LS} (Exhibit 20-5)	0.0 *mi/h*
Free-flow speed, FFS $FFS=S_{FM}+0.00776(V_f/f_{HV})$	*mi/h*	Adj. for access points, f_A (Exhibit 20-6)	0.0 *mi/h*
		Free-flow speed, FFS $(FSS=BFFS-f_{LS}-f_A)$	60.0 *mi/h*

Adj. for no-passing zones, f_{np} (*mi/h*) (Exhibit 20-11)	0.0
Average travel speed, ATS (*mi/h*) $ATS=FFS-0.00776v_p-f_{np}$	53.3

Percent Time-Spent-Following

Grade Adjustment factor, f_G (Exhibit 20-8)	1.00
Passenger-car equivalents for trucks, E_T (Exhibit 20-10)	1.2
Passenger-car equivalents for RVs, E_R (Exhibit 20-10)	1.0
Heavy-vehicle adjustment factor, $f_{HV}=1/(1+P_T(E_T-1)+P_R(E_R-1))$	0.996
Two-way flow rate[1], v_p (pc/h)=V/ (PHF * f_G * f_{HV})	869
v_p * highest directional split proportion[2] (pc/h)	521
Base percent time-spent-following, $BPTSF(\%)=100(1-e^{-0.000879v_p})$	53.4
Adj. for directional distribution and no-passing zone, $f_{d/np}$(%)(Exh. 20-12)	0.0
Percent time-spent-following, $PTSF(\%)=BPTSF+f_{d/np}$	53.4

Level of Service and Other Performance Measures

Level of service, LOS (Exhibit 20-3 for Class I or 20-4 for Class II)	C
Volume to capacity ratio, $v/c=V_p/3{,}200$	0.27
Peak 15-min veh-miles of travel, VMT_{15} (veh- *mi*)= $0.25L_t(V/PHF)$	0

Peak-hour vehicle-miles of travel, VMT_{60}(veh- *mi*)=V*L_t	*0*
Peak 15-min total travel time, TT_{15}(veh-h)= VMT_{15}/ATS	*0.0*
Notes	
1. If Vp >= 3,200 pc/h, terminate analysis-the LOS is F. 2. If highest directional split Vp>= 1,700 pc/h, terminated anlysis-the LOS is F.	

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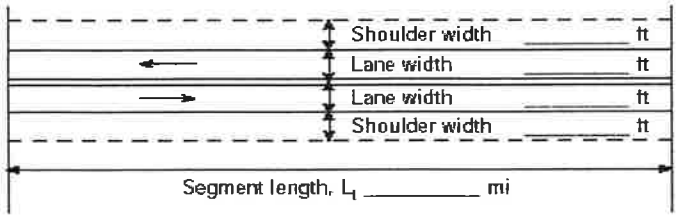
TWO-WAY TWO-LANE HIGHWAY SEGMENT WORKSHEET

General Information		Site Information	
Analyst	GRH	Highway	Tehachapi Blvd
Agency or Company	CTE	From/To	Tucker Rd to Mountain View Ave
Date Performed	9/1/2010	Jurisdiction	City of Tehachapi
Analysis Time Period	PM Peak Hour	Analysis Year	2015

Project Description: *2015 w/o Project*

Input Data



☑ Class I highway ☐ Class II highway

Terrain ☑ Level ☐ Rolling

Two-way hourly volume	896 veh/h
Directional split	60 / 40
Peak-hour factor, PHF	0.90
No-passing zone	0
% Trucks and Buses , P_T	2 %
% Recreational vehicles, P_R	1%
Access points/ *mi*	0

Average Travel Speed

Grade adjustment factor, f_G (Exhibit 20-7)	1.00
Passenger-car equivalents for trucks, E_T (Exhibit 20-9)	1.2
Passenger-car equivalents for RVs, E_R (Exhibit 20-9)	1.0
Heavy-vehicle adjustment factor, $f_{HV}=1/(1+P_T(E_T-1)+P_R(E_R-1))$	0.996
Two-way flow rate[1], v_p (pc/h)=V/ (PHF * f_G * f_{HV})	1000
v_p * highest directional split proportion[2] (pc/h)	600

Free-Flow Speed from Field Measurement		Estimated Free-Flow Speed	
Field Measured speed, S_{FM}	*mi/h*	Base free-flow speed, $BFFS_{FM}$	60.0 *mi/h*
Observed volume, V_f	*veh/h*	Adj. for lane width and shoulder width[3], f_{LS} (Exhibit 20-5)	0.0 *mi/h*
Free-flow speed, FFS FFS=S_{FM}+0.00776(V_f/ f_{HV})	*mi/h*	Adj. for access points, f_A (Exhibit 20-6)	0.0 *mi/h*
		Free-flow speed, FFS (FSS=BFFS-f_{LS}-f_A)	60.0 *mi/h*

Adj. for no-passing zones, f_{np} (*mi/h*) (Exhibit 20-11)	0.0
Average travel speed, ATS (*mi/h*) ATS=FFS-0.00776v_p-f_{np}	52.2

Percent Time-Spent-Following

Grade Adjustment factor, f_G (Exhibit 20-8)	1.00
Passenger-car equivalents for trucks, E_T (Exhibit 20-10)	1.2
Passenger-car equivalents for RVs, E_R (Exhibit 20-10)	1.0
Heavy-vehicle adjustment factor, $f_{HV}=1/(1+P_T(E_T-1)+P_R(E_R-1))$	0.996
Two-way flow rate[1], v_p (pc/h)=V/ (PHF * f_G * f_{HV})	1000
v_p * highest directional split proportion[2] (pc/h)	600
Base percent time-spent-following, BPTSF(%)=100(1-$e^{-0.000879v_p}$)	58.5
Adj. for directional distribution and no-passing zone, $f_{d/np}$(%)(Exh. 20-12)	0.0
Percent time-spent-following, PTSF(%)=BPTSF+$f_{d/np}$	58.5

Level of Service and Other Performance Measures

Level of service, LOS (Exhibit 20-3 for Class I or 20-4 for Class II)	C
Volume to capacity ratio, v/c=V_p/ 3,200	0.31
Peak 15-min veh-miles of travel, VMT_{15} (veh- *mi*)= 0.25L_t(V/PHF)	0

Peak-hour vehicle-miles of travel, VMT_{60}(veh- *mi*)=V*L_t	*0*
Peak 15-min total travel time, TT_{15}(veh-h)= VMT_{15}/ATS	*0.0*
Notes	
1. If Vp >= 3,200 pc/h, terminate analysis-the LOS is F. 2. If highest directional split Vp>= 1,700 pc/h, terminated anlysis-the LOS is F.	

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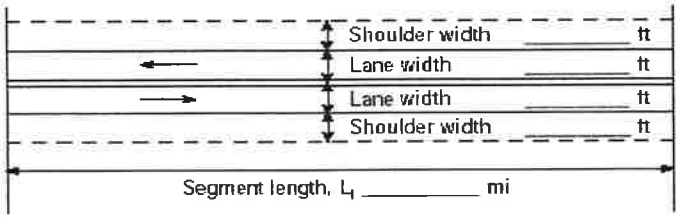
TWO-WAY TWO-LANE HIGHWAY SEGMENT WORKSHEET

General Information		Site Information	
Analyst	GRH	Highway	Tehachapi Blvd
Agency or Company	CTE	From/To	Tucker Rd to Mountain View Ave
Date Performed	9/1/2010	Jurisdiction	City of Tehachapi
Analysis Time Period	PM Peak Hour	Analysis Year	2015

Project Description: *2015 + Project*

Input Data



☑ Class I highway ☐ Class II highway

Terrain ☑ Level ☐ Rolling

Two-way hourly volume	*1179* veh/h
Directional split	*60 / 40*
Peak-hour factor, PHF	*0.90*
No-passing zone	*0*
% Trucks and Buses , P_T	*2* %
% Recreational vehicles, P_R	*1%*
Access points/ *mi*	*0*

Average Travel Speed

Grade adjustment factor, f_G (Exhibit 20-7)	*1.00*
Passenger-car equivalents for trucks, E_T (Exhibit 20-9)	*1.1*
Passenger-car equivalents for RVs, E_R (Exhibit 20-9)	*1.0*
Heavy-vehicle adjustment factor, $f_{HV}=1/(1+P_T(E_T-1)+P_R(E_R-1))$	*0.998*
Two-way flow rate[1], v_p (pc/h)=V/ (PHF * f_G * f_{HV})	*1313*
v_p * highest directional split proportion[2] (pc/h)	*788*

Free-Flow Speed from Field Measurement		Estimated Free-Flow Speed	
Field Measured speed, S_{FM}	*mi/h*	Base free-flow speed, $BFFS_{FM}$	*60.0 mi/h*
Observed volume, V_f	*veh/h*	Adj. for lane width and shoulder width[3], f_{LS} (Exhibit 20-5)	*0.0 mi/h*
Free-flow speed, FFS $FFS=S_{FM}+0.00776(V_f/f_{HV})$	*mi/h*	Adj. for access points, f_A (Exhibit 20-6)	*0.0 mi/h*
		Free-flow speed, FFS $(FSS=BFFS-f_{LS}-f_A)$	*60.0 mi/h*

Adj. for no-passing zones, f_{np} (*mi/h*) (Exhibit 20-11)	*0.0*
Average travel speed, ATS (*mi/h*) $ATS=FFS-0.00776v_p-f_{np}$	*49.8*

Percent Time-Spent-Following

Grade Adjustment factor, f_G (Exhibit 20-8)	*1.00*
Passenger-car equivalents for trucks, E_T (Exhibit 20-10)	*1.2*
Passenger-car equivalents for RVs, E_R (Exhibit 20-10)	*1.0*
Heavy-vehicle adjustment factor, $f_{HV}=1/(1+P_T(E_T-1)+P_R(E_R-1))$	*0.996*
Two-way flow rate[1], v_p (pc/h)=V/ (PHF * f_G * f_{HV})	*1315*
v_p * highest directional split proportion[2] (pc/h)	*789*
Base percent time-spent-following, $BPTSF(\%)=100(1-e^{-0.000879v_p})$	*68.5*
Adj. for directional distribution and no-passing zone, $f_{d/np}$(%)(Exh. 20-12)	*0.0*
Percent time-spent-following, $PTSF(\%)=BPTSF+f_{d/np}$	*68.5*

Level of Service and Other Performance Measures

Level of service, LOS (Exhibit 20-3 for Class I or 20-4 for Class II)	*D*
Volume to capacity ratio, $v/c=V_p/3{,}200$	*0.41*
Peak 15-min veh-miles of travel, VMT_{15} (veh- *mi*)= $0.25L_t(V/PHF)$	*0*

Peak-hour vehicle-miles of travel, VMT_{60}(veh- *mi*)=V*L_t	*0*
Peak 15-min total travel time, TT_{15}(veh-h)= VMT_{15}/ATS	*0.0*
Notes	
1. If Vp >= 3,200 pc/h, terminate analysis-the LOS is F. 2. If highest directional split Vp>= 1,700 pc/h, terminated anlysis-the LOS is F.	

