BENDER ROSENTHAL, INC.
COMMERCIAL VALUATION AND RIGHT OF WAY SERVICES

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BOARD OF SUPERVISORS

2012 AUG 23 A 8:46

Jim DeMartini
1010 10th Street, Suite 6500
Merced, CA 95354

RE: Final SR 165 Bypass Project Study Report

Dear Jim DeMartini,

I apologize for the long wait in updating you on the status of the SR 165 Project Study Report.

State Route (SR) 99 - SR 165 Project Study Report (PSR) project covers three jurisdictions: Merced County, Stanislaus County, and the City of Turlock. Five local agencies agreed to cooperate with Caltrans to implement the project study report. Those agencies include Merced County, Merced County Associations of Governments (MCAG), Stanislaus County, Stanislaus Council of Governments (STANCOG), and the City of Turlock. MCAG was identified as the project lead for the project study report. A Memorandum of Understanding (MOU) was initiated between the five local agencies. The MOU requires that four major milestones be approved by the Citizens Advisory Committee, Project Development Team, Policy Advisory Committee, and the five jurisdictions included in the MOU. The four major milestones include:

A. Traffic Modeling
B. Purpose and Need
C. Alternatives to be studied
D. Final Project Study Report (Final PSR)

To date, items A, B, and C have been approved through the 8 different committees/boards. Last year, the Citizens Advisory Committee/ Policy Advisory Committee recommended the Final PSR be submitted to Caltrans for approval prior to sending the Final PSR to the various boards for consideration. Caltrans approved the Final PSR in late April 2012.

A copy of the signed PSR and attachments is attached to this letter on a CD. If you are unable to open the CD on your computer, please contact me, and I will send you a hard copy of the report.

Barring any objection, I am recommending the Final PSR be submitted to the five member agencies for approval later this Fall. Please contact me by September 7, 2012 with any questions or concerns.

Sincerely,

Bob Morrison, PE, Broker
Vice President of Right of Way Services
Bender Rosenthal, Inc.
(916) 978-4900

10-Mer-165, PM 26.87/36.72
10-Sta-165, PM 0.00/1.45
10-Mer-99, PM R35.54/R37.30
10-Sta-99, PM R0.00/R1.00
EA: 10-0P810K
20.10.400.000
April 2012

PROJECT STUDY REPORT
(PDS)

To

Request Programming for
Capital Support
(Project Approval and Environmental Document Phase)

On Route	165 in both Merced County and Stanislaus County
From	Junction Route 140
To	Junction Interstate 99
On Route	99 in both Merced County and Stanislaus County
From	Bradbury Road Interchange
To	0.7 miles north of Turlock Safety Roadside Rest Area

APPROVAL RECOMMENDED: H. Singh

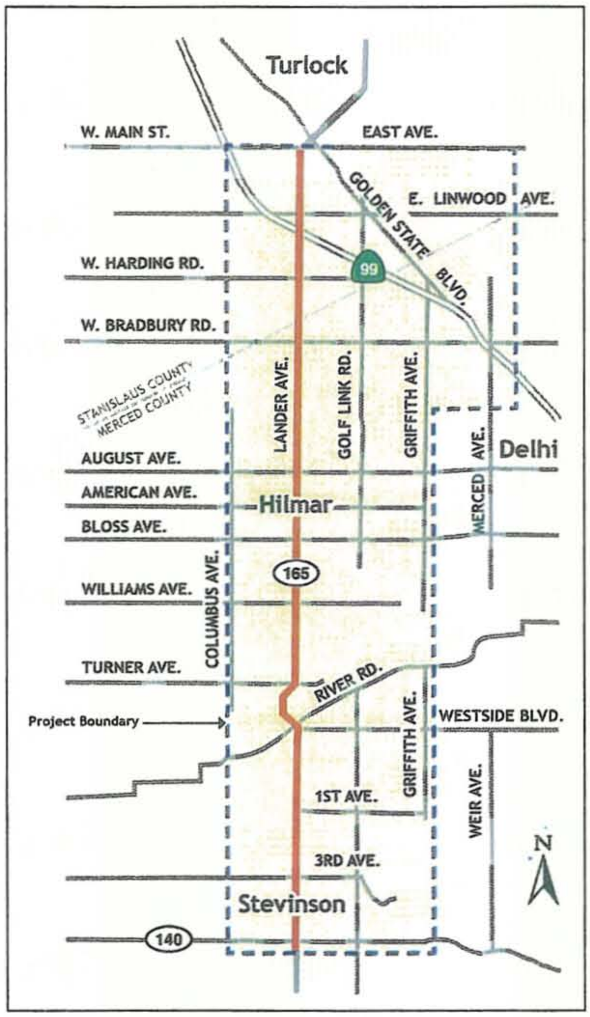
HARTARANJEET SINGH , PROJECT MANAGER

APPROVED: Carrie L. Bowen 4-26-2012

CARRIE L. BOWEN, DISTRICT 10 DIRECTOR *DATE*

10-Mer-165, PM 26.87/36.72
10-Sta-165, PM 0.00/1.45
10-Mer-99, PM R35.54/R37.30
10-Sta-99, PM R0.00/R1.00
EA: 10-0P810K
20.10.400.000
April 2012

Vicinity Map



On Route	165 in both Merced County and Stanislaus County
From	Junction Route 140
To	Junction Interstate 99

On Route	99 in both Merced County and Stanislaus County
From	Bradbury Road Interchange
To	0.7 miles north of Turlock Safety Roadside Rest Area

10-Mer-165, PM 26.87/36.72
10-Sta-165, PM 0.00/1.45
10-Mer-99, PM R35.54/R37.30
10-Sta-99, PM R0.00/R1.00
EA: 10-0P810K

This Project Study Report (PDS) has been prepared under the direction of the following Registered Engineer. The registered civil engineer attests to the technical information contained herein and the engineering data upon which recommendations, conclusions, and decisions are based.

JOSEPH W. WEILAND, P.E.
REGISTERED CIVIL ENGINEER

04/13/12
DATE

Table of Contents

1. INTRODUCTION

The proposed project includes two alternative alignments, Alternative D and Alternative I, for State Route (SR) 165 from just south of the Merced River in Merced County to SR 99 in Merced County and/or Stanislaus County. Both the Alternatives D and I alignments diverge from existing SR 165 south of the Merced River and crosses the river at either a new bridge adjacent to the existing SR 165 bridge (Option 1), or a new crossing to the east of the River Park (Option 2). North of the Merced River, the Alternative D alignment then proceeds directly north, to the east of the Community of Hilmar and connects to SR 99 at a new interchange located on the Stanislaus/Merced County line. North of the Merced River, the Alternative I alignment traverses northeast, then proceeds directly north, to the west of Griffith Avenue before connecting to Bradbury Road just west of the SR 99/Bradbury Road interchange located in Merced County. A project study area location map is included in **Attachment 1**.

See the Cost estimate included in **Attachment 2** for specific work items included in this project.

Project Limits Dist., Co., Rte., PM)	10-Mer-165, PM 26.87/36.72 10-Sta-165, PM 0.00/1.45 10-Mer-99, PM R35.54/R37.30 10-Sta-99, PM R0.00/R1.00
Number of Alternatives:	Alternative D - Option 1 Alternative D - Option 2 Alternative I - Option 1 Alternative I - Option 2
Capital Outlay Support for PA&ED	Partial funding through SAFETEA-LU Section 1934 Allocation of Transportation Improvement Projects (TI) funding in the amount of $1,000,000 has been authorized for the PA&ED project phase. Additional funding still to be identified.
Capital Construction Cost Range (excluding "no build"). (in $1,000,000's)	Alternative D - Option 1: $132.2 - $170.7 Alternative D - Option 2: $133.1 - $172.1 Alternative I - Option 1: $115.8 - $150.1 Alternative I - Option 2: $116.7 - $151.7
Right of Way Cost Range (excluding "no build"). (in $1,000,000's)	Alternative D - Option 1: $23.5 - $24.7 Alternative D - Option 2: $19.2 - $20.4 Alternative I - Option 1: $17.6 - $18.6 Alternative I - Option 2: $11.9 - $12.9
Funding Source:	Anticipated to be funded through a combination of local and federal funding sources including: local development impact fees, and State Transportation Improvement Program (STIP) funds.
Type of Facility (conventional, expressway, freeway):	Expressway
Number of Structures:	Alternative D - Option 1: 9 Alternative D - Option 2: 7 Alternative I - Option 1: 7 Alternative I - Option 2: 5
Anticipated Environmental Determination or Document:	CEQA: EIR NEPA: EIS
Legal Description	SR 165 Project Study Report
Project Category	Category 1

This project is in the 2011 Merced County Regional Transportation Plan unconstratined project list. It is a Tier 2 project and is currently unfunded. Until full funding is identified for PA&ED, this project will not be fiscally constrained and moved to Tier 1.

The remaining support, right of way and construction components of the project are preliminary estimates and are not suitable for programming purposes. A Project Report will serve as the programming document for the remaining support and capital components of the project. A Project Report will also serve as approval of the "selected" alternative.

2. BACKGROUND

The project study area includes the segment of State Route (SR) 99 from the Bradbury Road interchange in Merced County (PM R35.54) north to the Lander Avenue (SR 165) interchange in Stanislaus County (PM R1.63). SR 99 is currently a four-lane freeway through the interchange with Bradbury Road that transitions to a six-lane freeway within the Golden State Boulevard interchange and continues north as a six-lane freeway through the project area. The existing median width varies between 94-feet within the four-lane freeway section to 44-feet within the six-lane freeway section. The existing design speed is 75 miles per hour within the project limits. SR 99 within the study area is on the National Highway System (NHS) and is designated as a Surface Transportation Assistance Act (STAA) truck route. Based on the designations, the design vehicle is the STAA Design Vehicle.

Local access to this segment of SR 99 is provided at the Bradbury Road interchange (Type L-2 with single lane entry and exit ramps) and at the Golden State Boulevard interchange (Partial Type L-12 with single lane northbound exit ramp and single lane southbound entry ramp) within Merced County and at the Lander Avenue (SR 165) interchange (Type L-2 with single lane entry and exit ramps) within Stanislaus County. The Turlock Safety Roadside Rest Area (Enoch Christoffersen Rest Area) is also located along this segment of SR 99, in Stanislaus County at PM R0.30.

Based on the California Road System (CRS) maps, the segment of SR 99 between the Bradbury Road and Golden State Boulevard interchanges and between the Golden State Boulevard and SR 165(Lander Avenue) interchanges is designated as "rural". The maps also show that a portion of the Bradbury Road interchange and the entirety of the Golden State Boulevard and SR 165 (Lander Avenue) interchanges are located within "urban" designations.

The project study area also includes the segment of State Route (SR) 165 from the intersection with SR 140 in Merced County (PM 26.87) north to the freeway junction with SR 99 in Stanislaus County (PM 1.45). The CRS maps show that this segment of SR 165 is designated as "rural". SR 165 crosses through the Merced County communities of Stevinson and Hilmar and terminates within the City of Turlock. SR 165 is generally a two-lane conventional highway from the intersection with SR 140 to Geer Avenue in the community of Hilmar; a three-lane highway (two travel lanes with a continues left-turn/center turn lane) from Geer Avenue to American Avenue; and then a two-lane highway from American Avenue to the junction with SR 99. Separate turn channelization is provided along SR 165 at major cross street intersections within the two-lane highway segments.

The existing design speed along SR 165 is generally 65 miles per hour within the project limits. SR 165 is not designated as a Surface Transportation Assistance Act (STAA) truck route but is a Terminal Access Route between Interstate 5 and SR 99. Based on the Terminal Access Route designation, the design vehicle is the STAA Design Vehicle.

Federal Demonstration Program funds have been allocated to this project for use during both the Project Initiation Document (PID) and the Project Approval and Environmental Document (PA&ED) project development phases. SAFETEA-LU Section 1702 – High Priority Projects (HPP) funding in the amount of $400,000 has been authorized for the PID project phase (DEMO ID: CA388; SEC.1702, HPP#: 716). The project description for this funding is as follows:

"Conduct a Project Study Report for new Highway 99 interchange between SR 165 and Bradbury Road, and safety improvements/realignment of SR 165, serving Turlock/Hilmar region [ref P.L. 110-244, Sec 105(a) (158)]"

SAFETEA-LU Section 1934 Allocation of Transportation Improvement Projects (TI) funding in the amount of $1,000,000 has been authorized for the PA&ED project phase (DEMO ID: CA734; SEC.1934, TI#: 18). The project description for this funding is as follows:

"Hilmar/Turlock California Highway 99 Interchange and Safety Improvements/ Realignment of SR 165 Project Study Report and Environmental Studies in Merced and Stanislaus Counties [ref P.L. 110-244, Sec 109(6)]"

The project covers three jurisdictions: Merced County, Stanislaus County, and the City of Turlock. The State highway facilities are operated and maintained by the California Department of Transportation (Caltrans). Five local agencies have agreed to cooperate with Caltrans to implement the project. These agencies include Merced County, Merced County Associations of Governments (MCAG), Stanislaus County, Stanislaus Council of Governments (STANCOG), and the City of Turlock. MCAG was identified as the project lead for the PID phase.

In the fall of 2006, a Memorandum of Understanding (MOU) was circulated and approved by the five agencies. The MOU created the following committees:

1. Citizens Advisory Committee (CAC) – Participants include community members from Merced County, Stanislaus County, and the City of Turlock. The CAC participants are appointed by members of the each of the respective governing boards.
2. Project Development Team (PDT) – Participants included technical personnel from each agency.
3. Policy Advisory Committee (PAC) – Participants include up to three persons including at least one member of the city council/board of supervisors appointed by the City of Turlock, the County of Stanislaus, and the County of Merced. Caltrans, District 10 may be represented by the District Director or his/her designee.

In addition, the MOU requires that four major milestones be approved by the CAC, PDT, PAC, and the five jurisdictions included in the MOU. The four major milestones include:

A. Traffic Modeling
B. Purpose and Need
C. Alternatives to be studied
D. Final Project Study Report

The five MOU agencies and Caltrans approved the traffic modeling criteria in the fall of 2008, the purpose and need in the fall of 2009 and the alternatives to be further studied in the fall of 2010. The alternatives approved for further study include Alternative D and Alternative I with the two SR 165 crossing options of the Merced River.

3. PURPOSE AND NEED STATEMENT

Need

There is a need to improve current traffic operations and reduce traffic congestion experienced along SR 165 (also referred to as Lander Avenue). Various highway segments including the SR 165 bridge over the Merced River and intersections currently experience AM and/or PM peak hour Levels of Service "E/F". There is a need to reduce truck impacts on traffic operations on SR 165. Regional, inter-regional and local trucks which currently represent between 10-percent (average condition) to 20-percent (during harvest season) of all traffic traveling on SR 165 contribute to congested traffic conditions including through the community of Hilmar. There is a need to improve safety along SR 165. Highway segments currently experience actual accident rates that are higher than the corresponding average accident rates from the intersection with SR 140 to north of Bradbury Road. There is a need to design traffic circulation improvements on or adjacent to SR 165 that will support continued growth in local general plans, community plans and specific plans, combined with future increases in regional and inter-regional traffic to the year 2035 (future growth). Future growth will further increase congestion along SR 165 and lead to increased congestion on both the adjacent county and city roadway systems. There is also a need to design traffic circulation improvements, including improved freeway access between SR 99 and the local roadway system that will support future growth.

Purpose

The primary purpose of this project is to improve safety and traffic operations and reduce current and future congestion along SR 165, including congestion within the community of Hilmar, and to improve freeway access between SR 99 and the local roadway system to support continued growth in local general plans, community plans and specific plans.

Secondary purposes of the project include:

- Facilitate goods movement including the movement of agricultural products from field to processing plant and from processing plant to market.
- Widen, replace or relocate the existing SR 165 Bridge over the Merced River.
- Move regional and inter-regional truck traffic around the community of Hilmar.
- Improve local traffic circulation within the project study area.
- Support continued growth in the Merced County, Stanislaus County and City of Turlock General Plans; the communities of Hilmar and Delhi Community Plans; and the City of Turlock's SE Turlock Specific Plan.
- Implement long-term circulation system solutions that can be built in phases.

4. DEFICIENCIES

The Highway Design Manual (HDM) states that the geometric design of new facilities and reconstruction projects should normally be based on estimated traffic 20 years after completion of construction. For this project, the year 2035 currently represents the 20-year design horizon. Existing and design year traffic forecasts and traffic operations representing the "No-Build" condition were prepared as part of the traffic forecasts and traffic operations analysis included in the technical memorandum "Existing and Forecasted Traffic Volumes and Existing and Forecasted "No Build" Conditions Traffic Operations" included as an attachment in **Attachment 3**. This section focuses only on the elements within the study area transportation system that was determined to experience traffic operations that currently do not meet the applicable LOS standard.

Existing Traffic Operations Deficiencies

Currently, all mainline SR 99 freeway segments within the study area experience peak hour LOS at or better than the LOS standard. The segment between the Bradbury Road and the Golden State Boulevard interchanges currently experiences LOS "D" in the northbound direction during the AM peak hour and LOS "D" in the southbound direction during the PM peak hour as shown in Table 1. Both of these LOS are below the Concept LOS "C" for this segment.

TABLE 1
EXISTING CONDITIONS (NO BUILD) SR 99 MAINLINE LOCATIONS
WITH SERVICE LEVELS BELOW LEVEL OF SERVICE (LOS) STANDARD

		AM Peak Hour			PM Peak Hour		
Freeway Mainline Segment	# Lanes	Volume	Density, (pc/mi/ln)	LOS	Volume	Density, (pc/mi/ln)	LOS
NB SR 99 (btwn Bradbury Rd and Golden State Blvd)	2	3,078	28.3	D	2,543	23.0	C
SB SR 99 (btwn Golden State Blvd and Bradbury Rd)	2	2,000	18.1	C	2,984	27.2	D

SR 99 freeway ramp junctions (merge and diverge) at various interchanges within the study area generally experience peak hour LOS at or better than the LOS standard. The one exception is LOS "D" experienced at the southbound Golden State Boulevard merge with SR 99 during the PM peak hour as shown in Table 2. This LOS is below the Concept LOS "C" for this segment.

TABLE 2
EXISTING CONDITIONS (NO BUILD) SR 99 RAMP JUNCTION LOCATIONS
WITH SERVICE LEVELS BELOW LEVEL OF SERVICE (LOS) STANDARD

		AM Peak Hour		PM Peak Hour	
Interchange Location	Junction Type	Density (pc/mi/ln)	LOS	Density (pc/mi/ln)	LOS
SR 99/Golden State Boulevard					
SR 99 SB On-Ramp	Merge	20.3	C	29.1	D

Study area intersections that currently experience peak hour service levels below the LOS standard are shown in Table 3. There are four intersections along SR 165 that currently experience LOS "E/F" during one or both of the peak hours. At each location, traffic is currently controlled by side street stop signs and the reported LOS is for the side street approach experiencing the worst service levels. These deficiencies are largely due to the high through volumes on SR 165 creating an inability for vehicles entering from side streets to find suitable gaps in traffic flows and enter the roadway.

TABLE 3
EXISTING CONDITIONS (NO BUILD) INTERSECTIONS
WITH LEVEL OF SERVICE (LOS) BELOW LOS STANDARD

				AM Peak Hour		PM Peak Hour	
#	Intersection	Control Type	LOS Standard	Delay	LOS	Delay	LOS
State Highway System (SR 165 is also referred to as Lander Avenue)							
5	SR 165 / Geer Avenue	TWSC	D	132.0	F	33.0	D
13	SR 165 / August Avenue	TWSC	D	70.3	F	45.1	E
19	SR 165 / Fowler Avenue	TWSC	D	32.7	D	OVR	F
27	SR 165 / Greenway Avenue	TWSC	D	68.3	F	90.9	F

TWSC = Two Way Stop Control
OVR = Overflow conditions, delay can not be calculated

Study area highway and street segment that currently experience peak hour service levels below the LOS standard are shown in Table 4. As shown in the table, the SR 165 highway segments north of Hilmar to approximately the junction with SR 99 currently experiences LOS "E" highway operations during one or both peak hours. LOS "E" exceeds Caltrans Concept LOS Standard of "D" along this segment.

TABLE 4
EXISTING CONDITIONS (NO BUILD) ROADWAY SEGMENTS
WITH LEVEL OF SERVICE (LOS) BELOW LOS STANDARD

		AM Peak Hour		PM Peak Hour	
Roadway Segment	# Lanes	Average Travel Speed (mph)	LOS	Average Travel Speed (mph)	LOS
SR 165 between Johnson Ave. and Bradbury Rd.[1]	2	43.6	D	42.2	E
SR 165 South of W. Greenwood Ave.[1]	2	42.2	E	40.5	E

1. HCS software used to calculate 2-lane highway segment LOS

Year 2035 Traffic Operations Deficiencies

Projected year 2035 peak hour Level of Service (LOS) along mainline SR 99 is shown in Table 5. As shown in the table, all SR 99 mainline segments between the Bradbury Road and the West Main Street interchanges are projected to operate at peak hour LOS "F" by the year 2035 based on the existing freeway facility (No Build).

TABLE 5
YEAR 2035 CONDITIONS (NO BUILD) SR 99 MAINLINE LOCATIONS
WITH SERVICE LEVELS PROJECTED BELOW LEVEL OF SERVICE (LOS) STANDARD

		AM Peak Hour			PM Peak Hour		
Freeway Mainline Segment	# Lanes	Volume	Density, (pc/mi/ln)	LOS	Volume	Density, (pc/mi/ln)	LOS
NB SR 99 (btwn Bradbury Rd and Golden State Blvd)	3	7,188	OVR	F	7,175	OVR	F
NB SR 99 (btwn Golden State Blvd and Lander Ave)	3	6,213	OVR	F	6,299	OVR	F
NB SR 99 (btwn Lander Ave and West Main Street)	3	7,138	OVR	F	6,999	OVR	F
SB SR 99 (btwn West Main Stand Lander Ave)	3	6,334	OVR	F	7,564	OVR	F
SB SR 99 (btwn Lander Ave and Golden State Blvd)	3	6,009	OVR	F	6,789	OVR	F
SB SR 99 (btwn Golden State Blvd and Bradbury Rd)	3	6,659	OVR	F	7,839	OVR	F

OVR = Over capacity, density measure not reported by HCS analysis software.

Projected year 2035 peak hour ramp junction LOS at various interchanges along SR 99 within the study are shown in Table 6. As shown in the table, LOS conditions at the various SR 99 ramp junctions are generally projected to operate at LOS "F" during the peak traffic hours. This level of congestion is reflective of the projected congested freeway mainline conditions shown in Table 6. Expanding SR 99 to an 8-lane freeway consistent with the UTC will help improve peak hour operations at the various ramp junctions. Additional measures such as provision of auxiliary lanes between successive ramp junctions (where appropriate and feasible) and metering on-ramp traffic would also be expected to improve overall freeway and ramp junction operations.

TABLE 6
YEAR 2035 CONDITIONS (NO BUILD) SR 99 RAMP JUNCTION LOCATIONS WITH SERVICE LEVELS PROJECTED BELOW LEVEL OF SERVICE (LOS) STANDARD

Interchange Location	Junction Type	AM Peak Hour Density (pc/mi/ln)	AM Peak Hour LOS	PM Peak Hour Density (pc/mi/ln)	PM Peak Hour LOS
SR 99/West Main Street					
SR 99 NB Off-Ramp	Diverge	42.0	F	41.4	F
SR 99 SB On-Ramp	Merge	37.4	F	42.1	F
SR 99/Lander Avenue					
SR 99 NB Off-Ramp	Diverge	38.6	F	39.0	F
SR 99 SB Off-Ramp	Diverge	39.1	F	44.0	F
SR 99 NB On-Ramp	Merge	41.3	F	43.2	F
SR 99 SB On-Ramp	Merge	35.5	F	40.3	F
SR 99/Rest Area					
SR 99 NB Off-Ramp	Diverge	38.4	F	38.9	F
SR 99 SB Off-Ramp	Diverge	37.9	F	41.2	F
SR 99 NB On-Ramp	Merge	36.2	F	36.6	F
SR 99 SB On-Ramp	Merge	34.5	D	40.5	F
SR 99/Golden State Boulevard					
SR 99 NB Off-Ramp	Diverge	42.7	F	42.0	F
SR 99 SB On-Ramp	Merge	59.8	F	73.0	F

Projected year 2035 intersection Levels of Service (LOS) were calculated for the AM and PM peak-hours. Table 7 presents a summary of the intersections that are projected to experience service levels below the Level of Service (LOS) standards. As shown in the table, there are twelve intersections along SR 165 that are projected to experience LOS "E/F" during one or both of the peak hours. As also shown in Table 7, there are seven additional intersections at various other Count/City locations that are projected to experience LOS "D/F" during one or both of the peak hours.

TABLE 7
YEAR 2035 CONDITIONS (NO BUILD) INTERSECTIONS WITH LEVEL OF SERVICE (LOS) PROJECTED BELOW LOS STANDARD

	Intersection	Control Type	Target LOS	AM Peak Hour Delay	AM Peak Hour LOS	PM Peak Hour Delay	PM Peak Hour LOS
State Highway System (SR 165 is also referred to as Lander Avenue)							
	SR 165 / SR 140	AWSC	D	229.9	F	379.7	F
	SR 165 / Westside Boulevard	TWSC	D	159.7	F	469.4	F
	SR 165 / River Road	TWSC	D	233.6	F	573.0	F
	SR 165 / Williams Avenue	TWSC	D	59.0	F	108.3	F
	SR 165 / Geer Avenue	TWSC	D	OVR	F	533.3	F
	SR 165 / American Avenue	Signal	D	39.3	D	55.6	E
	SR 165 / August Avenue	TWSC	D	139.0	F	152.3	F
	SR 165 / Fowler Avenue	TWSC	D	259.6	F	OVR	F
	SR 165 / Clausen Road	TWSC	D	72.0	F	267.2	F
	SR 165 / Greenway Avenue	TWSC	D	OVR	F	OVR	F
	SR 165 / West Glenwood Avenue	TWSC	D	OVR	F	OVR	F
	SR 165 / SR 99 SB Ramps	Signal	D	26.3	C	56.3	E

**TABLE 7 (CONTINUED)
YEAR 2035 CONDITIONS (NO BUILD) INTERSECTIONS
WITH LEVEL OF SERVICE (LOS) PROJECTED BELOW LOS STANDARD**

	Intersection	Control Type	Target LOS	AM Peak Hour Delay	AM Peak Hour LOS	PM Peak Hour Delay	PM Peak Hour LOS
County and City Street System							
	Lander Avenue / E. Glenwood Avenue	Signal	C	68.4	E	73.3	E
	Golf Link Road / Clausen Road	TWSC	C	17.1	C	28.6	D
	Golf Road / East Glenwood Avenue	TWSC	C	OVR	F	OVR	F
	Golf Road / East Linwood Avenue	TWSC	C	OVR	F	OVR	F
	Berkeley Avenue / 1st Street	TWSC	C	9782.0	F	9772.2	F
	Berkeley Avenue / Golden State Boulevard						
	Eastbound Golden State Boulevard	AWSC	C	340.4	F	450.5	F
	Westbound Golden State Boulevard	AWSC	C	552.3	F	685.7	F
	Griffith Avenue / Golden State Boulevard						
	Eastbound Golden State Boulevard	TWSC	C	45.7	E	124.0	F
	Westbound Golden State Boulevard	TWSC	C	27.9	D	18.6	C

TWSC = Two Way Stop Control, AWSC = All Way Stop Control
OVR = Overflow conditions, delay can not be calculated over 9999 seconds

Projected year 2035 highway and street segment Levels of Service (LOS) were calculated for the AM and PM peak-hours along selected SR 165 highway segments and along selected County road segments. Table 8 shows that the SR 165 highway segment north of 1st Avenue (south of Westside Boulevard) and the segments north of Hilmar to approximately the junction with SR 99 are projected to experience LOS "E" highway operations during one or both peak hours. LOS "E" exceeds the LOS Standard of "D" along this segment.

**TABLE 8
YEAR 2035 CONDITIONS (NO BUILD) ROADWAY SEGMENTS
WITH LEVEL OF SERVICE (LOS) PROJECTED BELOW LOS STANDARD**

Roadway Segment	# Lanes	AM Peak Hour Average Travel Speed (mph)	AM Peak Hour LOS	PM Peak Hour Average Travel Speed (mph)	PM Peak Hour LOS
SR 165 between 1st Avenue and Westside Boulevard	2	43.4	D	41.7	E
SR 165 between Johnson Avenue and Bradbury Road	2	43.4	E	41.7	E
SR 165 South of W. Greenwood Avenue	2	34.9	E	32.8	E

For the purpose of establishing "logical termini" for SR 165, SR 140 was identified as within the project study limits to represent the southern termini. However, year 2035 AM and PM peak hour LOS from 1st Avenue south is projected to be at LOS "D" respectively which indicates that SR 165 highway operations south of 1st Avenue (north of SR 140) would be projected to operate at LOS "D" which is consistent with the LOS Standard of "D".

Accident Data

Accident data and rates were reviewed along both SR 99 and along SR 165. TASAS Table B – Selective Accident Rate Calculation data along mainline SR 99 between the Golden State Boulevard interchange in Merced County and the SR 165 (Lander Avenue) interchange in Stanislaus County (City of Turlock) was obtained from Caltrans for the three year period from June 1, 2005 through May 31, 2008. Table 9 provides only traffic accident data on these freeway mainline segments that had "Actual Rates" greater than the corresponding "Average Rate" for this three-year period.

TABLE 9
STATE ROUTE 99 (SR 99) MAINLINE SEGMENTS

SR 99 Mainline Segment	No. of Accidents			Actual Accident Rate			Average Accident Rate		
	FAT	INJ	TOTAL	FAT	F + I	TOTAL	FAT	F+I	TOTAL
10-Mer-99 PM R036.342 – R037.301 Southbound SR 99 (N. of GSB)	0	12	30	0.000	0.37	0.92	0.007	0.17	0.50
10-Sta-99 PM R000.298 – R001.630 Southbound SR 99 (N. of Rest Area)	0	8	25	0.000	0.18	0.55	0.007	0.17	0.51
10-Sta-99 PM R000.299 – R001.630 Northbound SR 99 (N. of Rest Area)	1	12	20	0.022	0.29	0.44	0.007	0.17	0.51
10-Sta-99 PM R001.629 – R003.450 Northbound SR 99 (N. of Lander Ave)	2	13	42	0.027	0.20	0.57	0.007	0.22	0.70

TOTAL– Total of all accidents; INJ – Injury Accident; FAT – Fatal Accident, F+I – Fatal + Injury
GSB – Golden State Boulevard

As shown in Table 9, the southbound SR 99 mainline segment north of the Golden State Boulevard directional ramps has both an actual collision rate for fatal plus injury (F+I) and for total (TOTAL) collisions that are higher than the corresponding statewide average collision rates. The provided data indicates that this segment experienced 30 total accidents during the three-year period including 12 injury accidents. The predominant collision types were "hit object" (12 accidents) followed by "rear end" (11 accidents) and "sideswipe" (6 accidents). The predominant primary collision factor for the "hit object" accidents was "improper turn" (10), the predominant primary collision factor for the "rear end" accidents was "speeding" (7), and the predominant primary collision factor for the "sideswipe" accidents was "other violation" (3)

The southbound SR 99 mainline segment north of the Turlock Safety Roadside Rest Area has both an actual collision rate for fatal plus injury (F+I) and for total (TOTAL) collisions that are higher than the corresponding statewide average collision rates. The provided data indicates that this segment experienced 25 total accidents during the three-year period including eight (8) injury accidents. The predominant collision types were "hit object" (10 accidents) and "rear end" (10 accidents). The predominant primary collision factor for the "hit object" accidents was "improper turn" (6) while the predominant primary collision factors for the "rear end" accidents was "speeding" (7).

The northbound SR 99 mainline segment north of the Turlock Safety Roadside Rest Area has an actual collision rate for fatal (FAT) and for fatal plus injury (F+I) collisions that are higher than the corresponding statewide average collision rates. This segment experienced 20 total accidents during the three-year period including one (1) fatality and 12 injury accidents. The predominant collision types were "hit object" (11 accidents) followed by "rear end" (5 accidents). The predominant primary collision factor for the "hit object" accidents was "improper turn" (7) while the predominant primary collision factor for the "rear end" accidents was "speeding" (5).

The northbound SR 99 mainline segment north of the Lander Avenue interchange has an actual collision rate for fatal (FAT) collisions that is higher than the corresponding statewide average collision rate. This segment experienced 42 total accidents during the three-year period including two (2) fatality and 13 injury accidents. The predominant collision types were "hit object" (19 accidents) followed by "rear end" (11 accidents) and "sideswipe" (7 accidents). The predominant primary collision factor for the "hit object" accidents was "improper turn" (6) followed by "speeding" (5), "rear end" accidents was "speeding" (9), and "sideswipe" accidents was "other violation" (5).

TASAS Table B – Selective Accident Rate Calculation data at various freeway ramp on SR 99 between the Golden State Boulevard interchange in Merced County and the SR 165 (Lander Avenue) interchange in Stanislaus County (City of Turlock) was obtained from Caltrans for the three year period from June 1, 2005 through May 31, 2008. Table 10 provides only traffic accident data on these freeway ramps that had "Actual Rates" greater than the corresponding "Average Rate" for this three-year period.

TABLE 10
STATE ROUTE 99 (SR 99) FREEWAY RAMPS

	No. of Accidents			Actual Accident Rate			Average Accident Rate		
SR 99 Interchange Ramp	**FAT**	**INJ**	**TOTAL**	**FAT**	**F + I**	**TOTAL**	**FAT**	**F+I**	**TOTAL**
10-Mer-99, R036.085 NB Off to Golden State Boulevard (GSB)	0	0	3	0.000	0.00	2.74	0.005	0.21	0.65
10-Mer-99, R036.086 SB On from Golden State Boulevard (GSB)	0	2	3	0.000	0.43	0.65	0.005	0.20	0.60
10-Sta-99, R000.116 NB Off to Turlock Rest Area	0	0	6	0.000	0.00	3.79	0.004	0.07	0.85
10-Sta-99, R000.168 SB On from Turlock Rest Area	0	0	1	0.000	0.00	0.64	0.003	0.05	0.55
10-Sta-99, R001.834 NB On from Lander Avenue (SR 165)	0	1	8	0.000	0.11	0.86	0.002	0.26	0.75
10-Sta-99, R001.841 SB Off to Lander Avenue (SR 165)	0	6	12	0.000	0.66	1.33	0.004	0.42	1.20

TOTAL– Total of all accidents; INJ – Injury Accident; FAT – Fatal Accident, F+I – Fatal + Injury

As shown in Table 10, the following SR 99 freeway ramps have reported actual accident rates greater than the corresponding statewide average accident rate.

The northbound SR 99 off-ramp to Golden State Boulevard has an actual collision rate for total (TOTAL) collisions that is higher than the corresponding statewide average collision rate. This off-ramp experienced three (3) total accidents (PDO only) during the three-year period. The collision type was "hit object" (3 accidents). The primary collision factors for the "hit object" accidents were "improper turn", "influence of alcohol", and "other violation".

The southbound SR 99 on-ramp from Golden State Boulevard has an actual collision rate for both fatal plus injury (F+I) and for total (TOTAL) collisions that are higher than the corresponding statewide average collision rates. This on-ramp experienced three (3) total accidents during the three-year period including two (2) injury accidents and this accident involved a fatality. The collision type was "hit object" (3 accidents). The primary collision factors for the "hit object" accidents were "improper turn" (1), "influence of alcohol" (1), and "speeding" (1).

The northbound SR 99 off-ramp to the Turlock Safety Roadside Rest Area has an actual collision rate for total (TOTAL) collisions that is higher than the corresponding statewide average collision rate. This off-ramp experienced six (6) total accidents (PDO only) during the three-year period. The collision types were "sideswipe", "rear end", "broadside", "hit object", "other" and "over turn" (1 accident each). The primary collision factors for the "sideswipe" accident was "improper turn", for the "rear end" accident was "influence of alcohol", for the "broadside" accident was "other violation", for the "hit object" accident" was "other violation", for the "over turn" accident" was "improper turn", and for the "other" accident was "other violation.

The southbound SR 99 on-ramp from the Turlock Safety Roadside Rest Area has an actual collision rate for total (TOTAL) collisions that is higher than the corresponding statewide average collision rate. This on-ramp experienced one (1) accident (PDO only) during the three-year period. The collision type was "rear end" and the primary collision factor was "speeding".

The northbound SR 99 on-ramp from Lander Avenue has an actual collision rate for total (TOTAL) collisions that is higher than the corresponding statewide average collision rate. This on-ramp experienced eight (8) total accidents during the three-year period including one (1) injury accident. The collision types were "over turn" (3 accidents), "rear end" (3 accidents), and "other" (2 accidents). The primary collision factors for the "over turn" accidents were ""improper turn" (2) and "speeding" (1), for the "rear end" accidents was "speeding" (3), and for the "other" accidents were both "speeding" and "other violation".

The southbound SR 99 off-ramp to Lander Avenue has an actual collision rate for both fatal plus injury (F+I) and for total (TOTAL) collisions that are higher than the corresponding statewide average collision rates. This off-ramp experienced 12 total accidents during the three-year period including six (6) injury accidents. The collision types were "rear end" (5 accidents), "over turn" (3 accidents), "broadside" (2 accidents), and "other" (2 accidents). The primary collision factors for the "rear end" accidents was "speeding" (5), for the "over turn" accidents was "improper turn" (2) and "influence of alcohol" (1), for the "broadside" accidents was "other violation" (2), and for the "other" accidents was "speeding" (2).

TASAS Table B – Selective Accident Rate Calculation data at various SR 165 intersections was obtained from Caltrans for the three year period from June 1, 2005 through May 31, 2008. Table 11 provides only traffic accident data at those intersections that had "Actual Rates" greater than the corresponding "Average Rate" for this three-year period.

TABLE 11
STATE ROUTE 165 (SR 165) INTERSECTIONS

	No. of Accidents			Actual Accident Rate			Average Accident Rate		
SR 165 Intersection	**FAT**	**INJ**	**TOTAL**	**FAT**	**F + I**	**TOTAL**	**FAT**	**F+I**	**TOTAL**
10-Mer-165 PM 026.871 Junction SR 140	0	3	6	0.000	0.30	0.61	0.006	0.23	0.70
10-Mer-165 PM 027.880 Third Avenue (Stevinson)	0	0	5	0.000	0.00	0.53	0.006	0.13	0.30
10-Mer-165 PM 030.175 Westside Boulevard	0	1	2	0.000	0.10	0.20	0.003	0.08	0.20
10-Mer-165 PM 033.365 Bloss Avenue (Hilmar)	1	1	10	0.055	0.11	0.55	0.006	0.13	0.30
10-Mer-165 PM 033.864 American Avenue (Hilmar)	0	4	15	0.000	0.20	0.74	0.005	0.22	0.60
10-Mer-165 PM 034.364 August Avenue (Hilmar)	0	4	15	0.000	0.20	0.75	0.006	0.13	0.30
10-Mer-165 PM 036.445 Bradbury Road	0	6	12	0.000	0.28	0.56	0.006	0.23	0.70

TOTAL– Total of all accidents; INJ – Injury Accident; FAT – Fatal Accident, F+I – Fatal + Injury

As shown in Table 11, the SR 165/SR 140 intersection has an actual collision rate for fatal plus injury (F+I) collisions that is higher than the corresponding statewide average collision rate. This intersection experienced six (6) total accidents during the three-year period including three (3) injury accidents. The collision types were "broadside" (3 accidents), "sideswipe" (2 accidents), and "hit object" (1 accident). The primary collision factors for the "broadside" accidents was "other violation" (3), for the "rear end" accidents was "improper turn" (1) and "other violation (1), and the "hit object" accident included "improper turn".