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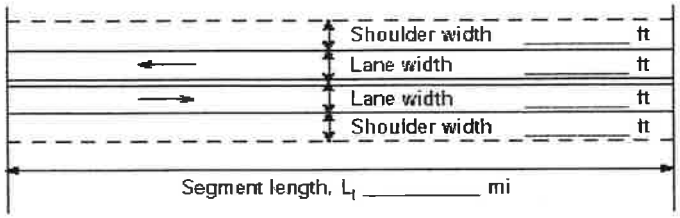
TWO-WAY TWO-LANE HIGHWAY SEGMENT WORKSHEET

General Information		Site Information	
Analyst	GRH	Highway	Tehachapi Blvd
Agency or Company	CTE	From/To	Tucker Rd to Mountain View Ave
Date Performed	9/1/2010	Jurisdiction	City of Tehachapi
Analysis Time Period	PM Peak Hour	Analysis Year	2035

Project Description: *2035 w/o Project*

Input Data



☑ Class I highway ☐ Class II highway

Terrain ☑ Level ☐ Rolling

Two-way hourly volume	*1333* veh/h
Directional split	*60 / 40*
Peak-hour factor, PHF	*0.90*
No-passing zone	*0*
% Trucks and Buses , P_T	*2* %
% Recreational vehicles, P_R	*1%*
Access points/ *mi*	*0*

Average Travel Speed

Grade adjustment factor, f_G (Exhibit 20-7)	*1.00*
Passenger-car equivalents for trucks, E_T (Exhibit 20-9)	*1.1*
Passenger-car equivalents for RVs, E_R (Exhibit 20-9)	*1.0*
Heavy-vehicle adjustment factor, $f_{HV}=1/(1+P_T(E_T-1)+P_R(E_R-1))$	*0.998*
Two-way flow rate[1], v_p (pc/h)=V/ (PHF * f_G * f_{HV})	*1484*
v_p * highest directional split proportion[2] (pc/h)	*890*

Free-Flow Speed from Field Measurement		Estimated Free-Flow Speed	
Field Measured speed, S_{FM}	*mi/h*	Base free-flow speed, $BFFS_{FM}$	*60.0 mi/h*
Observed volume, V_f	*veh/h*	Adj. for lane width and shoulder width[3], f_{LS} (Exhibit 20-5)	*0.0 mi/h*
Free-flow speed, FFS $FFS=S_{FM}+0.00776(V_f/f_{HV})$	*mi/h*	Adj. for access points, f_A (Exhibit 20-6)	*0.0 mi/h*
		Free-flow speed, FFS $FFS=BFFS-f_{LS}-f_A$	*60.0 mi/h*

Adj. for no-passing zones, f_{np} (*mi/h*) (Exhibit 20-11)	*0.0*
Average travel speed, ATS (*mi/h*) $ATS=FFS-0.00776v_p-f_{np}$	*48.5*

Percent Time-Spent-Following

Grade Adjustment factor, f_G (Exhibit 20-8)	*1.00*
Passenger-car equivalents for trucks, E_T (Exhibit 20-10)	*1.2*
Passenger-car equivalents for RVs, E_R (Exhibit 20-10)	*1.0*
Heavy-vehicle adjustment factor, $f_{HV}=1/(1+P_T(E_T-1)+P_R(E_R-1))$	*0.996*
Two-way flow rate[1], v_p (pc/h)=V/ (PHF * f_G * f_{HV})	*1487*
v_p * highest directional split proportion[2] (pc/h)	*892*
Base percent time-spent-following, $BPTSF(\%)=100(1-e^{-0.000879v_p})$	*72.9*
Adj. for directional distribution and no-passing zone, $f_{d/np}$(%)(Exh. 20-12)	*0.0*
Percent time-spent-following, $PTSF(\%)=BPTSF+f_{d/np}$	*72.9*

Level of Service and Other Performance Measures

Level of service, LOS (Exhibit 20-3 for Class I or 20-4 for Class II)	*D*
Volume to capacity ratio, $v/c=V_p/3{,}200$	*0.46*
Peak 15-min veh-miles of travel, VMT_{15} (veh- *mi*)= $0.25L_t(V/PHF)$	*0*

Peak-hour vehicle-miles of travel, VMT_{60}(veh- *mi*)=V*L_t	*0*
Peak 15-min total travel time, TT_{15}(veh-h)= VMT_{15}/ATS	*0.0*

Notes

1. If Vp >= 3,200 pc/h, terminate analysis-the LOS is F.
2. If highest directional split Vp>= 1,700 pc/h, terminated anlysis-the LOS is F.

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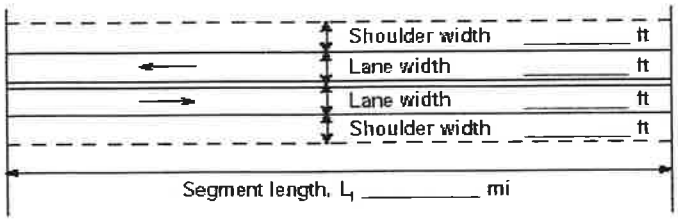
TWO-WAY TWO-LANE HIGHWAY SEGMENT WORKSHEET

General Information		Site Information	
Analyst	GRH	Highway	Tehachapi Blvd
Agency or Company	CTE	From/To	Tucker Rd to Mountain View Ave
Date Performed	9/1/2010	Jurisdiction	City of Tehachapi
Analysis Time Period	PM Peak Hour	Analysis Year	2035

Project Description: *2035 + Project*

Input Data



☑ Class I highway ☐ Class II highway

Terrain ☑ Level ☐ Rolling

Two-way hourly volume	*1616* veh/h
Directional split	*60 / 40*
Peak-hour factor, PHF	*0.90*
No-passing zone	*0*
% Trucks and Buses , P_T	*2* %
% Recreational vehicles, P_R	*1%*
Access points/ *mi*	*0*

Average Travel Speed

Grade adjustment factor, f_G (Exhibit 20-7)	*1.00*
Passenger-car equivalents for trucks, E_T (Exhibit 20-9)	*1.1*
Passenger-car equivalents for RVs, E_R (Exhibit 20-9)	*1.0*
Heavy-vehicle adjustment factor, $f_{HV}=1/(1+P_T(E_T-1)+P_R(E_R-1))$	*0.998*
Two-way flow rate[1], v_p (pc/h)=V/ (PHF * f_G * f_{HV})	*1799*
v_p * highest directional split proportion[2] (pc/h)	*1079*

Free-Flow Speed from Field Measurement		Estimated Free-Flow Speed	
Field Measured speed, S_{FM}	*mi/h*	Base free-flow speed, $BFFS_{FM}$	*60.0 mi/h*
Observed volume, V_f	*veh/h*	Adj. for lane width and shoulder width[3], f_{LS} (Exhibit 20-5)	*0.0 mi/h*
Free-flow speed, FFS FFS=S_{FM}+0.00776(V_f/ f_{HV})	*mi/h*	Adj. for access points, f_A (Exhibit 20-6)	*0.0 mi/h*
		Free-flow speed, FFS (FFS=BFFS-f_{LS}-f_A)	*60.0 mi/h*

Adj. for no-passing zones, f_{np} (*mi/h*) (Exhibit 20-11)	*0.0*
Average travel speed, ATS (*mi/h*) ATS=FFS-0.00776v_p-f_{np}	*46.0*

Percent Time-Spent-Following

Grade Adjustment factor, f_G (Exhibit 20-8)	*1.00*
Passenger-car equivalents for trucks, E_T (Exhibit 20-10)	*1.2*
Passenger-car equivalents for RVs, E_R (Exhibit 20-10)	*1.0*
Heavy-vehicle adjustment factor, $f_{HV}=1/(1+P_T(E_T-1)+P_R(E_R-1))$	*0.996*
Two-way flow rate[1], v_p (pc/h)=V/ (PHF * f_G * f_{HV})	*1803*
v_p * highest directional split proportion[2] (pc/h)	*1082*
Base percent time-spent-following, BPTSF(%)=100(1-$e^{-0.000879v_p}$)	*79.5*
Adj. for directional distribution and no-passing zone, $f_{d/np}$(%)(Exh. 20-12)	*0.0*
Percent time-spent-following, PTSF(%)=BPTSF+$f_{d/np}$	*79.5*

Level of Service and Other Performance Measures

Level of service, LOS (Exhibit 20-3 for Class I or 20-4 for Class II)	*D*
Volume to capacity ratio, v/c=V_p/ 3,200	*0.56*
Peak 15-min veh-miles of travel, VMT_{15} (veh- *mi*)= 0.25L_t(V/PHF)	*0*

Peak-hour vehicle-miles of travel, VMT_{60}(veh- *mi*)=V*L_t	*0*
Peak 15-min total travel time, TT_{15}(veh-h)= VMT_{15}/ATS	*0.0*
Notes	
1. If Vp >= 3,200 pc/h, terminate analysis-the LOS is F. 2. If highest directional split Vp>= 1,700 pc/h, terminated anlysis-the LOS is F.	

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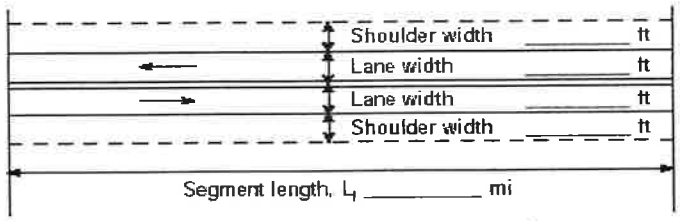
TWO-WAY TWO-LANE HIGHWAY SEGMENT WORKSHEET

General Information		Site Information	
Analyst	GRH	Highway	Tucker Road
Agency or Company	CTE	From/To	SR 58 to Tehachapi Blvd
Date Performed	9/1/2010	Jurisdiction	City of Tehachapi
Analysis Time Period	PM Peak Hour	Analysis Year	2035

Project Description: *2035 + Project*

Input Data



☑ Class I highway ☐ Class II highway

Terrain ☑ Level ☐ Rolling

Two-way hourly volume	*2404* veh/h
Directional split	*60 / 40*
Peak-hour factor, PHF	*0.90*
No-passing zone	*0*
% Trucks and Buses , P_T	*2* %
% Recreational vehicles, P_R	*1%*
Access points/ *mi*	*0*

Average Travel Speed

Grade adjustment factor, f_G (Exhibit 20-7)	*1.00*
Passenger-car equivalents for trucks, E_T (Exhibit 20-9)	*1.1*
Passenger-car equivalents for RVs, E_R (Exhibit 20-9)	*1.0*
Heavy-vehicle adjustment factor, $f_{HV}=1/(1+P_T(E_T-1)+P_R(E_R-1))$	*0.998*
Two-way flow rate[1], v_p (pc/h)=V/ (PHF * f_G * f_{HV})	*2676*
v_p * highest directional split proportion[2] (pc/h)	*1606*

Free-Flow Speed from Field Measurement		Estimated Free-Flow Speed	
Field Measured speed, S_{FM}	*mi/h*	Base free-flow speed, $BFFS_{FM}$	*60.0 mi/h*
Observed volume, V_f	*veh/h*	Adj. for lane width and shoulder width[3], f_{LS} (Exhibit 20-5)	*0.0 mi/h*
Free-flow speed, FFS $FFS=S_{FM}+0.00776(V_f/f_{HV})$	*mi/h*	Adj. for access points, f_A (Exhibit 20-6)	*0.0 mi/h*
		Free-flow speed, FFS $FSS=BFFS-f_{LS}-f_A$	*60.0 mi/h*

Adj. for no-passing zones, f_{np} (*mi/h*) (Exhibit 20-11)	*0.0*
Average travel speed, ATS (*mi/h*) $ATS=FFS-0.00776v_p-f_{np}$	*39.2*

Percent Time-Spent-Following

Grade Adjustment factor, f_G (Exhibit 20-8)	*1.00*
Passenger-car equivalents for trucks, E_T (Exhibit 20-10)	*1.2*
Passenger-car equivalents for RVs, E_R (Exhibit 20-10)	*1.0*
Heavy-vehicle adjustment factor, $f_{HV}=1/(1+P_T(E_T-1)+P_R(E_R-1))$	*0.996*
Two-way flow rate[1], v_p (pc/h)=V/ (PHF * f_G * f_{HV})	*2682*
v_p * highest directional split proportion[2] (pc/h)	*1609*
Base percent time-spent-following, $BPTSF(\%)=100(1-e^{-0.000879v_p})$	*90.5*
Adj. for directional distribution and no-passing zone, $f_{d/np}$(%)(Exh. 20-12)	*0.0*
Percent time-spent-following, $PTSF(\%)=BPTSF+f_{d/np}$	*90.5*

Level of Service and Other Performance Measures

Level of service, LOS (Exhibit 20-3 for Class I or 20-4 for Class II)	*E*
Volume to capacity ratio, v/c=V_p/ 3,200	*0.84*
Peak 15-min veh-miles of travel, VMT_{15} (veh- *mi*)= $0.25L_t(V/PHF)$	*0*

TRAFFIC SIGNAL WARRANT ANALYSIS
Warrant 3 - Peak Hour Volume
Rural Area

INTERSECTION: Tehachapi Blvd/Mountain View Ave

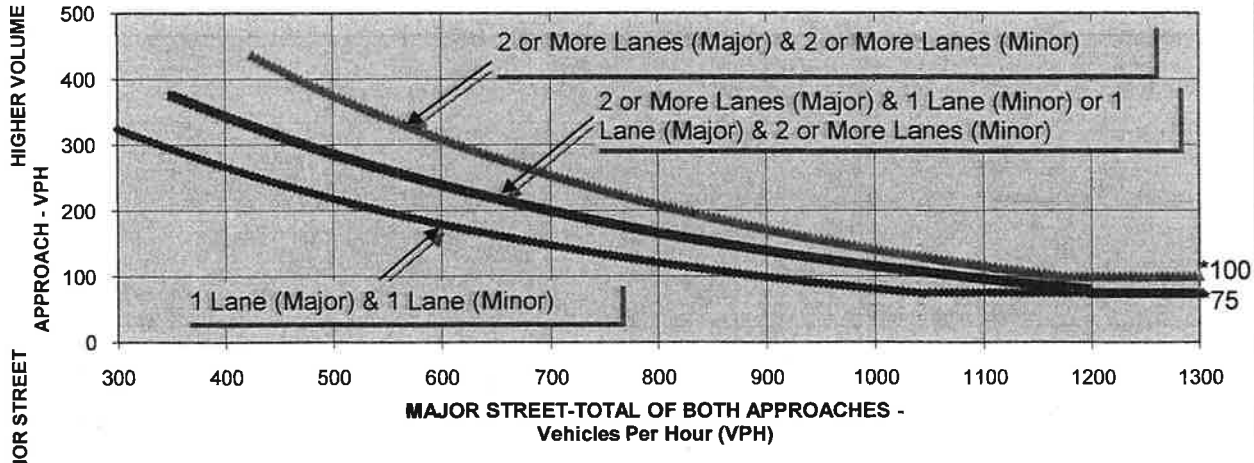
ANALYSIS SCENARIO: 2035 with Project

TIME PERIOD: PM Peak Hour

Major Street Volume (Both Approaches): **1304**
Minor Street Volume (Higher Approach): **82**

WARRANT MET? **YES**

Figure 4C-4.
WARRANT 3 - PEAK HOUR VOLUME
(Rural Areas - 70% Factor)



*Note: 100 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 75 vph applies as the lower threshold volume for a minor-street approach with one lane.

Reference: Caltrans, *California Manual on Uniform Traffic Control Devices*, September 26, 2006.

STREET SEGMENT ANALYSIS

Phone: Fax:
E-mail:

OPERATIONAL ANALYSIS

Analyst:	GRH
Agency/Co:	CTE
Date:	9/1/2010
Analysis Period:	PM Peak Hour
Highway:	Tucker Road
From/To:	Tehachapi Blvd-Valley Blvd
Jurisdiction:	City of tehachapi
Analysis Year:	2008
Project ID:	2008 Existing volumes

FREE-FLOW SPEED

Direction	1		2	
Lane width	12.0	ft	12.0	ft
Lateral clearance:				
Right edge	6.0	ft	6.0	ft
Left edge	6.0	ft	6.0	ft
Total lateral clearance	12.0	ft	12.0	ft
Access points per mile	0		0	
Median type				
Free-flow speed:	Measured		Measured	
FFS or BFFS	50.0	mph	50.0	mph
Lane width adjustment, FLW	0.0	mph	0.0	mph
Lateral clearance adjustment, FLC	0.0	mph	0.0	mph
Median type adjustment, FM	0.0	mph	0.0	mph
Access points adjustment, FA	0.0	mph	0.0	mph
Free-flow speed	50.0	mph	50.0	mph

VOLUME

Direction	1		2	
Volume, V	650	vph	549	vph
Peak-hour factor, PHF	0.90		0.90	
Peak 15-minute volume, v15	181		153	
Trucks and buses	2	%	2	%
Recreational vehicles	1	%	1	%
Terrain type	Level		Level	
Grade	0.00	%	0.00	%
Segment length	0.00	mi	0.00	mi
Number of lanes	2		2	
Driver population adjustment, fP	1.00		1.00	
Trucks and buses PCE, ET	1.5		1.5	
Recreational vehicles PCE, ER	1.2		1.2	
Heavy vehicle adjustment, fHV	0.988		0.988	
Flow rate, vp	365	pcphpl	308	pcphpl

RESULTS

Direction	1		2	
Flow rate, vp	365	pcphpl	308	pcphpl
Free-flow speed, FFS	50.0	mph	50.0	mph
Avg. passenger-car travel speed, S	50.0	mph	50.0	mph
Level of service, LOS	A		A	
Density, D	7.3	pc/mi/ln	6.2	pc/mi/ln

Overall results are not computed when free-flow speed is less than 45 mph.

Phone: Fax:
E-mail:

OPERATIONAL ANALYSIS

Analyst:	GRH
Agency/Co:	CTE
Date:	9/1/2010
Analysis Period:	PM Peak Hour
Highway:	Tucker Road
From/To:	Tehachapi Blvd-Valley Blvd
Jurisdiction:	City of tehachapi
Analysis Year:	2015
Project ID:	2015 w/o Project

FREE-FLOW SPEED

Direction	1		2	
Lane width	12.0	ft	12.0	ft
Lateral clearance:				
Right edge	6.0	ft	6.0	ft
Left edge	6.0	ft	6.0	ft
Total lateral clearance	12.0	ft	12.0	ft
Access points per mile	0		0	
Median type				
Free-flow speed:	Measured		Measured	
FFS or BFFS	50.0	mph	50.0	mph
Lane width adjustment, FLW	0.0	mph	0.0	mph
Lateral clearance adjustment, FLC	0.0	mph	0.0	mph
Median type adjustment, FM	0.0	mph	0.0	mph
Access points adjustment, FA	0.0	mph	0.0	mph
Free-flow speed	50.0	mph	50.0	mph

VOLUME

Direction	1		2	
Volume, V	747	vph	631	vph
Peak-hour factor, PHF	0.90		0.90	
Peak 15-minute volume, v15	208		175	
Trucks and buses	2	%	2	%
Recreational vehicles	1	%	1	%
Terrain type	Level		Level	
Grade	0.00	%	0.00	%
Segment length	0.00	mi	0.00	mi
Number of lanes	2		2	
Driver population adjustment, fP	1.00		1.00	
Trucks and buses PCE, ET	1.5		1.5	
Recreational vehicles PCE, ER	1.2		1.2	
Heavy vehicle adjustment, fHV	0.988		0.988	
Flow rate, vp	419	pcphpl	354	pcphpl

RESULTS

Direction	1		2	
Flow rate, vp	419	pcphpl	354	pcphpl
Free-flow speed, FFS	50.0	mph	50.0	mph
Avg. passenger-car travel speed, S	50.0	mph	50.0	mph
Level of service, LOS	A		A	
Density, D	8.4	pc/mi/ln	7.1	pc/mi/ln

Overall results are not computed when free-flow speed is less than 45 mph.

Phone: Fax:
E-mail:

OPERATIONAL ANALYSIS

Analyst:	GRH
Agency/Co:	CTE
Date:	9/1/2010
Analysis Period:	PM Peak Hour
Highway:	Tucker Road
From/To:	Tehachapi Blvd-Valley Blvd
Jurisdiction:	City of tehachapi
Analysis Year:	2015
Project ID:	2015 + Project

FREE-FLOW SPEED

Direction	1		2	
Lane width	12.0	ft	12.0	ft
Lateral clearance:				
Right edge	6.0	ft	6.0	ft
Left edge	6.0	ft	6.0	ft
Total lateral clearance	12.0	ft	12.0	ft
Access points per mile	0		0	
Median type				
Free-flow speed:	Measured		Measured	
FFS or BFFS	50.0	mph	50.0	mph
Lane width adjustment, FLW	0.0	mph	0.0	mph
Lateral clearance adjustment, FLC	0.0	mph	0.0	mph
Median type adjustment, FM	0.0	mph	0.0	mph
Access points adjustment, FA	0.0	mph	0.0	mph
Free-flow speed	50.0	mph	50.0	mph

VOLUME

Direction	1		2	
Volume, V	932	vph	785	vph
Peak-hour factor, PHF	0.90		0.90	
Peak 15-minute volume, v15	259		218	
Trucks and buses	2	%	2	%
Recreational vehicles	1	%	1	%
Terrain type	Level		Level	
Grade	0.00	%	0.00	%
Segment length	0.00	mi	0.00	mi
Number of lanes	2		2	
Driver population adjustment, fP	1.00		1.00	
Trucks and buses PCE, ET	1.5		1.5	
Recreational vehicles PCE, ER	1.2		1.2	
Heavy vehicle adjustment, fHV	0.988		0.988	
Flow rate, vp	523	pcphpl	441	pcphpl

RESULTS

Direction	1		2	
Flow rate, vp	523	pcphpl	441	pcphpl
Free-flow speed, FFS	50.0	mph	50.0	mph
Avg. passenger-car travel speed, S	50.0	mph	50.0	mph
Level of service, LOS	A		A	
Density, D	10.5	pc/mi/ln	8.8	pc/mi/ln

Overall results are not computed when free-flow speed is less than 45 mph.

Phone: Fax:
E-mail:

OPERATIONAL ANALYSIS

Analyst: GRH
Agency/Co: CTE
Date: 9/1/2010
Analysis Period: PM Peak Hour
Highway: Tucker Road
From/To: Tehachapi Blvd-Valley Blvd
Jurisdiction: City of tehachapi
Analysis Year: 2035
Project ID: 2035 w/o Project

FREE-FLOW SPEED

Direction	1		2	
Lane width	12.0	ft	12.0	ft
Lateral clearance:				
Right edge	6.0	ft	6.0	ft
Left edge	6.0	ft	6.0	ft
Total lateral clearance	12.0	ft	12.0	ft
Access points per mile	0		0	
Median type				
Free-flow speed:	Measured		Measured	
FFS or BFFS	50.0	mph	50.0	mph
Lane width adjustment, FLW	0.0	mph	0.0	mph
Lateral clearance adjustment, FLC	0.0	mph	0.0	mph
Median type adjustment, FM	0.0	mph	0.0	mph
Access points adjustment, FA	0.0	mph	0.0	mph
Free-flow speed	50.0	mph	50.0	mph

VOLUME

Direction	1		2	
Volume, V	1111	vph	939	vph
Peak-hour factor, PHF	0.90		0.90	
Peak 15-minute volume, v15	309		261	
Trucks and buses	2	%	2	%
Recreational vehicles	1	%	1	%
Terrain type	Level		Level	
Grade	0.00	%	0.00	%
Segment length	0.00	mi	0.00	mi
Number of lanes	2		2	
Driver population adjustment, fP	1.00		1.00	
Trucks and buses PCE, ET	1.5		1.5	
Recreational vehicles PCE, ER	1.2		1.2	
Heavy vehicle adjustment, fHV	0.988		0.988	
Flow rate, vp	624	pcphpl	527	pcphpl

RESULTS

Direction	1		2	
Flow rate, vp	624	pcphpl	527	pcphpl
Free-flow speed, FFS	50.0	mph	50.0	mph
Avg. passenger-car travel speed, S	50.0	mph	50.0	mph
Level of service, LOS	B		A	
Density, D	12.5	pc/mi/ln	10.5	pc/mi/ln

Overall results are not computed when free-flow speed is less than 45 mph.

Phone: Fax:
E-mail:

OPERATIONAL ANALYSIS

Analyst:	GRH
Agency/Co:	CTE
Date:	9/1/2010
Analysis Period:	PM Peak Hour
Highway:	Tucker Road
From/To:	Tehachapi Blvd-Valley Blvd
Jurisdiction:	City of tehachapi
Analysis Year:	2035
Project ID:	2035 + Project

FREE-FLOW SPEED

Direction	1		2	
Lane width	12.0	ft	12.0	ft
Lateral clearance:				
Right edge	6.0	ft	6.0	ft
Left edge	6.0	ft	6.0	ft
Total lateral clearance	12.0	ft	12.0	ft
Access points per mile	0		0	
Median type				
Free-flow speed:	Measured		Measured	
FFS or BFFS	50.0	mph	50.0	mph
Lane width adjustment, FLW	0.0	mph	0.0	mph
Lateral clearance adjustment, FLC	0.0	mph	0.0	mph
Median type adjustment, FM	0.0	mph	0.0	mph
Access points adjustment, FA	0.0	mph	0.0	mph
Free-flow speed	50.0	mph	50.0	mph

VOLUME

Direction	1		2	
Volume, V	1296	vph	1093	vph
Peak-hour factor, PHF	0.90		0.90	
Peak 15-minute volume, v15	360		304	
Trucks and buses	2	%	2	%
Recreational vehicles	1	%	1	%
Terrain type	Level		Level	
Grade	0.00	%	0.00	%
Segment length	0.00	mi	0.00	mi
Number of lanes	2		2	
Driver population adjustment, fP	1.00		1.00	
Trucks and buses PCE, ET	1.5		1.5	
Recreational vehicles PCE, ER	1.2		1.2	
Heavy vehicle adjustment, fHV	0.988		0.988	
Flow rate, vp	728	pcphpl	614	pcphpl

RESULTS

Direction	1		2	
Flow rate, vp	728	pcphpl	614	pcphpl
Free-flow speed, FFS	50.0	mph	50.0	mph
Avg. passenger-car travel speed, S	50.0	mph	50.0	mph
Level of service, LOS	B		B	
Density, D	14.6	pc/mi/ln	12.3	pc/mi/ln

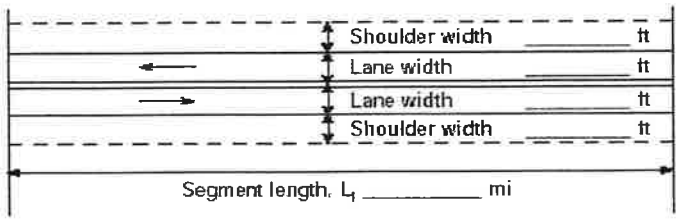
Overall results are not computed when free-flow speed is less than 45 mph.