The SR 165/Third Avenue (Stevinson) intersection has an actual collision rate for total (TOTAL) collisions that is higher than the corresponding statewide average collision rate. This intersection experienced five (5) total accidents (PDO only) during the three-year period. The collision types were "broadside" (3 accidents), "sideswipe" (1 accident), and "hit object" (1 accident). The primary collision factors for the "broadside" accidents were "other violation" and "influence of alcohol and "failure to yield" (1 each), for the "rear end" accident was "other violation, and the "hit object" accident included "improper turn".

The SR 165/Westside Boulevard intersection has an actual collision rate for fatal plus injury (F+I) collisions that are higher than the corresponding statewide average collision rate. This intersection experienced two (2) total accidents during the three-year period including one (1) injury accident. The collision types were "over turn" and "broadside" (1 accident each). The primary collision factors for both accidents were "influence of alcohol".

The SR 165/Bloss Avenue (Hilmar) intersection has an actual collision rate for fatal (FAT) and for total (TOTAL) collisions that are higher than the corresponding statewide average collision rates. This intersection experienced 10 total accidents during the three-year period including one (1) fatality accident and one (1) injury accident. The collision types were "rear end" (5 accidents), broadside" (2 accidents), "sideswipe" (2 accidents), and "hit object" (1 accident). The primary collision factors for the "rear end" accidents was "speeding" (5), for the "broadside" accidents was "other violation" (2), for the "sideswipe" accidents was "improper turn" (1) and "unknown" (1), and the "hit object" accident included "influence of alcohol".

The SR 165/American Avenue (Hilmar) intersection has an actual collision rate for total (TOTAL) collisions that is higher than the corresponding statewide average collision rate. This intersection experienced 15 total accidents during the three-year period including four (4) injury accidents. The primary collision factors and types of collision are summarized below. As shown, the predominant collision types were "rear end" (7 accidents) followed by "broadside" (4 accidents) and "sideswipe" (2 accidents). The predominant primary collision factor for the "rear end" accidents was "speeding" (7), for the "broadside" accidents was "failure to yield" (2) followed by "other violation" and "unknown", and for the "sideswipe" accidents was both "failure to yield" and "improper turn".

The SR 165/August Avenue (Hilmar) intersection has an actual collision rate for total (TOTAL) collisions that is higher than the corresponding statewide average collision rate. This intersection experienced 15 total accidents during the three-year period including four (4) injury accidents. The primary collision factors and types of collision are summarized below. As shown, the predominant collision types were "broadside" (11 accidents) followed by "sideswipe" (2 accidents) and "hit object" (2 accidents). The predominant primary collision factor for the "broadside" accidents was "failure to yield" (7) and "other violation" (4), for the "sideswipe" accidents was both "failure to yield" and "improper turn", and both "hit object" accidents was "improper turn".

The SR 165/Bradbury Road intersection has an actual collision rate for fatal plus injury (F+I) collisions that are higher than the corresponding statewide average collision rate. This intersection experienced 12 total accidents during the three-year period including six (6) injury accidents. The primary collision factors and types of collision are summarized below. As shown, the predominant collision type was "rear end" (8 accidents) and the predominant primary collision factor was "speeding (6) followed by "other violation" (2).

TASAS Table B – Selective Accident Rate Calculation data along various SR 165 highway segments was obtained from Caltrans for the three year period from June 1, 2005 through May 31, 2008. Table 12 provides only traffic accident data along those highway segments that had "Actual Rates" greater than the corresponding "Average Rate" for this three-year period.

TABLE 12
STATE ROUTE 165 (SR 165) HIGHWAY SEGMENTS

SR 165 Highway Segment	No. of Accidents			Actual Accident Rate			Average Accident Rate		
	FAT	INJ	TOTAL	FAT	F + I	TOTAL	FAT	F+I	TOTAL
10-Mer-165 PM 026.870 – 027.880 Btwn SR 140 & Third Ave (Stevinson)	0	5	13	0.000	0.80	2.07	0.026	0.36	0.85
10-Mer-165 PM 027.879 – 030.174 Btwn Third Ave & Westside Blvd. (Stevinson)	1	8	24	0.053	0.48	1.27	0.025	0.35	0.83
10-Mer-165 PM 030.174 – 032.365 Btwn Westside Blvd & Williams Ave.	2	11	35	0.097	0.63	1.69	0.025	0.34	0.79
10-Mer-165 PM 032.365 – 033.364 Btwn Williams Ave & Bloss Ave (Hilmar)	0	15	54	0.000	1.09	3.93	0.024	0.39	0.95
10-Mer-165 PM 033.364 – 033.615 Btwn Bloss Ave (Hilmar) & 1st Street (Hilmar)	1	7	21	0.234	1.87	4.92	0.023	0.39	0.97
10-Mer-165 PM 033.615 – 033.863 Btwn 1st Street (Hilmar) & American Ave (Hilmar)	0	6	19	0.000	1.22	3.86	0.023	0.39	0.97
10-Mer-165 PM 033.863 – 036.444 Btwn American Ave (Hilmar)& Bradbury Rd	1	25	71	0.020	0.53	1.44	0.025	0.35	0.82
10-Mer-165 PM 036.444 – 036.721 North of Bradbury Road (County Line)	0	8	15	0.000	1.35	2.53	0.025	0.33	0.77
10-Sta-165 PM 000.000 – 001.545 County Line to Jct 99	0	13	27	0.000	0.37	0.76	0.025	0.33	0.77

TOTAL– Total of all accidents; INJ – Injury Accident; FAT – Fatal Accident, F+I – Fatal + Injury

As shown in Table 12, the SR 165 highway segment between the intersections with SR 140 and Third Avenue in Stevinson has an actual collision rate for both fatal plus injury (F+I) and for total (TOTAL) collisions that are higher than the corresponding statewide average collision rates. This segment experienced 13 total accidents during the three-year period including five (5) injury accidents. The predominant collision types were “broadside” (5 accidents) followed by “hit object” (4 accidents). The predominant primary collision factor for the “broadside” accidents was “other violation” (4) while the predominant primary collision factor for the “hit object” accidents was “influence of alcohol” (2) and “improper turn” (2).

The SR 165 highway segment between the intersections with Third Avenue in Stevinson and Westside Boulevard has an actual collision rate for fatal (FAT), fatal plus injury (F+I) and for total (TOTAL) collisions that are higher than the corresponding statewide average collision rates. This segment experienced 24 total accidents during the three-year period including one (1) fatality accident and eight (8) injury accidents. The predominant collision types were “broadside” (8 accidents), “rear end” (6 accidents), and “hit object” (6 accidents). The predominant primary collision factor for the “broadside” accidents was “failure to yield” (4) followed by “improper turn” (2), for the “rear end” accidents was “speeding” (4), and for the “hit object” accidents was “improper turn” (6).

The SR 165 highway segment between the intersections with Westside Boulevard and Williams Avenue has an actual collision rate for fatal (FAT), fatal plus injury (F+I) and for total (TOTAL) collisions that are higher than the corresponding statewide average collision rates. This segment experienced 35 total accidents during the three-year period including two (2) fatality accidents and 11 injury accidents. The predominant collision types were “rear end” (8 accidents), “hit object” (6 accidents), “sideswipe” (5 accidents), “broadside” (5 accidents) and “over turn” (5 accidents). There were also two (2) accidents involving “auto/pedestrians”. The predominant primary collision factor for the “rear end” accidents was “speeding” (8), for the “hit object” accidents was “speeding” (3), for the “sideswipe” accidents was “other violation” (4), for the “broadside” accidents was “failure to yield” (3) followed by “influence of alcohol” (2), for the “over turn” accidents was “”speeding” (4), and for the two (2) auto/pedestrians” accidents was both “other than driver” and “influence of alcohol”.

The SR 165 highway segment between the intersections with Williams Avenue and Bloss Avenue in Hilmar has an actual collision rate for fatal plus injury (F+I) and for total (TOTAL) collisions that are higher than the corresponding statewide average collision rates. This segment experienced 54 total accidents during the three-year period including 15 injury accidents. The predominant collision types were "rear end" (28 accidents), "sideswipe" (9 accidents), "broadside" (7 accidents), and "hit object" (5 accidents). There was also one (1) accident involving "auto/pedestrians". The predominant primary collision factor for the "rear end" accidents was "speeding" (25), for the "sideswipe" accidents was "improper turn" (5), for the "broadside" accidents was both "failure to yield" (3) and "other violations" (2), for the "hit object" accidents was "improper turn" (3), and for the auto/pedestrians" accident was "improper turn".

The SR 165 highway segment between the intersections with Bloss Avenue and 1st Street in Hilmar has an actual collision rate for fatal (FAT), fatal plus injury (F+I) and for total (TOTAL) collisions that are higher than the corresponding statewide average collision rates. This segment experienced 21 total accidents during the three-year period including one (1) fatality accident and seven (7) injury accidents. The predominant collision types were "rear end" (12 accidents) and "broadside" (7 accidents). The predominant primary collision factor for the "rear end" accidents was "speeding" (12), and for the "broadside" accidents was "failure to yield" (4) followed by "other violation" (2).

The SR 165 highway segment between the intersections with 1st Street and American Avenue in Hilmar has an actual collision rate for fatal plus injury (F+I) and for total (TOTAL) collisions that are higher than the corresponding statewide average collision rates. This segment experienced 19 total accidents during the three-year period including six (6) injury accidents. The predominant collision types were "broadside" (10 accidents) and "rear end" (7 accidents). The predominant primary collision factor for the "broadside" accidents was "failure to yield" (6) followed by "other violation" (4) while the predominant primary collision factor for "rear end" accidents was "speeding" (5).

The SR 165 highway segment between the intersections with American Avenue in Hilmar and Bradbury Road has an actual collision rate for fatal (FAT), fatal plus injury (F+I) and for total (TOTAL) collisions that are higher than the corresponding statewide average collision rates. This segment experienced 71 total accidents during the three-year period including one (1) fatality accident and 25 injury accidents. The predominant collision types were "rear end" (32 accidents), "broadside" (16 accidents), and "hit object" (10 accidents). The predominant primary collision factor for the "rear end" accidents was "speeding" (29), for the "broadside" accidents was "failure to yield" (10) followed by "other violation" (5) and for "hit object" accidents was "improper turn" (6).

The SR 165 highway segment from the intersection with Bradbury Road north to the Merced/Stanislaus County Line has an actual collision rate for fatal plus injury (F+I) and for total (TOTAL) collisions that are higher than the corresponding statewide average collision rates. This segment experienced 15 total accidents during the three-year period including eight (8) injury accidents. The predominant collision types were "rear end" (7 accidents) and "hit object" (3 accidents). The primary collision factor for the "rear end" accidents was "speeding" (5) while the primary collision factor for the "hit object" accidents was "improper turn" (2).

The SR 165 highway segment from the Merced/Stanislaus County Line north to the junction with SR 99 has an actual collision rate for fatal plus injury (F+I) collisions that are higher than the corresponding statewide average collision rate. This segment experienced 27 total accidents during the three-year period including 13 injury accidents. The predominant collision types were "broadside" (11 accidents) and "rear end" (9 accidents). The primary collision factor for the "broadside" accidents was "failure to yield" (4) followed by "improper turn" (3) while the primary collision factor for the "rear end" accidents was "speeding" (6).

5. CORRIDOR AND SYSTEM COORDINATION

State Route 99 (SR 99)

SR 99 is the principal north/south freeway in the Central Valley. In Caltrans District 10, SR 99 extends 101 miles through the central areas of Merced, Stanislaus, and San Joaquin Counties. It serves the communities of Merced, Atwater, Livingston, Delhi, Turlock, Keyes, Ceres, Modesto, Salida, Ripon, Manteca, Stockton and Lodi. SR 99 is important as a major lifeline route for industrial, commercial and agricultural purposes and serves as a major commuter route within and between cities located along its length. SR 99 is also a major connector to all east/west routes that link the San Francisco Bay Area.

Most of SR 99 has been in the State Highway System (SHS) since 1909. SR 99 is on the 1959 established Freeway and Expressway System (F&E); is a "High Emphasis Route" and "Focus Route" on the 1989 established Interregional Road System; is on the National Highway System (NHS) (except for a 56-mile section in Caltrans District 3); is on the National Network for Surface Transportation Assistance Act (STAA) Trucks; is identified as an Intermodal Corridor of Economic Significance (ICES) between I-5 south of Bakersfield and US 50 in Sacramento; and is a "Priority Global Gateway" for goods movement in the Global Gateways Development Program. SR 99 is functionally classified as a Principal Arterial for its entire length and is on the Strategic Highway Corridor Network (SHRAHNET) under the Federal-aid Surface Transportation Program south of SR-4 in Stockton. SR 99 is not designated as a Scenic Highway.

The SR 99 Transportation Concept Report (TCR) (District 10, November 2002, approved November 2003) identifies that the concept Level of Service (LOS) for the 20-year planning horizon (2025) is "C" in rural areas and "D" in urban/developed areas. The Concept Facility for SR 99 is a 6-lane freeway while the Ultimate Transportation Corridor (UTC) is an 8-lane freeway. The TCR includes a strong consideration of High Occupancy Vehicle (HOV) lanes during the last stages of widening throughout all urban areas. In the TCR, SR 99 from the Bradbury Road interchange north to the Merced/Stanislaus County Line is located within Merced County Segments 12 and 13. From the county line north to the W. Main Street interchange, SR 99 is located within Stanislaus County Segments 1 and 2. Table 13 presents the 2025 LOS, 2025 Concept LOS and Concept Facility, and the Ultimate Transportation Corridor (UTC) for each segment.

TABLE 13
SR 99 TCR CONCEPT LOS AND CONCEPT FACILITY

Segments	Post Miles	Location	2025 LOS	2025 Concept LOS	2025 Concept Facility*	UTC Facility*
Merced 12	R35.00-R36.40	South of Bradbury Rd. to .26 miles N. of NB off to Golden State Blvd	F	C (R)	6-Lane Freeway	8-Lane Freeway
Merced 13	R36.40-R37.30	.26 miles N. of NB off to Golden State Blvd to the Merced/Stanislaus County Line	C	C (R)	6-Lane Freeway	8-Lane Freeway
Stanislaus 1	R00.00-R01.63	Merced/Stanislaus County Line to Jct. Rte. 165	C	C (R)	6-Lane Freeway	8-Lane Freeway
Stanislaus 2	R01.63-R08.16	Jct. Rte. 165 to .4 Miles N. of Keyes Road	E	D (U)	6-Lane Freeway	8-Lane Freeway*

** - The TCR notes that HOV lanes should be considered in all urban areas during the final phase of widening*
(R) – Rural; (U) – Urban

The Route 99 Corridor Enhancement Master Plan identifies widening the segment of SR 99 in Merced County between PM 28.8-36.4 from a 4-lane to a 6-lane freeway as a Regional Transportation Plan Project Candidates for District 10 (Figure 3-11). This project is also identified in the Route 99 Corridor Business Plan as a Priority Category 2: Capacity-Increasing Projects (Figure 3.6, Project Number 45). A

Project Study Report (10-0Q120K) was approved in January 2007 that studied widening SR 99 from a 4-lane to a 6-lane freeway in Merced County that included this segment. SR 99 between the Bradbury Road interchange and the Merced/Stanislaus County Line is included in this segment.

The Route 99 Corridor Enhancement Master Plan also identifies modifications to the SR 165 (Lander Avenue) interchange in Stanislaus County (City of Turlock) as a Regional Transportation Plan Project Candidates for District 10 (Figure 3-11). This project is also identified in the Route 99 Corridor Business Plan as a Priority Category 3: Major Operational Improvement Projects (Figure 3.7, Project Number 46).

Though not identified in the Route 99 Corridor Enhancement Master Plan, the Route 99 Corridor Business Plan identifies a project to reconstruct the West Main Street interchange as a Priority Category 3: Major Operational Improvement Projects (Figure 3.7, Project Number 47, 10-0F410K).

California Transportation Commission (CTC) approval will be required if a project is identified that includes new connections to SR 99. The existing Freeway Agreement would also need to be revised and a Superceding Freeway Agreement approved with this action occurring during subsequent project phases.

State Route 165 (SR 165)

SR 165 is north/south route beginning at Interstate 5 (I-5) south of Santa Nella in Merced County and ending at SR 99 in the City of Turlock in Stanislaus County. This route is completely contained in District 10, is 38.3 miles long and traverses the San Joaquin Valley. SR 165 serves the communities of Los Banos, Stevinson, Hilmar and Turlock and is widely used for commuter traffic between these cities and communities as well as offering a connection between I-5 and SR 99. SR 165 carries a large amount of agricultural traffic due the significant agricultural resources produced along this corridor.

SR 165 is functionally classified as a Minor Arterial for the entire route with the exception of the segment through Los Banos where it is functionally classified as a Principal Arterial. SR 165 is not designated as a Surface Transportation Assistance Act (STAA) truck route. It is not on the Scenic Highway System or on the National Highway System (NHS). SR 165 is not designated as a Strategic Highway Network (STRAHNET) Deployment Route and it is not on the Freeways and Expressway (F&E) System. SR 165 is also not an Interregional Road System (IRRS) route. SR 165 is, however, designated as a Terminal Access Route.

The State Route 165 Transportation Concept Report (TCR) (District 10, March 2004) identifies that, because SR 165 is not an IRRS route, the concept Level of Service (LOS) for the 20-year planning horizon (2025) is "D". The Concept Facility for SR 165 varies by segment while the Ultimate Transportation Corridor (UTC) is a 4-lane conventional highway for the majority of the route with deviations to 5 lanes through Los Banos. In the TCR, SR 165 from south of SR 140 to the Merced/Stanislaus County Line is located within Merced County Segments 5 through 8. From the county line north to the SR 165 (Lander Avenue) interchange with SR 99, SR 165 is located within Stanislaus County Segment 1. Table 14 presents the 2025 LOS, 2025 Concept LOS and Concept Facility, and the Ultimate Transportation Corridor (UTC) for each segment.

SR 165 in on the list of relinquishable highways. Unless the project results in a new alignment for SR 165, Merced County has expressed no interest in the State's relinquishment of existing SR 165

TABLE 14
SR 165 TCR CONCEPT LOS AND CONCEPT FACILITY

Segments	Post Miles	Location	2025 LOS	2025 Concept LOS	2025 Concept Facility	UTC Facility
Merced 5	11.73-26.87	Henry Miller Road to SR 140	F	D	2-Lane Conventional Highway*	4-Lane Conventional Highway
Merced 6	26.87-32.37	SR 140 to Williams Avenue	F	D	2-Lane Conventional Highway**	4-Lane Conventional Highway
Merced 7	32.37-34.36	Williams Avenue to August Avenue	F	D	4-Lane Conventional Highway*	4-Lane Conventional Highway
Merced 8	34.36-36.72	August Avenue to Merced/Stanislaus C.L.	F	D	4-Lane Conventional Highway*	4-Lane Conventional Highway
Stanislaus 1	0.00-1.55	Merced/Stanislaus C.L. to North of SR 99.	F	D	4-Lane Conventional Highway***	4-Lane Conventional Highway

* *with left-turn channelization*
** *with shoulder widening*
*** *with continuous left-turn lanes as appropriate*

There is one roadway rehabilitation project listed in the 2010 State Highway Operation and Protection Program (SHOPP) for SR 165 in Merced County. This project is located in Segment 6 (10-38150) between SR 140 and Westside Boulevard. The program year for this project is 2010/11.

Merced County Regional Transportation Plan (RTP) and Federal Transportation Improvement Program (FTIP)

The 2011 Regional Transportation Plan for Merced County (2011 RTP) was prepared by Merced County Association of Governments (MCAG) and adopted on July 15, 2010. The 2011 RTP identifies SR 99, SR 165 and SR 140, and any future realignments and bypasses including the Highway 165 Hilmar Bypass as part of the County's Regional Road Network. The 2011 RTP also identifies Westside Boulevard between SR 165 and SR 99 (major collector), Bloss Avenue between SR 165 and SR 99 (major collector), and Bradbury Road between SR 165 and SR 99 as part of the County's Regional Road Network.

The MCAG Governing Board has established a LOS standard of "D" for the entire regional road network. Any segment of roadway that is worse than LOS "D" is considered to be a deficiency in the transportation system. These deficiencies may then become the basis for project priorities in the capital improvement program.

The 2011 RTP "Recommended Regional Highway Improvement Project Priorities, Table 16 – Regionally Funded Projects identifies projects that need regional discretionary funding to be constructed. Within this project's study area, Table 16 identifies one (1) project, SR 99 to 6 lanes Livingston –Delhi as a Tier 1 project and one (1) project, SR 165 Realignment/N. of Hilmar as a Tier 2 – Unconstrained project.

The 2011 Federal Transportation Improvement Program (2011 FTIP) was prepared by Merced County Association of Governments (MCAG) and approved on July 15, 2010. The 2011 FTIP, STIP – Regional Choice identifies the following projects within the study area; "Livingston Widening (aka SR-99 Median Widening)" (10-0Q120) as included for Environmental Approval; and PSR (PE Only) for SR-165 improvements and new interchange of SR-99 and SR-165 (10-0P810)

Merced County General Plan

Merced County is in the process of updating the County's General Plan. According to the current General Plan, Circulation Chapter, county roads serve two primary functions – to provide access to individual parcels, and to accommodate the movement of goods, services and people. The relative importance given to either of these two functions helps determine the purpose and designation of a road. On Merced

County roadways, LOS "C" has been identified as the acceptable peak period level-of-service for roadways located within rural areas. LOS "D" has been identified to be the acceptable peak period level-of-service for roadways located within HICs, SUDPs of unincorporated areas and RRCs. There also may be some roadways located between urban growth areas where LOS "D" will also be considered acceptable.

Hilmar Community Plan

The Hilmar Community Plan was adopted in July 2008. A potential bypass route for SR 165 is of central importance to improving circulation within the community plan area. Chapter 5.0, Circulation of the adopted plan notes the following; "The Highway 165 Bypass has been determined as the most feasible option to alleviate inter-regional traffic as well as heavy truck uses through the Community."

Delhi Community Plan

The Delhi Community Plan was adopted in June 2006. The Community of Delhi is located on the eastern boundary of the project study area with Merced Avenue generally representing the eastern boundary of the Community Plan Area and Bradbury Road (including the Bradbury Road interchange with SR 99) generally representing the northern boundary of the Community Plan Area.

Stanislaus County Regional Transportation Plan

The 2011 Regional Transportation Plan (2011 RTP) for Stanislaus County was prepared by Stanislaus Council of Governments (StanCOG). StanCOG adopted a regional expressway system in 1991. Within the project study area, the regional expressway system includes Harding Road from Washington Road east to the junction with SR 99. Harding Road crosses SR 165 (Lander Avenue) just to the south of SR 99.

The following study area projects are identified in the 2011 RTP.

- Tier I Roadway Projects, City of Turlock, SR-99, Lander Ave. (SR-165) to S. City Limits, Construct New Interchange.
- Tier II Roadway Projects, City of Turlock, Lander Ave, Simmons Rd to SR-99, Widen from 2-lane to 4-lane Arterial.

Stanislaus County General Plan

The General Plan, Circulation Element notes that, as a matter of policy, Stanislaus County strives to maintain LOS "C" or better on all roadways. Figure 2-2, Circulation Diagram (Roadway Classification) and Figure 2-3, Circulation Diagram (Expressway Access Class) from Chapter 2, Circulation Element of the General Plan identifies that the segment along Harding Road from Washington Road east to the junction with SR 99 as a Class C 4-lane expressway.

City of Turlock General Plan

The current Turlock General Plan, Section 5, Transportation Element notes that maintenance of a high level of mobility is a stated priority of Turlock's residents and a goal of the General Plan as well. To this end, the City strives to maintain acceptable service standards (i.e., LOS "C" or better) for all major streets and intersections. Figure 5-1, Circulation System from Section 5, Transportation Element of the General Plan identifies that the segment along Harding Road from Washington Road east to the junction with SR 99 as expressway. Figure 5-1 also identifies a number of future streets within the project study area including an extension of S. Verduga Road across SR 99 and connecting to Harding Road.

6. ALTERNATIVES

"No Build" Alternative

A "No-Build" Alternative was considered by the project agencies. Under this alternative, there would be no improvements in traffic safety and operation along SR 165 or improved access along SR 99 and the local roadway system; thus, continued regional development would incrementally increase traffic congestion and would exacerbate existing regional traffic circulation. Such an alternative would maintain existing conditions and would not adequately address the project need. The No-Build Alternative was therefore not considered further.

Range of Preliminary Alternatives Considered

In addition to the "No Build" alternative, Nine (9) primary State Route 165 (SR 165) alignments (Alternative A through Alternative I) were initially identified for preliminary evaluation by the PDT with input from the CAC and PC. Of the primary alignments, Alternative A represented the alternative that improved the existing highway. In addition, sub-alternatives to Alternative D through Alternative I were identified that brought the total number of preliminary project alternatives to 19. Each alternative also considered either connections to existing SR 99 interchanges at the Lander Avenue (SR 165) interchange (Alternatives A, B, C and G) or at the Bradbury Road interchange (Alternative I) or to a new interchange on SR 99 (Alternatives D, E, F and H). Each primary alternative and sub-alternative were evaluated and compared to each other through a matrix screening process that was summarized in the report "Preliminary Project Alternatives Evaluation and Matrix Screening Process and Results" a copy of which is included in **Attachment 4**. An exhibit showing the various preliminary alignments is attached in the appendix of this document.

Based on the results of the initial alternatives evaluation and public scoping process, two build alternatives, Alternatives D and I, were selected by the agencies for further study. The remaining alternatives including Alternative A were not selected by the Project Development Team based on their rankings compared to the two selected build alternatives. An exhibit showing the preliminary alignments for Alternative D and Alternative I is also attached in the appendix of the report "Preliminary Project Alternatives Evaluation and Matrix Screening Process and Results" included in **Attachment 4**.

Alternative that meets Current Mandatory and Advisory Design Standards

Alternative I at this time has no known non-standard mandatory or advisory design features.

Minimum Build Alternative

Both Alternative D and Alternative I represent the "Minimum Build Alternative". Both alternatives are consistent with the purpose and need for the project and both provide a way to address the projected future transportation deficiencies.

Alternative D

The Alternative D alignment is located within Merced and Stanislaus Counties with a southern terminus near the intersection of 1st Avenue and SR 165, approximately 1.25 miles north of the community of Stevinson, and extending north to Golden State Boulevard near the City of Turlock. As previously noted, SR 140 was identified as within the project study limits to represent the southern termini. However, projected year 2035 highway operations on SR 165 south of 1st Avenue (north of SR 140) is projected at LOS "D" which is consistent with the LOS Standard of "D". As such, the Alternative D improvements are proposed to begin at 1st Avenue.

Two design options are proposed for the Alternative D alignment from 1st Avenue to just north of the Merced River channel and floodplain. Option 1 crosses the Merced River via the existing SR 165 alignment, requiring demolition and replacement of the single span, two-lane bridge at that location. Option 2 crosses the river east of the existing SR 165 alignment, requiring construction of new northbound and southbound spans. Both of these options are the same with Alternative I.

Alternative D also includes a number of other related improvements. These include:

- new secondary road segments and realignments of existing roads south of the Merced River, including:
  - a new secondary road connecting River Road to Westside Boulevard which would intersect at grade with the existing SR 165 alignment and the Alternative D alignment (Option 1),
  - a new secondary road connecting on the north to River Road and on the south to the new River Road-Westside Boulevard connector road, described above, and
  - a realigned segment of Westside Boulevard, which would intersect at grade with the Alternative D alignment (Option 2);
- new bridges, intersections, and realignments of existing roads between the Merced River and SR 99, including:
  - new northbound and southbound bridges at Turner Avenue and Larsen Road (Option 1); Golf Link Road, Geer Avenue, American Avenue, Clausen Road and Harding Road/Youngstown Road connector,
  - new at-grade intersections with Lander Avenue (SR 165) (Option 1), Williams Avenue, Bloss Avenue, August Avenue, and Bradbury Road;
- a new interchange at SR 99, new secondary road segments north and south of the interchange, and new secondary access from the interchange to the rest areas near the junction of SR 99; and
- a new T-intersection with Golden State Boulevard.

Table 15 provides a summary of the various roadways that would intersect the Alternative D alignment, their CRS classification, and whether a roadway is proposed to either intersect the alignment or be grade separated with the alignment.

TABLE 15

Intersecting Roadway	CRS Classification	Option 1 At-Grade Intersection or Grade Separated	Option 2 At-Grade Intersection or Grade Separated
Westside Boulevard	Major Collector	At-Grade Intersection	At-Grade Intersection
River Road (West of SR 165)	Major Collector	At-Grade Intersection	
River Road (East of SR 165)	Minor Collector		At-Grade Intersection
Turner Avenue (West of SR 165)	Minor Collector	Grade Separated	
Lander Avenue (Exist. SR 165)	Minor Arterial	At-Grade Intersection	At-Grade Intersection
Larsen Avenue	Local	Grade Separated	
Golf Link Road	Local	Grade Separated	Grade Separated
Williams Avenue (East of SR 165)	Local	At-Grade Intersection	At-Grade Intersection
Geer Avenue	Local	Grade Separated	Grade Separated
Bloss Avenue (East of SR 165)	Major Collector	At-Grade Intersection	At-Grade Intersection
American Avenue	Local	Grade Separated	Grade Separated
August Avenue	Minor Collector	At-Grade Intersection	At-Grade Intersection
Bradbury Road	Major Collector	At-Grade Intersection	At-Grade Intersection
E. Clausen Road	Local	Grade Separated	Grade Separated
Harding -Youngstown Roads Connector	Local	Grade Separated	Grade Separated

Exhibits showing the preliminary typical cross sections and roadway alignments for Alternative D are provided in **Attachment 5**.

Study Area Boundary

The anticipated study area boundary for Alternative D is initially defined by the anticipated right-of-way requirements for this alternative which are shown on exhibits included in **Attachment 7**. The anticipated study area boundary shown on the exhibits also do not include the more expansive study areas that may be needed for the various environmental technical specialties such as cultural, biology, etc. During the PA&ED project phase, a meeting with Caltrans staff will be needed to delineate the appropriate study areas needed for the various environmental technical specialties.

PEAR Environmental Summary

A Preliminary Environmental Analysis Report (PEAR) was prepared and a copy is included in **Attachment 8. Section 8 – Environmental Determination/ Documentation** in this report describes the type of environmental determination to be obtained for the California Environmental Quality Act (CEQA) and for the National Environmental Protection Act (NEPA). Following is a summary of the environmental issues and recommended technical studies as identified in the PEAR.

Existing and Future Land Use (Common to both Alternative D and Alternative I): The project would permanently convert farmland in the immediate project area to non-agricultural use. Coordination with the Natural Resources Conservation Service, preparation of the Farmland Conversion Impact Rating, and notification of the Department of Conservation will be required. Additionally, any inconsistencies between the project and the local adopted plans or policies must be identified and discussed within the body of the environmental document, and if appropriate, documented in a Community Impact Assessment (CIA) or background study.

Hagaman Park is located on and along the south side of the Merced River in the southern portion of the project study area and could be impacted as a result of implementing Option 1. No other Section 4(f) park or recreation facilities, including other publicly owned park or recreation areas, historic sites, or recreational trails would be impacted by either proposed project alternative. If there is a "use" of this Section 4(f) property, then the environmental document will assess the feasibility for avoiding this property. If a "use" of this property cannot be avoided then minimization measures within the environmental document would be required to ensure work would not adversely affect the activities, features, or attributes that make this property eligible for Section 4(f) protection. Concurrence on these findings would also be required.

Farmlands (Common to both Alternative D and Alternative I): Implementing either alternative would permanently convert farmland in the immediate project area to non-agricultural use. Coordination with the Natural Resources Conservation Service, preparation of the Farmland Conversion Impact Rating, and notification of the Department of Conservation will be required. Additionally, inconsistencies between the project and the local adopted plans or policies must be identified and discussed within the body of the environmental document, and if appropriate, documented in a Community Impact Assessment (CIA) or background study.

Growth (Common to both Alternative D and Alternative I): There are currently no ordinances or policies that prohibit growth within the study area. The project would add additional infrastructure that could potentially remove existing barriers to growth in the study area. However, the project is unlikely to substantially encourage development in the study area beyond what is already planned, or to shift or hasten planned growth covered under these plans. Given the anticipated physical impacts of the project, a CIA would be required to document the project's effect on future growth and the existing communities affected.

Community Impacts (Common to both Alternative D and Alternative I): Implementation of either project alternative would result in full or partial take of between 5 to 13 residential and agricultural/industrial structures. A Draft Relocation Impact Study/Statement (DRIS) would be prepared to document the displacement of the affected properties.

Implementation of either alternative could result in economic impacts associated with losses of farmland; could potentially include a loss in agriculture-related employment; decline in personal income; reduction in sales tax revenues resulting from declining purchases of taxable goods and services and reductions in property tax valuations and property tax revenues. Implementation of either alternative could also result in temporary increases in construction employment and personal income in the study area. Purchase of local goods and services during construction would also result in temporary increases in employment and income in urban centers. These temporary direct and indirect increases in employment and income would be considered a temporary beneficial effect. The project's effects on the local and regional economy would be documented in a Community Impact Report (CIA).

Populations residing in the project study area are characterized by a substantial proportion of minority and low-income groups. The CIA and environmental document should evaluate whether disproportionate impacts to one of more of these groups could result from direct or indirect adverse project effects related to air quality, noise, water pollution, aesthetic values, employment, displacements/relocations, farmlands, accessibility, traffic congestion, safety, and construction impacts.

Before beginning the studies for the CIA, a meeting should be held with the Caltrans environmental planner assigned to this project tó plan the level of study and reporting required for this project.

Various existing utilities, including but not limited to, water mains, underground fiber optic cable, and overhead power lines, are located within the proposed project area. Coordination with utility providers to ensure disruptions of utility services are minimized or avoided would be required, and specific measures to avoid impacts on utility infrastructure should be developed and incorporated into the final construction plans.

During construction, the project could potentially affect through access for emergency vehicles and members of the public. Implementation of a traffic management plan (TMP) would be required to ensure effects on emergency response providers and the public are minimized to the extent possible during the construction period.

Visual/Aesthetics (Common to both Alternative D and Alternative I): The proposed project would introduce new highway infrastructure into rural areas of both counties, which are presently characterized by agricultural land uses and large tracts of open space. These modifications would result in changes in the existing visual character of the project area and would potentially contribute significant new sources of light and glare to the area. A Visual Impact Assessment (VIA) would be required and should include potential project effects and any appropriate mitigation.

Cultural Resources (Common to both Alternative D and Alternative I): The proposed project would cross Turlock Irrigation District Lateral No. 8, which may be potentially eligible for inclusion in a NRHP historic district, as well as the Merced River, considered potential sensitive for archaeological resources. (Dice, M. H., and K. J. Lord 2010). All potential historic properties are subject to consideration under Section 106 and the California Environmental Quality Act of 1970 will be recognized and given appropriate consideration. An archaeological survey report, historic resources evaluation report, and historic properties survey report will likely be needed to document compliance under Section 106, An Extended Phase I survey will likely be needed for areas adjacent to the Merced River crossing and any other areas where prehistoric resources may be found during the pedestrian archaeological survey. If an

XPI survey indicates the presence of a prehistoric resource, a Phase II archaeological evaluation may be necessary.

Hydrology and Floodplain (Common to both Alternative D and Alternative I): The only portion of the project that is located in a 100-year flood zone is where the project crosses over the Merced River. The rest of the alignment is outside the 100-year floodplain. The project would increase the amount of impervious surface which would result in additional stormwater runoff. However, roadside swales would likely be the primary BMP and the swales would likely be designed to handle the additional runoff created from the increased impervious surface. This information will be included in the Storm Water Data Report prepared for the project. In addition, a Location Hydraulic Study will also be prepared for the project and will determine if the new bridge will have hydraulic impacts to the Merced River in the event that the size of the floodplain is decreased from increasing the size of the bridge abutments. This scenario would likely not impact the floodplain, as the size increase would likely be minimal.

Water Quality and Storm Water Runoff (Common to both Alternative D and Alternative I): The Clean Water Act (CWA) Section 303(d) List of impaired waters has the Merced River impaired for chlorypyrifos, diazinon, group A pesticides and mercury. The first three impairments are sourced to agriculture and the proposed project would likely not contribute to these impairments. However, the proposed project will involve use of heavy equipment which will disturb soil and could also mobilize additional mercury contributing to the impairment in the Merced River. As a result, the contractor will need to implement a Storm Water Pollution Prevention Plan (SWPPP) (which is part of the NPDES Construction General Permit) and subsequent BMPs to ensure that sedimentation does not enter into the Merced River from construction.

Geology, Soils, Seismic and Topography (Common to both Alternative D and Alternative I): The proposed project area could be subject to strong groundshaking, liquefaction, subsidence, and other seismic-related ground disturbances in the project areas, and ground disturbance caused by project construction activities would expose soil to erosional processes and could result in the loss of topsoil during construction. Project activities occurring on or near the banks of the Merced River also have the potential to compromise slope stability. Specific project-related impacts and any appropriate mitigation relating to geology, soil stability, and erosion would be evaluated in the project's environmental document.

Paleontology (Common to both Alternative D and Alternative I): The project includes a number of ground-disturbing and excavation activities associated with road construction, interchange improvement, and bridge installation. Earthwork required for this project would involve the Modesto Formation, with the potential to damage and/or disturb vertebrate and other fossil resources. Depending on the degree of loss, disturbance or damage affecting vertebrate fossils could represent a significant impact under CEQA. Based on the site geology, the likely paleontological sensitivity of the units, and the potential project excavation within these units, a paleontological evaluation report will likely be required.

Hazardous Waste/Materials (Common to both Alternative D and Alternative I): Hazardous materials and/or wastes are potentially present within and adjacent to the project area. An ISA, PSI, and DSI may be required, and information from these reports is summarized in the environmental document so that alternatives can be adequately evaluated. The ED must also consider the potential for encountering contamination and hazards during construction activities and must identify appropriate strategies to minimize health risks for construction workers and the public.