TWO-WAY TWO-LANE HIGHWAY SEGMENT WORKSHEET

General Information		Site Information	
Analyst	GRH	Highway	Tucker Road
Agency or Company	CTE	From/To	SR 58 to Tehachapi Blvd
Date Performed	9/1/2010	Jurisdiction	City of Tehachapi
Analysis Time Period	PM Peak Hour	Analysis Year	2008

Project Description: *2008 Existing volumes*

Input Data



☑ Class I highway ☐ Class II highway

Terrain ☑ Level ☐ Rolling

Two-way hourly volume	*1072* veh/h
Directional split	*60 / 40*
Peak-hour factor, PHF	*0.90*
No-passing zone	*0*
% Trucks and Buses , P_T	*2* %
% Recreational vehicles, P_R	*1%*
Access points/ *mi*	*0*

Average Travel Speed

Grade adjustment factor, f_G (Exhibit 20-7)	*1.00*
Passenger-car equivalents for trucks, E_T (Exhibit 20-9)	*1.2*
Passenger-car equivalents for RVs, E_R (Exhibit 20-9)	*1.0*
Heavy-vehicle adjustment factor, $f_{HV}=1/(1+P_T(E_T-1)+P_R(E_R-1))$	*0.996*
Two-way flow rate[1], v_p (pc/h)=V/ (PHF * f_G * f_{HV})	*1196*
v_p * highest directional split proportion[2] (pc/h)	*718*

Free-Flow Speed from Field Measurement		Estimated Free-Flow Speed	
Field Measured speed, S_{FM}	*mi/h*	Base free-flow speed, $BFFS_{FM}$	*60.0 mi/h*
Observed volume, V_f	*veh/h*	Adj. for lane width and shoulder width[3], f_{LS} (Exhibit 20-5)	*0.0 mi/h*
Free-flow speed, FFS $FFS=S_{FM}+0.00776(V_f/f_{HV})$	*mi/h*	Adj. for access points, f_A (Exhibit 20-6)	*0.0 mi/h*
		Free-flow speed, FFS ($FSS=BFFS-f_{LS}-f_A$)	*60.0 mi/h*

Adj. for no-passing zones, f_{np} (*mi/h*) (Exhibit 20-11)	*0.0*
Average travel speed, ATS (*mi/h*) $ATS=FFS-0.00776v_p-f_{np}$	*50.7*

Percent Time-Spent-Following

Grade Adjustment factor, f_G (Exhibit 20-8)	*1.00*
Passenger-car equivalents for trucks, E_T (Exhibit 20-10)	*1.2*
Passenger-car equivalents for RVs, E_R (Exhibit 20-10)	*1.0*
Heavy-vehicle adjustment factor, $f_{HV}=1/(1+P_T(E_T-1)+P_R(E_R-1))$	*0.996*
Two-way flow rate[1], v_p (pc/h)=V/ (PHF * f_G * f_{HV})	*1196*
v_p * highest directional split proportion[2] (pc/h)	*718*
Base percent time-spent-following, $BPTSF(\%)=100(1-e^{-0.000879v_p})$	*65.1*
Adj. for directional distribution and no-passing zone, $f_{d/np}$(%)(Exh. 20-12)	*0.0*
Percent time-spent-following, $PTSF(\%)=BPTSF+f_{d/np}$	*65.1*

Level of Service and Other Performance Measures

Level of service, LOS (Exhibit 20-3 for Class I or 20-4 for Class II)	*D*
Volume to capacity ratio, $v/c=V_p/3{,}200$	*0.37*
Peak 15-min veh-miles of travel, VMT_{15} (veh- *mi*)= $0.25L_t(V/PHF)$	*0*

Peak-hour vehicle-miles of travel, VMT_{60}(veh- *mi*)=V*L_t	*0*
Peak 15-min total travel time, TT_{15}(veh-h)= VMT_{15}/ATS	*0.0*
Notes	
1. If Vp >= 3,200 pc/h, terminate analysis-the LOS is F. 2. If highest directional split Vp>= 1,700 pc/h, terminated anlysis-the LOS is F.	

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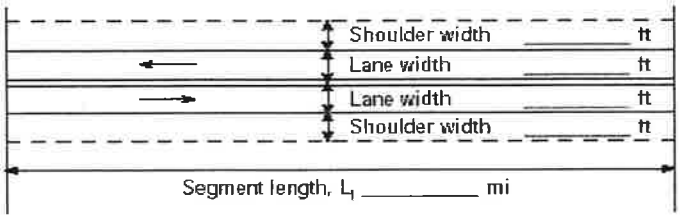
TWO-WAY TWO-LANE HIGHWAY SEGMENT WORKSHEET

General Information		Site Information	
Analyst	GRH	Highway	Tucker Road
Agency or Company	CTE	From/To	SR 58 to Tehachapi Blvd
Date Performed	9/1/2010	Jurisdiction	City of Tehachapi
Analysis Time Period	PM Peak Hour	Analysis Year	2015

Project Description: *2015 w/o Project*

Input Data



☑ Class I highway ☐ Class II highway

Terrain ☑ Level ☐ Rolling

Two-way hourly volume	*1237* veh/h
Directional split	*60 / 40*
Peak-hour factor, PHF	*0.90*
No-passing zone	*0*
% Trucks and Buses , P_T	*2* %
% Recreational vehicles, P_R	*1%*
Access points/ *mi*	*0*

Average Travel Speed

Grade adjustment factor, f_G (Exhibit 20-7)	*1.00*
Passenger-car equivalents for trucks, E_T (Exhibit 20-9)	*1.1*
Passenger-car equivalents for RVs, E_R (Exhibit 20-9)	*1.0*
Heavy-vehicle adjustment factor, $f_{HV}=1/(1+P_T(E_T-1)+P_R(E_R-1))$	*0.998*
Two-way flow rate[1], v_p (pc/h)=V/ (PHF * f_G * f_{HV})	*1377*
v_p * highest directional split proportion[2] (pc/h)	*826*

Free-Flow Speed from Field Measurement		Estimated Free-Flow Speed	
Field Measured speed, S_{FM}	*mi/h*	Base free-flow speed, $BFFS_{FM}$	*60.0 mi/h*
Observed volume, V_f	*veh/h*	Adj. for lane width and shoulder width[3], f_{LS} (Exhibit 20-5)	*0.0 mi/h*
Free-flow speed, FFS $FFS=S_{FM}+0.00776(V_f/f_{HV})$	*mi/h*	Adj. for access points, f_A (Exhibit 20-6)	*0.0 mi/h*
		Free-flow speed, FFS ($FSS=BFFS-f_{LS}-f_A$)	*60.0 mi/h*

Adj. for no-passing zones, f_{np} (*mi/h*) (Exhibit 20-11)	*0.0*
Average travel speed, ATS (*mi/h*) $ATS=FFS-0.00776v_p-f_{np}$	*49.3*

Percent Time-Spent-Following

Grade Adjustment factor, f_G (Exhibit 20-8)	*1.00*
Passenger-car equivalents for trucks, E_T (Exhibit 20-10)	*1.2*
Passenger-car equivalents for RVs, E_R (Exhibit 20-10)	*1.0*
Heavy-vehicle adjustment factor, $f_{HV}=1/(1+P_T(E_T-1)+P_R(E_R-1))$	*0.996*
Two-way flow rate[1], v_p (pc/h)=V/ (PHF * f_G * f_{HV})	*1380*
v_p * highest directional split proportion[2] (pc/h)	*828*
Base percent time-spent-following, $BPTSF(\%)=100(1-e^{-0.000879v_p})$	*70.3*
Adj. for directional distribution and no-passing zone, $f_{d/np}$(%)(Exh. 20-12)	*0.0*
Percent time-spent-following, $PTSF(\%)=BPTSF+f_{d/np}$	*70.3*

Level of Service and Other Performance Measures

Level of service, LOS (Exhibit 20-3 for Class I or 20-4 for Class II)	*D*
Volume to capacity ratio, $v/c=V_p/3{,}200$	*0.43*
Peak 15-min veh-miles of travel, VMT_{15} (veh- *mi*)= $0.25L_t(V/PHF)$	*0*

Peak-hour vehicle-miles of travel, VMT_{60}(veh- *mi*)=V*L_t	*0*
Peak 15-min total travel time, TT_{15}(veh-h)= VMT_{15}/ATS	*0.0*
Notes	
1. If Vp >= 3,200 pc/h, terminate analysis-the LOS is F. 2. If highest directional split Vp>= 1,700 pc/h, terminated anlysis-the LOS is F.	

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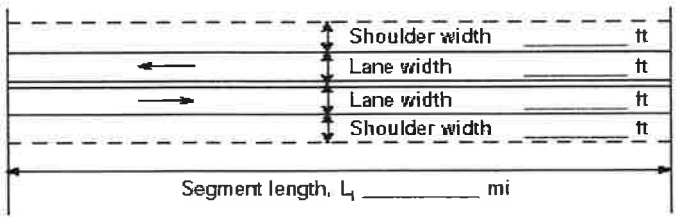
TWO-WAY TWO-LANE HIGHWAY SEGMENT WORKSHEET

General Information		Site Information	
Analyst	GRH	Highway	Tucker Road
Agency or Company	CTE	From/To	SR 58 to Tehachapi Blvd
Date Performed	9/1/2010	Jurisdiction	City of Tehachapi
Analysis Time Period	PM Peak Hour	Analysis Year	2015

Project Description: *2015 + Project*

Input Data



☑ Class I highway ☐ Class II highway

Terrain ☑ Level ☐ Rolling

Two-way hourly volume	*1804* veh/h
Directional split	*60 / 40*
Peak-hour factor, PHF	*0.90*
No-passing zone	*0*
% Trucks and Buses , P_T	*2* %
% Recreational vehicles, P_R	*1%*
Access points/ *mi*	*0*

Average Travel Speed

Grade adjustment factor, f_G (Exhibit 20-7)	*1.00*
Passenger-car equivalents for trucks, E_T (Exhibit 20-9)	*1.1*
Passenger-car equivalents for RVs, E_R (Exhibit 20-9)	*1.0*
Heavy-vehicle adjustment factor, $f_{HV}=1/(1+P_T(E_T-1)+P_R(E_R-1))$	*0.998*
Two-way flow rate[1], v_p (pc/h)=V/ (PHF * f_G * f_{HV})	*2008*
v_p * highest directional split proportion[2] (pc/h)	*1205*

Free-Flow Speed from Field Measurement		Estimated Free-Flow Speed	
Field Measured speed, S_{FM}	*mi/h*	Base free-flow speed, $BFFS_{FM}$	*60.0 mi/h*
Observed volume, V_f	*veh/h*	Adj. for lane width and shoulder width[3], f_{LS} (Exhibit 20-5)	*0.0 mi/h*
Free-flow speed, FFS $FFS=S_{FM}+0.00776(V_f/f_{HV})$	*mi/h*	Adj. for access points, f_A (Exhibit 20-6)	*0.0 mi/h*
		Free-flow speed, FFS ($FSS=BFFS-f_{LS}-f_A$)	*60.0 mi/h*