Noise and Vibration (Common to both Alternative D and Alternative I): Traffic noise impacts will likely occur at Activity Category B land uses located within several hundred feet of the alignments as a result of substantial increases in noise. Activity Category B land uses in close proximity to the alignment (within about 100 feet) may also be exposed to traffic noise levels that approach or exceed the noise abatement criteria. Noise abatement in the form on noise barriers will likely need to be considered at a number of locations along the project alignment. In general, these are locations where residences are located within several hundred feet of the alignments. Because these barriers would only provide noise reduction for 1 or 2 residences, it is likely that these barriers will not meet cost reasonableness criteria defined in the Protocol.

A noise study technical report will be prepared to identify traffic noise impacts, noise abatement considered, noise abatement feasibility, and noise abatement reasonableness allowances. Construction and operational noise impacts must also be evaluated under the requirements of CEQA. Because the project is located in three different jurisdictions (Merced County, and Stanislaus County) City and County noise standards would be used to evaluate construction and operational noise impacts under CEQA.

Air Quality (Common to both Alternative D and Alternative I): An air quality study report (AQSR) consistent with Caltrans, Environmental Protection Agency (EPA), and FHWA standards would need to be prepared to assess the environmental impacts associated with the proposed project. Particularly, compliance with the Clean Air Act State Implementation Plan, the 2011 MCAGRTP, and the 2011 StanCOG RTP would be addressed. Potential carbon monoxide (CO), particulate matter less than 10 microns in diameter (PM10), and particulate matter less than 2.5 microns in diameter (PM2.5) emissions, as well as air quality impacts under NEPA and CEQA would also need to be evaluated.

In addition to the AQSR, applicable regional and project-level conformity documentation would need to be completed. Specifically, to fulfill particulate matter conformity requirements, appropriate Interagency Consultation (IAC) documentation is required. If the project is prepared in accordance with Safe, Accountable, Flexible, Efficient Transportation Equity Act: A Legacy for Users (SAFETEA-LU) Section 6005 Guidelines, a separate air quality conformity analysis and documentation checklist would also need to be prepared.

Energy and Climate Change (Common to both Alternative D and Alternative I): A quantitative analysis of operational carbon dioxide (CO2) emissions would be required to estimate long-term climate change impacts or benefits from the proposed project. Depending on if the project results in a net increase in CO2 emissions relative to the no-project condition, project-specific mitigation would be recommended.

Biological Environment:

Special-Status Plants (Common to both Alternative D and Alternative I) - Twenty-one special-status plant species were identified as occurring in the project vicinity. One or more floristic surveys conducted by qualified botanists at the appropriate time of year (typically during the reported blooming period) would be required to evaluate the effect of both alternatives on special-status plants.

Special- S tatus Wildlife (Alternative D) - Six teen special-status wildlife species occur or have the potential to occur in the study area. Based on the habitats observed during the windshield survey and aerial photo interpretation of the study area for the Alternative D Alignment, the following species have potential to be affected by this alternative; valley elderberry longhorn beetle, western pond turtle, silvery legless lizard, white-tailed kite, Swanson's hawk, pallid bat, western red bat, American badger, and San Joaquin kit fox. Though habitat for Conservancy fairy shrimp, vernal pool fairy shrimp, vernal pool tadpole shrimp, California tiger salamander, western spadefoot, giant garter snake, and tricolored blackbird was not observed during the windshield survey or during examination of aerial photographs, portions of the study area that were not accessible may provide suitable habitat for these species.

Special-Status Fish (Common to both Alternative D and Alternative I) - Four special-status fish species occur or have the potential to occur in the study area. The sections of the Merced River that will be crossed over by the new bridges have pool and run habitat. Pool and run habitat provides migratory and possibly rearing habitat for both juvenile and adult steelhead and Chinook salmon. A Biological Assessment submitted to NMFS for Central Valley steelhead and its critical habitat, Central Valley spring-run Chinook salmon, and possibly green sturgeon may be required.

Migratory and rearing habitat is present at both of the alternative sites. Construction effects on special-status fish species include noise disturbance and possible injury or mortality from construction activities (pile driving and construction along banks), increase in sedimentation and turbidity, stranding in cofferdams or other dewatered areas (if isolating pile driving areas), and change in fish habitat. If construction of the new bridges occurs within the river channel and along the banks, there would be a permanent change to existing habitat. Permanent bridge piers in the channel and removal of riparian vegetation would result in a reduced area of fish habitat. An increase in shade could attract predatory fish under the new bridges which could prey on juvenile salmonids. A decrease in water quality due to the increase in runoff from new roads and bridges could occur. All of these effects could be minimized with implementation of various avoidance and minimization measures. Compensation for the removal of riparian vegetation may also be required.

Wetlands and Other Waters (Common to both Alternative D and Alternative I) - The water features observed during the windshield survey were the Merced River and the irrigation canals. These features are considered "other waters" (i.e., non-wetlands). The Merced River is subject to regulation under the federal Clean Water Act (CWA) and the state Porter-Cologne Water Quality Control Act. The irrigation canals are potentially subject to regulation under the CWA, particularly if they have a hydrological connection to the Merced River; however, only the U.S. Army Corps of Engineers (USACE) Sacramento District has the authority to determine if the irrigation canals fall within its jurisdiction. The irrigation canals may also be regulated as waters of the state by the Central Valley Regional Water Quality Control Board (RWQCB).

No wetlands were observed in the study area during the windshield survey; however, wetland areas and other waters have the potential to be present in segments of the study area that were not accessible during the windshield survey, particularly those that contain natural communities (e.g., grasslands).

A delineation of wetlands and other waters is required to identify the extent and location of features within both alignments that may be affected by implementation of the project alternatives. If wetlands are determined to be present in the study area, Executive Order 11990 requires an avoidance alternative analysis for wetland impacts unless there is no practicable alternative available. Any additional other waters identified in the study area are also potentially subject to regulation by the USACE and the RWQCB.

Riparian Vegetation (Common to both Alternative D and Alternative I) - As discussed above, the Merced River crosses the study area for the Alternative D alignment at the junction of SR 165 and River Road and along River Road approximately 0.25 west of Van Clief Road. Riparian vegetation within the Merced River riparian corridor would be subject to regulation by the California Department of Fish and Game under Section 1602 et al. of the California Fish and Game Code.

Invasive Plants (Common to both Alternative D and Alternative I) - Plant species observed during the windshield survey include plant species designated as invasive by the California Department of Food and Agriculture and the California Invasive Plant Council. Executive Order 13112 requires that any federal action may not cause or promote the spread or introduction of invasive species. The abundance of invasive plants along the proposed Alternative D and Alternative I alignments is approximately the same. Therefore, measures to avoid and minimize the introduction of new invasive plant species into the proposed project area and the spread of invasive plant species to uninfected areas would need to be implemented during construction of either project alternative.

Cumulative Impacts (Common to both Alternative D and Alternative I): The proposed project has the potential to cumulatively contribute to related past, present, and reasonably foreseeable probable future projects effects on the environment. Specifically, these effects may include:

- conversion of open space to more intensive uses;
- conversion of farmland to non-agricultural use;
- conflicts with existing Williamson Act contracts;
- conflicts with agricultural land use policies;
- impairment of farmland productivity;
- potential for growth inducement or acceleration of development;
- displacement of historic resources;
- damage to or disturbance of paleontological resources;
- substantial visual contrasts with area character; and
- adverse effects on biological resources, including effects on sensitive habitats and threatened and endangered species.

An assessment of cumulative impacts should be prepared during the ED phase and developed concurrently with direct and indirect impact analyses associated with the proposed project.

Context Sensitive Solutions: In order to inform stakeholders about the project and gain their input, early public outreach with the community was conducted for the proposed project PSR (PDS). Additional coordination with resource agencies is necessary to provide for the needs of all highway users in balance with community, aesthetic, historic, and environmental values and the context of the project. To maximize project benefits, agency coordination should be conducted during the PA&ED phase, as more information will be known at that time about the nature and extent of environmental impacts and the design of the proposed project alternatives.

Engineering Studies Required During PA&ED Project Phase

The following engineering studies will need to be developed and/or completed for Alternative D during the PA&ED project phase.

Traffic Forecasts and Operations

Preliminary year 2035 daily and peak hour traffic forecasts and peak hour traffic operations related to proposed Alternative D have been developed with the results presented in the technical memorandum "Forecasted Traffic Volumes and Traffic Operations for Project Alternative D and Alternative I" included as an attachment in **Attachment 3**. Validation of the traffic forecasts and operations for Alternative D will occur during the PA&ED project phase.

The preliminary traffic forecasts do provide an indication of the potential traffic benefits that may be associated with this alternative. Table 16 provides a comparison of the projected 2035 daily traffic volumes on existing SR 165 within the study area between the "No Build" condition and with Alternative D (Option 1 and Option 2). As shown in the table, the preliminary forecasts indicate that implementation of proposed Alternative D could result in a significant reduction in daily traffic on existing SR 165.

TABLE 16
FORECASTED 2035 ADT COMPARISON ALONG SR 165
BETWEEN "NO BUILD" AND ALTERNATIVE D

SR 165 at	YEAR 2035 TRAFFIC FORECASTS (ADT)				
		Alternative D			
	No-Build	Option 1	% Change with "No Build"	Option 2	% Change with "No Build"
South of SR 140	19,400	19,600	1.03%	19,600	1.03%
North of SR 140	18,500	18,400	-0.54%	18,400	-0.54%
South of Westside Blvd/River Rd	20,200	22,500	11.39%	22,500	11.39%
South of Crane Avenue	19,400	6,700	-65.46%	6,400	-67.01%
South of Geer Avenue	16,300	7,000	-57.06%	6,600	-59.51%
South of Johnson Avenue	16,700	13,300	-20.36%	13,600	-18.56%
South of Bradbury Road	19,500	13,800	-29.23%	14,200	-27.18%
South of Harding Road	18,700	14,700	-21.39%	14,900	-20.32%
North of Harding Road	23,200	18,800	-18.97%	19,100	-17.67%
South of SR 99 SB Ramps	36,300	31,300	-13.77%	31,300	-13.77%

Preliminary year 2035 peak hour traffic operations related to proposed Alternative D are provided in the technical memorandum included as an attachment in **Attachment 3**. Table 17 and Table 18 show the study area locations in which this preliminary analysis indicates peak hour operations projected at LOS "E/F" during one or both peak hours.

TABLE 17
YEAR 2035 CONDITIONS – ALTERNATIVE D
SR 99 MAINLINE PEAK HOUR LEVEL OF SERVICE (LOS)

Freeway Mainline Segment	AM Peak Hour		PM Peak Hour	
	Option 1 LOS	Option 2 LOS	Option 1 LOS	Option 2 LOS
NB SR 99 (between Bradbury Road and Golden State Boulevard)	E	E	E	E
NB SR 99 (between SR 165 Bypass and Lander Avenue)	F	F	E	E
SB SR 99 (between Lander Avenue and SR 165 Bypass)	D	D	F	F
SB SR 99 (between SR 165 Bypass and Golden State Boulevard)	D	D	E	E
SB SR 99 (between Golden State Boulevard and Bradbury Road)	D	D	F	F
SB SR 99 (between Bradbury Road and Shanks Road)	C	C	E	E

TABLE 18
YEAR 2035 CONDITIONS – ALTERNATIVE D
SR 99 RAMP JUNCTION PEAK HOUR LEVEL OF SERVICE (LOS)

Interchange Location	Junction Type	AM Peak Hour Option 1 LOS	AM Peak Hour Option 2 LOS	PM Peak Hour Option 1 LOS	PM Peak Hour Option 2 LOS
SR 99/Rest Area					
SR 99 NB On-Ramp	Merge	D	E	D	D
SR 99 SB Off-Ramp	Diverge	D	D	E	E
SR 99/SR 165 Bypass					
SR 99 NB Off-Ramp	Diverge	E	E	D	D
SR 99 SB Off-Ramp	Diverge	D	D	E	E
SR 99 NB On-Ramp	Merge	D	E	D	D
SR 99/Golden State Boulevard					
SR 99 NB Off-Ramp	Weave	E	E	D	D
SR 99 SB On-Ramp	Weave	D	D	E	E
SR 99/Bradbury Road					
SR 99 NB Off-Ramp	Diverge	E	E	D	D
SR 99 SB Off-Ramp	Weave	D	D	E	E
SR 99 NB On-Ramp	Weave	E	E	D	D

Structures

Table 19 identifies locations in which new bridges/structures are proposed with Alternative D. Refer to sheet number and station locations shown on the Alternative D layouts provided in **Attachment 5**. A Structures Advance Planning Study (APS) will need to be prepared for each bridge/structure during the PA&ED project phase. For the PSR (PDS), a low range and high range cost was estimated for each bridge/structure based on the estimated structure width and length and comparative bridge costs data for 2010 published by Caltrans. The estimate low range and high range structure costs are included with the construction cost estimates included in **Attachment 2**.

TABLE 19
PROPOSED ALTERNATIVE D BRIDGE/STRUCTURE LOCATIONS

Location	Option 1 Layouts Sheet No.	Option 1 Layouts Station (+/-)	Option 2 Layouts Sheet No.	Option 2 Layouts Station (+/-)
Merced River	EX2	205+00	EX2	230+00
Turner Avenue	EX2	249+00		
Larsen Avenue	EX3	302+00		
Golf Link Road	EX3	346+00	EX3	287+00
Geer Avenue	EX3	397+00	EX3	348+00
American Avenue	EX4	449+00	EX4	401+00
Clausen Road	EX5	566+00	EX5	518+00
Harding/Youngstown Road Connector	EX6	587+00	EX6	539+00
SR 99	EX6	593+00	EX6	545+00

Stormwater

A preliminary Storm Water Data Report (SWDR) has been prepared for this project with a copy of the cover sheet included in **Attachment 9**. The SWDR will be updated during the PA&ED project phase. The attached report was prepared to summarize existing study area information and to provide a low range and high range cost estimate for Alternative D related to both treatment and construction site BMP's. The estimate low range and high range BMP costs are included with the construction cost estimates included in **Attachment 2**.

Studies and Actions Required for Alternative D Approval

The following studies and actions will be required for approval of Alternative D.

- An environmental impact statement (EIS) represents the anticipated NEPA environmental document which will require FHWA signature on the final EIS (FEIS).
- Alternative D proposes to construct a new interchange on SR 99 which will require CTC approval. This proposal will need to be evaluated per the requirements listed in Caltrans Project Development Procedures Manual (PDPM), Chapter 27 – New Public Road Connections, Article 5 – Approval of New or Revised Interchanges. This evaluation will occur during the PA&ED project phase.
- The Alternative D alignment will change the location of a portion of the existing SR 165 route to the new alignment. This will require a Route Adoption Report (RAR) for CTC action. The RAR is prepared by the Division of Design (DOD) after the PR and final environmental document (FED) are approved.
- A CTC resolution will be required to relinquish the segment of existing SR 165 replaced by the new alignment.
- Approved Cooperative Agreement.

Nonstandard Design Features

The Alternative D interchange with SR 99 is proposed to be located on the Stanislaus County/Merced County Line. The proposed interchange will be located approximately 1.0 mile north of the Golden State Boulevard interchange and approximately 1.6 miles south of the Lander Avenue (SR 165) interchange. The California Road System (CRS) maps currently shows that the segment of SR 99 between the Golden State Boulevard and Lander Avenue (SR 165) interchanges is designated as "rural". Per the Highway Design Manual (HDM), Index 501.3 Spacing, "**The minimum interchanging spacing shall be one mile in urban areas, two miles in rural areas, and two miles between freeway to freeway interchanges and local street interchanges.**"

Based on the current CRS designation, the proposed interchange would be located less than two miles from both the Golden State Boulevard interchange and the Lander Avenue (SR 165) interchange. Though the California Road System (CRS) maps currently shows that the segment of SR 99 between the Bradbury Road and Golden State Boulevard interchanges and between the Golden State Boulevard and SR 165(Lander Avenue) interchanges is designated as "rural", land-use planning by the City of Turlock will result in expansion of the City's urban boundaries along both sides of SR 99 to the Merced County Line.

The proposed interchange will also be located within approximately 0.3 mile of the Turlock Safety Roadside Rest Area (Enoch Christoffersen Rest Area) and involve modifications to current northbound and southbound SR 99 access with this rest area. It will need to be determined whether the rest area

qualifies as an "interchange" and whether the "Spacing" standard applies between the rest area and the new interchange proposed with Alternative D.
At this time, there are no other identified nonstandard design features associated with Alternative D.

Right of Way

Right of Way Data Sheets for Alternative D (Option 1 and Option 2) is included in **Attachment 10** and the estimated range of costs are included in **Attachment 2.** Implementing Alternative D, Option 1 will require acquiring approximately 265 acres of new State and local right of way from 93 parcels; there are no excess parcels; and ten residential and four farm RAP displacements. Implementing Alternative D, Option 2 will require acquiring approximately 240 acres of new State and local right of way from 78 parcels; there are no excess parcels; and nine residential and two farm RAP displacements.

Cost Estimates

Both a low range and a high range cost estimated have been prepared for Alternative D with Merced River crossing Option 1 and Option 2. Copies of the low range and high range cost estimates are included in **Attachment 2**. Table 20 provides a summary of the estimate low range and high range costs for construction and right of way.

TABLE 20
PLANNING LEVEL OPINION OF CAPITAL COSTS

Alternative D - Option 1		
Construction Cost Estimates	**Low Range Rounded**	**High Range Rounded**
Construction $	$124,800,000	$160,100,000
BMP's $	$7,400,000	$10,600,000
Sub-Total Construction	$132,200,000	$170,700,000
Right of Way Cost Estimates		
Mitigation Acquisition, Credits and Permit Fees $	$2,700,000	$3,900,000
Right of Way $	$20,800,000	$20,800,000
Sub-Total Right of Way	$23,500,000	$24,700,000
Total Capital Costs	**$155,700,000**	**$195,400,000**
Alternative D - Option 2		
Construction Cost Estimates	**Low Range Rounded**	**High Range Rounded**
Construction $	$126,000,000	$162,100,000
BMP's $	$7,100,000	$10,000,000
Sub-Total Construction	$133,100,000	$172,100,000
Right of Way Cost Estimates		
Mitigation Acquisition, Credits and Permit Fees $	$2,700,000	$3,900,000
Right of Way $	$16,500,000	$16,500,000
Sub-Total Right of Way	$19,200,000	$20,400,000
Total Capital Costs	**$152,300,000**	**$192,500,000**

Potential High Risk Issues

Potential issues that could affect PA&ED include change in scope of the proposed Alternative D (Option 1 and Option 2) alignments and/or identification of additional environmental technical studies not identified in the PEAR. It is also likely that a design exception will be required for the interchange spacing between the proposed interchange and the adjacent Golden State Boulevard and Lander Avenue (SR 165) interchanges and between the proposed interchange and the adjacent Turlock Safety Roadside Rest Area (Enoch Christoffersen Rest Area). Obtaining these exceptions also represents a potential high risk issue that could affect PA&ED,

Alternative I

The Alternative I alignment is entirely located within Merced County with the proposed improvements beginning at 1st Avenue as described for Alternative D and extending north and east to the SR 99/Bradbury Road interchange. Two design options are proposed for the Alternative I alignment from the southern projects limits to just north of the Merced River channel and floodplain. Option 1 crosses the Merced River via the existing SR 165 alignment, requiring demolition and replacement of the single span, two-lane bridge at that location. Option 2 crosses the river east of the existing SR 165 alignment, requiring construction of new northbound and southbound spans. Both of these options are the same with Alternative D.

Alternative I also include a number of other related improvements. These include:

- new secondary road segments and realignments of existing roads south of the Merced River, including:
  - a new secondary road connecting River Road to Westside Boulevard, which would intersect at grade with the existing SR 165 alignment and the Alternative I alignment (Option 1),
  - a new secondary road connecting on the north to River Road and on the south to the new River Road-Westside Boulevard connector road, described above, and
  - a realigned segment of Westside Boulevard, which would intersect at grade with the Alternative I alignment (Option 2);
- new bridges, intersections, and realignments of existing roads between the Merced River and SR 99, including:
  - new northbound and southbound bridges at Turner Avenue and Larsen Road (Option 1); Geer Avenue and American Avenue,
  - new at-grade intersections with Williams Avenue, Bloss Avenue, and August Road; and
  - realigned segments of Griffith Avenue and Bradbury Road, which would intersect at grade with the Alternative I alignment, and
- bridge, roadway, and intersection improvements at the existing SR 99/Bradbury Road interchange.

Table 21 provides a summary of the various roadways that would intersect the Alternative I alignment, their CRS classification, and whether a roadway is proposed to either intersect the alignment or be grade separated with the alignment.

TABLE 21

Intersecting Roadway	CRS Classification	Option 1 At-Grade Intersection or Grade Separated	Option 2 At-Grade Intersection or Grade Separated
Westside Boulevard	Major Collector	At-Grade Intersection	At-Grade Intersection
River Road (West of SR 165)	Major Collector	At-Grade Intersection	
River Road (East of SR 165)	Minor Collector		At-Grade Intersection
Turner Avenue (West of SR 165)	Minor Collector	Grade Separated	
Lander Avenue (Exist. SR 165)	Minor Arterial	At-Grade Intersection	At-Grade Intersection
Larsen Avenue	Local	Grade Separated	
Crane Avenue	Local	At-Grade Intersection	At-Grade Intersection
Williams Avenue (East of SR 165)	Local	Grade Separated	Grade Separated
Geer Avenue	Local	Grade Separated	Grade Separated
Bloss Avenue (East of SR 165)	Major Collector	At-Grade Intersection	At-Grade Intersection
American Avenue	Local	Grade Separated	Grade Separated
August Avenue	Minor Collector	At-Grade Intersection	At-Grade Intersection
Griffith Avenue	Minor Collector	At-Grade Intersection	At-Grade Intersection
Bradbury Road	Major Collector	At-Grade Intersection	At-Grade Intersection

Exhibits showing the preliminary typical cross sections and roadway alignments for Alternative I are provided in **Attachment 6**.

Study Area Boundary

The anticipated study area boundary for Alternative I is initially defined by the anticipated right-of-way requirements for this alternative which are shown on exhibits included in **Attachment** 7. The anticipated study area boundary shown on the exhibits also do not include the more expansive study areas that may be needed for the various environmental technical specialties such as cultural, biology, etc. During the PA&ED project phase, a meeting with Caltrans staff will be needed to delineate the appropriate study areas needed for the various environmental technical specialties.

PEAR Environmental Summary: A Preliminary Environmental Analysis Report (PEAR) was prepared and a copy is included in **Attachment 8. Section 8 – Environmental Determination/ Documentation** in this report describes the type of environmental determination to be obtained for the California Environmental Quality Act (CEQA) and for the National Environmental Protection Act (NEPA).

A general discussion of the technical review as reported in the PEAR is provided within the Environmental section for Alternative D. Items that are common to both Alternative D and to Alternative I were identified and include the following:

- Existing and Future Land Use
- Growth
- Community Impacts
- Visual/Aesthetics
- Cultural Resources
- Hydrology and Floodplain
- Water Quality and Storm Water Runoff
- Geology, Soils, Seismic and Topography
- Paleontology
- Hazardous Waste/Materials
- Air Quality
- Noise and Vibration
- Energy and Climate Change
- Biological Environment
  - Special-Status Plants
  - Special-Status Fish
  - Wetlands and Other Waters
  - Riparian Vegetation
  - Invasive Plants
- Cumulative Impacts
- Context Sensitive Solutions

Biological Environment:
Special- Status Wildlife (Alternative I) - Sixteen special-status wildlife species occur or have the potential to occur in the study area. Based on the habitats observed during the windshield survey and aerial photo interpretation of the study area for the Alternative I Alignment, the following species have potential to be affected by this alternative; white-tailed kite, Swanson's hawk, American badger, and San Joaquin kit fox. Though habitat for valley elderberry longhorn beetle, pallid bat, western red bat, Conservancy fairy shrimp, vernal pool fairy shrimp, vernal pool tadpole shrimp, California tiger salamander, western spadefoot, giant garter snake, western pond turtle, and tricolored blackbird was not observed during the windshield survey or during examination of aerial photographs, portions of the study area that were not accessible may provide suitable habitat for these species.

Engineering Studies Required During PA&ED Project Phase

The following engineering studies will need to be developed and/or completed for Alternative D during the PA&ED project phase.

Traffic Forecasts and Operations

Preliminary year 2035 daily and peak hour traffic forecasts and peak hour traffic operations related to proposed Alternative I have been developed with the results presented in the technical memorandum "Forecasted Traffic Volumes and Traffic Operations for Project Alternative D and Alternative I" included as an attachment in **Attachment 3**. Validation of the traffic forecasts and operations for Alternative D will occur during the PA&ED project phase.

The preliminary traffic forecasts do provide an indication of the potential traffic benefits that may be associated with this alternative. Table 22 provides a comparison of the projected 2035 daily traffic volumes on existing SR 165 within the study area between the "No Build" condition and with Alternative I (Option 1 and Option 2). As shown in the table, the preliminary forecasts indicate that implementation of proposed Alternative I could result in a significant reduction in daily traffic daily traffic on existing SR 165.

TABLE 22
FORECASTED 2035 ADT COMPARISON ALONG SR 165
BETWEEN "NO BUILD" AND ALTERNATIVE I

	YEAR 2035 TRAFFIC FORECASTS (ADT)				
		Alternative I			
SR 165 at	**No-Build**	**Option 1**	**% Change with "No Build"**	**Option 2**	**% Change with "No Build"**
South of SR 140	19,400	19,600	1.03%	19,600	1.03%
North of SR 140	18,500	18,400	-0.54%	18,400	-0.54%
South of Westside Blvd/River Rd	20,200	22,500	11.39%	22,500	11.39%
South of Crane Avenue	19,400	8,000	-58.76%	6,600	-65.98%
South of Geer Avenue	16,300	8,200	-49.69%	6,800	-58.28%
South of Johnson Avenue	16,700	14,400	-13.77%	13,900	-16.77%
South of Bradbury Road	19,500	15,800	-18.97%	13,900	-28.72%
South of Harding Road	18,700	15,500	-17.11%	15,500	-17.11%
North of Harding Road	23,200	21,000	-9.48%	20,800	-10.34%
South of SR 99 SB Ramps	36,300	33,400	-7.99%	33,200	-8.54%

Preliminary year 2035 peak hour traffic operations related to proposed Alternative I are provided in the technical memorandum included as an attachment in **Attachment 3**. Table 23 and Table 24 show the study area locations in which this preliminary analysis indicates peak hour operations projected at LOS "E/F" during one or both peak hours.

TABLE 23
YEAR 2035 CONDITIONS – ALTERNATIVE I
SR 99 MAINLINE PEAK HOUR LEVEL OF SERVICE (LOS)

Freeway Mainline Segment	AM Peak Hour		PM Peak Hour	
	Option 1 LOS	Option 2 LOS	Option 1 LOS	Option 2 LOS
NB SR 99 (between Bradbury Road and Golden State Boulevard)	F	F	F	F
NB SR 99 (between Golden State Boulevard and Lander Avenue)	E	E	E	E
NB SR 99 (between Lander Avenue and West Main Street)	F	F	F	F
SB SR 99 (between Lander Avenue and Golden State Boulevard)	D	D	E	E
SB SR 99 (between Golden State Boulevard and Bradbury Road)	D	D	F	F
SB SR 99 (between Bradbury Road and Shanks Road)	C	C	E	E

TABLE 24
YEAR 2035 CONDITIONS – ALTERNATIVE I
SR 99 RAMP JUNCTION PEAK HOUR LEVEL OF SERVICE (LOS)

Interchange Location	Junction Type	AM Peak Hour		PM Peak Hour	
		Option 1 LOS	Option 2 LOS	Option 1 LOS	Option 2 LOS
SR 99/Golden State Boulevard					
SR 99 NB Off-Ramp	Weave	E	E	E	E
SR 99 SB On-Ramp	Weave	D	D	F	F
SR 99/Bradbury Road					
SR 99 NB Off-Ramp	Diverge	E	E	D	D
SR 99 SB Off-Ramp	Weave	D	D	F	F
SR 99 NB On-Ramp	Weave	E	E	E	E

Structures

Table 25 identifies locations in which new bridges/structures are proposed with Alternative I. Refer to sheet number and station locations shown on the Alternative I layouts provided in **Attachment 6**. A Structures Advance Planning Study (APS) will need to be prepared for each bridge/structure during the PA&ED project phase. For the PSR (PDS), a low range and high range cost was estimated for each bridge/structure based on the estimated structure width and length and comparative bridge costs data for 2010 published by Caltrans. The estimate low range and high range structure costs are included with the construction cost estimates included in **Attachment 2**.

TABLE 25
PROPOSED ALTERNATIVE I BRIDGE/STRUCTURE LOCATIONS

Location	Option 1 Layouts		Option 2 Layouts	
	Sheet No.	Station (+/-)	Sheet No.	Station (+/-)
Merced River	EX2	205+00	EX2	230+00
Turner Avenue	EX2	249+00		
Larsen Avenue	EX3	302+00		
Williams Avenue	EX3	356+00	EX3	308+00
Geer Avenue	EX4	397+00	EX3	348+00
American Avenue	EX4	458+00	EX4	410+00
SR 99	EX6	626+00	EX6	578+00

Stormwater

A preliminary Storm Water Data Report (SWDR) has been prepared for this project with a copy of the cover sheet included in **Attachment 9**. The SWDR will be updated during the PA&ED project phase. The attached report was prepared to summarize existing study area information and to provide a low range and high range cost estimate for Alternative I related to both treatment and construction site BMP's. The estimate low range and high range BMP costs are included with the construction cost estimates included in **Attachment 2**. The SWDR will be updated during the PA&ED project phase.

Studies and Actions Required for Alternative I Approval

The following studies and actions will be required for approval of Alternative I.

- An environmental impact statement (EIS) represents the anticipated NEPA environmental document which will require FHWA signature on the final EIS (FEIS).
- The Alternative I alignment will change the location of a portion of the existing SR 165 route to the new alignment. This will require a Route Adoption Report (RAR) for CTC action. The RAR is prepared by the Division of Design (DOD) after the PR and final environmental document (FED) are approved.
- A CTC resolution will be required to relinquish the segment of existing SR 165 replaced by the new alignment.
- Approved Cooperative Agreement.

Nonstandard Design Features

At this time, there are no known nonstandard design features associated with Alternative I.

Right of Way

Right of Way Data Sheets for Alternative I (Option 1 and Option 2) is included in **Attachment 10** and the estimated range of costs are included in **Attachment 2.** Implementing Alternative I, Option 1 will require acquiring approximately 220.5 acres of new State and local right of way from 86 parcels; there are no excess parcels; and eight residential and one farm RAP displacements. Implementing Alternative I, Option 2 will require acquiring approximately 202.0 acres of new State and local right of way from 69 parcels; there are no excess parcels; and four residential RAP displacements.

Cost Estimates

Both a low range and a high range cost estimated has been prepared for Alternative I with Merced River crossing Option 1 and Option 2. Copies of the low range and high range cost estimates are included in **Attachment 2**. Table 24 provides a summary of the estimate low range and high range costs for construction and right of way.

TABLE 24
PLANNING LEVEL OPINION OF CAPITAL COSTS

Alternative I - Option 1		
Construction Cost Estimates	**Low Range Rounded**	**High Range Rounded**
Construction $	$109,200,000	$140,600,000
BMP's $	$6,600,000	$9,500,000
Sub-Total Construction	$115,800,000	$150,100,000
Right of Way Cost Estimates		
Mitigation Acquisition, Credits and Permit Fees $	$2,200,000	$3,200,000
Right of Way $	$15,400,000	$15,400,000
Sub-Total Right of Way	$17,600,000	$18,600,000
Total Capital Costs	**$133,400,000**	**$168,700,000**
Alternative I - Option 2		
Construction Cost Estimates	**Low Range Rounded**	**High Range Rounded**
Construction $	$110,400,000	$142,800,000
BMP's $	$6,300,000	$8,900,000
Sub-Total Construction	$116,700,000	$151,700,000
Right of Way Cost Estimates		
Mitigation Acquisition, Credits and Permit Fees $	$2,200,000	$3,200,000
Right of Way $	$9,700,000	$9,700,000
Sub-Total Right of Way	$11,900,000	$12,900,000
Total Capital Costs	**$128,600,000**	**$164,600,000**

Potential High Risk Issues

Potential issues that could affect PA&ED include change in scope of the proposed Alternative I (Option 1 and Option 2) alignments and/or identification of additional environmental technical studies not identified in the PEAR.

7. COMMUNITY INVOLVEMENT

The purpose and need for the project was developed and concurred with by the Project Development Team (PDT), the Citizens Advisory Committee (CAC) and Policy Committee (PC), and has been approved by the five (5) participating member Boards and Councils. Two public open houses have also been held during this project phase. The first public open house was held on April 22, 2009 to introduce stakeholders to the project and project process, to receive their input on potential improvements, and to hear their concerns. The second public open house was held on April 28, 2010 to share the recommended alternatives with stakeholders and solicit their feedback. Additional opportunities through informal and/or formal public open houses/hearings will be provided for the community to provide input during the PA/ED project phase.

8. ENVIRONMENTAL DETERMINATION/DOCUMENT

A Preliminary Environmental Analysis Report (PEAR) was prepared and a copy is included in **Attachment 8.** The anticipated California Environmental Quality Act (CEQA) environmental document for this project is an Environmental Impact Report (EIR). At this time, the proposed project is intended to become a new alignment for SR 165 and would become an officially-designated state route and Caltrans would be lead agency for CEQA. The anticipated National Environmental Protection Act (NEPA) environmental document for this project is an Environmental Impact Assessment (EIS). Caltrans, under authority assigned by the Federal Highway Administration (FHWA), would be the lead agency for NEPA. Completion of the environmental approval process is expected to take 40 to 48 months.

Implementation of the proposed project could potentially result in visual, biological, air quality, and noise effects. Documentation of the proposed project's effects on climate change and cumulative impacts would be needed for the project file and environmental document. It is anticipated that implementation of any of the proposed project alternatives would require preparation of the following technical studies:

- Community Impact Assessment.
- Relocation Impact Statement.
- Noise Study Report.
- Air Quality Study.
- Water Quality Study.
- Cultural Resources Studies.
- Visual impact Analysis.
- Natural Environment Study.
- Biological Assessment.
- Section 4(f)
- Preliminary Hydraulics Report
- Preliminary Traffic Management Plan
- Preliminary Site Investigation-Hazardous Waste

In addition, consultation with the U.S. Fish and Wildlife Service (FWS) regarding vernal pool branchiopods, valley elderberry longhorn beetle, California tiger salamander, giant garter snake and San Joaquin kit fox, and with the National Marine Fisheries Service (NMFS) for Central Valley steelhead and its critical habitat, Central Valley spring-run Chinook salmon, and possibly green sturgeon, may be required. An incidental take permit from the California Department of Fish and Game (CDFG) may be required for California tiger salamander, Swanson's hawk, or San Joaquin kit fox.

Depending on final project footprints, the results of future field surveys, and agency coordination, the following permits and authorizations may be required for the project.

- U.S. Army Corps of Engineers: Clean Water Act (CWA) Section 404 permit (for features that are considered to be waters of the U.S.).
- Central Valley Regional Water Quality Control Board (CVRWQCB): CWA Section 401 water quality certification (if a Section 404 permit is required) and/or waste discharge requirements for waters of the State.
- National Pollutant Discharge Elimination System (NPDES) Construction General Permit (as described under Item 8 in the section titled "Water Quality and Erosion").
- USFWS: Biological opinion for effects on federally listed species and possibly an Incidental Take Permit for potential effects on federally-listed species.
- Caltrans: standard encroachment permit.
- California Department of Fish & Game: Section 1600 Stream or Lakebed Alteration Agreement (SAA)
- California Department of Fish & Game: Section 2081 Incidental Take Permit for potential effects on state-listed species.

- Counties of Merced and Stanislaus and City of Turlock encroachment permits

9. FUNDING

9A Capital Cost: The range of capital cost estimates (construction and right of way) for the project alternatives are summarized in Table 27.

TABLE 27
CAPITAL OUTLAY ESTIMATE

Alternative	Range for Total Cost (in $1,000,000's)
Alternative D - Option 1	$155.7 - $195.4
Alternative D - Option 2	$152.3 – $192.5
Alternative I - Option 1	$133.4 - $168.7
Alternative I - Option 2	$128.6 - $164.6

The level of detail available to develop these capital cost estimates is only accurate to within the above ranges and are useful for long-range planning purposes only. The capital costs should not be used to program or commit capital funds. The Project Report will serve as the appropriate document from which the remaining support and capital components of the project will be programmed.

9B Capital Support Estimate: The capital support estimate for the PA&ED project phase is approximately $4.0 million which assumes approximately $2.0 million for Project Approval (PA - including Preliminary Engineering) and approximately $2.0 million for Environmental Document (ED).

10. SCHEDULE

Table 28 shows the anticipated milestones and delivery dates.

TABLE 28
HQ MILESTONES AND DELIVERY DATES
(ESTIMATED)

HQ Milestones	Delivery Date (Month, Day, Year)
Begin Environmental	July 1, 2012
Notice of Intent (NOI)	August 1, 2012
Circulate DED	March 1, 2015
PA & ED	January 1, 2016
Regular Right of Way	January 1, 2018
Project PS&E	March 1, 2018
Right of Way Certification	March 1, 2018
Ready to List	April 1, 2018
Approve Contract	June 1, 2018
Contract Acceptance	June 1, 2020
End Project	June 1, 2020

11. FHWA COORDINATION

Approval authority for this project has been delegated to Caltrans pursuant to the 2010 Joint Stewardship and Oversight Agreement.

12. PROJECT CONTACTS

Questions regarding this Project Study Report (PDS) may be directed to:

Hartaranjeet (Tony) Singh, Project Manager (209) 948-7058
District 10 - Program/Project Management

Bob Morrison (916) 978-4900
MCAG Project Manager

Joe Weiland (Consultant) (916) 782-8688
OMNI-MEANS

13. PROJECT REVIEWS

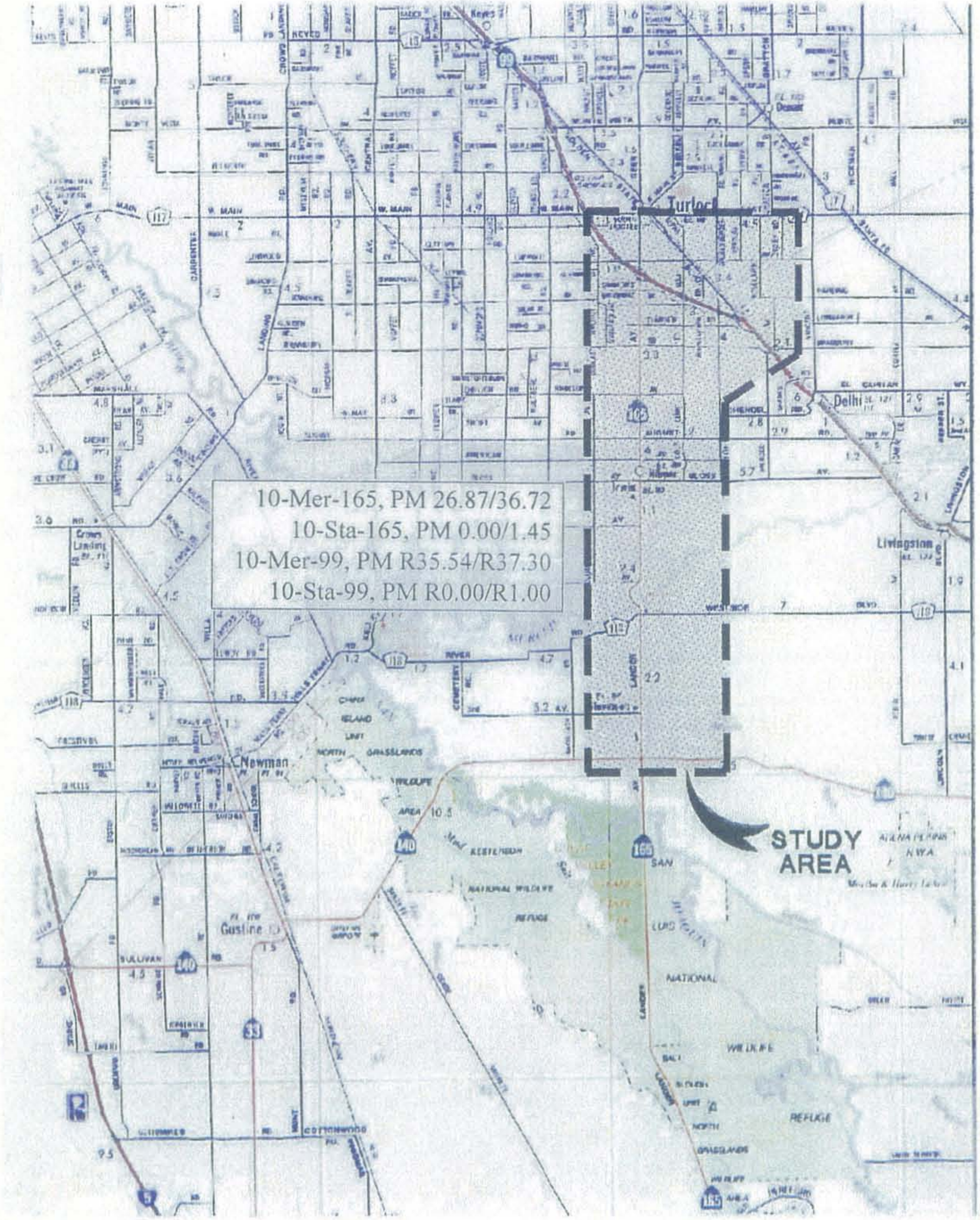
There were no formal project reviews conducted during the PSR (PDS) project phase, Project reviews that would occur during the PA&ED project phase could include (but not limited to) HQ Design Coordinator Review, Safety Review and Constructability Review.

14. LIST OF ATTACHMENTS

Attachment 1 – Project Study Area Map
Attachment 2 – Cost Estimates
Attachment 3 – Traffic Forecasts/Operations
Attachment 4 – Preliminary Project Alternatives Evaluation and Matrix Screening Process and Results
Attachment 5 – Alternative D Alignment Exhibits
Attachment 6 – Alternative I Alignment Exhibits
Attachment 7 – Study Area Boundary Exhibits
Attachment 8 – Preliminary Environmental Analysis Report (PEAR)
Attachment 9 – Storm Water Data Report
Attachment 10 – Right of Way Data Sheets

ATTACHMENT 1

PROJECT STUDY AREA MAP



SR 99/SR 165 PSR (PDS)

Figure 1

Project Study Area Location

ATTACHMENT 2

COST ESTIMATES

10-Mer-165, PM 26.87/36.72
10-Sta-165, PM 0.00/1.45
10-Mer-99, PM R35.54/R37.30
10-Sta-99, PM R0.00/R1.00
EA: 10-0P810K

Route 165 Bypass/Route 99 PSR (PDS) — ALTERNATIVE D
Planning Level Opinion of Cost — 11/7/2011

Alternative D - Option 1

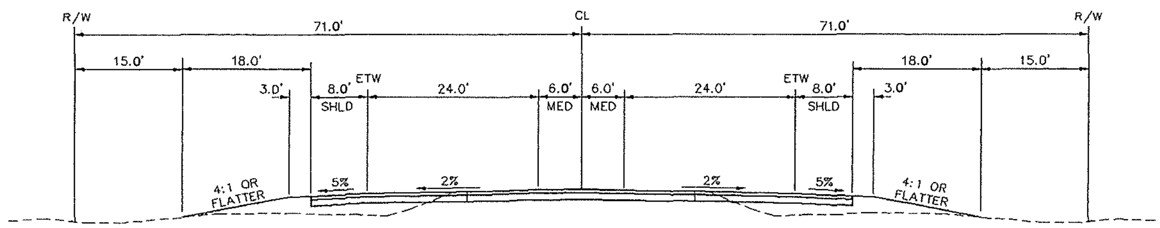
Construction Cost Estimates	**Low Range**	**Low Range Rounded**	**High Range**	**High Range Rounded**
Construction $	$124,760,577	$124,800,000	$160,008,914	$160,100,000
BMP's $	$7,396,000	$7,400,000	$10,552,000	$10,600,000
Sub-Total Construction		$132,200,000		$170,700,000
Right of Way Cost Estimates				
Mitigation Acquisition, Credits and Permit Fees $	$2,639,000	$2,700,000	$3,899,000	$3,900,000
Right of Way $	$20,751,000	$20,800,000	$20,751,000	$20,800,000
Sub-Total Right of Way		$23,500,000		$24,700,000
Total Capital Costs		**$155,700,000**		**$195,400,000**

Alternative D - Option 2

Construction Cost Estimates	**Low Range**	**Low Range Rounded**	**High Range**	**High Range Rounded**
Construction $	$125,965,133	$126,000,000	$162,078,827	$162,100,000
BMP's $	$7,020,000	$7,100,000	$9,992,000	$10,000,000
Sub-Total Construction		$133,100,000		$172,100,000
Right of Way Cost Estimates				
Mitigation Acquisition, Credits and Permit Fees $	$2,639,000	$2,700,000	$3,899,000	$3,900,000
Right of Way $	$16,410,000	$16,500,000	$16,410,000	$16,500,000
Sub-Total Right of Way		$19,200,000		$20,400,000
Total Capital Costs		**$152,300,000**		**$192,500,000**

Route 165 Bypass/Route 99 PSR (PDS) **ALTERNATIVE D**
Planning Level Opinion of Cost 11/7/2011

Typical Cross Section: 4-Lane Conventional Highway (Rural Areas)

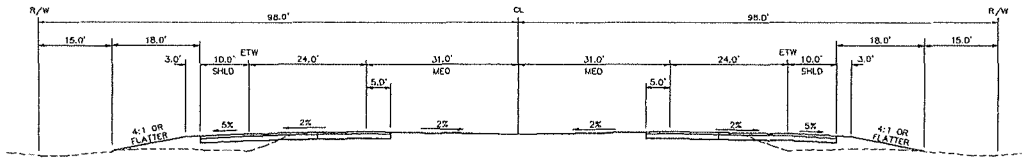


Approximate Station Limits: 126+00 to 153+00	
Segment Length (feet) =	*2,700*
New Right-of-Way Width (feet) =	*142*
Ave Exist Pavement Width (feet) =	*40*
Ave Exist Right-of-Way Width (feet) =	*60*
Total New Right-of-Way Width (feet)	*82*
Pavement Width (feet) =	*76*
Number of Lanes =	*5*
Asphalt Section (inches) =	*8*
Aggregate Base Section (inches)	*22*
Asphalt Density (lb/cf) =	*150*
Sidewalk Width (feet) =	*0*

Description	Quantity	Units	Unit Cost Low Range	Total Cost Low Range	Unit Cost High Range	Total Cost High Range
Excavation	9,800	CY	$12.50	$122,500	$13.70	$134,260
Imported Borrow	1,600	CY	$6.50	$10,400	$8.55	$13,680
Erosion Control	9	AC	$3,705.00	$32,610	$5,000.00	$44,008
Clearing & Grubbing	5	AC	$10,000.00	$50,826	$12,630.00	$64,194
Asphalt Concrete	10,004	Ton	$63.60	$636,223	$75.00	$750,263
Aggregate Base	13,680	CY	$28.20	$385,776	$30.85	$422,028
Signing/Striping	16,200	LF	$0.30	$4,860	$1.20	$19,440
Drainage	1	LS		$153,300		$234,458
Subtotal Construction				$1,396,495		$1,682,331
Minor Items			10%	$139,649	10%	$168,233
Roadway Mobilization			10%	$153,614	10%	$185,056
Supplemental Roadway			10%	$153,614	10%	$185,056
Contingency			40%	$614,458	40%	$740,225
Total Construction Estimate				**$2,457,831**		**$2,960,902**

Route 165 Bypass/Route 99 PSR (PDS) **ALTERNATIVE D - OPTION 1**
Planning Level Opinion of Cost 11/7/2011

Typical Cross Section: 4-Lane Expressway (Rural Areas)



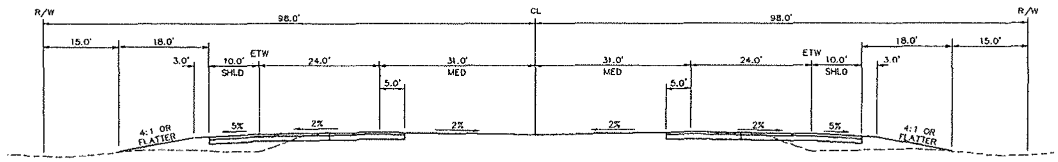
Approximate Station Limits: 153+00 to 317+25

Segment Length (feet) =	*16,425*
New Right-of-Way Width (feet) =	*196*
Ave Exist Right-of-Way Width (feet) =	*0*
Total New Right-of-Way Width (feet)	*196*
Pavement Width (feet) =	*78*
Median Width - Unpaved (feet) =	*52*
Number of Lanes =	*4*
Asphalt Section (inches) =	*8*
Aggregate Base Section (inches)	*22*
Asphalt Density (lb/cf) =	*150*
Sidewalk Width (feet) =	*0*
Landscape Width (ft) =	*0*

Description	Quantity	Units	Unit Cost Low Range	Total Cost Low Range	Unit Cost High Range	Total Cost High Range
Imported Borrow	350,442	CY	$6.50	$2,277,871	$8.55	$2,996,276
Erosion Control	74	AC	$3,705.00	$273,818	$5,000.00	$369,525
Clearing & Grubbing	74	AC	$10,000.00	$739,050	$12,630.00	$933,420
Asphalt Concrete	62,456	Ton	$63.60	$3,972,206	$75.00	$4,684,205
Aggregate Base	85,410	CY	$28.20	$2,408,562	$30.85	$2,634,899
Signing/Striping	98,550	LF	$0.30	$29,565	$1.20	$118,260
Traffic Signals	2	EA	$121,340.00	$242,680	$161,800.00	$323,600
Drainage	1	LS		$957,115		$1,463,821
Subtotal Roadway Items				$10,900,866		$13,524,004
Minor Items			10%	$1,090,087	10%	$1,352,400
Roadway Mobilization			10%	$1,199,095	10%	$1,487,640
Supplemental Roadway			10%	$1,199,095	10%	$1,487,640
Contingency			40%	$4,796,381	40%	$5,950,562
Total Roadway Items				**$19,185,524**		**$23,802,248**
Bridge/Structure	22,960	SF	$125	$2,870,000	$160	$3,673,600
Bridge/Structure (Merced River)	114,800	SF	$180	$20,664,000	$240	$27,552,000
Bridge Removal (Merced River)	44,800	SF	$8	$358,400	$15	$672,000
Subtotal Bridge Items				$23,892,400		$31,897,600
Contingency			40%	$9,556,960	40%	$12,759,040
Total Bridge Items				**$33,449,360**		**$44,656,640**
Total Construction Estimate				**$52,634,884**		**$68,458,888**

Route 165 Bypass/Route 99 PSR (PDS) — ALTERNATIVE D - OPTION 2
Planning Level Opinion of Cost — 11/7/2011

Typical Cross Section: 4-Lane Expressway (Rural Areas)



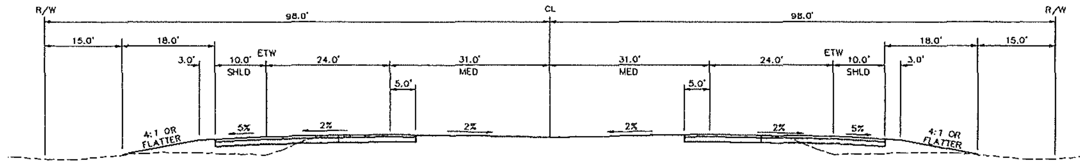
Approximate Station Limits: 153+00 to 273+35

Segment Length (feet) =	*12,035*
New Right-of-Way Width (feet) =	*196*
Ave Exist Right-of-Way Width (feet) =	*0*
Total New Right-of-Way Width (feet)	*196*
Pavement Width (feet) =	*78*
Median Width - Unpaved (feet) =	*52*
Number of Lanes =	*4*
Asphalt Section (inches) =	*8*
Aggregate Base Section (inches)	*22*
Asphalt Density (lb/cf) =	*150*
Sidewalk Width (feet) =	*0*
Landscape Width (ft) =	*0*

Description	Quantity	Units	Unit Cost Low Range	Total Cost Low Range	Unit Cost High Range	Total Cost High Range
Excavation	9,800	CY	$12.50	$122,500	$13.70	$134,260
Imported Borrow	160,709	CY	$6.50	$1,044,607	$8.55	$1,374,059
Erosion Control	54	AC	$3,705.00	$200,633	$5,000.00	$270,760
Clearing & Grubbing	54	AC	$10,000.00	$541,520	$12,630.00	$683,939
Asphalt Concrete	45,763	Ton	$63.60	$2,910,532	$75.00	$3,432,232
Aggregate Base	62,582	CY	$28.20	$1,764,812	$30.85	$1,930,655
Signing/Striping	72,210	LF	$0.30	$21,663	$1.20	$86,652
Traffic Signals	2	EA	$121,340.00	$242,680	$161,800.00	$323,600
Drainage	1	LS		$701,302		$1,072,577
Subtotal Roadway Items				$7,550,249		$9,308,734
Minor Items			10%	$755,025	10%	$930,873
Roadway Mobilization			10%	$830,527	10%	$1,023,961
Supplemental Roadway			10%	$830,527	10%	$1,023,961
Contingency			40%	$3,322,109	40%	$4,095,843
Total Roadway Items				**$13,288,438**		**$16,383,372**
Bridge/Structure (Merced River)	164,000	SF	$180	$29,520,000	$240	$39,360,000
Subtotal Bridge Items				$29,520,000		$39,360,000
Contingency			40%	$11,808,000	40%	$15,744,000
Total Bridge Items				**$41,328,000**		**$55,104,000**
Total Construction Estimate				**$54,616,438**		**$71,487,372**

Route 165 Bypass/Route 99 PSR (PDS) **ALTERNATIVE D**
Planning Level Opinion of Cost 11/7/2011

Typical Cross Section: 4-Lane Expressway (Rural Areas)



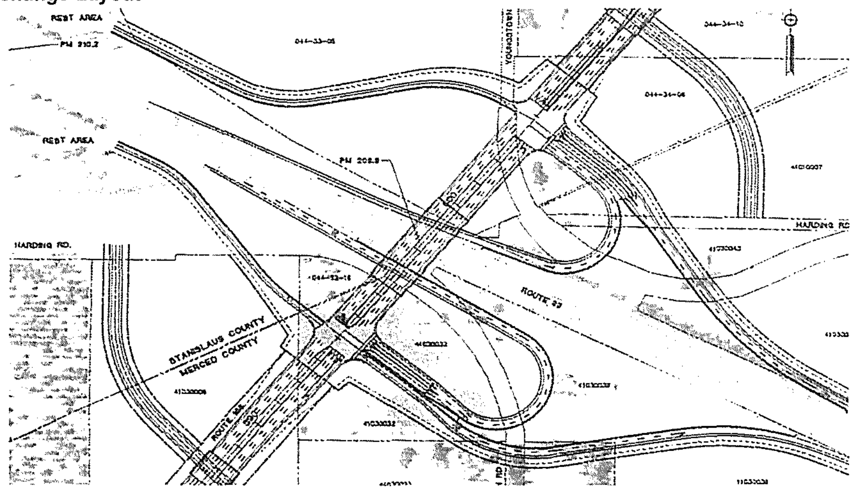
Approximate Station Limits: 317+25 to 641+15

Segment Length (feet) =	*32,390*
New Right-of-Way Width (feet) =	*196*
Ave Exist Right-of-Way Width (feet) =	*0*
Total New Right-of-Way Width (feet)	*196*
Pavement Width (feet) =	*78*
Median Width - Unpaved (feet) =	*52*
Number of Lanes =	*4*
Asphalt Section (inches) =	*8*
Aggregate Base Section (inches)	*22*
Asphalt Density (lb/cf) =	*150*
Sidewalk Width (feet) =	*0*
Landscape Width (ft) =	*0*

Description	Quantity	Units	Unit Cost Low Range	Total Cost Low Range	Unit Cost High Range	Total Cost High Range
Excavation		CY	$12.50	$0	$13.70	$0
Imported Borrow	481,118	CY	$6.50	$3,127,268	$8.55	$4,113,560
Erosion Control	146	AC	$3,705.00	$539,967	$5,000.00	$728,701
Clearing & Grubbing	146	AC	$10,000.00	$1,457,401	$12,630.00	$1,840,698
Asphalt Concrete	123,163	Ton	$63.60	$7,833,165	$75.00	$9,237,223
Aggregate Base	168,428	CY	$28.20	$4,749,670	$30.85	$5,196,004
Signing/Striping	194,340	LF	$0.30	$58,302	$1.20	$233,208
Traffic Signals	5	EA	$121,340.00	$606,700	$161,800.00	$809,000
Drainage	1	LS		$1,887,425		$2,886,645
Subtotal Roadway Items				$20,259,898		$25,045,039
Minor Items			10%	$2,025,990	10%	$2,504,504
Roadway Mobilization			10%	$2,228,589	10%	$2,754,954
Supplemental Roadway			10%	$2,228,589	10%	$2,754,954
Contingency			40%	$8,914,355	40%	$11,019,817
Total Roadway Items				**$35,657,421**		**$44,079,269**
Bridge/Structure	63,140	SF	$125	$7,892,500	$160	$10,102,400
Subtotal Bridge Items				$7,892,500		$10,102,400
Contingency			40%	$3,157,000	40%	$4,040,960
Total Bridge Items				**$11,049,500**		**$14,143,360**

Route 165 Bypass/Route 99 PSR (PDS) — **ALTERNATIVE D**
Planning Level Opinion of Cost — 11/7/2011

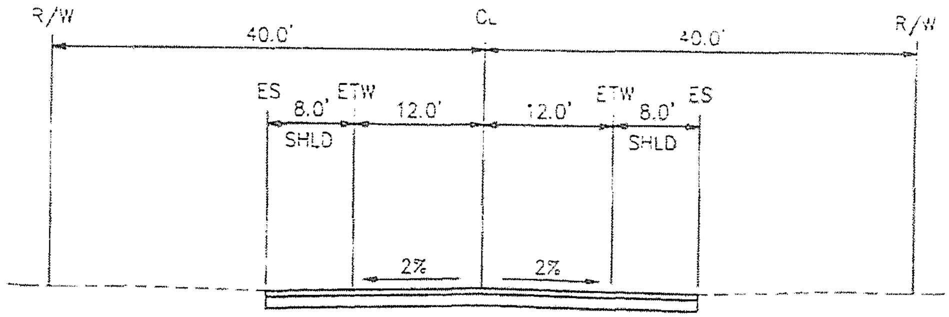
Conceptual Interchange Layout



Description	Quantity	Units	Unit Cost Low Range	Total Cost Low Range	Unit Cost High Range	Total Cost High Range
Excavation	12,900	CY	$12.50	$161,250	$13.70	$176,730
Imported Borrow	213,480	CY	$6.50	$1,387,620	$8.55	$1,825,254
Erosion Control	10	AC	$3,705.00	$37,771	$5,000.00	$50,973
Clearing & Grubbing	29	AC	$10,000.00	$294,450	$12,630.00	$371,890
Landscaping	15	AC	$54,200	$822,756	$56,700	$860,706
Asphalt Concrete	16,860	Ton	$63.60	$1,072,296	$75.00	$1,264,500
Aggregate Base	21,860	CY	$28.20	$616,452	$30.85	$674,381
Barriers & Guardrails	510	LF	$50	$25,500	$70.00	$35,700
Sidewalk (Including Curb & Gutter)	10,950	SF	$13.00	$142,350	$33.75	$369,563
Signing/Striping	25,490	LF	$0.30	$7,647	$1.20	$30,588
Traffic Signals	2	EA	$121,340.00	$242,680	$161,800.00	$323,600
Highway Lighting	1	LS	$150,000.00	$150,000	$250,000.00	$250,000
BMPs	1	LS	$496,077.20	$496,077	$935,082.73	$935,083
Drainage	1	LS		$253,312		$387,776
Subtotal Roadway Items				$5,710,161		$7,556,744
Minor Items			10%	$571,016	10%	$755,674
Roadway Mobilization			10%	$628,118	10%	$831,242
Supplemental Roadway			10%	$628,118	10%	$831,242
Contingency			40%	$2,512,471	40%	$3,324,967
Total Roadway Items				**$10,049,884**		**$13,299,869**
Bridge/Structure	33,748	SF	$125	$4,218,500	$160	$5,399,680
Subtotal Bridge Items				$4,218,500		$5,399,680
Contingency			40%	$1,687,400	40%	$2,159,872
Total Bridge Items				**$5,905,900**		**$7,559,552**
Total Construction Estimate				**$15,955,784**		**$20,859,421**

Route 165 Bypass/Route 99 PSR (PDS) — ALTERNATIVE D - OPTION 1
Planning Level Opinion of Cost — 11/7/2011

Connector Road(s) S. of Merced River: 2-Lane Rural Roadway (Major Collector), County of Merced



Segment Lengths (feet) =	*5,200*
New Right-of-Way Width (feet) =	*80*
Ave Exist Right-of-Way Width (feet) =	*0*
Total New Right-of-Way Width (feet)	*80*
Pavement Width (feet) =	*40*
Number of Lanes =	*2*
Asphalt Section (inches) =	*6*
Aggregate Base Section (inches)	*13*
Asphalt Density (lb/cf) =	*150*
Sidewalk Width (feet) =	*0*

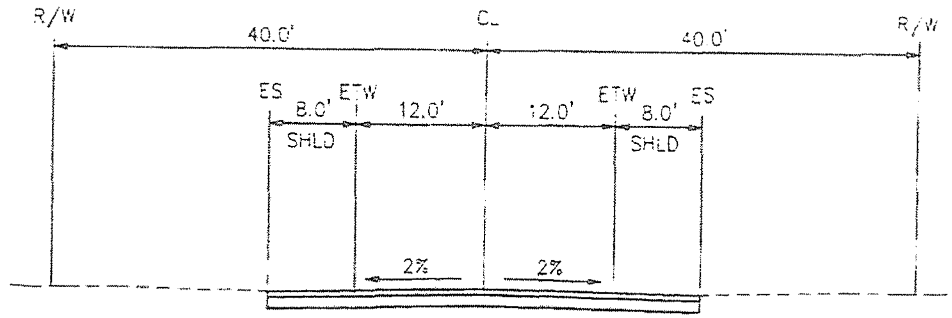
Description	Quantity	Units	Unit Cost Low Range	Total Cost Low Range	Unit Cost High Range	Total Cost High Range
Excavation	0	CY	$12.50	$0	$13.70	$0
Imported Borrow	11,556	CY	$6.50	$75,111	$8.55	$98,800
Erosion Control	10	AC	$3,705.00	$35,383	$5,000.00	$47,750
Clearing & Grubbing	10	AC	$10,000.00	$95,500	$12,630.00	$120,617
Asphalt Concrete	7,800	Ton	$63.60	$496,080	$75.00	$585,000
Aggregate Base	8,089	CY	$28.20	$228,107	$30.85	$249,542
Signing/Striping	15,600	LF	$0.30	$4,680	$1.20	$18,720
Drainage	1	LS		$108,628		$166,908
Subtotal Construction				$1,043,489		$1,287,338
Minor Items			10%	$104,349	10%	$128,734
Roadway Mobilization			10%	$114,784	10%	$141,607
Supplemental Roadway			10%	$114,784	10%	$141,607
Contingency			40%	$459,135	40%	$566,429
Total Construction Estimate				**$1,836,541**		**$2,265,715**

Route 165 Bypass/Route 99 PSR (PDS)
Planning Level Opinion of Cost

ALTERNATIVE D - OPTION 2

11/7/2011

Connector Road(s) S. of Merced River: 2-Lane Rural Roadway (Major Collector), County of Merced

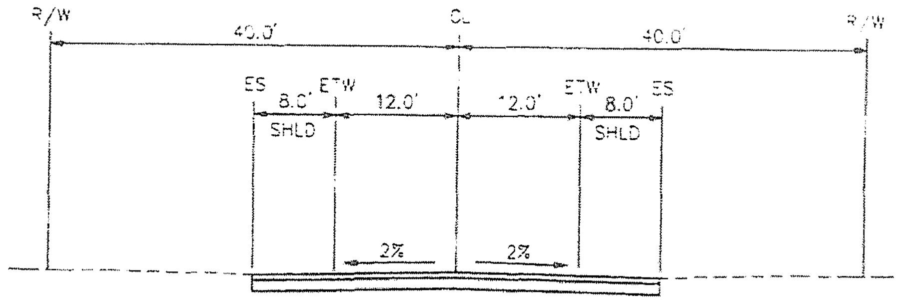


Segment Lengths (feet) =	*3,000*
New Right-of-Way Width (feet) =	*80*
Ave Exist Right-of-Way Width (feet) =	*0*
Total New Right-of-Way Width (feet)	*80*
Pavement Width (feet) =	*40*
Number of Lanes =	*2*
Asphalt Section (inches) =	*6*
Aggregate Base Section (inches)	*13*
Asphalt Density (lb/cf) =	*150*
Sidewalk Width (feet) =	*0*

Description	Quantity	Units	Unit Cost Low Range	Total Cost Low Range	Unit Cost High Range	Total Cost High Range
Imported Borrow	6,667	CY	$6.50	$43,333	$8.55	$57,000
Erosion Control	6	AC	$3,705.00	$20,413	$5,000.00	$27,548
Clearing & Grubbing	6	AC	$10,000.00	$55,096	$12,630.00	$69,587
Asphalt Concrete	4,500	Ton	$63.60	$286,200	$75.00	$337,500
Aggregate Base	4,667	CY	$28.20	$131,600	$30.85	$143,967
Signing/Striping	9,000	LF	$0.30	$2,700	$1.20	$10,800
Drainage	1	LS		$62,670		$96,293
Subtotal Construction				$602,013		$742,695
Minor Items			10%	$60,201	10%	$74,269
Roadway Mobilization			10%	$66,221	10%	$81,696
Supplemental Roadway			10%	$66,221	10%	$81,696
Contingency			40%	$264,886	40%	$326,786
Total Construction Estimate				**$1,059,543**		**$1,307,143**

Route 165 Bypass/Route 99 PSR (PDS) **ALTERNATIVE D**
Planning Level Opinion of Cost 11/7/2011

Connector Road(s) - Youngstown/Harding

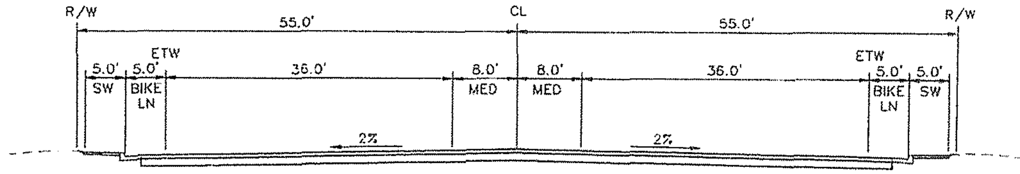


Segment Lengths (feet) =	***3,000***
New Right-of-Way Width (feet) =	***80***
Ave Exist Right-of-Way Width (feet) =	***0***
Total New Right-of-Way Width (feet)	***80***
Pavement Width (feet) =	***40***
Number of Lanes =	***2***
Asphalt Section (inches) =	***6***
Aggregate Base Section (inches)	***13***
Asphalt Density (lb/cf) =	***150***
Sidewalk Width (feet) =	***0***

Description	Quantity	Units	Unit Cost Low Range	Total Cost Low Range	Unit Cost High Range	Total Cost High Range
Excavation	0	CY	$12.50	$0	$13.70	$0
Imported Borrow	6,667	CY	$6.50	$43,333	$8.55	$57,000
Erosion Control	6	AC	$3,705.00	$20,413	$5,000.00	$27,548
Clearing & Grubbing	6	AC	$10,000.00	$55,096	$12,630.00	$69,587
Asphalt Concrete	4,500	Ton	$63.60	$286,200	$75.00	$337,500
Aggregate Base	4,667	CY	$28.20	$131,600	$30.85	$143,967
Signing/Striping	9,000	LF	$0.30	$2,700	$1.20	$10,800
Drainage	1	LS		$62,670		$96,293
Subtotal Construction				$602,013		$742,695
Minor Items			10%	$60,201	10%	$74,269
Roadway Mobilization			10%	$66,221	10%	$81,696
Supplemental Roadway			10%	$66,221	10%	$81,696
Contingency			40%	$264,886	40%	$326,786
Total Construction Estimate				**$1,059,543**		**$1,307,143**

Route 165 Bypass/Route 99 PSR (PDS) **ALTERNATIVE D**
Planning Level Opinion of Cost 11/7/2011

Arterial Segment between Interchange and GSB - City of Turlock



6-LANE URBAN ARTERIAL
CITY OF TURLOCK

Segment Length (feet) =	***1,500***
New Right-of-Way Width (feet) =	***110***
Ave Exist Right-of-Way Width (feet) =	***0***
Total New Right-of-Way Width (feet)	***110***
Pavement Width (feet) =	***86***
Number of Lanes =	***6***
Asphalt Section (inches) =	***7***
Aggregate Base Section (inches)	***17***
Asphalt Density (lb/cf) =	***150***
Sidewalk Width (feet) =	***6***

Description	Quantity	Units	Unit Cost Low Range	Total Cost Low Range	Unit Cost High Range	Total Cost High Range
Excavation	0	CY	$12.50	$0	$13.70	$0
Imported Borrow	9,167	CY	$6.50	$59,583	$8.55	$78,375
Erosion Control	4	AC	$3,705.00	$14,034	$5,000.00	$18,939
Clearing & Grubbing	4	AC	$10,000.00	$37,879	$12,630.00	$47,841
Asphalt Concrete	5,321	Ton	$63.60	$338,432	$75.00	$399,094
Aggregate Base	6,928	CY	$28.20	$195,363	$30.85	$213,722
Median Curb	3,000	LF	$17.60	$52,800	$59.00	$177,000
Sidewalk (Including Curb & Gutter)	18,000	SF	$13.00	$234,000	$33.75	$607,500
Signing/Striping	9,000	LF	$0.30	$2,700	$1.20	$10,800
Traffic Signals	1	EA	$121,340.00	$121,340	$161,800.00	$161,800
Drainage	1	LS		$80,069		$122,563
Bridge/Structure	9,588	SF	$125	$1,198,500	$160	$1,534,080
Subtotal Construction				$2,334,700		$3,371,714
Minor Items			10%	$233,470	10%	$337,171
Roadway Mobilization			10%	$256,817	10%	$370,889
Supplemental Roadway			10%	$256,817	10%	$370,889
Contingency			40%	$1,027,268	40%	$1,483,554
Total Construction Estimate				**$4,109,072**		**$5,934,217**

SR 99/165 PSR
Project No. 25-4701-01

Alternative D - Option 1 (Low Range)

F.6.1 Option 1: Percent of Total Cost Method (PPDG, Appendix F)

Item	Description	Quantity	Unit	Unit Price	Unit Cost
1	**Treatment BMP's (PPDG Pg. F-7)**				
	Lane Miles	49	Lane-Miles	$ 100,000	$ **4,900,000**

2	**Construction Site BMP's (PPDG Pg. F-6 Percent of Total Cost Method)**	
	Adjustment (Per PPDG Table F-3) =	2.00%
	Total Project Cost* =	$ 124,800,000
	Construction Site BMP Estimate =	**$2,496,000**

Total Estimated BMP Cost - Alt. D-1	**$**	**7,396,000**

*Does not include costs of R/W for Treatment BMPs and drainage easements.

Alternative D - Option 1 (High Range)

F.6.1 Option 1: Percent of Total Cost Method (PPDG, Appendix F)

Item	Description	Quantity	Unit	Unit Price	Unit Cost
1	**Treatment BMP's (PPDG Pg. F-7)**				
	Lane Miles	49	Lane-Miles	$ 150,000	$ **7,350,000**

2	**Construction Site BMP's (PPDG Pg. F-6 Percent of Total Cost Method)**	
	Adjustment (Per PPDG Table F-3) =	2.00%
	Total Project Cost* =	$ 160,100,000
	Construction Site BMP Estimate =	**$3,202,000**

Total Estimated BMP Cost - Alt. D-1	**$**	**10,552,000**

*Does not include costs of R/W for Treatment BMPs and drainage easements.

SR 99/165 PSR
Project No. 25-4701-01

Alternative D - Option 2 (Low Range)

F.6.1 Option 1: Percent of Total Cost Method (PPDG, Appendix F)

Item	Description	Quantity	Unit	Unit Price	Unit Cost
1	**Treatment BMP's (PPDG Pg. F-7)**				
	Lane Miles	45	Lane-Miles	$ 100,000	$ **4,500,000**

2	**Construction Site BMP's (PPDG Pg. F-6 Percent of Total Cost Method)**	
	Adjustment (Per PPDG Table F-3) =	2.00%
	Total Project Cost* =	$ 126,000,000
	Construction Site BMP Estimate =	**$2,520,000**

Total Estimated BMP Cost - Alt. D-2 $ 7,020,000

*Does not include costs of R/W for Treatment BMPs and drainage easements.

Alternative D - Option 2 (High Range)

F.6.1 Option 1: Percent of Total Cost Method (PPDG, Appendix F)

Item	Description	Quantity	Unit	Unit Price	Unit Cost
1	**Treatment BMP's (PPDG Pg. F-7)**				
	Lane Miles	45	Lane-Miles	$ 150,000	$ **6,750,000**

2	**Construction Site BMP's (PPDG Pg. F-6 Percent of Total Cost Method)**	
	Adjustment (Per PPDG Table F-3) =	2.00%
	Total Project Cost* =	$ 162,100,000
	Construction Site BMP Estimate =	**$3,242,000**

Total Estimated BMP Cost - Alt. D-2 $ 9,992,000

*Does not include costs of R/W for Treatment BMPs and drainage easements.