Adj. for no-passing zones, f_{np} (*mi/h*) (Exhibit 20-11)	*0.0*
Average travel speed, ATS (*mi/h*) $ATS=FFS-0.00776v_p-f_{np}$	*44.4*

Percent Time-Spent-Following

Grade Adjustment factor, f_G (Exhibit 20-8)	*1.00*
Passenger-car equivalents for trucks, E_T (Exhibit 20-10)	*1.2*
Passenger-car equivalents for RVs, E_R (Exhibit 20-10)	*1.0*
Heavy-vehicle adjustment factor, $f_{HV}=1/(1+P_T(E_T-1)+P_R(E_R-1))$	*0.996*
Two-way flow rate[1], v_p (pc/h)=V/ (PHF * f_G * f_{HV})	*2012*
v_p * highest directional split proportion[2] (pc/h)	*1207*
Base percent time-spent-following, $BPTSF(\%)=100(1-e^{-0.000879v_p})$	*82.9*
Adj. for directional distribution and no-passing zone, $f_{d/np}$(%)(Exh. 20-12)	*0.0*
Percent time-spent-following, $PTSF(\%)=BPTSF+f_{d/np}$	*82.9*

Level of Service and Other Performance Measures

Level of service, LOS (Exhibit 20-3 for Class I or 20-4 for Class II)	*E*
Volume to capacity ratio, $v/c=V_p/3{,}200$	*0.63*
Peak 15-min veh-miles of travel, VMT_{15} (veh- *mi*)= $0.25L_t(V/PHF)$	*0*

Peak-hour vehicle-miles of travel, VMT_{60}(veh- *mi*)=V^*L_t	*0*
Peak 15-min total travel time, TT_{15}(veh-h)= VMT_{15}/ATS	*0.0*
Notes	
1. If Vp >= 3,200 pc/h, terminate analysis-the LOS is F. 2. If highest directional split Vp>= 1,700 pc/h, terminated anlysis-the LOS is F.	

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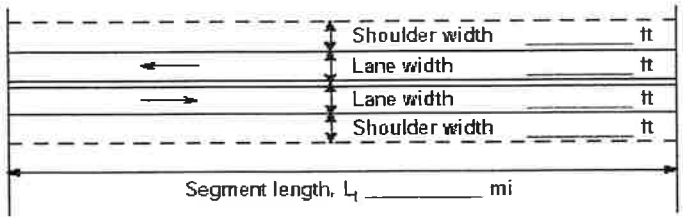
TWO-WAY TWO-LANE HIGHWAY SEGMENT WORKSHEET

General Information		Site Information	
Analyst	GRH	Highway	Tucker Road
Agency or Company	CTE	From/To	SR 58 to Tehachapi Blvd
Date Performed	9/1/2010	Jurisdiction	City of Tehachapi
Analysis Time Period	PM Peak Hour	Analysis Year	2035

Project Description: *2035 w/o Project*

Input Data



☑ Class I highway ☐ Class II highway

Terrain ☑ Level ☐ Rolling

Two-way hourly volume	*1838* veh/h
Directional split	*60 / 40*
Peak-hour factor, PHF	*0.90*
No-passing zone	*0*
% Trucks and Buses , P_T	*2* %
% Recreational vehicles, P_R	*1%*
Access points/ *mi*	*0*

Average Travel Speed

Grade adjustment factor, f_G (Exhibit 20-7)	*1.00*
Passenger-car equivalents for trucks, E_T (Exhibit 20-9)	*1.1*
Passenger-car equivalents for RVs, E_R (Exhibit 20-9)	*1.0*
Heavy-vehicle adjustment factor, $f_{HV}=1/(1+P_T(E_T-1)+P_R(E_R-1))$	*0.998*
Two-way flow rate[1], v_p (pc/h)=V/ (PHF * f_G * f_{HV})	*2046*
v_p * highest directional split proportion[2] (pc/h)	*1228*

Free-Flow Speed from Field Measurement		Estimated Free-Flow Speed	
Field Measured speed, S_{FM}	*mi/h*	Base free-flow speed, $BFFS_{FM}$	*60.0 mi/h*
Observed volume, V_f	*veh/h*	Adj. for lane width and shoulder width[3], f_{LS} (Exhibit 20-5)	*0.0 mi/h*
Free-flow speed, FFS $FFS=S_{FM}+0.00776(V_f/f_{HV})$	*mi/h*	Adj. for access points, f_A (Exhibit 20-6)	*0.0 mi/h*
		Free-flow speed, FFS ($FSS=BFFS-f_{LS}-f_A$)	*60.0 mi/h*

Adj. for no-passing zones, f_{np} (*mi/h*) (Exhibit 20-11)	*0.0*
Average travel speed, ATS (*mi/h*) $ATS=FFS-0.00776v_p-f_{np}$	*44.1*

Percent Time-Spent-Following

Grade Adjustment factor, f_G (Exhibit 20-8)	*1.00*
Passenger-car equivalents for trucks, E_T (Exhibit 20-10)	*1.2*
Passenger-car equivalents for RVs, E_R (Exhibit 20-10)	*1.0*
Heavy-vehicle adjustment factor, $f_{HV}=1/(1+P_T(E_T-1)+P_R(E_R-1))$	*0.996*
Two-way flow rate[1], v_p (pc/h)=V/ (PHF * f_G * f_{HV})	*2050*
v_p * highest directional split proportion[2] (pc/h)	*1230*
Base percent time-spent-following, $BPTSF(\%)=100(1-e^{-0.000879v_p})$	*83.5*
Adj. for directional distribution and no-passing zone, $f_{d/hp}$(%)(Exh. 20-12)	*0.0*
Percent time-spent-following, $PTSF(\%)=BPTSF+f_{d/np}$	*83.5*

Level of Service and Other Performance Measures

Level of service, LOS (Exhibit 20-3 for Class I or 20-4 for Class II)	*E*
Volume to capacity ratio, $v/c=V_p/3{,}200$	*0.64*
Peak 15-min veh-miles of travel, VMT_{15} (veh- *mi*)= $0.25L_t(V/PHF)$	*0*

Peak-hour vehicle-miles of travel, VMT_{60}(veh- *mi*)=V*L_t	*0*
Peak 15-min total travel time, TT_{15}(veh-h)= VMT_{15}/ATS	*0.0*
Notes	
1. If Vp >= 3,200 pc/h, terminate analysis-the LOS is F. 2. If highest directional split Vp>= 1,700 pc/h, terminated anlysis-the LOS is F.	

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ARCHAEOLOGICAL INVESTIGATION

OF

LOOP RANCH

TEHACHAPI, KERN COUNTY, CALIFORNIA

Prepared by:

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MARCH 15, 1990

APPENDIX B

SUMMARY

In February, 1990, an archaeological field evaluation of a large area known as the Loop Ranch was conducted near the city of Tehachapi, in Kern County, California. This area, consisting of 1600 acres of land, is being proposed for several uses, including residential properties, commercial areas, a business park, golf course, the expansion of Tehachapi's sewage treatment facility, open space and agricultural areas. The purpose of this study was to evaluate the impact of development on cultural resources that may be present within the project area and to develop guidelines to minimize impacts to such resources.

As a result of this study, 10 new archaeological sites were located and recorded, and two previously recorded sites were revisited. These sites consist primarily of milling features and quarry/workshop areas. Most of these sites do not appear to contain buried cultural deposits, and few formal artifacts were found. While most of these sites do not appear to be significant resources, four contain more substantial remains, and will require mitigation to reduce and/or prevent impacts. And, since it is possible for any site to be impacted by development, recommendations are outlined which are designed to minimize and prevent damage to these sites. Once appropriate preservation measures and guidelines are established for the resources present within

the Loop Ranch project area archaeological clearance can be given.

PROJECT LOCATION AND DESCRIPTION

The Loop Ranch is located north of the city of Tehachapi, along and to the east of Tehachapi Creek. Highway 58 borders most of the western edge of this area, while the western slopes of the Piute Mountains border the east (see map). Specifically, the Loop Ranch is located in portions of the E 1/2 of Section 7, all but the NE 1/4 of the SE 1/4 of Section 8, all but a portion of the SE 1/4 of Section 17, and a portion of the E 1/2 of Section 18, Township 32S, Range 33E., M.D.B.&M. as depicted on the Tehachapi North, California, 7.5' U.S.G.S. Topographic Quadrangle.

This 1600 acre parcel is situated in the southwest corner of the Piute Mountains and the north edge of Tehachapi Valley. The geology of the area is made up of a variety of rock units, including areas of granitic exposure, volcanic outcrops of rhyolite and basalt, outcrops of metamorphic limestones (marble), and large areas of alluvial deposits. Several outcrops of chert and chalcedony also occur here. A number of small, seasonal drainages cross the property, with a larger drainage in the northern portion of section 8. Most of the sites were along this drainage. Tehachapi

Creek flows to the west of the property boundaries. The most prominent feature is Chapi Hill. At 4279' above sea level, it provides a view of most of the study area. The elevation ranges 3640' in the northwestern corner of the property, to Chapi Hill. Vegetation communities also vary, with areas near drainages containing oaks, pine, juniper, willow, and some berry bushes, with drier areas containing rabbit brush and grasses. A grass mat covers much of the western and southern areas.

Several previous impacts have ocurred within the study area. These include, Highway 58, which cuts through parts of sections 17 and 18, the Southern Pacific Railroad in the SE 1/4 of section 18, a small mine area, a number of dirt roads, fences and a water well and tank. The soil for the region varies from a light sandy material to a medium brown loam. Scattered cobbles, an occasional boulder, and rock outcrops, are found almost everywhere.

There are a number of resouces available here that would have useful for Native American populations. The seeds from juniper bushes, pine and oak trees all provide useful foodstuffs. Perhaps more important here, are the outcrops of chert and chalcedony. In addition to the largest quarry site (Ker 2189), there are other smaller exposures, and occasional cobbles of usable material found in the many of the drainages and flatter areas, particularly in sections 8

and 7. It appears the strata containing these materials runs through much of the area, with exposure of this strata varying greatly from area to area. The quality of these materials varies from poor to good. Section 8 also contains a number of the granitic outcrops. Most of section 17 consisted of limestone/marble debris scattered on the open, grass covered slopes and flat areas around Chapi Hill.

LITERATURE AND RECORDS SEARCH

Prior to the survey, a records search was conducted at the Southern San Joaquin Valley Information Center. According to these records, a small portion of the west side of the study area was included in an earlier survey (Schiffman 1979). This study located several sites, none of which were within the present study area. One of these site (Ker 1044) is located opposite the railroad tracks in section 18. A second study (Wirth 1987) surveyed a transmission line corridor through section 8, resulting in the discovery and recording of Ker 2189, a large quarry site. No additional studies are known to have taken place within or adjacent to the study area. The record files did indicate that another archaeological site, Ker 2553, has been recorded in the SE 1/4 of section 18. This site contains several milling loci within its boundaries, lithic debris, ground stone tools, human remains, and a buried midden deposit. This large site

has been sugested as the possible location of the historic Indian village of Tehachapi. According to the information center, conflicting reports have identified remains as being Indian, or the remains of Chinese railroad workers. A discussion of sites CA-Ker 2189 and 2553, along with the 10 newly found archaeological sites is found later in this report. No other sites are known within or adjacent to the study area boundary.

FIELD METHODOLOGY

The on-site field investigation was conducted by walking over the area in a systematic manner. The survey strategy combined walking linear transects, along with the specific examination of topographic features, such as drainages, hills, and outcrops. Since most of the study area consisted of large open areas covered by a grass mat, transects were spaced approximately 50-60 meters apart. No obstacles to the survey were encountered. When archaeological sites were found, the areas were examined for surface features and artifacts. To assist in establishing if a buried cultural deposit was present, particularly by the milling sites, small holes were dug with a trowel. Bedrock milling features, such as mortars and metates, were measured and site size was determined by pacing. For Ker 2189, recorded in 1987, the site was re-examined. It was observed that the

quarry and lithic materials covered a larger area than was originally recorded. No new work was done at Ker 2553 due to the current site record for this site. No surface artifacts were collected by this study. Based on site observations, recommendations have been developed which will minimize impacts to these resources that may occur as a result of any development that will might take place. Upon completion of this study, a copy of this report and the site records will be submitted to the information center for their files.