10-Mer-165, PM 26.87/36.72
10-Sta-165, PM 0.00/1.45
10-Mer-99, PM R35.54/R37.30
10-Sta-99, PM R0.00/R1.00
EA: 10-0P810K

Route 165 Bypass/Route 99 PSR (PDS) ALTERNATIVE I
Planning Level Opinion of Cost

11/7/2011

Alternative I - Option 1

Construction Cost Estimates	**Low Range**	**Low Range Rounded**	**High Range**	**High Range Rounded**
Construction $	$109,131,359	$109,200,000	$140,591,885	$140,600,000
BMP's $	$6,584,000	$6,600,000	$9,412,000	$9,500,000
Sub-Total Construction		$115,800,000		$150,100,000
Right of Way Cost Estimates				
Mitigation Acquisition, Credits and Permit Fees $	$2,160,000	$2,200,000	$3,180,000	$3,200,000
Right of Way $	$15,369,000	$15,400,000	$15,369,000	$15,400,000
Sub-Total Right of Way		$17,600,000		$18,600,000
Total Capital Costs		**$133,400,000**		**$168,700,000**

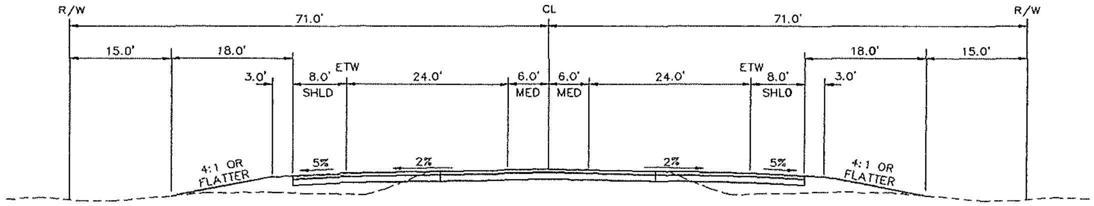
Alternative I - Option 2

Construction Cost Estimates	**Low Range**	**Low Range Rounded**	**High Range**	**High Range Rounded**
Construction $	$110,385,496	$110,400,000	$142,722,627	$142,800,000
BMP's $	$6,208,000	$6,300,000	$8,856,000	$8,900,000
Sub-Total Construction		$116,700,000		$151,700,000
Right of Way Cost Estimates				
Mitigation Acquisition, Credits and Permit Fees $	$2,160,000	$2,200,000	$3,180,000	$3,200,000
Right of Way $	$9,694,000	$9,700,000	$9,694,000	$9,700,000
Sub-Total Right of Way		$11,900,000		$12,900,000
Total Capital Costs		**$128,600,000**		**$164,600,000**

Route 165 Bypass/Route 99 PSR (PDS)
Planning Level Opinion of Cost

ALTERNATIVE I
11/7/2011

Typical Cross Section: 4-Lane Conventional Highway (Rural Areas)



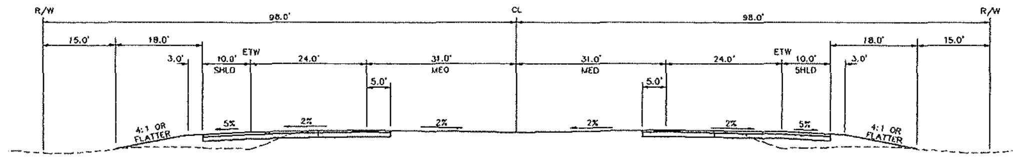
Approximate Station Limits: 126+00 to 153+00 and 598+00 to 615+00

Segment Length (feet) =	*4,400*
New Right-of-Way Width (feet) =	*142*
Ave Exist Pavement Width (feet) =	*40*
Ave Exist Right-of-Way Width (feet) =	*60*
Total New Right-of-Way Width (feet)	*82*
Pavement Width (feet) =	*76*
Number of Lanes =	*5*
Asphalt Section (inches) =	*8*
Aggregate Base Section (inches)	*22*
Asphalt Density (lb/cf) =	*150*
Sidewalk Width (feet) =	*0*

Description	Quantity	Units	Unit Cost Low Range	Total Cost Low Range	Unit Cost High Range	Total Cost High Range
Excavation	15,970	CY	$12.50	$199,630	$13.70	$218,794
Imported Borrow	2,607	CY	$6.50	$16,948	$8.55	$22,293
Erosion Control	14	AC	$3,705.00	$53,142	$5,000.00	$71,717
Clearing & Grubbing	8	AC	$10,000.00	$82,828	$12,630.00	$104,612
Asphalt Concrete	16,302	Ton	$63.60	$1,036,807	$75.00	$1,222,650
Aggregate Base	22,293	CY	$28.20	$628,672	$30.85	$687,749
Signing/Striping	26,400	LF	$0.30	$7,920	$1.20	$31,680
Traffic Signals	1	EA	$121,340.00	$121,340	$161,800.00	$161,800
Drainage	1	LS		$249,822		$382,080
Subtotal Construction				$2,397,110		$2,903,376
Minor Items			10%	$239,711	10%	$290,338
Roadway Mobilization			10%	$263,682	10%	$319,371
Supplemental Roadway			10%	$263,682	10%	$319,371
Contingency			40%	$1,054,728	40%	$1,277,485
Total Construction Estimate				**$4,218,913**		**$5,109,942**

Route 165 Bypass/Route 99 PSR (PDS) **ALTERNATIVE I - OPTION 1**
Planning Level Opinion of Cost 11/7/2011

Typical Cross Section: 4-Lane Expressway (Rural Areas)



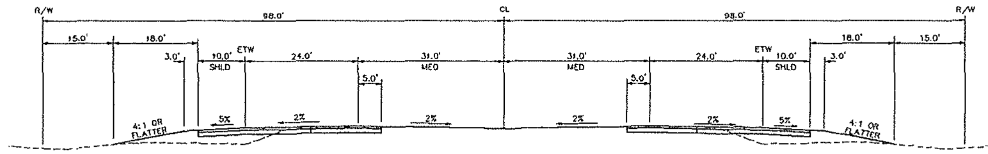
Approximate Station Limits: 153+00 to 344+35

Segment Length (feet) =	*19,135*
New Right-of-Way Width (feet) =	*196*
Ave Exist Right-of-Way Width (feet) =	*0*
Total New Right-of-Way Width (feet)	*196*
Pavement Width (feet) =	*78*
Median Width - Unpaved (feet) =	*52*
Number of Lanes =	*4*
Asphalt Section (inches) =	*8*
Aggregate Base Section (inches)	*22*
Asphalt Density (lb/cf) =	*150*
Sidewalk Width (feet) =	*0*
Landscape Width (ft) =	*0*

Description	Quantity	Units	Unit Cost Low Range	Total Cost Low Range	Unit Cost High Range	Total Cost High Range
Excavation	0	CY	$12.50	$0	$13.70	$0
Imported Borrow	372,624	CY	$6.50	$2,422,053	$8.55	$3,185,931
Erosion Control	86	AC	$3,705.00	$318,996	$5,000.00	$430,494
Clearing & Grubbing	86	AC	$10,000.00	$860,987	$12,630.00	$1,087,427
Asphalt Concrete	72,761	Ton	$63.60	$4,627,589	$75.00	$5,457,063
Aggregate Base	99,502	CY	$28.20	$2,805,956	$30.85	$3,069,637
Signing/Striping	114,810	LF	$0.30	$34,443	$1.20	$137,772
Traffic Signals	2	EA	$121,340.00	$242,680	$161,800.00	$323,600
Drainage	1	LS		$1,115,032		$1,705,340
Subtotal Roadway Items				$12,427,736		$15,397,263
Minor Items			10%	$1,242,774	10%	$1,539,726
Roadway Mobilization			10%	$1,367,051	10%	$1,693,699
Supplemental Roadway			10%	$1,367,051	10%	$1,693,699
Contingency			40%	$5,468,204	40%	$6,774,796
Total Roadway Items				**$21,872,816**		**$27,099,183**
Bridge/Structure	22,960	SF	$125	$2,870,000	$160	$3,673,600
Bridge/Structure (Merced River)	114,800	SF	$180	$20,664,000	$240	$27,552,000
Bridge Removal (Merced River)	44,800	SF	$8	$358,400	$15	$672,000
Subtotal Bridge Items				$23,892,400		$31,897,600
Contingency			40%	$9,556,960	40%	$12,759,040
Total Bridge Items				**$33,449,360**		**$44,656,640**
Total Construction Estimate				**$55,322,176**		**$71,755,823**

Route 165 Bypass/Route 99 PSR (PDS) — ALTERNATIVE I - OPTION 2
Planning Level Opinion of Cost — 11/7/2011

Typical Cross Section: 4-Lane Expressway (Rural Areas)



Approximate Station Limits: 153+00 to 300+95

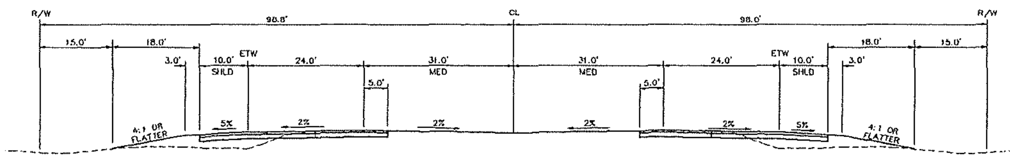
Segment Length (feet) =	***14,795***
New Right-of-Way Width (feet) =	***196***
Ave Exist Right-of-Way Width (feet) =	***0***
Total New Right-of-Way Width (feet)	***196***
Pavement Width (feet) =	***78***
Median Width - Unpaved (feet) =	***52***
Number of Lanes =	***4***
Asphalt Section (inches) =	***8***
Aggregate Base Section (inches)	***22***
Asphalt Density (lb/cf) =	***150***
Sidewalk Width (feet) =	***0***
Landscape Width (ft) =	***0***

Description	Quantity	Units	Unit Cost Low Range	Total Cost Low Range	Unit Cost High Range	Total Cost High Range
Excavation	9,800	CY	$12.50	$122,500	$13.70	$134,260
Imported Borrow	183,300	CY	$6.50	$1,191,449	$8.55	$1,567,213
Erosion Control	67	AC	$3,705.00	$246,644	$5,000.00	$332,854
Clearing & Grubbing	67	AC	$10,000.00	$665,707	$12,630.00	$840,788
Asphalt Concrete	56,258	Ton	$63.60	$3,578,008	$75.00	$4,219,349
Aggregate Base	76,934	CY	$28.20	$2,169,539	$30.85	$2,373,414
Curb & Gutter	0	LF	$17.60	$0	$59.00	$0
Sidewalk (Including Curb & Gutter)	0	SF	$4.20	$0	$6.25	$0
Signing/Striping	88,770	LF	$0.30	$26,631	$1.20	$106,524
Traffic Signals	2	EA	$121,340.00	$242,680	$161,800.00	$323,600
Drainage	1	LS		$862,132		$1,318,553
Subtotal Roadway Items				$9,105,290		$11,216,555
Minor Items			10%	$910,529	10%	$1,121,655
Roadway Mobilization			10%	$1,001,582	10%	$1,233,821
Supplemental Roadway			10%	$1,001,582	10%	$1,233,821
Contingency			40%	$4,006,328	40%	$4,935,284
Total Roadway Items				**$16,025,311**		**$19,741,136**
Bridge/Structure	0	SF	$125	$0	$160	$0
Bridge/Structure (Merced River)	164,000	SF	$180	$29,520,000	$240	$39,360,000
Bridge Removal (Merced River)	0	SF	$8	$0	$15	$0
Subtotal Bridge Items				$29,520,000		$39,360,000
Contingency			40%	$11,808,000	40%	$15,744,000
Total Bridge Items				**$41,328,000**		**$55,104,000**

Route 165 Bypass/Route 99 PSR (PDS)
Planning Level Opinion of Cost

ALTERNATIVE I
11/7/2011

Typical Cross Section: 4-Lane Expressway (Rural Areas)



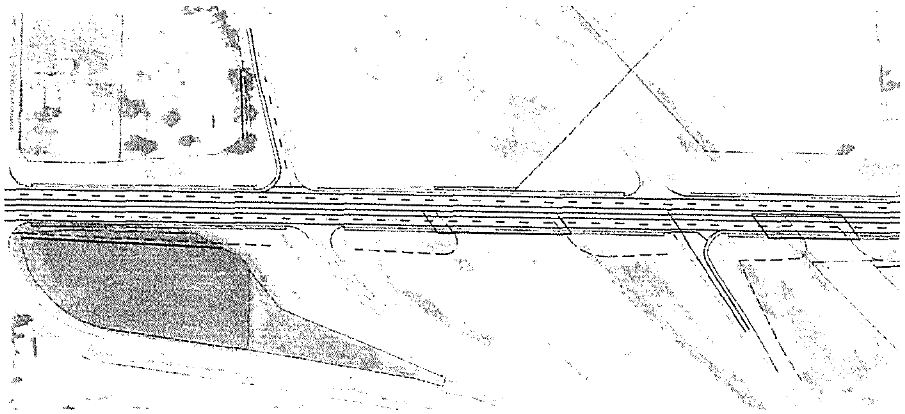
Approximate Station Limits: 344+35 to 598+00

Segment Length (feet) =	*25,365*
New Right-of-Way Width (feet) =	*196*
Ave Exist Right-of-Way Width (feet) =	*0*
Total New Right-of-Way Width (feet)	*196*
Pavement Width (feet) =	*78*
Median Width - Unpaved (feet) =	*52*
Number of Lanes =	*4*
Asphalt Section (inches) =	*8*
Aggregate Base Section (inches)	*22*
Asphalt Density (lb/cf) =	*150*
Sidewalk Width (feet) =	*0*
Landscape Width (ft) =	*0*

Description	Quantity	Units	Unit Cost Low Range	Total Cost Low Range	Unit Cost High Range	Total Cost High Range
Excavation		CY	$12.50	$0	$13.70	$0
Imported Borrow	423,617	CY	$6.50	$2,753,512	$8.55	$3,621,927
Erosion Control	114	AC	$3,705.00	$422,855	$5,000.00	$570,654
Clearing & Grubbing	114	AC	$10,000.00	$1,141,309	$12,630.00	$1,441,473
Asphalt Concrete	96,450	Ton	$63.60	$6,134,246	$75.00	$7,233,781
Aggregate Base	131,898	CY	$28.20	$3,719,524	$30.85	$4,069,053
Signing/Striping	152,190	LF	$0.30	$45,657	$1.20	$182,628
Traffic Signals	5	EA	$121,340.00	$606,700	$161,800.00	$809,000
Drainage	1	LS		$1,478,065		$2,260,567
Subtotal Roadway Items				$16,301,868		$20,189,083
Minor Items			10%	$1,630,187	10%	$2,018,908
Roadway Mobilization			10%	$1,793,205	10%	$2,220,799
Supplemental Roadway			10%	$1,793,205	10%	$2,220,799
Contingency			40%	$7,172,822	40%	$8,883,197
Total Roadway Items				**$28,691,287**		**$35,532,787**
Bridge/Structure	45,920	SF	$125	$5,740,000	$160	$7,347,200
Bridge/Structure (Merced River)	0	SF	$120	$0	$225	$0
Bridge Removal (Merced River)	0	SF	$8	$0	$15	$0
Subtotal Bridge Items				$5,740,000		$7,347,200
Contingency			40%	$2,296,000	40%	$2,938,880
Total Bridge Items				**$8,036,000**		**$10,286,080**
Total Construction Estimate				**$36,727,287**		**$45,818,867**

Route 165 Bypass/Route 99 PSR (PDS) **ALTERNATIVE I**
Planning Level Opinion of Cost 11/7/2011

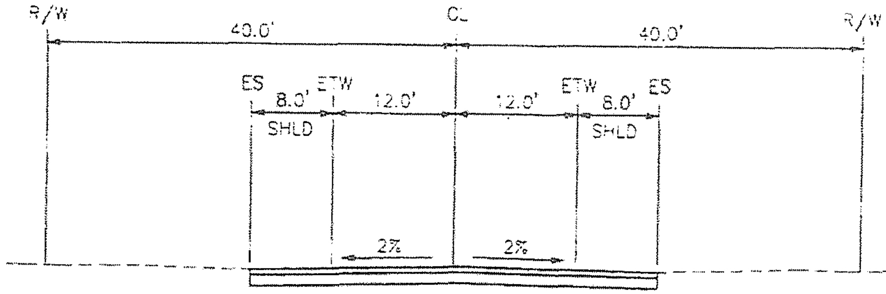
Conceptual Interchange Layout - SR 99/Bradbury Road



Description	Quantity	Units	Unit Cost Low Range	Total Cost Low Range	Unit Cost High Range	Total Cost High Range
Excavation	1,183	CY	$12.50	$14,788	$13.70	$16,207
Imported Borrow	70,672	CY	$6.50	$459,368	$8.55	$604,246
Erosion Control	3	AC	$3,705.00	$10,861	$5,000.00	$14,657
Clearing & Grubbing	1	AC	$10,000.00	$10,700	$12,630.00	$13,514
Landscaping	3	AC	$54,200	$158,882	$56,700	$166,210
Asphalt Concrete	6,389	Ton	$63.60	$406,340	$75.00	$479,175
Aggregate Base	8,286	CY	$28.20	$233,665	$30.85	$255,623
Barriers & Guardrails	800	LF	$50	$40,000	$70.00	$56,000
Sidewalk (Including Curb & Gutter)	39,176	SF	$13.00	$509,288	$33.75	$1,322,190
Signing/Striping	60,000	LF	$0.30	$18,000	$1.20	$72,000
Traffic Signals	2	EA	$121,340.00	$242,680	$161,800.00	$323,600
Highway Lighting	1	LS	$100,000.00	$100,000	$150,000.00	$150,000
BMPs	1	LS	$220,457.19	$220,457	$521,013.36	$521,013
Drainage	1	LS		$96,001		$146,960
Subtotal Roadway Items				$2,521,030		$4,141,395
Minor Items			10%	$252,103	10%	$414,140
Roadway Mobilization			10%	$277,313	10%	$455,553
Supplemental Roadway			10%	$277,313	10%	$455,553
Contingency			40%	$1,109,253	40%	$1,822,214
Total Roadway Items				**$4,437,013**		**$7,288,856**
Bridge/Structure	27,563	SF	$125	$3,445,375	$160	$4,410,080
Subtotal Bridge Items				$3,445,375		$4,410,080
Contingency			40%	$1,378,150	40%	$1,764,032
Total Bridge Items				**$4,823,525**		**$6,174,112**
Total Construction Estimate				**$9,260,538**		**$13,462,968**

Route 165 Bypass/Route 99 PSR (PDS) **ALTERNATIVE I - OPTION 1**
Planning Level Opinion of Cost 11/7/2011

Connector Road(s) S. of Merced River: 2-Lane Rural Roadway (Major Collector), County of Merced



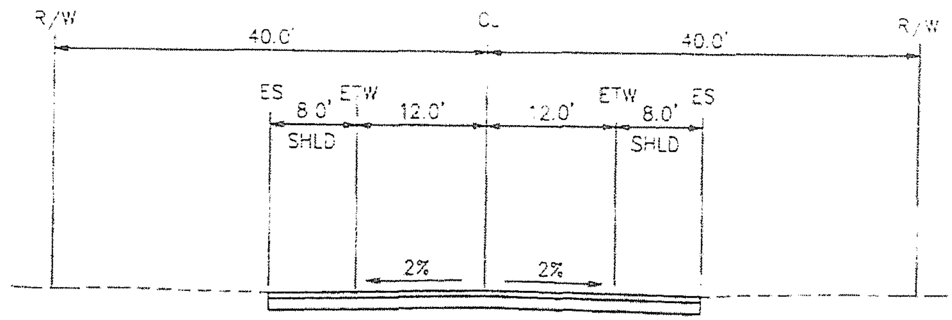
Segment Lengths (feet) =	*5,200*
New Right-of-Way Width (feet) =	*80*
Ave Exist Right-of-Way Width (feet) =	*0*
Total New Right-of-Way Width (feet)	*80*
Pavement Width (feet) =	*40*
Number of Lanes =	*2*
Asphalt Section (inches) =	*6*
Aggregate Base Section (inches)	*13*
Asphalt Density (lb/cf) =	*150*
Sidewalk Width (feet) =	*0*

Description	Quantity	Units	Unit Cost Low Range	Total Cost Low Range	Unit Cost High Range	Total Cost High Range
Excavation	0	CY	$12.50	$0	$13.70	$0
Imported Borrow	11,556	CY	$6.50	$75,111	$8.55	$98,800
Erosion Control	10	AC	$3,705.00	$35,383	$5,000.00	$47,750
Clearing & Grubbing	10	AC	$10,000.00	$95,500	$12,630.00	$120,617
Asphalt Concrete	7,800	Ton	$63.60	$496,080	$75.00	$585,000
Aggregate Base	8,089	CY	$28.20	$228,107	$30.85	$249,542
Signing/Striping	15,600	LF	$0.30	$4,680	$1.20	$18,720
Drainage	1	LS		$108,628		$166,908
Subtotal Construction				$1,043,489		$1,287,338
Minor Items			10%	$104,349	10%	$128,734
Roadway Mobilization			10%	$114,784	10%	$141,607
Supplemental Roadway			10%	$114,784	10%	$141,607
Contingency			40%	$459,135	40%	$566,429
Total Construction Estimate				**$1,836,541**		**$2,265,715**

Route 165 Bypass/Route 99 PSR (PDS)
Planning Level Opinion of Cost

ALTERNATIVE I - OPTION 2
11/7/2011

Connector Road(s) S. of Merced River: 2-Lane Rural Roadway (Major Collector), County of Merced



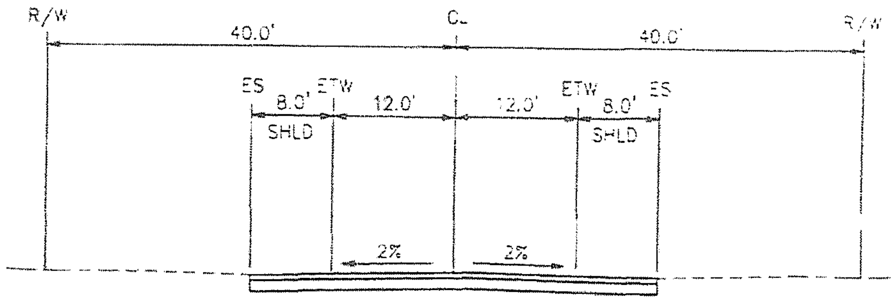
Segment Lengths (feet) =	*3,000*
New Right-of-Way Width (feet) =	*80*
Ave Exist Right-of-Way Width (feet) =	*0*
Total New Right-of-Way Width (feet)	*80*
Pavement Width (feet) =	*40*
Number of Lanes =	*2*
Asphalt Section (inches) =	*6*
Aggregate Base Section (inches)	*13*
Asphalt Density (lb/cf) =	*150*
Sidewalk Width (feet) =	*0*

Description	Quantity	Units	Unit Cost Low Range	Total Cost Low Range	Unit Cost High Range	Total Cost High Range
Excavation	0	CY	$12.50	$0	$13.70	$0
Imported Borrow	6,667	CY	$6.50	$43,333	$8.55	$57,000
Erosion Control	6	AC	$3,705.00	$20,413	$5,000.00	$27,548
Clearing & Grubbing	6	AC	$10,000.00	$55,096	$12,630.00	$69,587
Asphalt Concrete	4,500	Ton	$63.60	$286,200	$75.00	$337,500
Aggregate Base	4,667	CY	$28.20	$131,600	$30.85	$143,967
Signing/Striping	9,000	LF	$0.30	$2,700	$1.20	$10,800
Drainage	1	LS		$62,670		$96,293
Subtotal Construction				$602,013		$742,695
Minor Items			10%	$60,201	10%	$74,269
Roadway Mobilization			10%	$66,221	10%	$81,696
Supplemental Roadway			10%	$66,221	10%	$81,696
Contingency			40%	$264,886	40%	$326,786
Total Construction Estimate				**$1,059,543**		**$1,307,143**

Route 165 Bypass/Route 99 PSR (PDS)
Planning Level Opinion of Cost

ALTERNATIVE I
11/7/2011

Connector Road(s) - Youngstown/Harding



Segment Lengths (feet) =	*5,000*
New Right-of-Way Width (feet) =	*80*
Ave Exist Right-of-Way Width (feet) =	*0*
Total New Right-of-Way Width (feet)	*80*
Pavement Width (feet) =	*40*
Number of Lanes =	*2*
Asphalt Section (inches) =	*6*
Aggregate Base Section (inches)	*13*
Asphalt Density (lb/cf) =	*150*
Sidewalk Width (feet) =	*0*

Description	Quantity	Units	Unit Cost Low Range	Total Cost Low Range	Unit Cost High Range	Total Cost High Range
Excavation	0	CY	$12.50	$0	$13.70	$0
Imported Borrow	11,111	CY	$6.50	$72,222	$8.55	$95,000
Erosion Control	9	AC	$3,705.00	$34,022	$5,000.00	$45,914
Clearing & Grubbing	9	AC	$10,000.00	$91,827	$12,630.00	$115,978
Asphalt Concrete	7,500	Ton	$63.60	$477,000	$75.00	$562,500
Aggregate Base	7,778	CY	$28.20	$219,333	$30.85	$239,944
Signing/Striping	15,000	LF	$0.30	$4,500	$1.20	$18,000
Drainage	1	LS		$104,450		$160,489
Subtotal Construction				$1,003,355		$1,237,825
Minor Items			10%	$100,335	10%	$123,782
Roadway Mobilization			10%	$110,369	10%	$136,161
Supplemental Roadway			10%	$110,369	10%	$136,161
Contingency			40%	$441,476	40%	$544,643
Total Construction Estimate				**$1,765,905**		**$2,178,572**

ATTACHMENT 3

TRAFFIC FORECASTS/OPERATIONS

PBS Traffic Forecasting, Analysis and Operations Scoping Checklist

Project Information

District 10, County Mer, Route 165, Post Mile (PM) 26.87/36.72
District 10, County Sta, Route 165, Post Mile (PM) 0.00/1.45
District 10, County Mer, Route 99, Post Mile (PM) R35.54/R37.30
District 10, County Sta, Route 99, Post Mile (PM) R0.00/R1.00
EA: 10-0P810K

Description: The primary purpose of the proposed project is to improve safety and traffic operations and reduce current and future congestion along SR 165, including congestion within the community of Hilmar, and to improve freeway access between SR 99 and the local roadway system to support continued growth in local general plans, community plans and specific plans.

Project Manager: Joe Weiland (OMNI-MEANS) Phone # (916) 782-8688

Project Engineer: Carlos Silva (OMNI-MEANS) Phone # (916) 782-8688

Traffic Forecasting Functional Manager: Kamesh Vedula (OMNI-MEANS) Phone # (916) 782-8688

Traffic Operations Functional Manager: Kamesh Vedula (OMNI-MEANS) Phone # (916) 782-8688

Traffic Forecasting, Traffic Analysis Scoping

See attached documents:
- Caltrans District 10 Project Information (Updated February 24, 2011)
- Technical Memorandum "Existing and Forecasted Traffic Volumes and Existing and Forecasted "No Build" Conditions Traffic Operations", (January 9, 2009)
- Technical Memorandum "Forecasted Traffic Volumes and Traffic Operations for Project Alternative D and Alternative I", (February 18, 2011)

Traffic Operations Scoping

See attached documents:
- Caltrans District 10 Project Information (Updated February 24, 2011)
- Technical Memorandum "Existing and Forecasted Traffic Volumes and Existing and Forecasted "No Build" Conditions Traffic Operations", (January 9, 2009)
- Technical Memorandum "Forecasted Traffic Volumes and Traffic Operations for Project Alternative D and Alternative I", (February 18, 2011)

Project Screening

1. Project Features: New R/W? Yes Excavation or Fill? Yes

2. Project Setting

Rural or Urban:	Predominantly rural along SR 165 (Lander Avenue) with urban conditions through community of Hilmar in Merced County and at the interchange with SR 99 in the City of Turlock in Stanislaus County. Predominately rural along SR 99 with urban conditions at and north of the interchange with SR 165 (Lander Avenue) in the City of Turlock in Stanislaus County
Current land uses:	Rural - Agricultural, Rural Residential; Urban – Residential, Commercial, Institutional, Light Industrial
Adjacent land uses:	Agricultural, Rural Residential

Existing Traffic Operational Conditions and Warrants Supporting the Need for the Improvement

Mainline highway

See attached technical memorandum "Existing and Forecasted Traffic Volumes and Existing and Forecasted "No Build" Conditions Traffic Operations", (January 9, 2009); existing conditions analysis, page 8, Table 3 and page 11, Table 7.

Ramp intersection

See attached technical memorandum "Existing and Forecasted Traffic Volumes and Existing and Forecasted "No Build" Conditions Traffic Operations", (January 9, 2009); existing conditions analysis, page 10, Table 5.

Merge / diverge

See attached technical memorandum "Existing and Forecasted Traffic Volumes and Existing and Forecasted "No Build" Conditions Traffic Operations", (January 9, 2009); existing conditions analysis, page 9, Table 4.

Street intersection

See attached technical memorandum "Existing and Forecasted Traffic Volumes and Existing and Forecasted "No Build" Conditions Traffic Operations", (January 9, 2009); existing conditions analysis, page 10, Table 5 and page 11, Table 6.

Weaving / merging (spacing)

There are no weaving deficiencies for existing conditions.

Traffic Study and Analysis Anticipated

Traffic Modeling Assumptions

See attached documents:

- Caltrans District 10 Project Information (Updated February 24, 2011)
- Technical Memorandum "Existing and Forecasted Traffic Volumes and Existing and Forecasted "No Build" Conditions Traffic Operations", (January 9, 2009)

Traffic Analysis

- [x] Mainline LOS
- [x] Merge/Diverge LOS
- [x] Ramp Int. LOS
- [x] Adjacent IC LOS
- [ ] Ramp Metering (open)
- [ ] Ramp Metering (later)
- [x] Left/Right Turn Storage
- [ ] Accident / Safety Analysis
- [x] Intersection Queues
- [ ] Construction Staging
- [ ] Project Staging

Other ____________________

<u>Traffic Operations Scoping</u>

Traffic Operational Improvements

- [x] Auxiliary Lanes
- [x] Intersection Improvements
- [ ] Truck Climbing Lane
- [x] New Signals
- [x] Modify Signals
- [ ] Merging Improvements
- [ ] Weaving Improvements
- [x] Deceleration/Acceleration Lanes

Other ____________________

Traffic Management Systems

- [ ] Ramp Meters
- [ ] HOV Ramp Bypass
- [ ] Mainline HOV Lanes
- [x] Detector Loops
- [ ] Communication Networks
- [ ] Closed Circuit Television
- [ ] Changeable Message Sign
- [ ] Highway Advisory Radio

Other ____________________

Discuss strategies (technical analysis, public outreach, etc.) to secure local agency and public support to implement HOV lanes and ramp metering: ____________________

Preliminary Traffic Forecasting Evaluation provided by:

Traffic Forecasting: <u>OMNI-MEANS</u> Date <u>02/25/11</u>

Preliminary Traffic Operations Evaluation provided by:

Traffic Operation Engineer <u>OMNI-MEANS</u> Date <u>02/25/11</u>

Traffic Electrical Engineer ____________ Date ________

STATE OF CALIFORNIA—BUSINESS, TRANSPORTATION AND HOUSING AGENCY

DEPARTMENT OF TRANSPORTATION
P.O. BOX 2048 STOCKTON, CA 95201
(1976 E. CHARTER WAY/1976 E. DR. MARTIN LUTHER KING JR. BLVD. 95205)
TTY: California Relay Service (800) 735-2929
PHONE (209) 948-3975
FAX (209) 948-7194

DATE June 13 2008 (Original)
February 24, 2011 (Update)

PROJECT INFORMATION

Project Location and Description	**SR 99 from Bradbury Road IC in Merced County to Lander Avenue (SR 165) IC in Stanislaus County and SR 165 from SR 140 in Merced County to SR 99 in Stanislaus County. SR 99 – SR 165 PSR (PDS)**
EA: ________	**10-0P810K**
Caltrans Project Coordinator	
Project Manager	**Tony Singh**
Lead Agency	**Merced County Association of Governments (MCAG)**
Traffic Consultant	**Joe Weiland and Kamesh Vedula; Omni-Means**

CALTRANS COMMENTS

In order to provide the most thorough review of the traffic forecast that is being developed for this proposed project, Caltrans is recommending the following information be provided in the Traffic Study for documentation of methodology and assumptions:

OMNI-MEANS comments are embedded in this document as *italicized/underlined* text.

A. DATA COLLECTION

1. Provide data defining the peak period. It is recommended that seven (7) days of data be collected to adequately identify and quantify the existing peak periods on all critical links.

   See attached technical memorandum dated January 9, 2009. Daily traffic counts were collected on a consecutive Tuesday, Wednesday, and Thursday in March/April (the April counts were along SR 165) and in August 2007. The three-day March/April traffic data was averaged to obtain Average Daily Traffic (ADT). The highest of the March/April and August counts were used for analysis purposes (see Figure 1, page 2). Existing intersection traffic counts were collected on a single day during two-hour peak periods for the AM (7-9 am) and PM (4-6 pm) in both March and August 2007. Again, the highest of the March/April and August 2007 turning movements were used in this analysis (see Figure 2, page 3).

   ***Note:** The original "Project Information" document includes and references a memorandum dated June 13, 2008. Copies of daily and peak hour traffic data was also provided at that time.*

2. Provide all truck data collected and used in forecasts and operational analysis.

   See attached technical memorandum dated January 9, 2009. Truck counts and percentages are provided on page 5, Table 1.

   ***Note:** The original "Project Information" document includes and references a memorandum dated June 13, 2008. Copies of collected truck data was also provided at that time.*

3. Provide any documentation on seasonal variation and other adjustment factors used on these data.

   The original "Project Information" document includes and references a memorandum dated June 13, 2008. The June 13, 2008 technical memorandum provided the following tables as documentation on seasonal variation and other adjustment factors.

MARCH - AUGUST 2007 PEAK HOUR TRAFFIC INTERSECTION COUNTS
ROADWAY SEGMENT COMPARISON ALONG SR 165

	AM Peak Hour Back Leg Count							PM Peak Hour Back Leg Count						
	March Count			August Count				March Count			August Count			
SR 165 Cross-Street	NB	SB	Total	NB	SB	Total	% Diff	NB	SB	Total	NB	SB	Total	% Diff
SR 140	233	215	448	190	234	424	-5%	278	335	613	248	217	465	-24%
Westside Blvd	270	233	503	266	279	545	+8%	294	286	580	330	282	612	+6%
River Rd	287	257	544	304	278	582	+7%	319	314	633	348	344	692	+9%
Williams Ave	313	308	621	371	356	727	+17%	418	371	789	369	418	787	0%
Geer Ave	401	352	753	412	362	774	+3%	450	415	865	441	496	937	+8%
Bloss Ave	513	506	1,019	542	734	1,276	+25%	543	545	1,088	537	676	1,213	+11%
First St	646	559	1,205	575	534	1,109	-8%	598	630	1,228	566	659	1,225	0%
American Ave	635	531	1,166	548	548	1,096	-6%	557	755	1,312	539	696	1,235	-6%
August Ave	775	491	1,266	722	524	1,246	-2%	604	808	1,412	624	701	1,325	-6%
Fowler Rd	791	542	1,333	736	610	1,346	+1%	623	768	1,391	669	783	1,452	+4%
Bradbury Rd	733	553	1,286	731	624	1,355	+5%	658	783	1,441	610	840	1,450	+1%
Clausen Rd	730	521	1,251	723	550	1,273	+2%	659	811	1,470	638	795	1,433	-3%
Greenway Ave	771	527	1,298	770	511	1,281	-1%	675	863	1,538	677	805	1,482	-4%
W Glenwood Ave	825	565	1,390	781	566	1,347	-3%	675	873	1,548	691	908	1,599	+3%
SR 99 SB Ramps	779	381	1,160	758	635	1,393	+20%	680	670	1,350	753	893	1,646	+22%
SR 99 NB Ramps	954	396	1,350	905	339	1,244	-8%	1,053	618	1,671	955	605	1,560	-7%

Source: Existing and Forecasted Traffic Volumes Memorandum, June 13, 2008, Table 1

MARCH - AUGUST 2007 PEAK HOUR TRAFFIC COUNTS
INTERSECTION VOLUME COMPARISON ALONG SR 165

SR 165 @	SUM	SR 165 @	SUM
SR 140 (March)		**August Ave (March)**	
AM Peak Hour	635	AM Peak Hour	1418
PM Peak Hour	873	PM Peak Hour	1522
SR 140 (August)		**August Ave (August)**	
AM Peak Hour	679	AM Peak Hour	1391
PM Peak Hour	805	PM Peak Hour	1453
August AM % Change	+6.9%	August AM % Change	-1.9%
August PM % Change	-7.8%	August PM % Change	-4.5%
Westside Blvd (March)		**Fowler Ave (March)**	
AM Peak Hour	581	AM Peak Hour	1353
PM Peak Hour	699	PM Peak Hour	1579
Westside Blvd (August)		**Fowler Ave (August)**	
AM Peak Hour	634	AM Peak Hour	1366
PM Peak Hour	730	PM Peak Hour	1474
August AM % Change	+9.1%	August AM % Change	+1.0%
August PM % Change	+4.4%	August PM % Change	-6.6%
River Rd (March)		**Bradbury Rd (March)**	
AM Peak Hour	612	AM Peak Hour	1347
PM Peak Hour	718	PM Peak Hour	1549

MARCH - AUGUST 2007 PEAK HOUR TRAFFIC COUNTS
INTERSECTION VOLUME COMPARISON ALONG SR 165 (CONTINUED)

SR 165 @	SUM	SR 165 @	SUM
River Road (August)		**Bradbury Rd (August)**	
AM Peak Hour	733	AM Peak Hour	1490
PM Peak Hour	840	PM Peak Hour	1631
August AM % Change	+19.8%	August AM % Change	+10.6%
August PM % Change	+17.0%	August PM % Change	+5.3%
Williams Ave (March)		**Clausen Rd (March)**	
AM Peak Hour	713	AM Peak Hour	1295
PM Peak Hour	875	PM Peak Hour	1531
Williams Ave (August)		**Clausen Rd (August)**	
AM Peak Hour	853	AM Peak Hour	1310
PM Peak Hour	858	PM Peak Hour	1488
August AM % Change	+19.6%	August AM % Change	+1.2%
August PM % Change	-1.9%	August PM % Change	-2.8%
Geer Ave (March)		**Greenway Ave (March)**	
AM Peak Hour	1154	AM Peak Hour	1397
PM Peak Hour	1093	PM Peak Hour	1647
Geer Ave (August)		**Greenway Ave (August)**	
AM Peak Hour	1140	AM Peak Hour	1344
PM Peak Hour	1110	PM Peak Hour	1571
August AM % Change	-1.2%	August AM % Change	-3.8%
August PM % Change	1.6%	August PM % Change	-4.6%
Bloss Ave (March)		**W. Greenwood Ave (March)**	
AM Peak Hour	1323	AM Peak Hour	1390
PM Peak Hour	1495	PM Peak Hour	1751
Bloss Ave (August)		**W. Greenwood Ave (August)**	
AM Peak Hour	1542	AM Peak Hour	1471
PM Peak Hour	1503	PM Peak Hour	1760
August AM % Change	+16.6%	August AM % Change	+5.8%
August PM % Change	+0.5%	August PM % Change	+0.5%
First St (March)		**SR 99 SB Ramps (March)**	
AM Peak Hour	1361	AM Peak Hour	1521
PM Peak Hour	1347	PM Peak Hour	2009
First St (August)		**SR 99 SB Ramps (August)**	
AM Peak Hour	1260	AM Peak Hour	1729
PM Peak Hour	1394	PM Peak Hour	2169
August AM % Change	-7.4%	August AM % Change	+13.7%
August PM % Change	+3.5%	August PM % Change	+8.0%
American Ave (March)		**SR 99 NB Ramps (March)**	
AM Peak Hour	1502	AM Peak Hour	1891
PM Peak Hour	1727	PM Peak Hour	2141
American Ave (August)		**SR 99 NB Ramps (August)**	
AM Peak Hour	1488	AM Peak Hour	1767
PM Peak Hour	1570	PM Peak Hour	2013
August AM % Change	-0.9%	August AM % Change	-6.6%
August PM % Change	-9.1%	August PM % Change	-6.0%

Source: Existing and Forecasted Traffic Volumes Memorandum, June 13, 2008, Table 2

MARCH/APRIL-AUGUST 2007 DAILY TRAFFIC COUNTS
ROADWAY SEGMENT COMPARISON

Count Location	Average Daily Count		Percent Difference
	March-April	August	
SR 165 s/o Westside Blvd.	6,472	7,791	+20%
SR 165 s/o Turner Ave.	8,307	9,490	+14%
SR 165 s/o Geer Ave.	10,074	10,867	+8%
SR 165 s/o Bloss Ave.	12,182	14,590	+20%
SR 165 s/o American Ave.	14,920	16,385	+10%
SR 165 s/o August Rd...	15,888	18,112	+14%
SR 165 s/o Bradbury Rd.	16,646	19,593	+18%
SR 165 s/o W. Glenwood Ave.	19,897	20,711	+4%

Source: Existing and Forecasted Traffic Volumes Memorandum, June 13, 2008, Table 3

MARCH/APRIL-AUGUST 2007 DAILY TRUCK TRAFFIC COUNTS
ROADWAY SEGMENT COMPARISON

	April 2007 Daily Traffic Counts			August 2007 Daily Traffic Counts		
SR 165 s/o Westside Blvd.	Total	Vehicle Class 8 - 14 (Heavy Trucks)	% Class 8-13 Heavy Trucks	Total	Vehicle Class 8 - 14 (Heavy Trucks)	% Class 8-13 Heavy Trucks
Average	6,472	753	11.6%	7,791	2,003	25.7%
SR 165 s/o Turner Ave.	Total	Vehicle Class 8 - 14 (Heavy Trucks)	% Class 8-13 Heavy Trucks	Total	Vehicle Class 8 - 14 (Heavy Trucks)	% Class 8-13 Heavy Trucks
Average	8,307	929	11.2%	9,490	2,603	27.4%
SR 165 s/o Geer Ave.	Total	Vehicle Class 8 - 14 (Heavy Trucks)	% Class 8-13 Heavy Trucks	Total	Vehicle Class 8 - 14 (Heavy Trucks)	% Class 8-13 Heavy Trucks
Average	10,074	1,049	10.4%	10,867	2,872	26.4%
SR 165 s/o Bloss Ave.	Total	Vehicle Class 8 - 14 (Heavy Trucks)	% Class 8-13 Heavy Trucks	Total	Vehicle Class 8 - 14 (Heavy Trucks)	% Class 8-13 Heavy Trucks
Average	12,182	1,194	9.8%	14,590	4,402	30.2%
SR 165 s/o American Ave.	Total	Vehicle Class 8 - 14 (Heavy Trucks)	% Class 8-13 Heavy Trucks	Total	Vehicle Class 8 - 14 (Heavy Trucks)	% Class 8-13 Heavy Trucks
Average	14,920	1,297	8.7%	16,385	2,706	16.5%
SR 165 s/o August Rd.	Total	Vehicle Class 8 - 14 (Heavy Trucks)	% Class 8-13 Heavy Trucks	Total	Vehicle Class 8 - 14 (Heavy Trucks)	% Class 8-13 Heavy Trucks
Average	15,888	1,618	10.2%	18,112	2,656	14.7%
SR 165 s/o Bradbury Rd.	Total	Vehicle Class 8 - 14 (Heavy Trucks)	% Class 8-13 Heavy Trucks	Total	Vehicle Class 8 - 14 (Heavy Trucks)	% Class 8-13 Heavy Trucks
Average	16,646	1,861	11.2%	19,593	3,680	18.8%
SR 165 s/o W. Greenwood Ave.	Total	Vehicle Class 8 - 14 (Heavy Trucks)	% Class 8-13 Heavy Trucks	Total	Vehicle Class 8 - 14 (Heavy Trucks)	% Class 8-13 Heavy Trucks
Average	19,897	2,198	11.0%	20,711	4,641	22.4%
Corridor Average	104,386	10,900	10.4%	117,539	25,563	21.7%

Source: Existing and Forecasted Traffic Volumes Memorandum, June 13, 2008, Table 4

4. Vehicle occupancy counts may be required for some projects. If existing and/or future conditions are constrained, vehicle occupancy data will be required for freeway analysis or other projects if requested.

<u>*N/A*</u>

5. Provide any other relevant traffic data collected for project.

   All relevant traffic data collected for the project has previously been provided.

B. TRANSPORTATION MODEL CALIBRATION

1. All technical modeling work shall be developed using the model's original program platform (i.e., Minutp/TP+, TransCAD).

   All model work was developed in the CUBE/Voyager format.

2. Provide all adjusted traffic model files for this project. For example, changes in land use, network adjustment, trip rate modification, etc.

   See attached technical memorandum dated January 9, 2009, pages 12 – 15 for model integration summary.

   Note: *The original "Project Information" document includes and references a memorandum dated June 13, 2008. The model integration summary information was also provided in that document. .*

3. Provide project area validation report summary.

   See attached technical memorandum dated January 9, 2009, pages 15 – 17 for model calibration and validation summary.

   Note: *The original "Project Information" document includes and references a memorandum dated June 13, 2008. The model calibration and validation summary information was also provided in that document.*

C. TRAVEL FORECAST

1. If the forecast is based on other than the current applicable RTP / Air Quality model, thoroughly document all risks associated with proceeding in this way.

   N/A

2. Make note of the General Plan Build Out dates of all the local agencies in the area. If a General Plan Build Out date is prior to the design year of the project, this may indicate a weakness in the project forecast.

   The City of Turlock General Plan is 2012. The City is currently in the process of updating their General Plan.

3. Document any corrections, changes, improvements or enhancements to the model. Include documentation of MPO/RTPA's knowledge and acceptance of these changes.

See attached technical memorandum dated January 9, 2009, pages 12 – 17 for model integration, calibration and validation summary.

The five MOU agencies (MCAG, StanCOG, Merced County, Stanislaus County and City of Turlock) and Caltrans approved the traffic modeling criteria in the Fall of 2008.

Note: *The original "Project Information" document includes and references a memorandum dated June 13, 2008. The model integration, calibration and validation summary information was also provided in that document.*

4. Provide post-processing methodology used for forecast.

   See attached technical memorandum dated January 9, 2009, page18 for post-processing and annual adjustment methodology discussion.

   Note: *The original "Project Information" document includes and references a memorandum dated June 13, 2008. The post-processing and annual adjustment information was also provided in that document.*

5. Use of constrained forecasting methodology for projects: Various methodologies exist and have been taught at Caltrans Freeway Operations Academies, as well as other venues, for Analysis of Demand Greater Than Capacity Conditions. This methodology will likely produce reasonable results for throughput of freeway traffic in saturated "stop and go" conditions. However, the Department believes that these constrained volumes are not appropriate for use in operational analysis (i.e., Highway Capacity Manual [HCM] Level of Service [LOS], Micro-Simulation, etc.).

   See attached technical memorandum dated January 9, 2009.

6. It is the Department's policy that freeway / highway design be based on 30th Highest Hour / Design Hourly Volume (DHV). A conservative approach for freeway / highway design is to use not less than 10% of annual average daily traffic (AADT). This will reduce the potential for under design and or underestimating future operational conditions. Any additional adjustments to the traffic volumes for operational analysis must be approved by the District Branch Chief of Traffic Operations. (This approach has been reviewed by Caltrans Head Quarters Regional Planning and FHWA with Reference to Caltrans Highway Design Manual [HDM], Chapter 100, Design Information Bulletin (DIB) #77, 4th Symposium on Highway Capacity).

   See attached technical memorandum dated January 9, 2009.

7. Provide existing traffic conditions in AADT and AM and PM peak hour/periods.

   See attached technical memorandum dated January 9, 2009, pages 1 – 11. Also see responses to section A, Data Collection.

8. Provide future traffic forecast in AADT and DHV.

See attached technical memorandum dated January 9, 2009. "No Build" traffic forecasts are provided as follows:
- *Year 2030 AADT – Figure 10, page 19 and Figure 11, page 20.*
- *Year 2035 AADT – Figure 12, page 21 and Figure 13, page 22.*
- *Year 2035 DHV – Figure 14, page 23 and Figure 15, page 24.*

Note: *The original "Project Information" document includes and references a memorandum dated June 13, 2008. Forecasted AADT and DHV figures were also provided in that document.*

9. Identify any existing or future peak spreading assumptions used in the analysis.

Existing peak hour traffic constitutes eight to nine percent of the daily traffic during non-peak months (March/April) and seven to eight percent during peak months (August). The future peak hour projections follow the same peak spreading characteristics.

10. Provide:
   a. Existing conditions.

   See attached technical memorandum dated January 9, 2009, pages 1 – 11. Also see responses to section A, Data Collection.

   b. Project (Open to Traffic) year "no build and all build alternatives".

   To be provided during next project phase.

   c. Design year (20 years after opening) conditions "no build and all build alternatives".

   See attached technical memorandum dated January 9, 2009, pages 17 – 28 for "No Build" conditions. See attached technical memorandum date February 18, 2011 for forecasted conditions with project Alternatives D and I.

   d. Intermediate years, if requested.

   N/A

11. Document any differences in model growth rates and historical growth rates, and how this might affect assessment of future project impacts.

See attached technical memorandum dated January 9, 2009, page 16, Table 8 for model screenline calibration summary. The model matches the MCAG regional model for the SR 165 corridor.

Note: *The original "Project Information" document includes and references a memorandum dated June 13, 2008. The model screenline calibration summary table was also provided in that document.*

12. Document any change(s) in land use that may impact this project in terms of the traffic forecast.

    N/A.

D. PLANNING AND RTP CONFORMITY INFORMATION

1. Note whether this project is listed as "fully funded" through construction in the current appropriate RTP project list and list other funded projects nearby, as well as verification that the project is in the current RTP / Air Quality model.

   N/A

2. RTP / Air Quality conformity must be carefully observed. Any recommended change(s) in the project from that which was conformed in the RTP must be reviewed by and agreed to by the agency responsible for that conformity analysis. Also any possible inconsistencies discovered should be discussed with the Department and the agency responsible for that conformity analysis.

   N/A

omni·means
ENGINEERS·PLANNERS

TECHNICAL MEMORANDUM

To:	Merced County Association of Governments (MCAG)	**Date:**	January 9, 2009
Attn:	Bob Morrison (MCAG PM)	**Project:**	SR 99 – SR 165 PSR
From:	Joe Weiland, Todd Tregenza	**Job No.:**	25-4701-01
Re:	Existing and Forecasted Traffic Volumes and Existing and Forecasted "No Build" Conditions Traffic Operations	**File No.:**	C1078MEM012.DOC
CC:	PDT Members		

INTRODUCTION

This memorandum presents the existing and forecasted future daily and peak hour traffic volumes in the SR 99 – SR 165 Project Study Report (PSR) study area. The list below summarizes each traffic analysis scenario presented in this memorandum for which daily and peak hour traffic was either counted or forecasted.

#	Traffic Scenario	Traffic Volume	Comment
1.	Existing conditions	daily and peak hour	Counted in March/April and August 2007.
2.	Year 2030 average annual, "Base" Growth Two Lane SR 165 Conditions	daily	Based on year 2030 SR 99 – SR 165 model forecasts.
3.	Year 2030 average annual, "Accelerated" Growth Two Lane SR 165 Conditions	daily	Based on year 2030 SR 99 – SR 165 model forecasts.
4.	Year 2035 average annual, "Base" Growth Two Lane SR 165 Conditions	daily and peak hour	Based on year 2030 SR 99 – SR 165 "Base" model forecasts with 3%/year annual growth to 2035.
5.	Year 2035 average annual, "Accelerated" Growth Two Lane SR 165 Conditions	daily and peak hour	Based on year 2030 SR 99 – SR 165 "Accelerated" model forecasts with 3%/year annual growth to 2035.

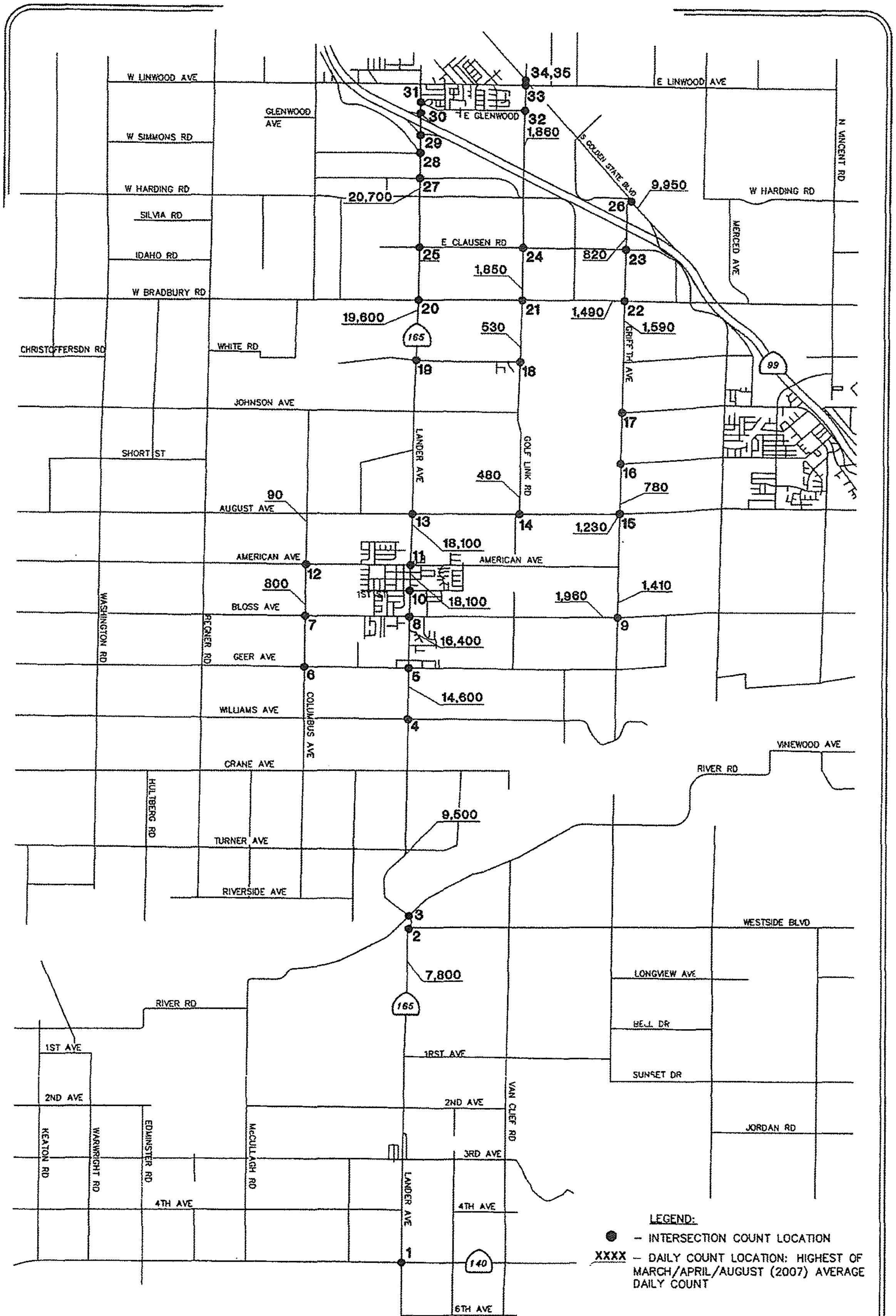
This memorandum also presents Level of Service (LOS) results for Existing and Year 2035 "Base Growth" under "No Build" traffic conditions.

EXISTING AVERAGE AND PEAK MONTH TRAFFIC VOLUMES

Daily traffic counts were collected on a consecutive Tuesday, Wednesday, and Thursday in March/April (the April counts were along SR 165) and in August 2007. The three-day March/April traffic data was averaged to obtain Average Daily Traffic (ADT). The highest of the March/April and August counts were used for analysis purposes. Existing intersection traffic counts were collected on a single day during two-hour peak periods for the AM (7-9 am) and PM (4-6 pm) in both March and August 2007. Again, the highest of the March/April and August 2007 turning movements were used in this analysis.

Figure 1 presents the project study area with the highest of the March/April and August 2007 ADT. **Figure 2** presents the highest of the existing peak hour intersection counts collected in March/April and August 2007. **Figure 3** presents the existing intersection configuration and control.

943 Reserve Drive, Suite 100, Roseville, CA 95678 ~ (916) 782-8688 fax (916) 782-8689



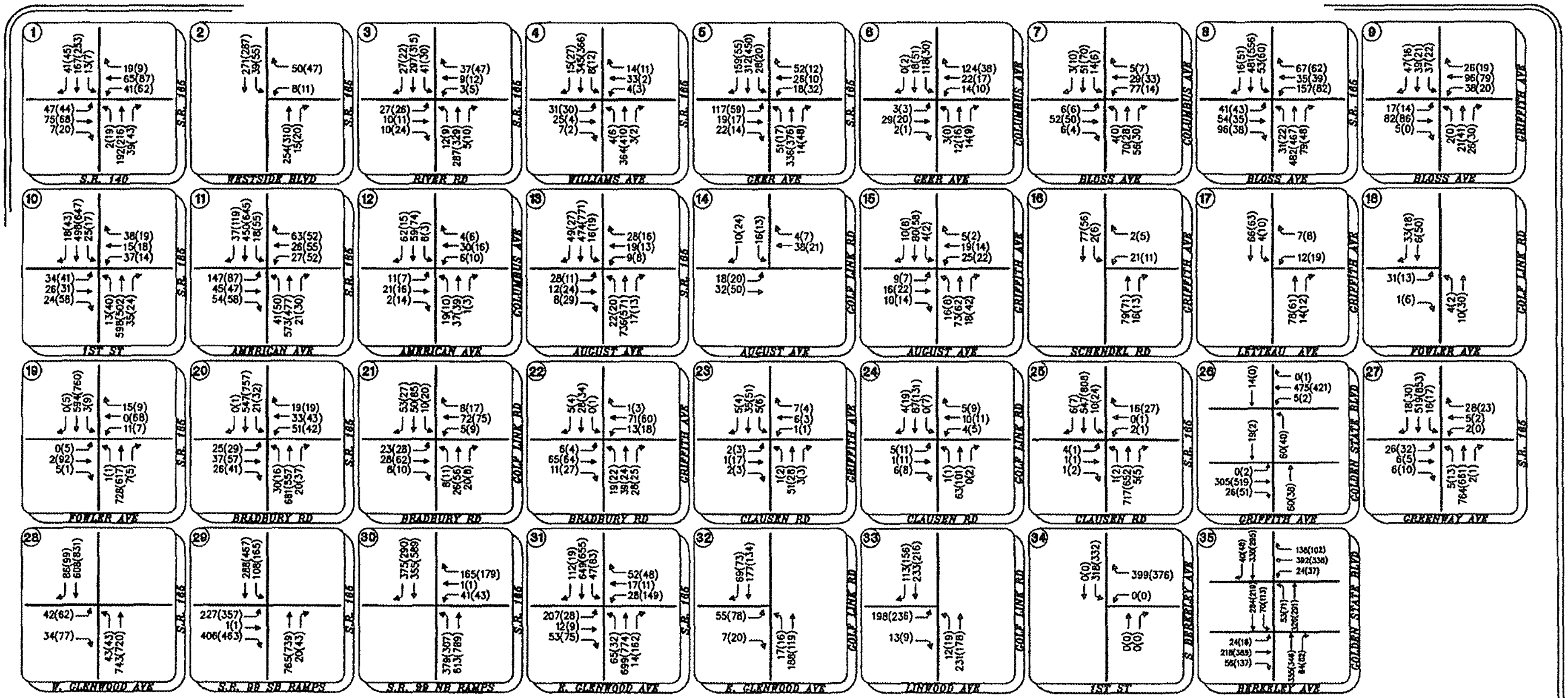
SR 99/SR 165 PSR

Figure 1

Project Study Area and Existing Daily Traffic Counts

\\10.3.250.10\dots\Common\PKA\1078\TI078\TI07870029.dwg 12/30/2008 10:13:09 AM PST

Job No: 25-4701-01



LEGEND:

XX – AM PEAK HOUR TRAFFIC VOLUMES

(XX) – PM PEAK HOUR TRAFFIC VOLUMES

NOTE:

TURNING MOVEMENTS ARE HIGHEST IN MARCH, APRIL AND AUGUST 2007.

SR 99/SR 165 PSR

Figure 2

Existing Peak Hour Intersection Traffic Volumes

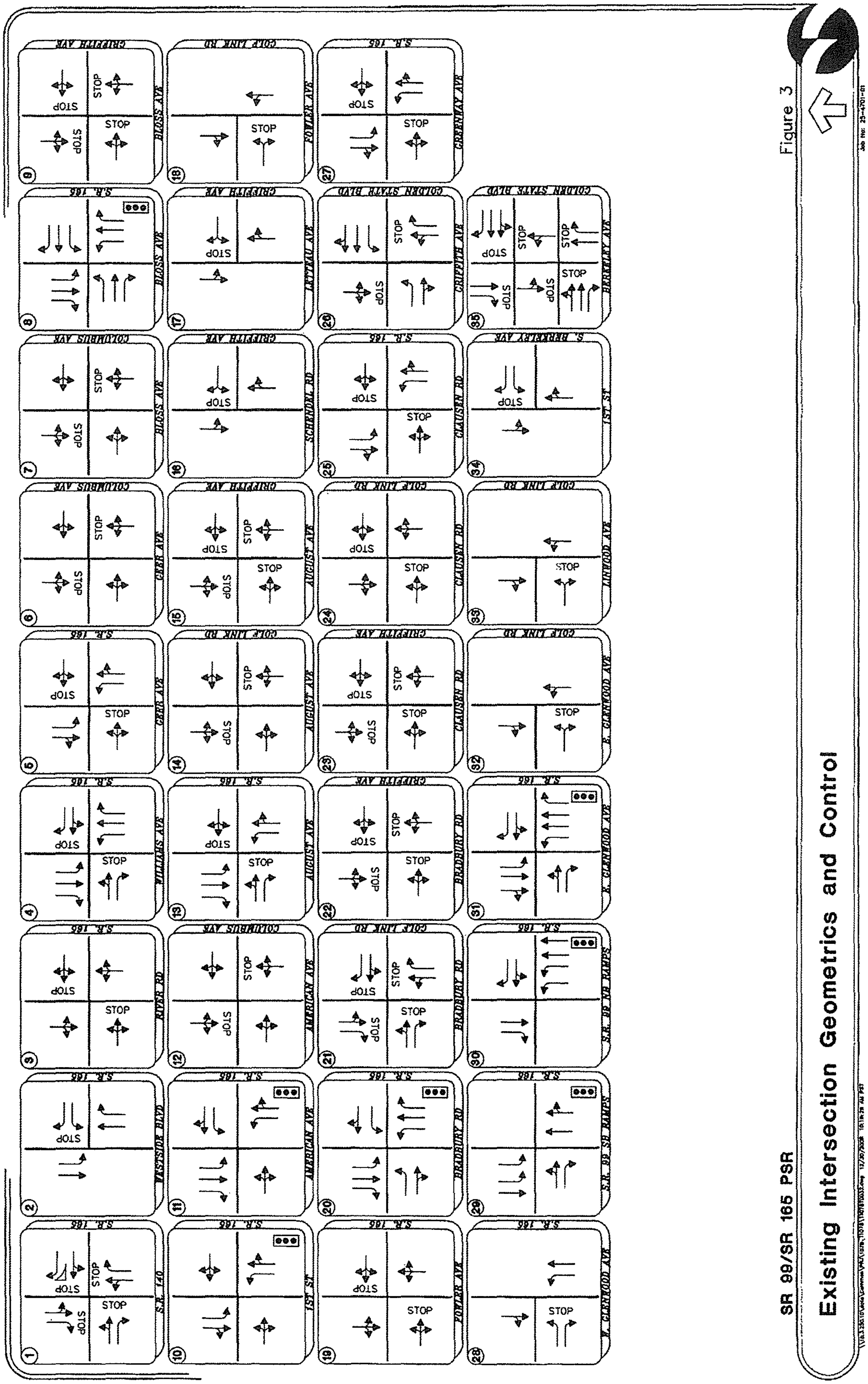


Figure 3
SR 99/SR 165 PSR
Existing Intersection Geometrics and Control

Table 1 presents both the highest average daily traffic (ADT) volumes from the counts taken in both April and August of 2007 at each of the SR 165 count locations. At all location, the August counts yielded the highest ADT. Table 1 also shows the number of Class 8-13 vehicles (heavy trucks) in the total; and the percentage of Class 8-13 vehicles in the total. Vehicle classifications are based on the published FHWA Vehicle Classification which is shown on **Figure 4**.

As shown in Table 1, the daily traffic counts identified that "Heavy Trucks" traffic volumes along SR 165 ranged from approximately 15% to 30% of the total daily traffic with some of the highest truck percentages occurring on the segments through Hilmar. When looking at the entire corridor, "Heavy Truck" traffic volumes along SR 165 averaged approximately 22% of the total daily traffic.

TABLE 1
YEAR 2007 DAILY TRUCK TRAFFIC COUNTS
ROADWAY SEGMENT COMPARISON

	Highest of April/August 2007 Daily Traffic Counts		
SR 165 s/o Westside Blvd.	Total	Class 8 - 14 (Heavy Trucks)	% Class 8-13 Heavy Trucks
Average	7,791	2,003	25.7%
SR 165 s/o Turner Ave.	Total	Class 8 - 14 (Heavy Trucks)	% Class 8-13 Heavy Trucks
Average	9,490	2,603	27.4%
SR 165 s/o Geer Ave.	Total	Class 8 - 14 (Heavy Trucks)	% Class 8-13 Heavy Trucks
Average	10,867	2,872	26.4%
SR 165 s/o Bloss Ave.	Total	Class 8 - 14 (Heavy Trucks)	% Class 8-13 Heavy Trucks
Average	14,590	4,402	30.2%
SR 165 s/o American Ave.	Total	Class 8 - 14 (Heavy Trucks)	% Class 8-13 Heavy Trucks
Average	16,385	2,706	16.5%
SR 165 s/o August Rd.	Total	Class 8 - 14 (Heavy Trucks)	% Class 8-13 Heavy Trucks
Average	18,112	2,656	14.7%
SR 165 s/o Bradbury Rd.	Total	Class 8 - 14 (Heavy Trucks)	% Class 8-13 Heavy Trucks
Average	19,593	3,680	18.8%
SR 165 s/o W. Greenwood Ave.	Total	Class 8 - 14 (Heavy Trucks)	% Class 8-13 Heavy Trucks
Average	20,711	4,641	22.4%
Corridor Average	117,539	25,563	21.7%

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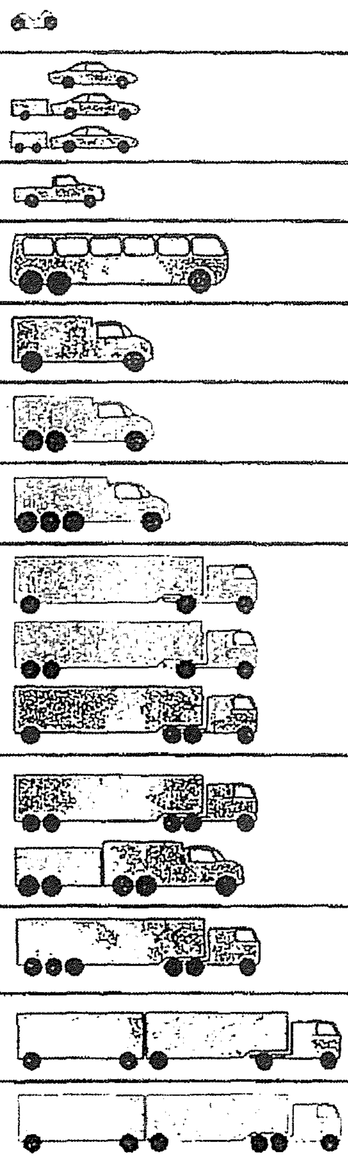
FHWA VEHICLE CLASSIFICATION



HEAVY TRUCKS (classes 8–13)

CLASS GROUP	DESCRIPTION	NO. OF AXLES
1	MOTORCYCLES	2
2	ALL CARS CARS CARS W/ 1-AXLE TRAILER CARS W/ 2-AXLE TRAILER	2 3 4
3	PICK-UPS & VANS 1 & 2 AXLE TRAILERS	2, 3, & 4
4	BUSES	2 & 3
5	2-AXLE, SINGLE UNIT	2
6	3-AXLE, SINGLE UNIT	3
7	4-AXLE, SINGLE UNIT	4
8	2-AXLE, TRACTOR, 1-AXLE TRAILER (2&1) 2-AXLE, TRACTOR, 2-AXLE TRAILER (2&2) 3-AXLE, TRACTOR, 1-AXLE TRAILER (3&1)	3 4 4
9	3-AXLE, TRACTOR, 2-AXLE TRAILER (3&2) 3-AXLE, TRUCK W/ 2-AXLE TRAILER	5 5
10	TRACTOR W/ SINGLE TRAILER	6 & 7
11	5-AXLE MULTI-TRAILER	5
12	6-AXLE MULTI-TRAILER	6
13	ANY 7 OR MORE AXLE	7 or more
14	NOT USED	
15	UNKNOWN VEHICLE TYPE	

Figure 4: FHWA Vehicle Classifications

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LEVEL OF SERVICE (LOS) METHODOLOGY AND STANDARDS

Traffic operations are quantified through the determination of "Level of Service" (LOS). LOS is a qualitative measure of traffic operating conditions, whereby a letter grade "A" through "F" is assigned to an intersection or roadway segment representing progressively worsening traffic conditions. LOS was calculated for different intersection control types using the methods documented in the *2000 Highway Capacity Manual* and analyzed using software programs including *Synchro*, and *Highway Capacity Software (HCS)*. LOS definitions for different types of intersection controls are outlined in Appendix A, Table A-1.

Freeway mainline and ramp junction peak-hour traffic operations are quantified applying methods documented in the *2000 Highway Capacity Manual* with Level of Service (LOS) definitions outlined in Appendix A, Table A-2. *Highway Capacity Software (HCS)* software programs were used to analyze freeway mainline and ramp junction peak hour operations.

A supplemental traffic signal warrant analysis is also performed to determine whether "significance" should be associated with unsignalized intersection LOS, The signal warrant criteria employed for this study are presented in the *California Manual of Uniform Traffic Control Devices (*California MUTCD*)*. Specifically, this study utilizes the Peak-Hour-Volume Warrant 3 (Urban or Rural Areas as appropriate). Though utilization of this warrant may indicate that signalization may be required, the final decision to provide this improvement should be based on further studies utilizing the additional warrants presented in the California MUTCD.

Given the nature of the project region, heavy vehicle factors were included in the operations evaluations to reflect truck traffic within the study area. For SR 99 mainline, truck percentages published by Caltrans are used for analyzing freeway mainline segments and ramps merge and diverge. For SR 165 intersections and at other study area intersections, truck percentages and/or counts obtained during the data collection are utilized.

The project study area extends through multiple jurisdictions each with their own acceptable LOS standard. Table 2 provides the applicable LOS standard by jurisdiction.

TABLE 2
LEVEL OF SERVICE (LOS) STANDARD BY JURISDICTION

Agency	LOS Standard	LOS Application
Caltrans (2025 Concept LOS)		
SR 99:	C	Bradbury Rd. to Lander Ave. (SR 165) Interchanges (Rural)
	D	North of Lander Ave. (SR 165) Interchange (Urban)
SR 165:	D	Entire Length
Merced County (GP)	C	Rural Areas
	D	Specific Urban Development Areas such as Hilmar and Delhi
Stanislaus County (GP)	C	On all roadways
City of Turlock (GP)	C	General standard with exceptions for city facilities not located within project study area

GP – General Plan

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EXISTING CONDITIONS (NO BUILD) TRAFFIC OPERATIONS ANALYSIS

EXISTING CONDITIONS (NO BUILD) STATE ROUTE 99 MAINLINE AND RAMP TRAFFIC OPERATIONS

Existing SR 99 mainline peak hour Level of Service (LOS) were calculated using HCS-2000 software. Traffic volumes were developed using available average daily traffic counts, Caltrans-provided peak-hour conversion factors, and turning movements at SR 99 ramp intersection locations from West Main Street to Golden State Boulevard. Table 3 presents the LOS results of the HCS-2000 mainline analysis.

As shown in Table 3, all SR 99 mainline segments north of the Golden State Boulevard interchange currently experience peak hour LOS at or above the Concept LOS. The segment between the Bradbury Road and the Golden State Boulevard interchanges currently experiences LOS "D" in the northbound direction during the AM peak hour and LOS "D" in the southbound direction during the PM peak hour. Both of these LOS are below the Concept LOS "C" for this segment.

The Route 99 Corridor Enhancement Master Plan identifies widening the segment of SR 99 in Merced County between PM 28.8-36.4 from a 4-lane to a 6-lane freeway as a Regional Transportation Plan Project Candidates for District 10 (Figure 3-11). This project is also identified in the Route 99 Corridor Business Plan as a Priority Category 2: Capacity-Increasing Projects (Figure 3.6, Project Number 45). A Project Study Report (10-0Q120K) was approved in January 2007 that studied widening SR 99 from a 4-lane to a 6-lane freeway in Merced County that included this segment. The 2008 State Transportation Improvement Program (STIP) identifies IIP funding for the PA&ED phase. SR 99 between the Bradbury Road interchange and the Golden State Boulevard interchange is included in this segment.

TABLE 3
EXISTING CONDITIONS (NO BUILD) SR 99 MAINLINE LEVELS OF SERVICE (LOS)

		AM Peak Hour			PM Peak Hour		
Freeway Mainline Segment	# Lanes	Volume	Density, (pc/mi/ln)	LOS	Volume	Density, (pc/mi/ln)	LOS
NB SR 99 (between Bradbury Road and Golden State Boulevard)	2	3,078	28.3	D	2,543	23.0	C
NB SR 99 (between Golden State Boulevard and Lander Avenue)	3	2,598	15.9	B	2,119	12.9	B
NB SR 99 (between Lander Avenue and West Main Street)	3	3,146	18.9	C	2,493	15	B
SB SR 99 (between West Main Street and Lander Avenue)	3	1,927	11.6	B	2,933	17.7	B
SB SR 99 (between Lander Avenue and Golden State Boulevard)	3	1,695	10.3	A	2,465	15	B
SB SR 99 (between Golden State Boulevard and Bradbury Road)	2	2,000	18.1	C	2,984	27.2	D

Table 4 presents the existing conditions peak hour ramp junction LOS at various interchanges within the study area based on the HCS-2000 ramp analysis. As shown in Table 4, LOS conditions at the various SR 99 ramp junctions currently operate at LOS "C" or better during the peak traffic hours. The one exception is LOS "D" experienced at the southbound Golden State Boulevard merge with SR 99 during the PM peak hour. This LOS is below the Concept LOS "C" for this segment.

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TABLE 4
EXISTING CONDITIONS (NO BUILD) SR 99 RAMP JUNCTION LEVEL OF SERVICE (LOS)

Interchange Location	Junction Type	AM Peak Hour Density (pc/mi/ln)	AM Peak Hour LOS	PM Peak Hour Density (pc/mi/ln)	PM Peak Hour LOS
SR 99/West Main Street					
SR 99 NB Off-Ramp	Diverge	23.5	C	19.4	B
SR 99 SB On-Ramp	Merge	13.1	B	18.9	B
SR 99/Lander Avenue					
SR 99 NB Off-Ramp	Diverge	20.3	C	17.4	B
SR 99 SB Off-Ramp	Diverge	16.3	B	23.1	C
SR 99 NB On-Ramp	Merge	21.6	C	17.6	B
SR 99 SB On-Ramp	Merge	12.0	B	16.5	B
SR 99/Rest Area					
SR 99 NB Off-Ramp	Diverge	20.1	C	17.0	B
SR 99 SB Off-Ramp	Diverge	14.6	B	19.6	B
SR 99 NB On-Ramp	Merge	17.5	B	14.8	B
SR 99 SB On-Ramp	Merge	11.8	B	16.2	B
SR 99/Golden State Boulevard					
SR 99 NB Off-Ramp	Diverge	23.5	C	20.2	C
SR 99 SB On-Ramp	Merge	20.3	C	29.1	D

EXISTING CONDITIONS (NO BUILD) PEAK-HOUR INTERSECTION TRAFFIC OPERATIONS

Existing intersection Levels of Service (LOS) were calculated for the AM and PM peak-hours. Synchro software was used to analyze existing intersection conditions. Observed peak-hour factors and truck percentages were used in determining intersection LOS. Table 5 presents the results of existing peak-hour intersection analysis.

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TABLE 5
EXISTING CONDITIONS (NO BUILD) INTERSECTION LEVEL OF SERVICE (LOS)

#	Intersection	Control Type[1,2]	LOS Standard	AM Peak Hour Delay	AM Peak Hour LOS	PM Peak Hour Delay[3]	PM Peak Hour LOS
State Highway System (SR 165 is also referred to as Lander Avenue)							
1	SR 165 / SR 140	AWSC	D	11.5	B	16.2	C
2	SR 165 / Westside Boulevard	TWSC	D	11.7	B	12.2	B
3	SR 165 / River Road	TWSC	D	19.2	C	16.9	C
4	SR 165 / Williams Avenue	TWSC	D	23.7	C	22.7	C
5	SR 165 / Geer Avenue	TWSC	D	132.0	F	33.0	D
8	SR 165 / Bloss Avenue	Signal	D	30.0	C	19.3	B
10	SR 165 / 1st Street	Signal	D	22.6	C	23.2	C
11	SR 165 / American Avenue	Signal	D	30.3	C	37.2	D
13	SR 165 / August Avenue	TWSC	D	70.3	F	45.1	E
19	SR 165 / Fowler Avenue	TWSC	D	32.7	D	OVR	F
20	SR 165 / Bradbury Road	Signal	D	21.2	C	22.5	C
25	SR 165 / Clausen Road	TWSC	D	35.0	D	34.4	D
27	SR 165 / Greenway Avenue	TWSC	D	68.3	F	90.9	F
28	SR 165 / W. Glenwood Avenue	TWSC	D	19.0	C	29.8	D
29	SR 165 / SR 99 SB Ramps	Signal	D	19.9	B	17.4	B
30	SR 165 / SR 99 NB Ramps	Signal	D	11.3	B	13.1	B
County and City Street System							
31	Lander Avenue / E. Glenwood Avenue	Signal	C	23.5	C	21.4	C
6	Columbus Avenue / Geer Avenue	TWSC	C	13.6	B	10.3	B
7	Columbus Avenue / Bloss Avenue	TWSC	C	14.7	B	10.6	B
12	Columbus Avenue / American Avenue	TWSC	C	11.0	B	10.4	B
14	Golf Link Road / August Avenue	TWSC	C	10.0	A	10.0	A
18	Golf Link Road / Fowler Avenue	TWSC	C	9.0	A	9.0	A
21	Golf Link Road / Bradbury Road	AWSC	C	8.1	A	9.1	A
24	Golf Link Road / Clausen Road	TWSC	C	9.7	A	12.6	B
32	Golf Road / E. Glenwood Avenue	TWSC	C	15.0	C	11.4	B
33	Golf Road / East Linwood Avenue	TWSC	C	22.8	C	20.1	C
34	Berkeley Avenue / 1st Street	TWSC	C	20.9	C	21.8	C
35	Berkeley Avenue / Golden State Boulevard						
	Eastbound Golden State Boulevard	AWSC	C	14.6	B	13.8	B
	Westbound Golden State Boulevard	AWSC	C	26.5	D	16.5	C
9	Griffith Avenue / Bloss Avenue	AWSC	C	8.9	A	8.2	A
15	Griffith Avenue / August Avenue	AWSC	C	7.9	A	7.7	A
16	Griffith Avenue / Schendel Road	TWSC	C	9.7	A	9.5	A
17	Griffith Avenue / Letteau Avenue	TWSC	C	9.6	A	9.5	A
22	Griffith Avenue / Bradbury Road	AWSC	C	8.6	A	8.1	A
23	Griffith Avenue / Clausen Road	AWSC	C	7.3	A	7.3	A
26	Griffith Avenue / Golden State Boulevard						
	Eastbound Golden State Boulevard	TWSC	C	13.1	B	14.4	B
	Westbound Golden State Boulevard	TWSC	C	14.6	B	10.4	B

1. TWSC = Two Way Stop Control, AWSC = All Way Stop Control
2. LOS = Delay based on worst minor street approach for TWSC intersections
3. OVR = Overflow conditions, delay can not be calculated

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Table 6 presents a summary of the intersections listed in Table 5 that currently experience service levels below the Level of Service (LOS) standards. As shown in Table 6, there are four intersections along SR 165 that currently experience LOS "E/F" during one or both of the peak hours. At each location, traffic is currently controlled by side street stop signs and the reported LOS is for the side street approach experiencing the worst service levels. These deficiencies are largely due to the high through volumes on SR 165 creating an inability for vehicles entering from side streets to find suitable gaps in traffic flows and enter the roadway.