RESULTS OF FIELD INVESTIGATION

In February, 1990, the field survey of the Loop Ranch was completed. As a result of the field work, 10 archaeological sites were discovered, and 2 previously recorded sites were revisited. For the 10 new sites, four are small milling areas, containing 2, 3, 7, and 8 milling features, which included both bedrock mortars and bedrock metates. Three of the sites are moderate milling areas with 13, 15, and 18 milling features. There was one quarry area with a moderate to heavy lithic scatter associated with it, a sparse lithic scatter, and a rock ring with asociated lithic debris. The two sites revisited consisted of a large village site, and a very large quarry area. Examined individually, these sites are identified as Loop Ranch 1-10, Ker 2553, and Ker

2189. Ten of these sites are located in Section 8, 1 in Section 7, and 1 in Section 18. Also, all of the milling sites are in Section 8 with the exception of Ker 2553. Refer to site location map.

Loop Ranch 1: This site is a small, sparse lithic scatter of chert and chalcedony flakes. Examination with a trowel indicated that there was no midden deposit or significant cultural remains. All of the flakes were moderate to small waste flakes. No formal artifacts were observed. No additional field work is required here.

Loop Ranch 2: This site is a small, milling area consisting of 4 bedrock mortars on three different rocks. Subsurface checking with a trowel indicates that no buried cultural deposit is located here. This site is just south of Loop Ranch 1, and may be associated with it. There were no flakes or hand tools observed. No additional field work is required here.

Loop Ranch 3: This site, located adjacent to a dry creek bed, is also a small milling location containing just 8 bedrock mortars on a single granitic boulder. Several of the mortars are relatively deep. There are also 7 cupules on a second boulder. One flake of basalt and a flake of chalcedony were found. Examination with a trowel suggests that there is no buried cultural deposit here. No additinal

field work is required here.

Loop Ranch 4: Considered a moderate sized milling location, this area contains 15 milling features, and 22 cupules on 7 granitic boulders. This site is situated downstream from site 3. No flakes, hand tools or buried cultural deposit were identified. No additional field work is required here.

Loop Ranch 5: This site, located across the creek from site 4, is another moderate milling site containing 18 bedrock milling features on four granitic rocks. One cobble pestle and two chalcedony waste flakes were also found here. An examination be trowel indicated no buried cultural deposit. No additional field work is required here.

Loop Ranch 6: Located downstream, and on the same side of the creek as site 4, this is another moderate milling site containing 13 milling features on 8 small granitic boulders. A cobble pestle was found adjacent to one of the boulders. No flakes or other cultural remains were located. Examination by trowel indicated no buried cultural deposit. No additional field work is required at this site.

Loop Ranch 7: This is a small, ephemeral milling site consisting of 5 milling features on a single boulder. Both mortars are shallow. There were no flakes or other cultural reamins. Examination by trowel indicates that there is no

buried cultural deposit here. No additional field worl is required here.

Loop Ranch 8: Another ephemeral milling location containing 4 features on 2 adjacnet rocks. Both mortars were very shallow, a the two bedrock metates were small. A single chalcedony waste flake was found here. No buried cultural deposit was found at this site overlooking the same drainage as the previous sites. No additional field work is required here.

Loop Ranch 9: Overlooking the same drainage as sites 3-8, this site is a moderate to dense lithic scatter with naturally occuring cobbles of chert and chalcedony quarry material. While the ground was very compact and with no obvious presence of a buried cultural deposit, it is possible that a very shallow midden may be present. If any buried remains are present they are probably limited to a few centimeters. Quarry usage appears to have been limited to using materials that are continuing to erode out of the knoll comprising this site. Flaked debris extends in all directions from the knoll top, with most of this spread probably due to natural erosional processes. A number of the lithic items were examined, but no formal artifacts were found. It is possible that a more detailed inspection of this site may identify formal artifacts, flaking tools and a shallow buried deposit. It is recommended that

additional work be performed here to determine the extent of any buried deposit and to identify any significant remains that may be present. See recommendations section for specific suggestions.

Loop Ranch 10: The last new site found during this study consists of a small rock ring, approximately 4 meters in diameter and an associated scatter of flakes and core material. Located at the confluence of two runoff channels, the rock ring is just above the stream bed, while virtually all of the flaked debris is mixed with the sand and cobbles of the stream bed. No formal artifacts were found here, although stream action could have easily buried or carried off these materials. Of interest here, is the relative isolation of this feature, which suggests that it may have had some significance or importance to early inhabitants. Therefore, additional field work is required here to determine if the site has a buried cultural deposit or a significant cultural component.

CA-Ker 2189: This is a very large quarry and workshop site. Located in the middle of Section 8, and encompassing an area over 40 acres in size, this site has the potential of containing significant cultural remains. There are several outcrops of cryptocrystalline materials and associated, dense flake scatters. These materials occur here naturally and appear as stratified outcrops, single boulders, and

numerous cobbles of chert and chalcedony. Artifacts present include waste and worked flakes, cores, and hammerstones. A small rock cairn is also present. This site was first recorded in 1987. However, during the present study, it became apparent that the site was larger than originally reported. Like the original study, no diagnostic flaked stone artifacts were found. It is not known if a buried deposit exists among the outcrops or scatters. Because of the extent of this site, and the need to establish if the site contains significant cultural remains, additional field work is required here.

CA-Ker 2553: This site is a large village, consisting of several associated loci. Four loci have been identified, and consist of milling, lithic and burial remains. As part of this record, over 20 milling features were reported. A total of 101 bedrock mortars and bedrock metates, along with at least 18 cupules were recorded. The artifact assemblage included projectile points, hand tools, bowl fragments, lithic debris, and buried human remains, and an historic component containing tin cans and bottle glass. Of potential significance is that this site has been suggested to be the historic Indian village site named Tehachapi. Unfortunately, all of the artifacts discussed in the site record identify early period projectile points and do not discuss proto-historic or historic Indian remains, such as pottery and late style projectile points. Because of the

size of this site, the presence of a midden deposit, and human remains, and the possibility that this is the village of Tehachapi, additional field work is required, as are specific protective measures designed to minimize or prevent impacts.

To summarize the 12 archaeological sites located within the boundaries of the porposed Loop Ranch development, there were 8 sites which contained milling features. Seven of these appear to be single activity sites containing milling features, but no (or almost no) lithic remains. This includes sites Loop Ranch 2, 3, 4, 5, 6, 7, and 8. Two of these seven sites also contain cupules, which may have involved additional cultural behaviors. None of these sites appear to contain a midden deposit and will not require any additional field work. The eighth site containing milling features is CA-Ker 2553. Described as a large village, and containing surface handtools, chipped stone artifacts and associated debris, and burials, this site does appear to be significant and will require additional field work. There were two quarry/ workshop areas (sites Loop Ranch 9, and CA-Ker 2189). Both sites provided source materials for the manufacture of chipped stone tools, with CA-Ker 2189 being a very large quarry site. Neither site contained diagnostic flaked artifacts. Both of these sites will require additional field work. The remaining two sites consist of a

sparse lithic scatter (Loop Ranch 1) and a rock ring feature adjacent to a lithic scatter(Loop Ranch 10). A minimal amount of testing is required at site 10.

SIGNIFICANCE AND EVALUATION OF CULTURAL RESOURCES

Of particular concern is the significance of any of these sites. The Archaeological Preservation Act, Chapter 1623 of 1982 (State of California), established guidelines for determining whether a site is unique or significant, and mandates requirements to deal with cultural resources that are deemed significant. The primary criteria are whether the resource: 1) can answer important scientific or archaeological questions, 2) is the oldest or best example of its kind, and 3) is it associated with an important person, event, or place in history or prehistory.

It is expected that in an area such as the Loop Ranch, which contains many important natural resource materials suitable for aboriginal use, that a wide variety of sites, representing a diversity of cultural activities, are likely to be found. The question to be asked is whether or not any of these resources are significant cultural remains. For the seven mlling sites containing few or no artifactual remains, it is the opinion of this study that beyond the recording of these sites, no additional work is necessary.

Milling sites are extremely common throughout the region. Provided the features are not removed or disturbed, there is a low probability that any impacts will occur to them. If future research questions are developed regarding these milling sites, they can still be studied.

This is not the case with the quarry and workshop sites (sites LR 9 and CA-Ker 2189), the rock ring/ lithic scatter (LR 10), and the large village (CA-Ker 2553). All of these sites contain remains that can easily be impacted, with significant remains destroyed. For that reason, according to the Archaeological Preservation Act, it is important to establish significance prior to development in the area of each archaeological site. Therefore, additional work is required at these five sites.

IMPACTS TO CULTURAL RESOURCES

It is generally accepted that regardless of how small a site may be, or how insignificant the remains may appear, all sites can be impacted by development. While concern here is for the larger sites containing greater numbers of features and surface artifacts, consideration must also be given to those small, ephemeral milling sites present within the study area boundary. Potential impacts to all of the 12 sites presently identified can occur as a result of

roads, homes, recreational activities, farming, commercial activities and by deliberate vandalism, such as digging for artifacts or relocating milling features to front yards, near buildings and so forth. As a result of the potential impacts that could occur at any of these 12 sites, specific measures must be taken in order to protect all of these resources from needless destruction.

RECOMMENDATIONS

Based on the present level of investigation, four of the 12 archaeological sites identified require additional field work. The purpose of this work will be to establish site significance, and to develop guidelines designed to reduce or eliminate impacts to cultural resources. First. specific recommendations for additional field work are given, followed by recommendations designed to prevent and/or minimize impacts to all of the sites present within the Loop Ranch project areas.

Recommendations for additional archaeological work are centered primarily around surface collections and the excavation of sample test units. Specific objectives include establishing the nature and extent of artifactual and cultural remains present at these sites, along with providing information on site depth and age. Results from

this effort will provide the basis for determining site significance and in establishing additional measures to protect these sites.

The following recommendations are generalizations of the kinds of additional work to be performed. A specific field plan for each of the potentially significant sites should be developed specifying such conditions as the strategy and percent of surface collections, testing methodololgy, research questions to be addressed in the analysis, and the scope of the final report. Fieldwork should be developed and based on the degree of potential impacts, the extent to which sites can be avoided and protected, and consultation with the local Native American community, along with any other appropriate considerations. While any development in the area has the potential of causing direct and indirect impacts, these impacts may be reduced by modifying the development planned for each area of the Loop Ranch.

Loop Ranch 9, quarry and lithic scatter:

1. Partial, systematic surface collection.
2. Excavation of at least two small test units. The placement of these units will be based on the results of the surface collection.

Loop Ranch 10, rock ring feature and lithic scatter:

1. Partial, systematic surface collection.
2. Excavation of 2 test units, one within and one outside of rock ring feature.
3. Preparation of a more detailed drawing of the rock ring feature.

CA-Ker 2189, large quarry/ workshop area:

1. Determination of actual extent and boundaries of site, and prepare a new site map.
2. Partial, systematic surface collection.
3. Excavation of several test units, with location of units determined by the results of the surface collection.

CA-Ker 2553, large village site:

1. Partial, systematic surface collection, with each site loci collected.
2. Excavation of test units for each loci.

Upon completion of the additional field work, a report detailing this work and the results will be prepared. In this report specific guidelines will be developed to help protect the archaelogical sites present.

In addition to the recommendations for additional field work, the following are suggestions designed to reduce or

eliminate impacts to any of the 12 sites.

1. All remains should be left in situ, and not removed to other locations. This is in particular reference to the bedrock milling features which are often moved to the front yards of homes and businesses. This condition should be stipulated in any lands deeded to other persons.

2. Human remains buried on the property, whether Indian or Chinese, should not be disturbed or relocated without consent from the appropriate authorities or individuals.

3. Consultation with representatives from the local Native American community should take place prior to any test excavation or development on the property to insure that important cultural and religious concerns of the Indian community are considered.

4. While an on-site field survey allows researchers to draw conclusions about site presence or absence, there is always the possibility that other sites and buried remains could be found during development of the Loop Ranch. It is possible that erosional and depositional processes, and vegetation, may have obscurred such resources. Therefore, should any additional site materials be found, work in the area of discovery should be stopped until the finds can be

evaluated, and if necessary, mitigated prior to the resumption of construction.

5. Specifically, if any additional archaeological sites are found during the additional field work or development, appropriate actions, including surface collections, and testing, be considered.

6. Procedures should be developed to minimize impacts to cultural resources, so that once the initial development has been completed, resources present will continue to be considered and protected.

CONCLUSION

Based on the archaeological investigation for the proposed Loop Ranch development north of Tehachapi, 12 prehistoric archaeological sites were located and identified. Seven of the sites are milling areas where seed foodstuffs were ground, and one was a sparse lithic scatter. None of these sites are considered significant and will not require any additional field work. Four of the sites, however, have the potential to yield significant cultural information and remains, and will require additional field work. Based on the results of this work, these sites will be evaluated as to significance, a report will be prepared and additional

recommendations will be developed. These recommendations and those already developed will operate to minimize and/or prevent impacts to cultural resources. Once field testing has been completed, and protection and mitigation measures are established, archaeological clearance can be given and development of the Loop Ranch can take place.

REFERENCES

Southern San Joaquin Valley Information Center.

Biological Resources Constraints Report

Loop Ranch Annexation in Tehachapi, CA Project

Prepared for:

The City of Tehachapi

AECOM

February 2012

APPENDIX C

Biological Resources Constraints Report

Loop Ranch Annexation in Tehachapi, CA Project

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February 2012

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ACRONYMS AND ABBREVIATIONS

AMM	avoidance and minimization measure
BMP	best management practice
CNDDB	California Natural Diversity Database
CNPS	California Native Plant Society
DFG	California Department of Fish and Game
ESA	Endangered Species Act
RWQCB	Regional Water Quality Control Board
USACE	U.S. Army Corps of Engineers
USFWS	U.S. Fish and Wildlife Service
USGS	U.S. Geological Survey

1 INTRODUCTION

This biological constraints report has been prepared for a 158.3-acre parcel of Loop Ranch proposed for annexation by the City of Tehachapi. The site lies south of Highway 58 and is divided to the east and west by Tucker Road. Tehachapi Creek runs along the southwestern portion of the parcel along with the Burlington Northern Santa Fe Railway (Exhibit 1). Annexation would include rezoning the parcel into three categories: M-1, industrial; C-3, general commercial; and O-S, open space (Exhibit 1). Of the total acreage, 34.9 acres would be zoned industrial, 79.2 would be zoned general commercial, and 39.7 would be zoned open space.

This report includes: (1) methods used to collect information on sensitive biological resources; (2) a description of the existing conditions; (3) a summary of potential biological constraints; (4) avoidance and minimization measures (AMMs); and (5) conclusions regarding potential project impacts on sensitive habitats and special-status species.

2 METHODOLOGY

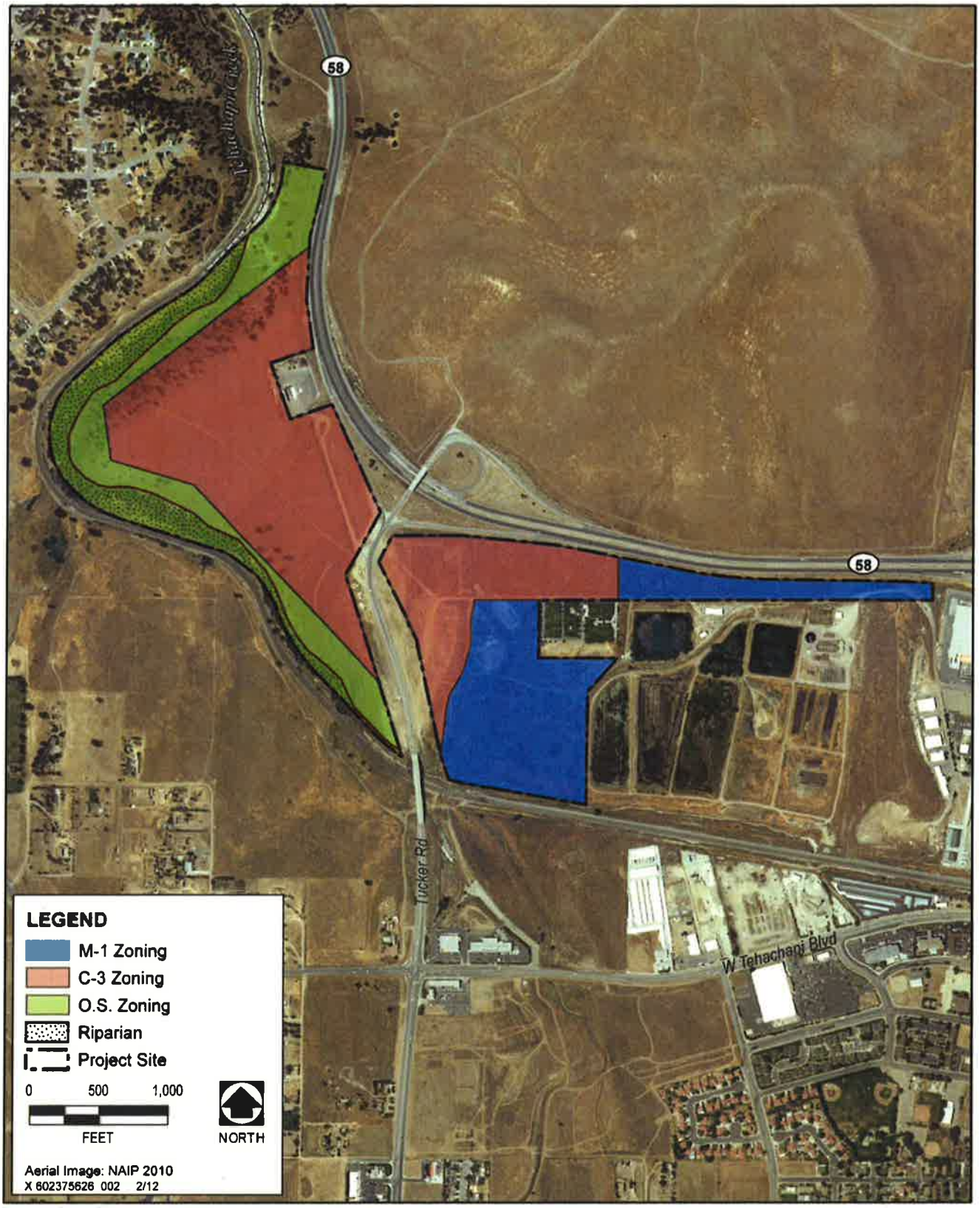
2.1 Background Research/Literature Review

Before conducting fieldwork, a list of special-status species and sensitive habitats with the potential to occur on the project site was compiled, using the following resources:

- The California Natural Diversity Database (CNDDB) contains records of reported special-status species and sensitive natural communities in California (CNDDB 2011). The database was searched for information on sensitive biological resources that have been documented within 5 miles of the project site.
- The U.S. Fish and Wildlife Service (USFWS) Endangered Species Web page (USFWS 2011) was utilized for a search of U.S. Geological Survey (USGS) 7.5' quadrangle maps that encompass the project site: Tehachapi South and Tehachapi North. This yielded a list of federal candidate, threatened, and endangered species known to occur in the vicinity of the project site, as well as designated critical habitat for species listed as threatened and endangered under the Endangered Species Act (ESA).
- The California Native Plant Society's (CNPS) Inventory of Rare and Endangered Plants of California was searched in the quadrangles encompassing the project site as well as the adjacent quadrangles. This yielded a list of special-status plants reported in the vicinity of the project site.

2.2 Field Surveys

A reconnaissance-level field survey was conducted by Kimberly Fiehler, an AECOM biologist, on November 10, 2011 to assess the potential for special-status species and sensitive habitats to occur on the project site.



Source: City of Tehachapi 2012

Exhibit 1 **Project Alignment**

3 EXISTING CONDITIONS

3.1 Land Cover Types in the Project Area

Land cover types on the project site include ruderal, annual grassland, oak savannah, linear aquatic features, and riparian habitat (Appendix A). The site is currently undeveloped. Portions of the site along the existing roadways of Highway 58 and Tucker Road are heavily and regularly disturbed by vehicles pulling off and parking along the roadway. From Highway 58, west of Tucker Road the project site slopes down to Tehachapi Creek which borders the property to the south. The creek is surrounded by riparian habitat dominated by Fremont cottonwoods. East of Tucker Road the project site slopes down to a cemetery and water treatment plant adjacent to the eastern boundary of the project site.

Ruderal land, which is associated with developed and disturbed areas, is dominated by common weedy species. This land cover type is found along the existing roadways including Highway 58 and Tucker Road. Soils in these areas are highly compacted. Ruderal land is also present in patchy distribution east of Tucker Road and south of West J Street, where dirt roadways and evidence of off-road vehicle use was observed during the field survey.

Annual grassland is dominated by non-native annual grasses and weedy forbs. Annual grassland in found among the oak savannah on the project site that is west of Tucker Road. It is also surrounding the ruderal land east of Tucker Road.

Oak savannah is restricted to the south facing slope west of Tucker Road and in close proximity to the riparian area along Tehachapi Creek. It is dominated by widely scattered blue oak trees.

Linear aquatic features in the project site include intermittent drainages and a perennial stream. Two intermittent drainages can be found along the roadside of Highway 58, east of Tucker Road and adjacent to the water treatment facility. These drainages are small and occur at culvert locations under Highway 58. They are characterized by sparse wetland vegetation. Tehachapi Creek is a perennial stream which runs along the southwest portion of the project site.

Riparian vegetation is found in the narrow swath along Tehachapi Creek. Species composition is typical of Fremont cottonwood forest (Sawyer et al. 2009).

3.2 Sensitive Habitats

Sensitive habitats include sensitive natural plant communities and habitats regulated by DFG, USFWS, USACE, and the Regional Water Quality Control Board (RWQCB). Under Section 404 and 401of the Clean Water Act, wetlands and other waters of the United States are subject to the jurisdiction of USACE and RWQCB. Most aquatic habitats receive protection under California statutes including Section 1602 of the California Fish and Game Code and the California Porter-Cologne Water Quality Control Act.

Sensitive habitats on the project site include the linear aquatic feature and riparian habitat described above.

3.3 Special-Status Species

Special-status species include plants and animals in the following categories:

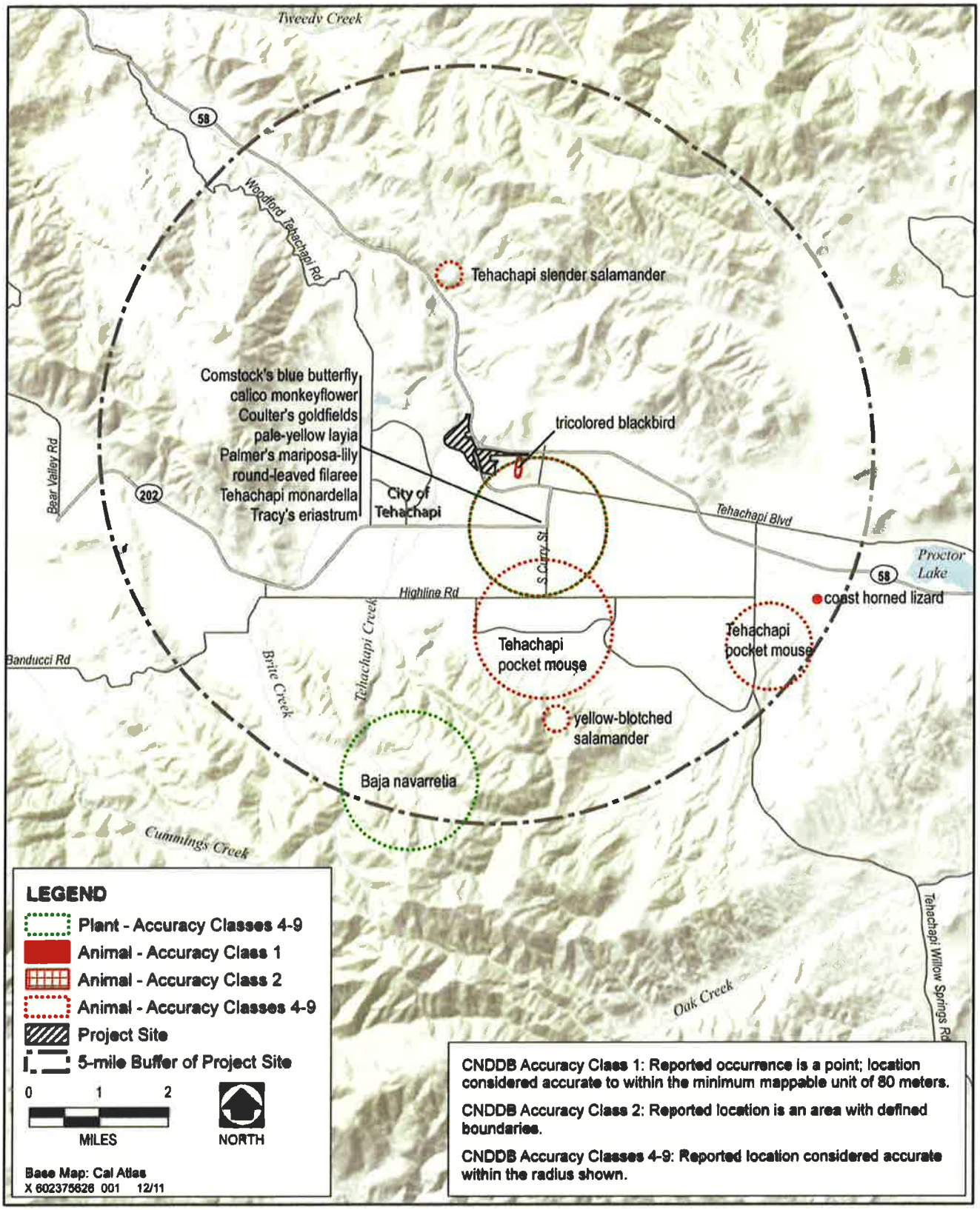
- Species that are listed under the ESA and/or California Endangered Species Act (CESA) as rare, threatened, or endangered;
- Species considered as candidates and proposed for state or federal listing as threatened or endangered;
- Wildlife designated by the DFG as species of special concern; and
- Plants ranked by CNPS and DFG as rare, threatened, or endangered in California and elsewhere.