TABLE 6
EXISTING CONDITIONS (NO BUILD) INTERSECTIONS WITH LEVEL OF SERVICE (LOS) BELOW LOS STANDARD

#	Intersection	Control Type[1,2]	LOS Standard	AM Peak Hour Delay	AM Peak Hour LOS	PM Peak Hour Delay[3]	PM Peak Hour LOS
State Highway System (SR 165 is also referred to as Lander Avenue)							
5	SR 165 / Geer Avenue	TWSC	D	132.0	F[4]	33.0	D
13	SR 165 / August Avenue	TWSC	D	70.3	F	45.1	E
19	SR 165 / Fowler Avenue	TWSC	D	32.7	D	OVR	F[4]
27	SR 165 / Greenway Avenue	TWSC	D	68.3	F	90.9	F

1. TWSC = Two Way Stop Control
2. LOS = Delay based on worst minor street approach for TWSC intersections
3. OVR = Overflow conditions, delay can not be calculated
4. Meets Peak-Hour-Volume Warrant 3 from California MUTCD during this peak hour

EXISTING CONDITIONS (NO BUILD) PEAK-HOUR ROADWAY SEGMENT TRAFFIC OPERATIONS

Existing highway and street segment Levels of Service (LOS) were calculated for the AM and PM peak-hours along selected SR 165 highway segments and along selected County road segments. Both HCS and Synchro software was used to analyze existing peak hour roadway conditions. Table 7 presents the results of existing peak-hour roadway segment analysis. As shown in the table, the SR 165 highway segments north of Hilmar to approximately the junction with SR 99 currently experiences LOS "E" highway operations during one or both peak hours. LOS "E" exceeds the LOS Standard of "D" along this segment. All other roadway segments shown in the table currently experience acceptable peak hour service levels.

TABLE 7
EXISTING CONDITIONS (NO BUILD) ROADWAY SEGMENT LEVEL OF SERVICE (LOS)

Roadway Segment	# Lanes	AM Peak Hour Average Travel Speed (mph)	AM Peak Hour LOS	PM Peak Hour Average Travel Speed (mph)	PM Peak Hour LOS
SR 165 South of Westside Blvd.[1]	2	51.4	B	50.8	C
SR 165 between Williams Ave. and Geer Ave.[1]	2	49.0	C	47.5	D
SR 165 between Bloss Ave. and American Ave.[2]	2	17.2	D	18.3	C
SR 165 between Johnson Ave. and Bradbury Rd.[1]	2	43.6	D	42.2	E
SR 165 South of W. Greenwood Ave.[1]	2	42.2	E	40.5	E
Bloss Ave. between Golf Link Rd. and Griffith Ave.[1]	2	52.9	A	53.5	A
Bradbury Rd. between Golf Link Rd. and Griffith Ave.[1]	2	53.2	A	53.2	A
Golf Link Rd. North of Bradbury Rd[1]	2	53.8	A	53.0	A
Griffith Ave. South of Bradbury Rd.[1]	2	53.7	A	53.6	A

1. HCS software used to calculate 2-lane highway segment LOS
2. Synchro software used to calculate arterial segment LOS

TRAFFIC FORECASTING - TRAVEL DEMAND MODEL CREATION SUMMARY

SOURCE MODELS

The following section describes the source models from which the SR 99 - SR 165 Corridor model is derived.

City of Turlock: The City of Turlock Travel Demand Model was initially created by OMNI-MEANS in TP+/Viper software (Citilabs) to reflect a base year of 2003 and a build-out year of 2025. The model has since been updated to reflect a base year of 2006 and a build-out year of 2030, and has been converted to CUBE/Voyager software (Citilabs). The model boundaries are Keyes Road to the north, Washington Road to the west, Clausen Road to the south, and Gratton Road/Roselawn Avenue to the east. The land use was provided by the City in the form of General Plan mapping at a parcel level. The City model network reflects existing conditions and improvements documented in the City General Plan. It is shown in **Figure 5**.

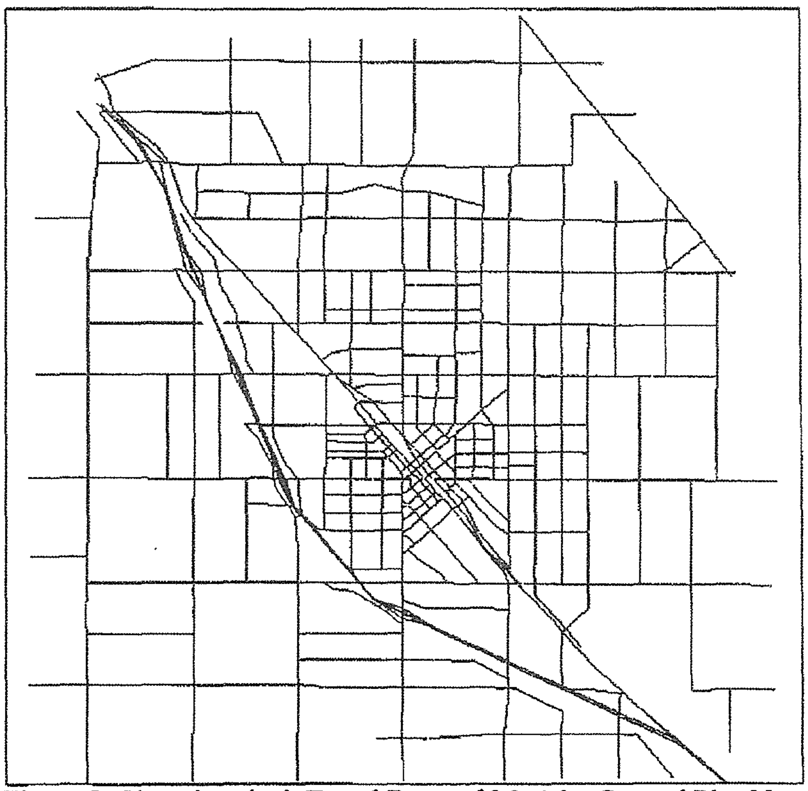

Figure 5: City of Turlock Travel Demand Model – General Plan Network

Interregional traffic projections for base and build-out year were derived by the Stanislaus Council of Governments (StanCOG) Travel Demand Model. The StanCOG model limit is the Stanislaus County line.

MCAG: The Merced County Association of Governments (MCAG) Travel Demand Model has a base year of 2000 and a build-out year of 2030, and operates in the Cube/Voyager software. The model boundary is the Merced County line for the east, west, and south boundaries; the northern model boundary is Keyes Road. This results in the inclusion of areas in Stanislaus County, including the Cities of Turlock, Patterson, and Newman; and the community of Denair. The MCAG model network is shown in **Figure 6** (shown on the following page).

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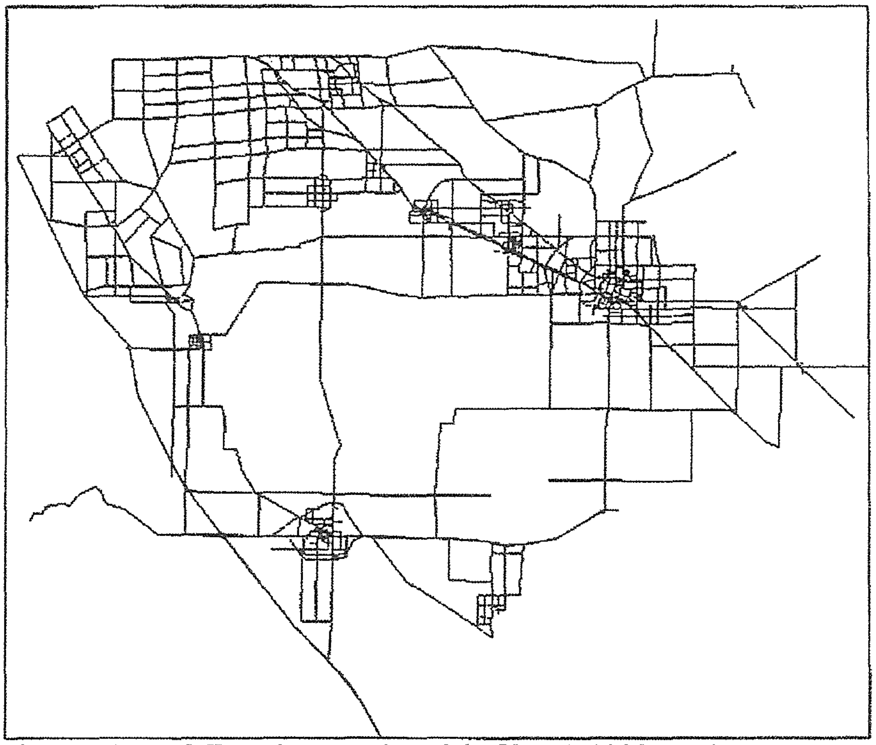

Figure 6: MCAG Travel Demand Model – Year 2030 Network

MODEL INTEGRATION

The SR 99 – SR 165 Corridor Model was created by merging the City of Turlock travel demand model and the MCAG travel demand model. Both models have a future horizon year of 2030. Year 2030 conditions represent the build-out of the City of Turlock General Plan and adopted Specific Plan areas outside the City Limits. The roadway improvements listed in the City's Transportation Element are assumed as constructed. Year 2030 conditions in Merced County are consistent with the land uses contained in the MCAG model, which is assumed as the build-out of adopted General Plans and Community Plans.

YEAR 2030 INTERREGIONAL TRAFFIC

Interregional trips are defined as trips that begin and/or end outside the study area. A citywide model cannot estimate the interregional trip patterns and volumes without directly modeling those regional areas. However, what is considered an interregional trip for a citywide model is sometimes an internal trip for a regional model covering a greater study area. The SR 99 - SR 165 Corridor model utilizes the StanCOG and MCAG regional models as tools to estimate the interregional trips.

The City of Turlock model was originally based on the StanCOG travel demand model. All interregional travel forecasts at the model cordons falling within Stanislaus County were kept consistent with the StanCOG forecasts. The model cordons falling within Merced County were adjusted to become consistent with the MCAG model forecasts.

Figure 7 shows the SR 99 - SR 165 Corridor model boundary as overlaid on top of the MCAG model. A process called "subarea extraction" built into the CUBE/Voyager software extracted trips passing through the subarea boundary and used them as direct inputs for the SR 99 - SR 165 Corridor model.

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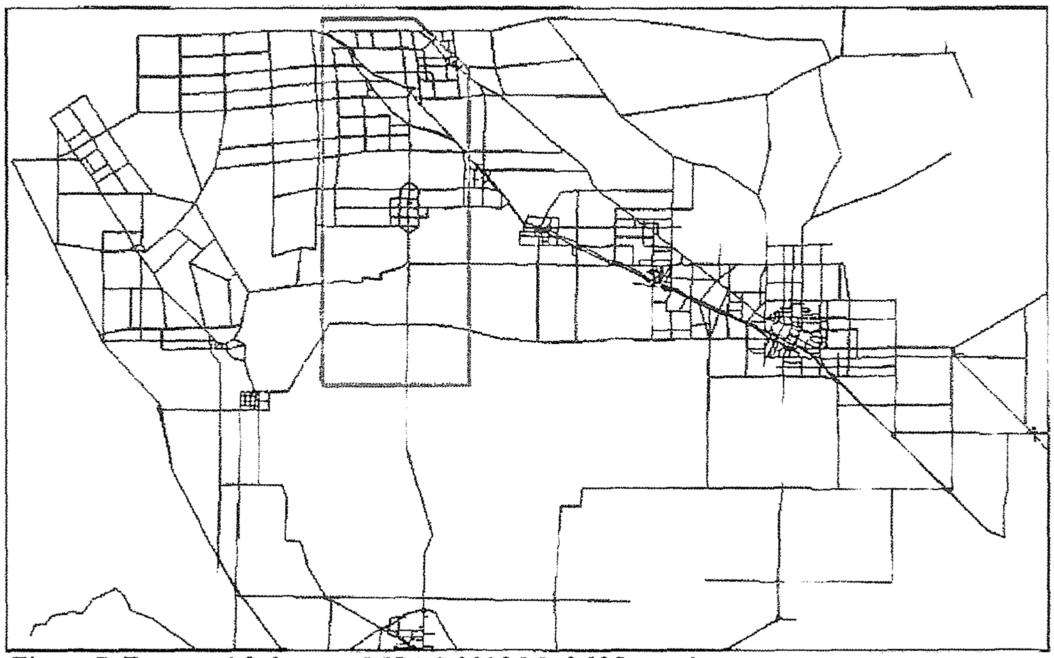

Figure 7: Extracted Subarea – MCAG 2030 Model Network

INTEGRATED NETWORK

The MCAG regional model network is shown in **Figure 8** alongside the expanded Turlock SR 99 - SR 165 Corridor model network. The difference in network detail between the SR 99 - SR 165 Corridor model and MCAG model networks is due to their differing areas of concentration. The regional MCAG model concentrates on regional travel patterns through Merced and Stanislaus Counties and therefore only represents freeways and major arterials. The SR 99 - SR 165 Corridor model, which is based on the City of Turlock model, was designed to study citywide traffic circulation and models an array of roadway types ranging from freeways to collectors and local streets.

The corridor model extension into Merced County is similar to the MCAG network, with the addition of three facilities parallel to SR 165: Golf Link Road, Griffith Avenue, and Tegner Road. These three parallel facilities currently serve as local roads, but their presence in the model network diverts the forecasted traffic along SR 165.

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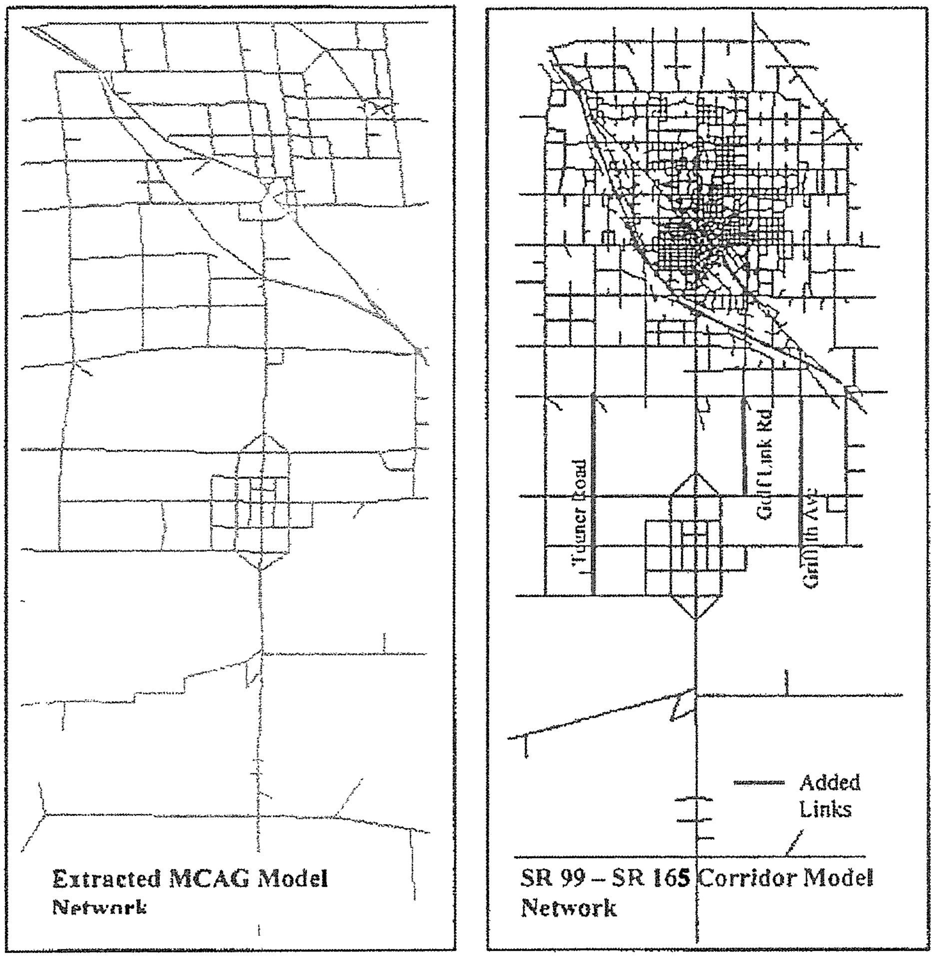

Figure 8: Extracted MCAG Model Network and SR 99 - SR 165 Corridor Model Network
Note: The difference in network length is a result of different geographical projections; it does not affect the modeled roadway length.

CALIBRATION AND VALIDATION

The typical model calibration process matches model base year estimates against base year observations (e.g. traffic counts). The PDT agreed that the MCAG model regional forecasts should be considered the baseline condition, due to its authority as the regional model. As such, the SR 99 - SR 165 Corridor model forecasted year 2030 conditions and attempted to match its forecasts with the year 2030 MCAG model forecasts.

Screenline Calibration

Matching forecasts between the two models is complicated with the difference in model detail. Traffic forecasts along major corridors (e.g. SR 99, SR 165) may differ due to the presence of parallel facilities represented in one model, but not the other. Screenlines are imaginary boundaries that measure the total traffic across multiple parallel routes. Screenlines allow for calibration across areas rather than at specific sites. **Figure 9** shows the screenlines used in the SR 99 - SR 165 Corridor model validation process.

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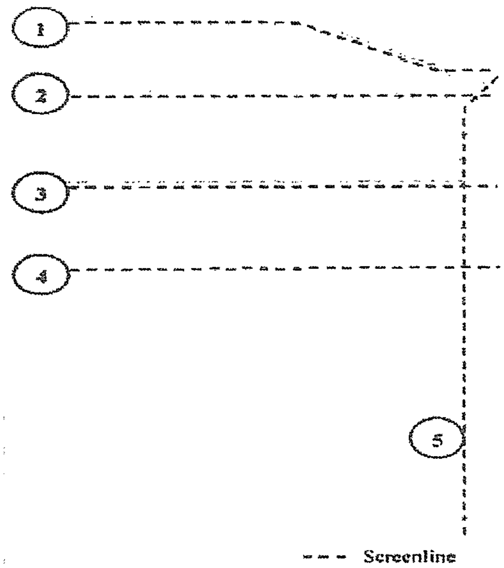

Figure 9: SR 165 – SR 99 Corridor Model Network Screenlines

Table 8 shows the total traffic crossing each screenline shown in **Figure 9**. The MCAG model forecasts were considered the baseline conditions to which the SR 99 - SR 165 Corridor model attempted to match. A maximum screenline error of 15% was the calibration criterion. As shown in Table 8, the SR 99 - SR 165 Corridor model error remained below the 15% threshold at all five screenlines.

TABLE 8
YEAR 2030 MODEL SCREENLINE CALIBRATION SUMMARY

Screenline		MCAG Model	SR 165 - SR 99 Corridor Model	Error Target
1	**North - South Screenline, north of Greenway Avenue**			
	Total	184,300	187,400	
	% Error		1.7%	15%
2	**North - South Screenline, south of Bradbury Road**			
	Total	144,100	151,200	
	% Error		4.9%	15%
3	**North - South Screenline, south of August Road**			
	Total	30,600	27,600	
	% Error		-9.8%	15%
4	**North - South Screenline, north of Geer Road**			
	Total	17,300	17,400	
	% Error		0.6%	15%
5	**East - West Screenline, east of Merced Avenue**			
	Total	166,500	169,100	
	% Error		1.6%	15%

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Corridor

The projected traffic volumes along the SR 165 and SR 99 corridors were compared as a secondary model validation check. The corridor validation followed the Federal Highway Administration recommended model validation criteria for each facility type (*Federal Highway Administration, Calibration and Adjustment of System Planning Models, 1990).* FHWA model validation methodology recommends error targets for both absolute error and Root Mean Squared Error (RMSE). The RMSE more heavily weights large errors that may otherwise be cancelled out on an absolute basis. Table 9 presents corridor calibration summary.

TABLE 9
YEAR 2030 MODEL CORRIDOR CALIBRATION SUMMARY

	Original MCAG Land Use		
Corridor	**MCAG Model**	**SR 165 - SR 99 Corridor Model**	**Error Target**
SR 99, from s/o Bradbury Rd to s/o Fulkerth Rd			
Total	609,100	644,000	Freeway
% Error		5.7%	7%
RMSE		8.5%	15%
SR 165, from s/o SR 140 to s/o SR 99			
Total	163,800	135,500	Arterial
% Error		-17.3%	15%
RMSE		20.8%	40%

As shown in Table 9, the SR 99 corridor forecast error are within the recommended thresholds even though the City of Turlock areas are modeled at different resolutions and with different land use sets. The SR 165 corridor forecast did not satisfy the recommended error. The SR 99 - SR 165 Corridor model error was negative, indicating that traffic on SR 165 was diverted onto the parallel facilities not originally modeled in the MCAG network (e.g. Tegner Road, Golf Link Road, Griffith Road).

FUTURE FORECAST CONDITIONS, BASE AND ACCELERATED GROWTH SCENARIOS

YEAR 2030 TRAFFIC FORECASTS

The SR 99 – SR 165 Corridor Model was created by merging the City of Turlock travel demand model and the MCAG travel demand model. Both models have a future horizon year of 2030. Year 2030 conditions represent the build-out of the City of Turlock General Plan and adopted Specific Plan areas outside the City Limits. The roadway improvements listed in the City's Transportation Element are assumed as constructed.

MCAG provided two year 2030 land use sets. The first land use or Base Growth scenario is based on State Department of Finance projections and assumes development within Merced County consistent with adopted General Plans and Community Plans. The second land use or Accelerated Growth scenario differs from the Base Growth scenario by adding:

- 2000 single family dwelling units north of Hilmar, near the Turlock Golf and County Club
- 6000 single family dwelling units in south Stevinson, north of the SR 165 / SR 140 intersection.

SR 165 is currently a two-lane rural highway and is identified to remain as a two-lane highway into the foreseeable future in the current RTP for Merced County. As such, the SR 99 – SR 165 modeled year 2030 traffic forecasts presented in this report assumes that SR 165 is a two-lane rural highway.

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Figure 10 presents the year 2030 model-forecasted daily traffic volumes for the Base Growth scenario while **Figure 11** presents the year 2030 model-forecasted daily traffic volumes for the Accelerated Growth scenario.

YEAR 2035 DAILY TRAFFIC FORECASTS

Year 2035 conditions were forecasted by increasing the year 2030 forecasts by a 3% per year annual growth rate over five years (2030 to 2035). The 3% per year annual growth rate was determined by the Policy Committee during their May 3, 2007 meeting and subsequently approved by the various member agency Boards and Councils. **Figure 12** presents the year 2035 forecasted daily traffic volumes for the Base Growth scenario while **Figure 13** presents the year 2035 forecasted daily traffic volumes for the Accelerated Growth scenario.

YEAR 2035 PEAK HOUR TRAFFIC FORECASTS

City and regional travel demand models are generally reliable for forecasting travel demand along roadway segments. However, the models are generally not able to replicate existing intersection turning movements due to street level details that are not modeled (e.g. driveway locations, business specific travel patters, etc). The year 2035 peak hour conditions were forecasted by the taking the existing traffic volumes (**Figure 2**) and proportionally factoring them to match the roadway approach volumes forecasted by the model. **Figure 14** presents the year 2035 forecasted peak hour traffic volumes for an average annual condition under the Base Growth scenario while **Figure 15** presents the year 2035 forecasted peak hour traffic volumes for an average annual condition under the Accelerated Growth scenario.

YEAR 2035 CONDITIONS (NO BUILD) TRAFFIC OPERATIONS ANALYSIS

The following section presents the results of a peak hour analysis utilizing only the "Year 2035 Peak Hour Traffic Volumes, Base Growth Two Lane SR 165 Scenario" peak hour volumes presented on Figure 14. As this analysis also represents the "No Build" condition, the existing intersection and roadway geometrics and control were assumed for evaluating year 2035 traffic operations.

YEAR 2035 CONDITIONS (NO BUILD) STATE ROUTE 99 MAINLINE AND RAMP TRAFFIC OPERATIONS

Year 2035 peak hour Level of Service (LOS) along mainline SR 99 was calculated using HCS-2000 software with the results shown in Table 10. As shown in Table 10, all SR 99 mainline segments between the Bradbury Road and the West Main Street interchanges are projected to operate at peak hour LOS "F" by the year 2035 based on the existing freeway facility (No Build).

TABLE 10
YEAR 2035 CONDITIONS (NO BUILD) SR 99 MAINLINE LEVEL OF SERVICE (LOS)

Freeway Mainline Segment	# Lanes	AM Peak Hour Volume	AM Peak Hour Density, (pc/mi/ln)[1]	AM Peak Hour LOS	PM Peak Hour Volume	PM Peak Hour Density, (pc/mi/ln)	PM Peak Hour LOS
NB SR 99 (btwn Bradbury Rd and Golden State Blvd)	2	7,188	OVR	F	7,175	OVR	F
NB SR 99 (btwn Golden State Blvd and Lander Ave)	3	6,213	OVR	F	6,299	OVR	F
NB SR 99 (btwn Lander Ave and West Main Street)	3	7,138	OVR	F	6,999	OVR	F
SB SR 99 (btwn West Main Stand Lander Ave)	3	6,334	OVR	F	7,564	OVR	F
SB SR 99 (btwn Lander Ave and Golden State Blvd)	3	6,009	OVR	F	6,789	OVR	F
SB SR 99 (btwn Golden State Blvd and Bradbury Rd)	2	6,659	OVR	F	7,839	OVR	F

1. OVR = Over capacity, density measure not reported by HCS analysis software.

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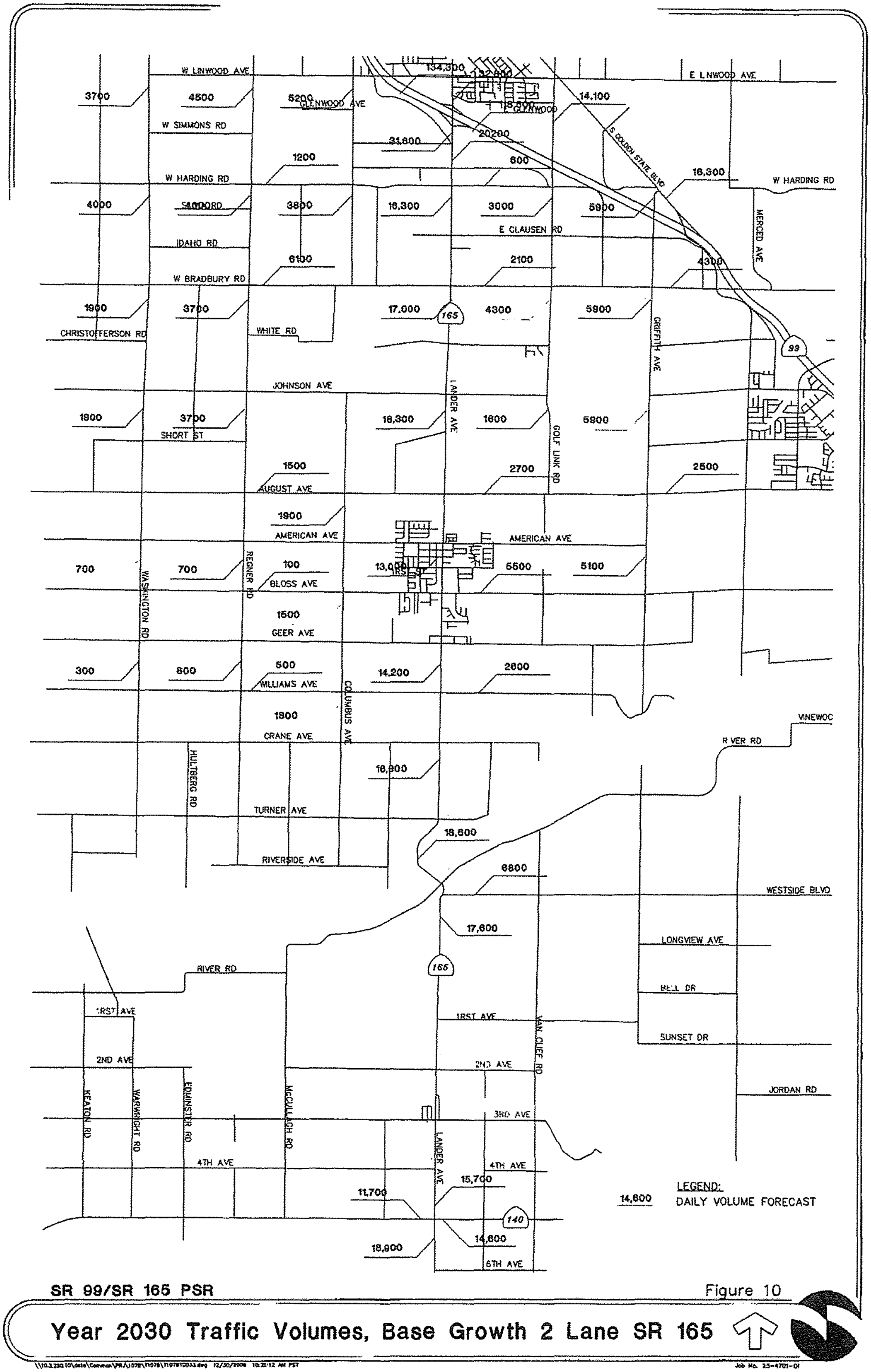
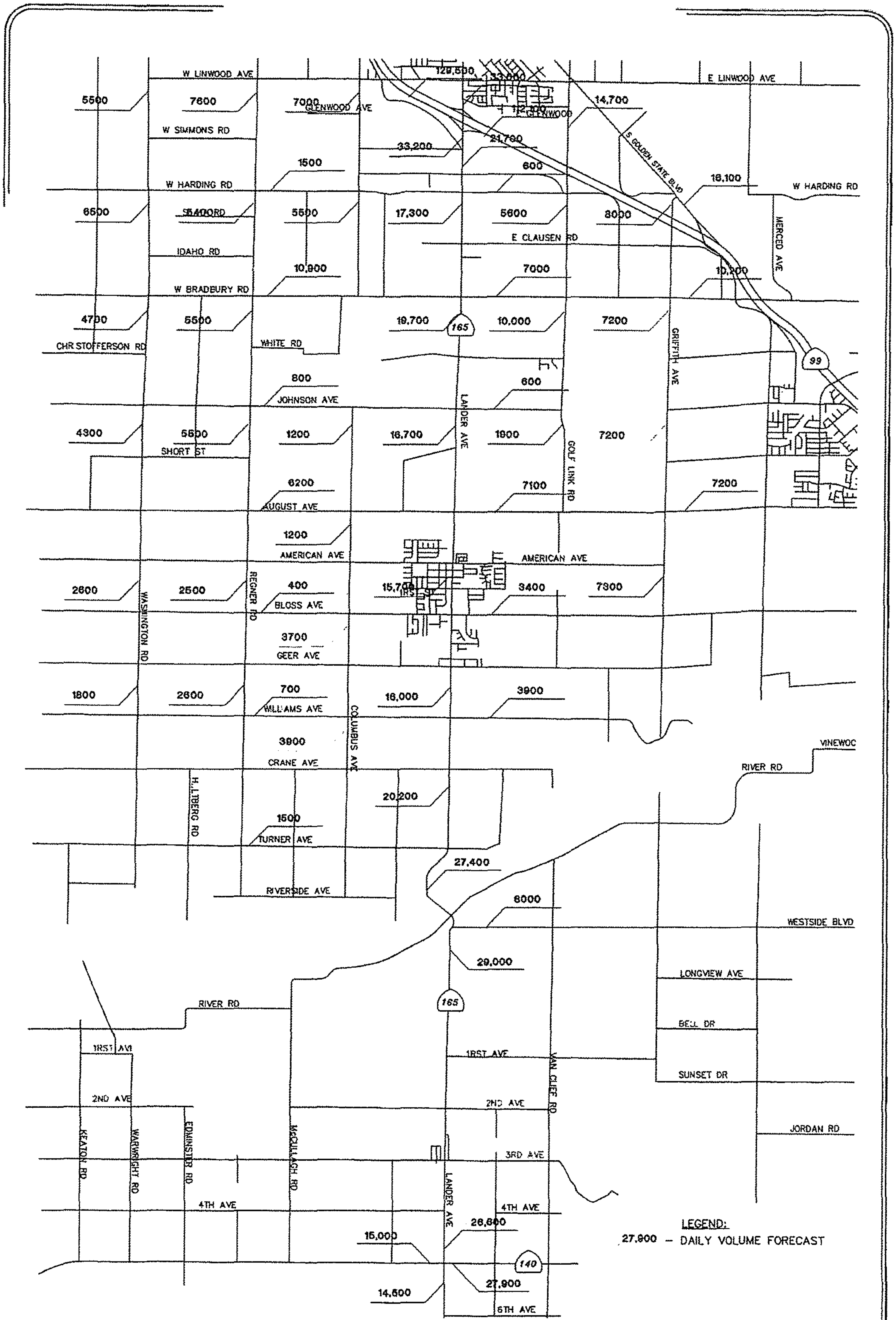


SR 99/SR 165 PSR

Figure 10

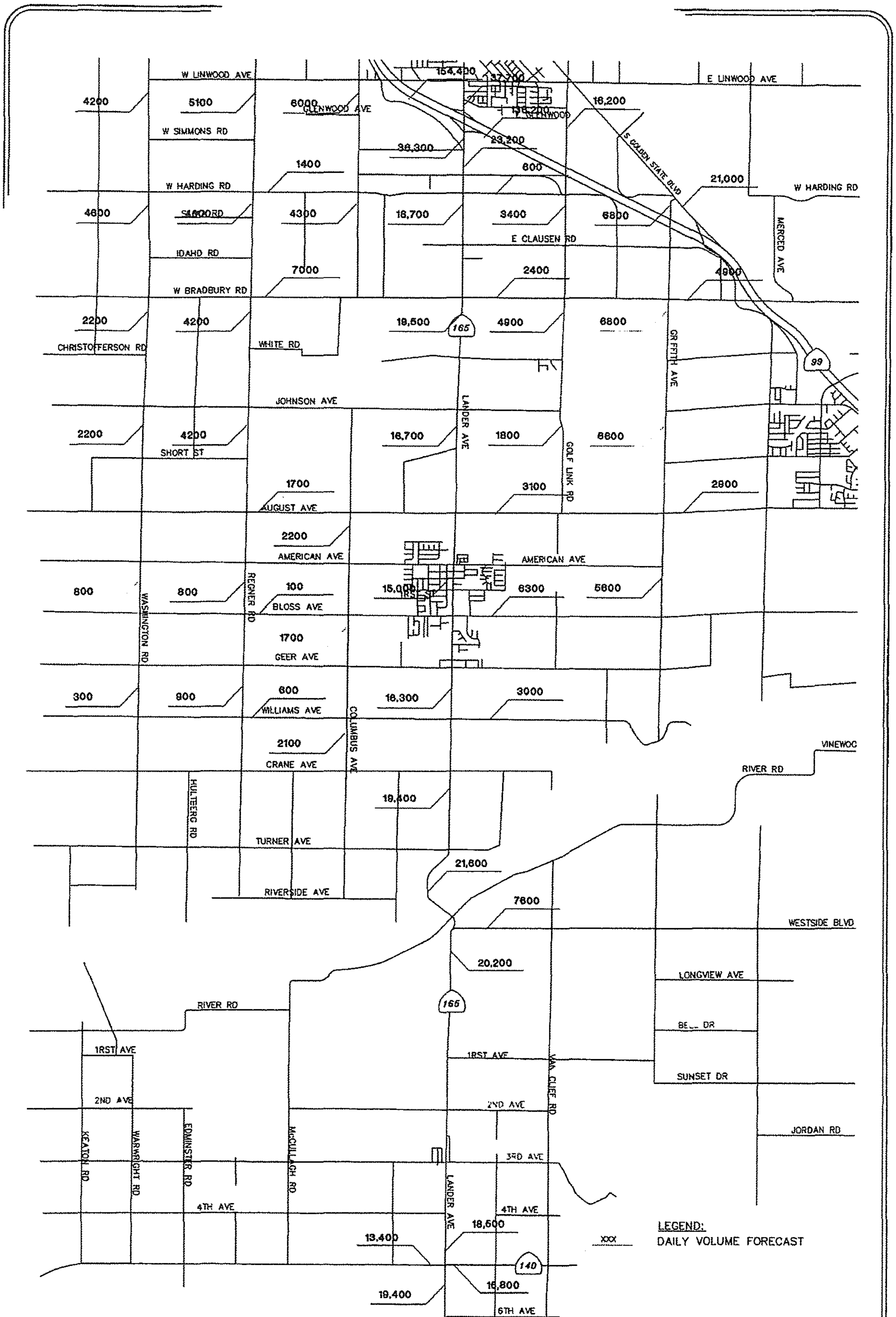
Year 2030 Traffic Volumes, Base Growth 2 Lane SR 165