3.3.1 Special-Status Plants

A total of eight special-status plant species have been reported to the CNDDB within 5 miles of the project site (Exhibit 2), or have been recorded by CNPS within USGS quadrangles encompassing and adjacent to the project site (Table 1). No special-status plants were observed during the field visit in the project area. However, the field visit was conducted outside of the blooming period for special-status plants known to occur in the project vicinity. Two of the eight special-status plants have a low potential to occur in the annual grassland habitat present on the project site west of Tucker Road. Round-leaved filaree and pale-yellow layia have no federal or state ranking but are listed by CNPS as rare or endangered in California and elsewhere with over 80% of occurrences threatened. The project site is generally considered unsuitable for the other reported special-status species due to lack of appropriate habitat.

3.3.2 Special-status Wildlife

A total of six special-status wildlife species have been reported to the CNDDB within 5 miles of the project alignment (Exhibit 2; Table 2). Three special-status wildlife species have the potential to occur on or adjacent to the project site: Comstock's blue butterfly, tricolored blackbird and Tehachapi pocket mouse. Comstock's blue butterfly is associated with *Eriogonum* sp. and has a low potential to occur with the California buckwheat found in a small stretch along the south side of Highway 58 and west of Tucker Road. Tricolored blackbird has potential to occur adjacent to the project site at the water treatment plant along West J Street. Tehachapi pocket mouse has potential to occur in the annual grasslands found throughout the project area. None of these three species has federal or state ranking as threatened or endangered. Tehachapi pocket mouse is listed by CDFG as a species of special concern. Based on distribution and information gathered during the field visit, there is a low likelihood for these species to occur on the project site. Comstocks' blue butterfly is not expected to occur on site due to the limited number of *Eriogonum* plants that it is associated with. The few California buckwheat plants that are present on site are adjacent to a heavily travelled highway. Habitat for tri-colored blackbirds does not exist on site but is limited to an adjacent property. Therefore, this species is not expected to occur on site. Though annual grasslands exist on the project site, it is low quality from disturbance by vehicles and in patchy distribution. In addition, there is a general lack of shrubs and open space for foraging. Tehachapi pocket mouse has a low potential to occur in this habitat. The project site is generally considered unsuitable for the other special-status species due to lack of appropriate habitat.



Source: CNDDB 2011

Exhibit 2 **CNDDB Results within 5 miles of the Project Alignment**

Table 1
Special-Status Plants with the Potential to Occur in the Project Site

Species	Federal[1]	State[2,3]	Habitat	Potential for Occurrence
Plants				
Baja navarretia *Navarretia peninsularis*	—	1B.2	Lower montane coniferous forest, chaparral. Wet areas in open forest; 1500 to 2425-meters elevation.	Not expected to occur within the project area because no potential habitat is present within the known elevation range.
Calico monkeyflower *Mimulus pictus*	—	1B.2	Broadleaf upland forest, cismontane woodland. In bare ground around gooseberry bushes or around granite rock outcrops; 100 to 1300-meters elevation.	Not expected to occur within the project area because no potential habitat is present within the known elevation range.
Round-leaved filaree *California macrophylla*	—	1B.1	Cismontane woodland, valley and foothill grassland. Clay soils; 15 to 1200-meters elevation.	Low potential to occur within the project area because suitable habitat is generally not present. Could occur within the valley and foothill grassland habitat west of Tucker Road. Several occurrences recorded within 5 miles of the project site.
Pale-yellow layia *Layia heterotricha*	—	1B.1	Cismontane woodland, pinyon-juniper woodland, valley and foothill grassland. Alkaline or clay soils, open areas; 270 to 1365-meters elevation.	Low potential to occur within the project area because suitable habitat is generally not present. Could occur within the valley and foothill grassland habitat west of Tucker Road. Several occurrences recorded within 5 miles of the project site.
Tehachapi monardella *Monardella linoides* ssp. *oblonga*	—	1B.3	Lower montane coniferous forest, upper montane coniferous forest, pinyon juniper woodland. On dry slopes of yellow pine forest, decomposed granitic soils and also in roadside disturbed areas; 1695 to 2470-meters elevation.	Not expected to occur within the project area because no potential habitat is present within the known elevation range.
Coulter's goldfields *Lasthenia glabrata* ssp. *coulteri*	—	1B.1	Coastal salt marshes, playas, valley and foothill grasslands, vernal pools. Usually found on alkaline soils in playas, sinks and grasslands; 1 to 1400-meters elevation.	Not expected to occur within the project area because no potential habitat is present within the known elevation range.
Palmer's mariposa-lily *Calochortus palmeri* var. *palmeri*	—	1B.2	Meadows and seeps, and vernally moist places in yellow-pin forest, chaparral; 600-2245-meters elevation.	Not expected to occur within the project area because no potential habitat is present within the known elevation range.
Tracy's eriastrum *Eriastrum tracyi*	—	1B.2	Chaparral and cismontane woodland/volcanic and sandy soil; 305 to 1030-meters elevation.	Not expected to occur within the project area because no potential habitat is present within the known elevation range.

Notes:

California Rare Plant Ranks and extensions

1B = Rare or endangered in California and elsewhere.

.1 = Seriously threatened in California (over 80% of occurrences threatened)
.2 = Fairly threatened in California (20 to 80% of occurrences are threatened).
.3 = Not very threatened in California (less than 20% of occurrences threatened).

Sources: USFWS 2011, CNDDB 2011, CNPS 2011

Table 2
Special-Status Wildlife with the Potential to Occur in the Project Site

Species	Federal[1]	State[2]	Habitat	Potential for Occurrence
Invertebrates				
Comstock's blue butterfly *Euphilotes battoides comstocki*	---	---	Hostplant is *Eriogonum* sp.	Low potential to occur within the project area because suitable habitat is generally not present. Could occur within the saltbush scrub habitat area for the proposed alternate alignment. Several occurrences recorded within 5 miles of the project site.
Amphibians and Reptiles				
Tehachapi slender salamander *Batrachoseps stebbinsi*	---	T	Occurs in Valley and Foothill riparian habitats in the Piute and Tehachapi mountains. Prefers wet talus slopes with a steep, north-facing exposure.	Not expected to occur within the project area because no potential habitat is present within the known elevation range.
Yellow-blotched salamander *Ensatina eschscholtzii croceator*	---	SSC	Occurs in forests and well shaded canyons as well as oak woodlands or old chaparral. Needs surface objects such as log, boards and rocks. Also needs old rodent burrows or other underground retreats.	Not expected to occur within the project area because no potential habitat is present within the known elevation range.
Coast horned lizard *Phrynosoma blainvillii*	---	SSC	Occurs in open areas of sandy soil and low vegetation in valleys, foothills, woodlands and chaparral. Often found in lowlands along sandy washes with scattered shrubs. Frequently near ant hills.	Not expected to occur within the project area because no potential habitat is present within the known elevation range.
Birds				
Tricolored blackbird *Agelaius tricolor*	MBTA	SSC	Highly colonial species that requires open water and prefers stands of bulrush and cattail for nesting.	Low potential to occur within the project area because no suitable nesting habitat is present. Suitable habitat may be present adjacent to the project site at the water treatment facility. Several occurrences recorded within 5 miles of the project site.
Mammals				
Tehachapi pocket mouse *Perognathus alticolus inexpectatus*	---	SSC	Occurs in arid annual grasslands and desert shrub communities but will also occur in fallow grain fields and Russian thistle. Requires burrows for cover and nesting. Forages on open ground and under shrubs.	Low potential to occur within the project area because suitable habitat is generally not present including the absence of shrubs. Several occurrences recorded within 5 miles of the project site.

Notes:

[a] Federal:
MBTA= Protected under the Migratory Bird Treaty Act

[b] State:
T = Listed as threatened under CESA
SSC = DFG species of special concern

Sources: USFWS 2011, CNDDB 2011

4 POTENTIAL BIOLOGICAL CONSTRAINTS

For the purpose of this report and in accordance with California Environmental Quality Act (CEQA) guidelines, a biological constraint is defined as a sensitive habitat or special-status species that could be substantially affected by future development of the project site.

4.1 Wetlands and Riparian Habitats

Project implementation could be constrained by wetland habitats (linear aquatic feature, riparian, intermittent drainages) on the project site. These areas are potentially subject to U.S. Army Corps of Engineer (Corps) jurisdiction under Section 404 of the Clean Water Act (CWA). However, impacts to Tehachapi Creek and the riparian area along Tehachapi Creek are not anticipated due to that area being designated as open space in the zoning process. Two intermittent drainages along West J Street may be affected by future development, but those plans are not known at this time.

4.2 Special-Status Species

Special-status species do not represent a project constraint. Given the low likelihood of the potentially occurring special-status species on the project site and that none of these species are listed, project implementation would not be expected to result in substantial loss of individuals or a significant amount of potential habitat.

5 AVOIDANCE AND MINIMIZATION MEASURES

The following AMMs would be implemented to protect sensitive biological resources.

AMM 1: Implement Avoidance Measures to Protect Wetlands, including Riparian Areas

a) All direct and indirect impacts to wetland areas (i.e. Tehachapi Creek and intermittent drainages) will be avoided.

b) All direct and indirect impacts to the riparian area surrounding wetland areas (i.e. Tehachapi Creek) will be avoided.

6 CONCLUSIONS

Implementation of the AMMs described above would be effective in reducing the potential for project impacts that might otherwise be considered significant on: wetlands (linear aquatic feature and intermittent drainages) and riparian habitat. No further avoidance, minimization, or compensation measures are expected to be required to comply with state and federal statutes protecting sensitive biological resources. Should impacts to wetlands (linear aquatic feature and intermittent drainages) and riparian habitat not be avoidable, it is recommended that a wetland delineation be conducted on the project site to determine jurisdictional areas. The project applicant should consult with the USACE, DFG, and RWQCB, and secure any necessary permits or other authorizations to comply with Sections 401 and 404 of the Clean Water Act, and with Section 1602 of the California Fish and Game Code. In

addition, the project applicant is encouraged to consult with the U.S. Fish and Wildlife Service and California Department of Fish and Game prior to future development to ensure that they concur with this determination.

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USFWS. *See* U.S. Fish and Wildlife Service.

APPENDIX A

Representative Photographs

Looking southwest at project site from south of Highway 58 and west of Tucker Road. Annual grassland and oak savannah can be seen in photo.

Looking northwest at project site. Tehachapi Creek, riparian habitat and railway can be seen in photo.

West side of Tucker Road. Heavily disturbed and compacted area seen in photo.

East side of Tucker Road. Heavily disturbed and compacted area seen in photo.

Intermittent drainage adjacent to West J Street and Highway 58.

Looking southeast at project site from east side of Tucker Road. Annual grasslands and ruderal areas can be seen in photo.