SR 99/SR 165 PSR

Figure 11

Year 2030 Traffic Volumes, Accelerated Growth 2 Lane SR 165

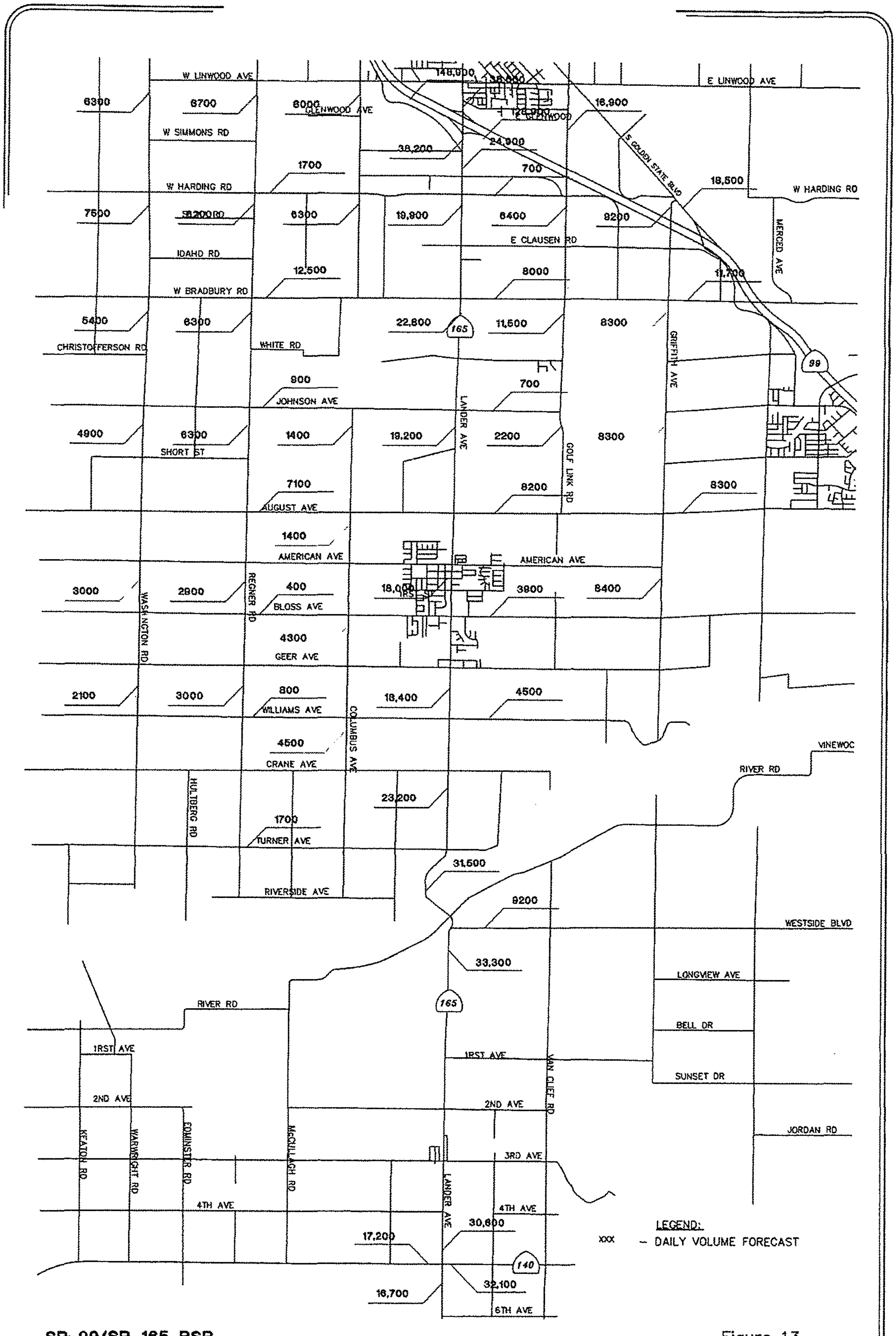


SR 99/SR 165 PSR

Figure 12

Year 2035 Traffic Volumes, Base Growth 2 Lane SR 165

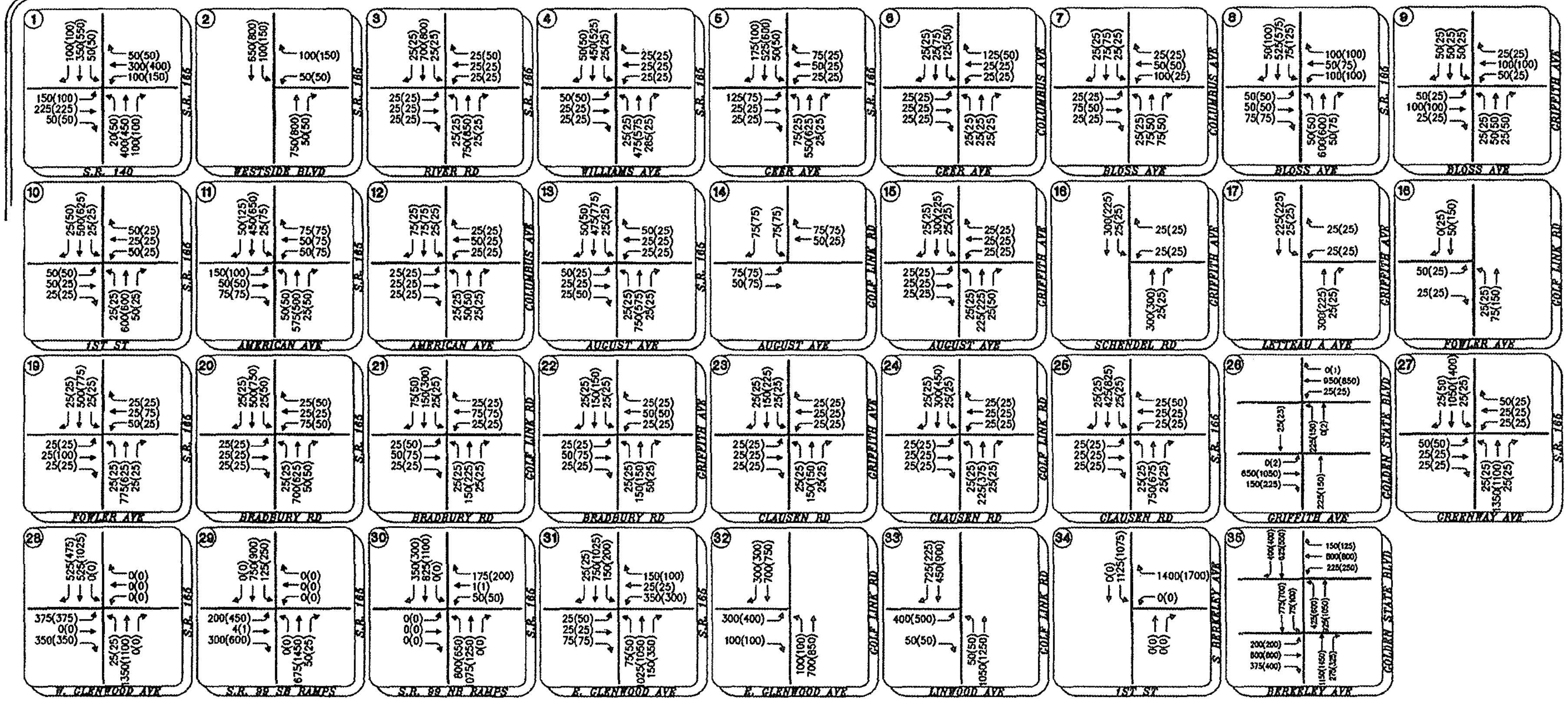
Job No: 25-4701-01



SR 99/SR 165 PSR

Figure 13

Year 2035 Traffic Volumes, Accelerated Growth 2 Lane SR 165



LEGEND:

XX – AM PEAK HOUR TRAFFIC VOLUMES

(XX) – PM PEAK HOUR TRAFFIC VOLUMES

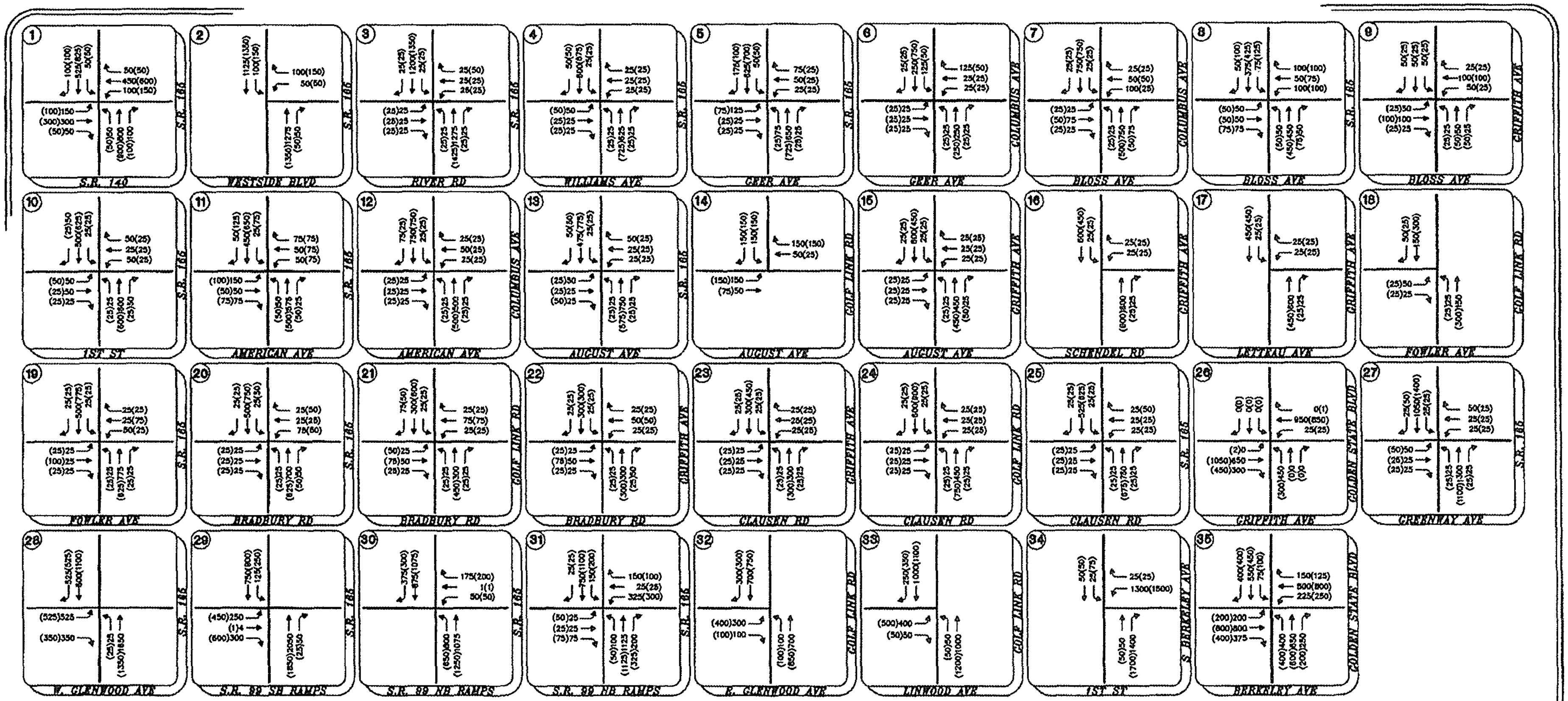
NOTE:

TURNING MOVEMENTS ARE HIGHEST IN MARCH, APRIL AND AUGUST 2007.

SR 99/SR 165 PSR

Figure 14

Year 2035 Peak Hour Traffic Volumes Base Growth Scenario, 2 Lanes SR 165



LEGEND:
XX – AM PEAK HOUR TRAFFIC VOLUMES
(XX) – PM PEAK HOUR TRAFFIC VOLUMES

SR 99/SR 165 PSR

Figure 15

Year 2035 Peak Hour Traffic Volume, Accelerated Growth Scenario, 2 Lane SR 165

The SR 99 Transportation Concept Report (TCR) (District 10, November 2002, approved November 2003) identifies that the Concept Facility for SR 99 is a 6-lane freeway while the Ultimate Transportation Corridor (UTC) is an 8-lane freeway. The TCR also includes a strong consideration of High Occupancy Vehicle (HOV) lanes during the last stages of widening throughout all urban areas. The peak hour LOS "F" shown in Table 10 along all segments of SR 99 indicates that the UTC (i.e. 8-lane freeway) will be needed by the year 2035.

Table 11 presents the projected year 2035 peak hour ramp junction LOS at various interchanges within the study area based on the HCS-2000 ramp analysis. As shown in Table 11, LOS conditions at the various SR 99 ramp junctions are generally projected to operate at LOS "F" during the peak traffic hours. This level of congestion is reflective of the projected congested freeway mainline conditions shown in Table 10. Expanding SR 99 to an 8-lane freeway consistent with the UTC will help improve peak hour operations at the various ramp junctions. Additional measures such as provision of auxiliary lanes between successive ramp junctions (where appropriate and feasible) and metering on-ramp traffic would also be expected to improve overall freeway and ramp junction operations.

TABLE 11
YEAR 2035 CONDITIONS (NO BUILD) SR 99 RAMP JUNCTION LEVEL OF SERVICE (LOS)

Interchange Location	Junction Type	AM Peak Hour Density (pc/mi/ln)	AM Peak Hour LOS	PM Peak Hour Density (pc/mi/ln)	PM Peak Hour LOS
SR 99/West Main Street					
SR 99 NB Off-Ramp	Diverge	42.0	F	41.4	F
SR 99 SB On-Ramp	Merge	37.4	F	42.1	F
SR 99/Lander Avenue					
SR 99 NB Off-Ramp	Diverge	38.6	F	39.0	F
SR 99 SB Off-Ramp	Diverge	39.1	F	44.0	F
SR 99 NB On-Ramp	Merge	41.3	F	43.2	F
SR 99 SB On-Ramp	Merge	35.5	F	40.3	F
SR 99/Rest Area					
SR 99 NB Off-Ramp	Diverge	38.4	F	38.9	F
SR 99 SB Off-Ramp	Diverge	37.9	F	41.2	F
SR 99 NB On-Ramp	Merge	36.2	F	36.6	F
SR 99 SB On-Ramp	Merge	34.5	D	40.5	F
SR 99/Golden State Boulevard					
SR 99 NB Off-Ramp	Diverge	42.7	F	42.0	F
SR 99 SB On-Ramp	Merge	59.8	F	73.0	F

YEAR 2035 CONDITIONS (NO BUILD) PEAK-HOUR INTERSECTION TRAFFIC OPERATIONS

Intersection Levels of Service (LOS) were calculated for the AM and PM peak-hours. Synchro software was again used to analyze projected year 2035 intersection traffic conditions. For the year 2035 analysis, a standard 0.92 peak-hour factor was assumed at all study intersections. Observed peak condition truck percentages were used except at intersections on SR 165 between SR 140 and Williams Avenue where 20% of the through traffic on SR 165 at each intersection is assumed to be trucks. Table 12 presents the projected year 2035 peak hour intersection Levels of Service.

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TABLE 12
YEAR 2035 CONDITIONS (NO BUILD) INTERSECTION LEVEL OF SERVICE (LOS)

#	Intersection	Control Type[1,2]	Target LOS	AM Peak Hour Delay	AM Peak Hour LOS	PM Peak Hour Delay[3]	PM Peak Hour LOS
State Highway System (SR 165 is also referred to as Lander Avenue)							
1	SR 165 / SR 140	AWSC	D	229.9	F	379.7	F
2	SR 165 / Westside Boulevard	TWSC	D	159.7	F	469.4	F
3	SR 165 / River Road	TWSC	D	233.6	F	573.0	F
4	SR 165 / Williams Avenue	TWSC	D	59.0	F	108.3	F
5	SR 165 / Geer Avenue	TWSC	D	OVR	F	533.3	F
8	SR 165 / Bloss Avenue	Signal	D	27.3	C	35.9	D
10	SR 165 / 1st Street	Signal	D	29.3	C	21.7	C
11	SR 165 / American Avenue	Signal	D	39.3	D	55.6	E
13	SR 165 / August Avenue	TWSC	D	139.0	F	152.3	F
19	SR 165 / Fowler Avenue	TWSC	D	259.6	F	OVR	F
20	SR 165 / Bradbury Road	Signal	D	18.6	B	23.6	C
25	SR 165 / Clausen Road	TWSC	D	72.0	F	267.2	F
27	SR 165 / Greenway Avenue	TWSC	D	OVR	F	OVR	F
28	SR 165 / West Glenwood Avenue	TWSC	D	OVR	F	OVR	F
29	SR 165 / SR 99 SB Ramps	Signal	D	26.3	C	56.3	E
30	SR 165 / SR 99 NB Ramps	Signal	D	29.5	C	46.2	D
County and City Street System							
31	Lander Avenue / E. Glenwood Avenue	Signal	C	68.4	E	73.3	E
6	Columbus Avenue / Geer Avenue	TWSC	C	13.0	B	11.8	B
7	Columbus Avenue / Bloss Avenue	TWSC	C	16.0	C	12.1	B
12	Columbus Avenue / American Avenue	TWSC	C	11.8	B	11.3	B
14	Golf Link Road / August Avenue	TWSC	C	11.3	B	11.0	B
18	Golf Link Road / Fowler Avenue	TWSC	C	9.8	A	10.5	B
21	Golf Link Road / Bradbury Road	AWSC	C	10.7	B	15.0	B
24	Golf Link Road / Clausen Road	TWSC	C	17.1	C	28.6	D
32	Golf Road / East Glenwood Avenue	TWSC	C	OVR	F	OVR	F
33	Golf Road / East Linwood Avenue	TWSC	C	OVR	F	OVR	F
34	Berkeley Avenue / 1st Street	TWSC	C	9782.0	F	9772.2	F
35	Berkeley Avenue / Golden State Boulevard						
	Eastbound Golden State Boulevard	AWSC	C	340.4	F	450.5	F
	Westbound Golden State Boulevard	AWSC	C	552.3	F	685.7	F
9	Griffith Avenue / Bloss Avenue	AWSC	C	9.6	A	8.9	A
15	Griffith Avenue / August Avenue	AWSC	C	11.8	B	10.6	B
16	Griffith Avenue / Schendel Road	TWSC	C	13.4	B	12.7	B
17	Griffith Avenue / Letteau Avenue	TWSC	C	13.1	B	11.9	B
22	Griffith Avenue / Bradbury Road	AWSC	C	10.6	B	10.0	A
23	Griffith Avenue / Clausen Road	AWSC	C	9.2	A	9.8	A
26	Griffith Avenue / Golden State Boulevard						
	Eastbound Golden State Boulevard	TWSC	C	45.7	E	124.0	F
	Westbound Golden State Boulevard	TWSC	C	27.9	D	18.6	C

Notes:
1. TWSC = Two Way Stop Control, AWSC = All Way Stop Control
2. LOS = Delay based on worst minor street approach for TWSC intersections
3. OVR = Overflow conditions, delay can not be calculated over 9999 seconds

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Table 13 presents a summary of the intersections listed in Table 12 that are projected to experience service levels below the Level of Service (LOS) standards. At all locations, the LOS evaluation assumed existing intersection geometries and control (No Build condition) and the reported service levels reflect this assumption. As shown in Table 13, there are twelve intersections along SR 165 that are projected to experience LOS "E/F" during one or both of the peak hours. As also shown in Table 13, there are seven additional intersections at various other Count/City locations that are projected to experience LOS "D/F" during one or both of the peak hours.

TABLE 13
YEAR 2035 CONDITIONS (NO BUILD) INTERSECTIONS
WITH LEVEL OF SERVICE (LOS) BELOW LOS STANDARD

#	Intersection	Control Type[1,2]	Target LOS	AM Peak Hour		PM Peak Hour	
				Delay	LOS	Delay[3]	LOS
State Highway System (SR 165 is also referred to as Lander Avenue)							
1	SR 165 / SR 140	AWSC	D	229.9	F[4]	379.7	F[4]
2	SR 165 / Westside Boulevard	TWSC	D	159.7	F[4]	469.4	F[4]
3	SR 165 / River Road	TWSC	D	233.6	F[4]	573.0	F[4]
4	SR 165 / Williams Avenue	TWSC	D	59.0	F[4]	108.3	F[4]
5	SR 165 / Geer Avenue	TWSC	D	OVR	F[4]	533.3	F[4]
11	SR 165 / American Avenue	Signal	D	39.3	D	55.6	E
13	SR 165 / August Avenue	TWSC	D	139.0	F[4]	152.3	F[4]
19	SR 165 / Fowler Avenue	TWSC	D	259.6	F[4]	OVR	F[4]
25	SR 165 / Clausen Road	TWSC	D	72.0	F[4]	267.2	F[4]
27	SR 165 / Greenway Avenue	TWSC	D	OVR	F[4]	OVR	F[4]
28	SR 165 / West Glenwood Avenue	TWSC	D	OVR	F[4]	OVR	F[4]
29	SR 165 / SR 99 SB Ramps	Signal	D	26.3	C	56.3	E
County and City Street System							
31	Lander Avenue / E. Glenwood Avenue	Signal	C	68.4	E	73.3	E
24	Golf Link Road / Clausen Road	TWSC	C	17.1	C	28.6	D
32	Golf Road / East Glenwood Avenue	TWSC	C	OVR	F[4]	OVR	F[4]
33	Golf Road / East Linwood Avenue	TWSC	C	OVR	F[4]	OVR	F[4]
34	Berkeley Avenue / 1st Street	TWSC	C	9782.0	F	9772.2	F
35	Berkeley Avenue / Golden State Boulevard						
	Eastbound Golden State Boulevard	AWSC	C	340.4	F[4]	450.5	F[4]
	Westbound Golden State Boulevard	AWSC	C	552.3	F[4]	685.7	F[4]
26	Griffith Avenue / Golden State Boulevard						
	Eastbound Golden State Boulevard	TWSC	C	45.7	E	124.0	F
	Westbound Golden State Boulevard	TWSC	C	27.9	D	18.6	C

Notes:
1. TWSC = Two Way Stop Control, AWSC = All Way Stop Control
2. LOS = Delay based on worst minor street approach for TWSC intersections
3. OVR = Overflow conditions, delay can not be calculated over 9999 seconds
4. Meets Peak-Hour-Volume Warrant 3 from California MUTCD during this peak hour

YEAR 2035 CONDITIONS (NO BUILD) PEAK-HOUR ROADWAY SEGMENT TRAFFIC OPERATIONS

Year 2035 highway and street segment Levels of Service (LOS) were calculated for the AM and PM peak-hours along selected SR 165 highway segments and along selected County road segments. Both HCS and Synchro software was used to analyze peak hour roadway conditions. Table 14 presents the results of the year 2035 peak-hour roadway segment analysis. As shown in the table, the SR 165 highway segment south of Westside Boulevard and the segments north of Hilmar to approximately the junction with SR 99 are projected to experience LOS "E" highway operations during one or both peak hours. LOS "E" exceeds the LOS Standard of "D" along this segment. All other roadway segments shown in the table currently experience acceptable peak hour service levels.

TABLE 14
YEAR 2035 CONDITIONS (NO BUILD) ROADWAY SEGMENT LEVEL OF SERVICE (LOS)

Roadway Segment	# Lanes	AM Peak Hour		PM Peak Hour	
		Average Travel Speed (mph)	LOS	Average Travel Speed (mph)	LOS
SR 165 South of Westside Blvd.[1]	2	43.4	D	41.7	E
SR 165 between Williams Ave. and Geer Ave.[1]	2	46.7	D	45.3	D
SR 165 between Bloss Ave. and American Ave.[2]	2	15.9	D	16.7	D
SR 165 between Johnson Ave. and Bradbury Rd.[1]	2	43.4	E	41.7	E
SR 165 South of W. Greenwood Ave.[1]	2	34.9	E	32.8	E
Bloss Ave. between Golf Link Rd. and Griffith Ave.[1]	2	51.5	A	52.1	A
Bradbury Rd. between Golf Link Rd. and Griffith Ave.[1]	2	52.9	A	51.3	A
Golf Link Rd. North of Bradbury Rd[1]	2	50.6	B	49.0	B
Griffith Ave. South of Bradbury Rd.[1]	2	50.3	B	50.6	B

1. HCS software used to calculate 2-lane highway segment LOS
2. Synchro software used to calculate arterial segment LOS

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Appendix A

**TABLE A-1
LEVEL OF SERVICE CRITERIA
FOR INTERSECTIONS**

Level of Service	Type of Flow	Delay	Maneuverability	Stopped Delay/Vehicle (sec) Signalized	Unsignalized	All-Way Stop
A	Stable Flow	Very slight delay. Progression is very favorable, with most vehicles arriving during the green phase not stopping at all.	Turning movements are easily made, and nearly all drivers find freedom of operation.	$\leq$ 10.0	$\leq$ 10.0	$\leq$ 10.0
B	Stable Flow	Good progression and/or short cycle lengths. More vehicles stop than for LOS A, causing higher levels of average delay.	Vehicle platoons are formed. Many drivers begin to feel somewhat restricted within groups of vehicles.	>10 and $\leq$ 20.0	>10 and $\leq$ 15.0	>10 and $\leq$ 15.0
C	Stable Flow	Higher delays resulting from fair progression and/or longer cycle lengths. Individual cycle failures may begin to appear at this level. The number of vehicles stopping is significant, although many still pass through the intersection without stopping.	Back-ups may develop behind turning vehicles. Most drivers feel somewhat restricted	>20 and $\leq$ 35.0	>15 and $\leq$ 25.0	>15 and $\leq$ 25.0
D	Approaching Unstable Flow	The influence of congestion becomes more noticeable. Longer delays may result from some combination of unfavorable progression, long cycle lengths, or high volume-to-capacity ratios. Many vehicles stop, and the proportion of vehicles not stopping declines. Individual cycle failures are noticeable.	Maneuverability is severely limited during short periods due to temporary back-ups.	>35 and $\leq$ 55.0	>25 and $\leq$ 35.0	>25 and $\leq$ 35.0
E	Unstable Flow	Generally considered to be the limit of acceptable delay. Indicative of poor progression, long cycle lengths, and high volume-to-capacity ratios. Individual cycle failures are frequent occurrences.	There are typically long queues of vehicles waiting upstream of the intersection.	>55 and $\leq$ 80.0	>35 and $\leq$ 50.0	>35 and $\leq$ 50.0
F	Forced Flow	Generally considered to be unacceptable to most drivers. Often occurs with over saturation. May also occur at high volume-to-capacity ratios. There are many individual cycle failures. Poor progression and long cycle lengths may also be major contributing factors.	Jammed conditions. Back-ups from other locations restrict or prevent movement. Volumes may vary widely, depending principally on the downstream back-up conditions.	> 80.0	> 50.0	> 50.0

References: Highway Capacity Manual 2000

TABLE A-2
LEVEL OF SERVICE (LOS) CRITERIA FOR BASIC FREEWAY SEGMENTS AND RAMP MERGE AND DIVERGE AREAS

BASIC FREEWAY SEGMENTS	
LOS	**Density (pc/mi/ln)**
A	0 - 11
B	> 11 – 18
C	> 18 – 26
D	> 26 – 35
E	35 – 45
F	> 45
RAMP MERGE AND DIVERGE AREAS	
LOS	**Density (pc/mi/ln)**
A	≤ 10
B	> 10 – 20
C	> 20 – 28
D	> 28 – 35
E	> 35
F	Demand exceeds capacity

Note: Based on Highway Capacity Manual, Fourth Edition, Transportation Research Board, 2000.
pc/mi/ln – Passenger Car Mile Lane

omni • means
ENGINEERS • PLANNERS

TECHNICAL MEMORANDUM

To:	Merced County Association of Governments (MCAG)	**Date:**	February 18, 2011
Attn:	Bob Morrison (MCAG PM)	**Project:**	SR 99 – SR 165 PSR
From:	Joe Weiland, Todd Tregenza	**Job No.:**	25-4701-01
Re:	Forecasted Traffic Volumes and Traffic Operations for Project Alternative D and Alternative I	**File No.:**	C1078MEM017.DOC
CC:	PDT Members		

INTRODUCTION

This memorandum presents the forecasted future daily and peak hour traffic volumes for project Alternative D and Alternative I. The alternatives forecasts and traffic operations are provided to supplement the "No Build" conditions analysis presented in the technical memorandum "Existing and Forecasted Traffic Volumes and Existing and Forecasted "No Build" Conditions Traffic Operations" (January 9, 2009). **Figure 1** presents the project study area.

PROPOSED BUILD ALTERNATIVES

The Alternative D alignment is located within Merced and Stanislaus Counties with a southern terminus near the intersection of 1st Avenue and SR 165, approximately 1.25 miles north of the community of Stevinson, and extending north to Golden State Boulevard near the City of Turlock. The Alternative I alignment is entirely located within Merced County with a southern terminus as described for Alternative D and extending north to the existing SR 99/ Bradbury Road interchange.

Two design options are also proposed for the Alternative D and I alignments from the southern projects limits to just north of the Merced River channel and floodplain. The first option, (Option 1) crosses the Merced River via the existing SR 165 bridge alignment, while the second option (Option 2) crosses the river east of the existing SR 165 alignment. **Figure 2-1 and Figure 2-2** presents the general location for both Alternative D and Alternative I within the project study area.

ALTERNATIVE "D" TRAFFIC FORECASTS AND TRAFFIC OPERATIONS

TRAFFIC FORECASTS

Year 2030 traffic forecasts for Alternative D were developed using the SR 99 – SR 165 Corridor Model developed for this project. Adjustments were made within this model to include new roadway connections and access opportunities/constraints proposed with Alternative D. Year 2030 study area average daily traffic forecasts for this alternative are shown on **Figure 3** and **Figure 4**.

Year 2035 conditions were forecasted by increasing the year 2030 forecasts by a 3% per year annual growth rate over five years (2030 to 2035). The 3% per year annual growth rate was determined by the Policy Committee during their May 3, 2007 meeting and subsequently approved by the various member agency Boards and Councils. Year 2035 study area average daily traffic forecasts for this alternative are shown on **Figure 5** through **Figure 7** while year 2035 peak hour traffic forecasts are shown on **Figure 8** through **Figure 11**.

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Figure 1: Project Study Area Location

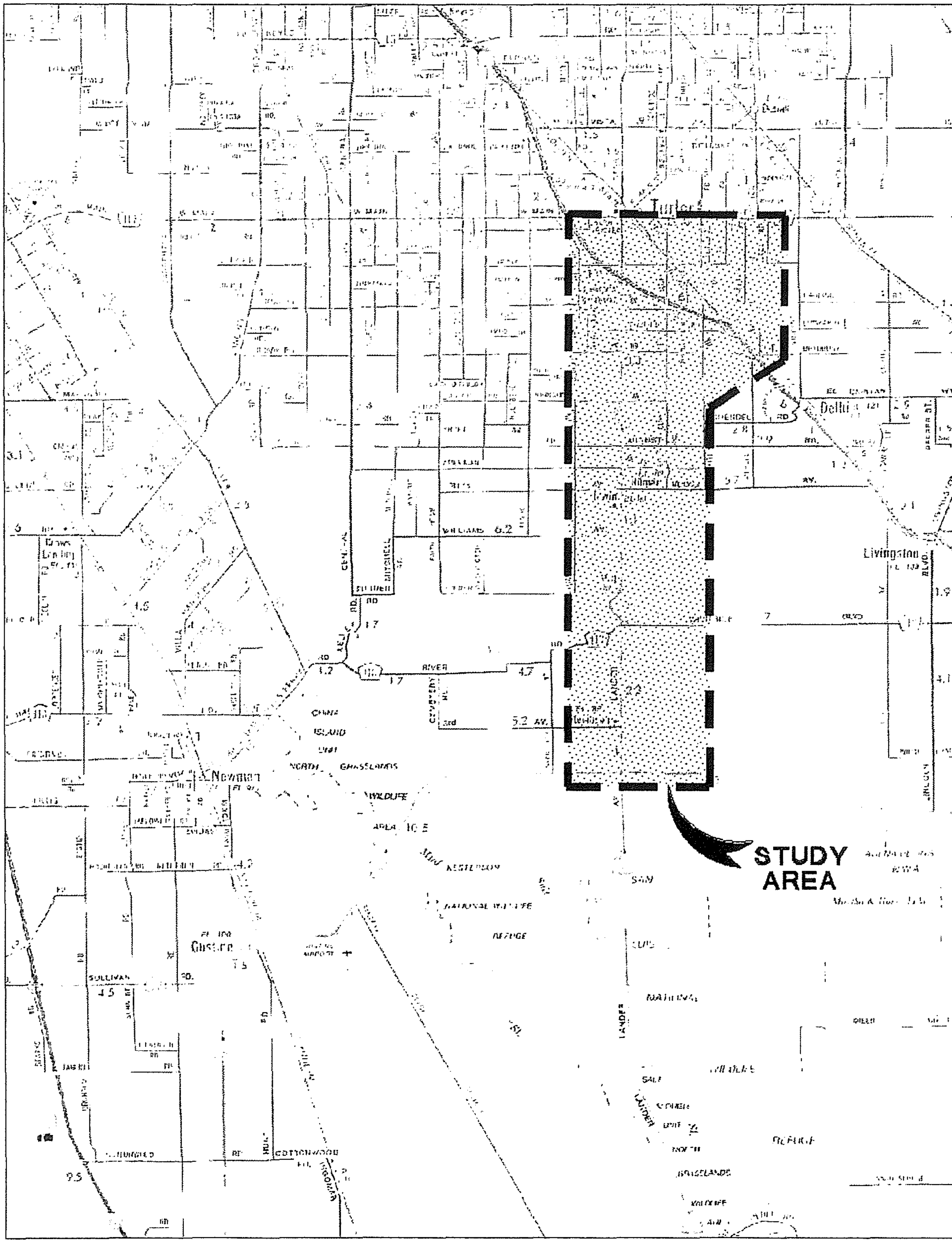

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Figure 2-1: Alternative D and Alternative I Alignment Location

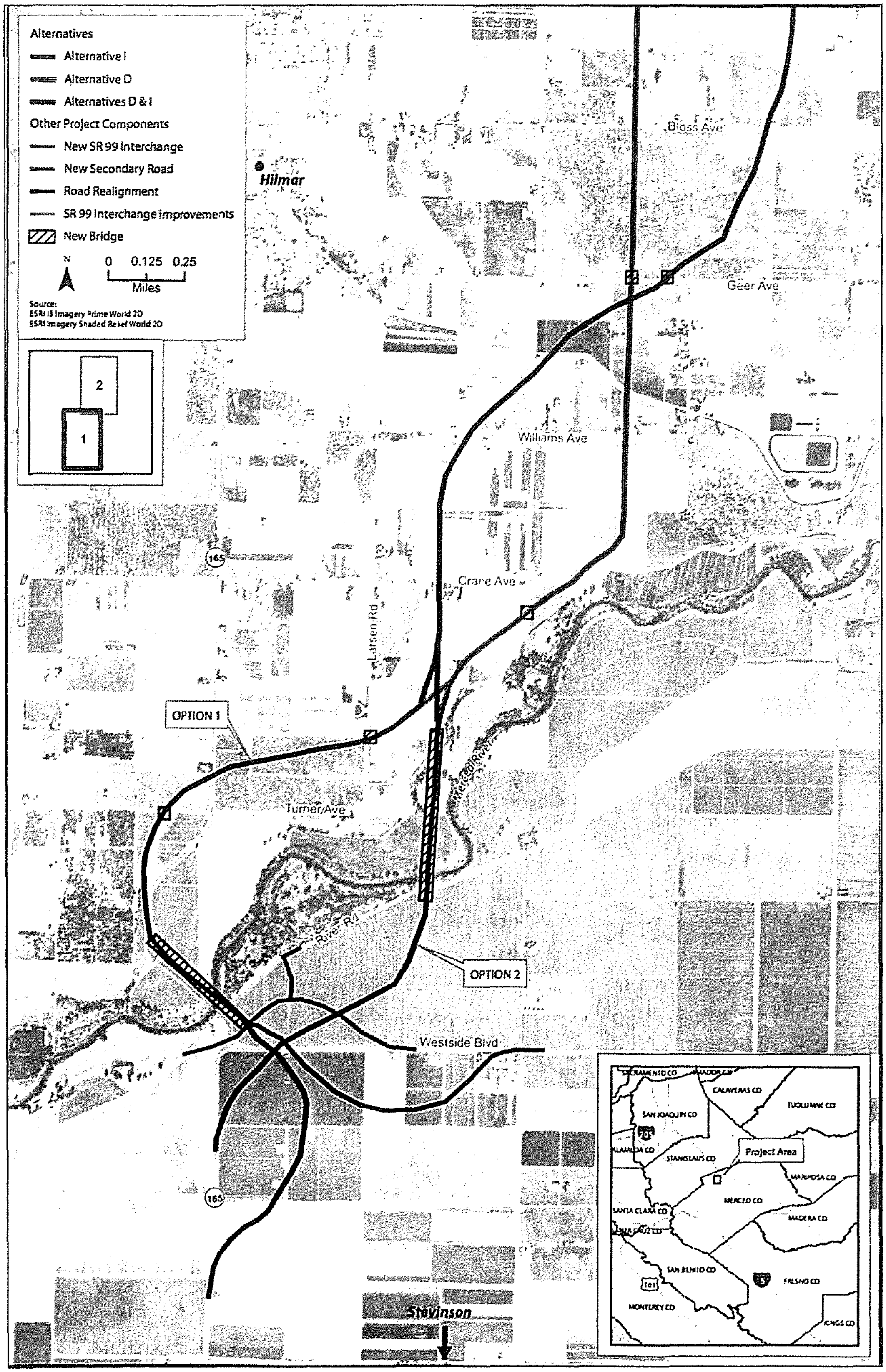

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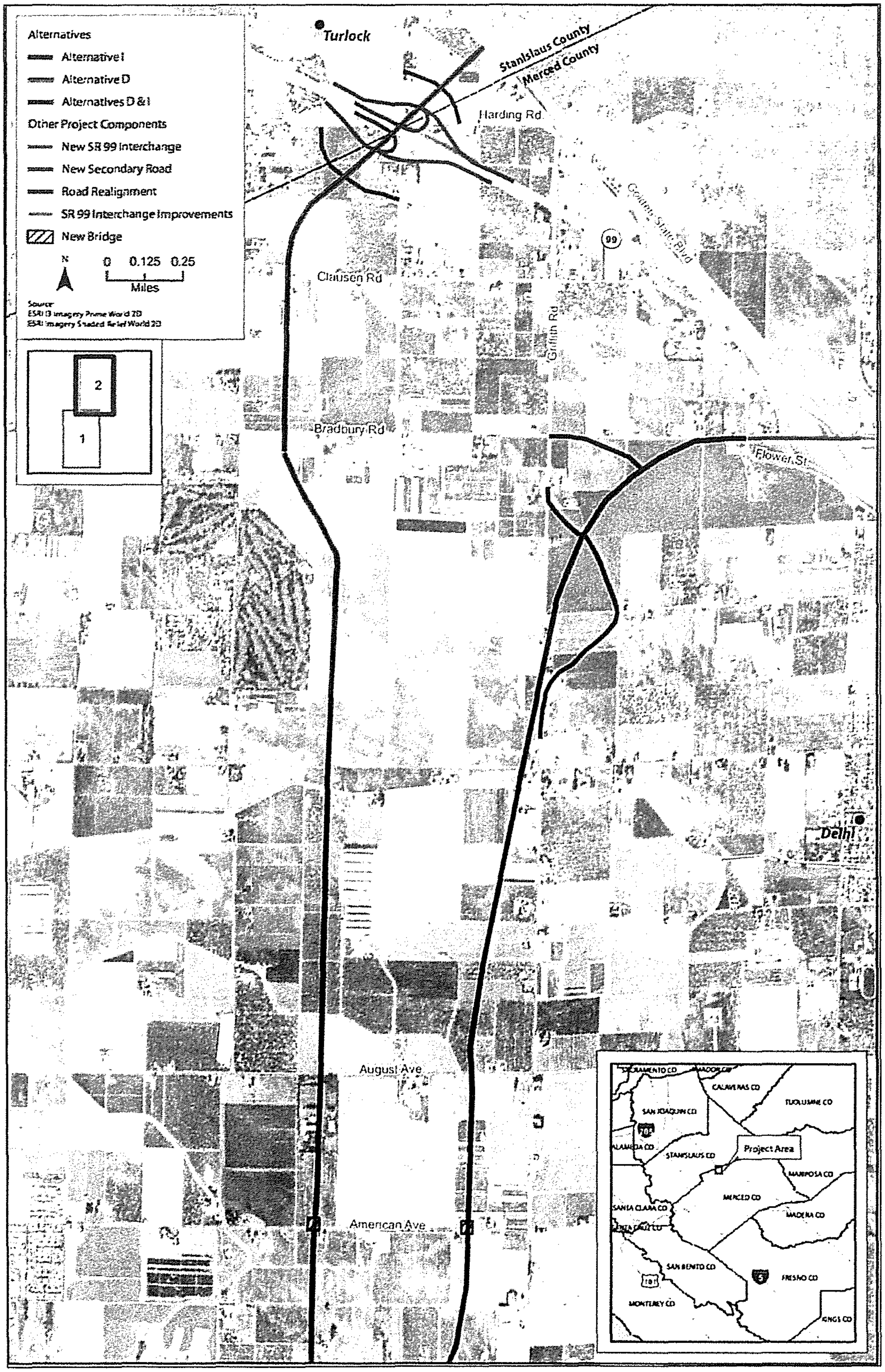
Figure 2-2: Alternative D and Alternative I Alignment Location



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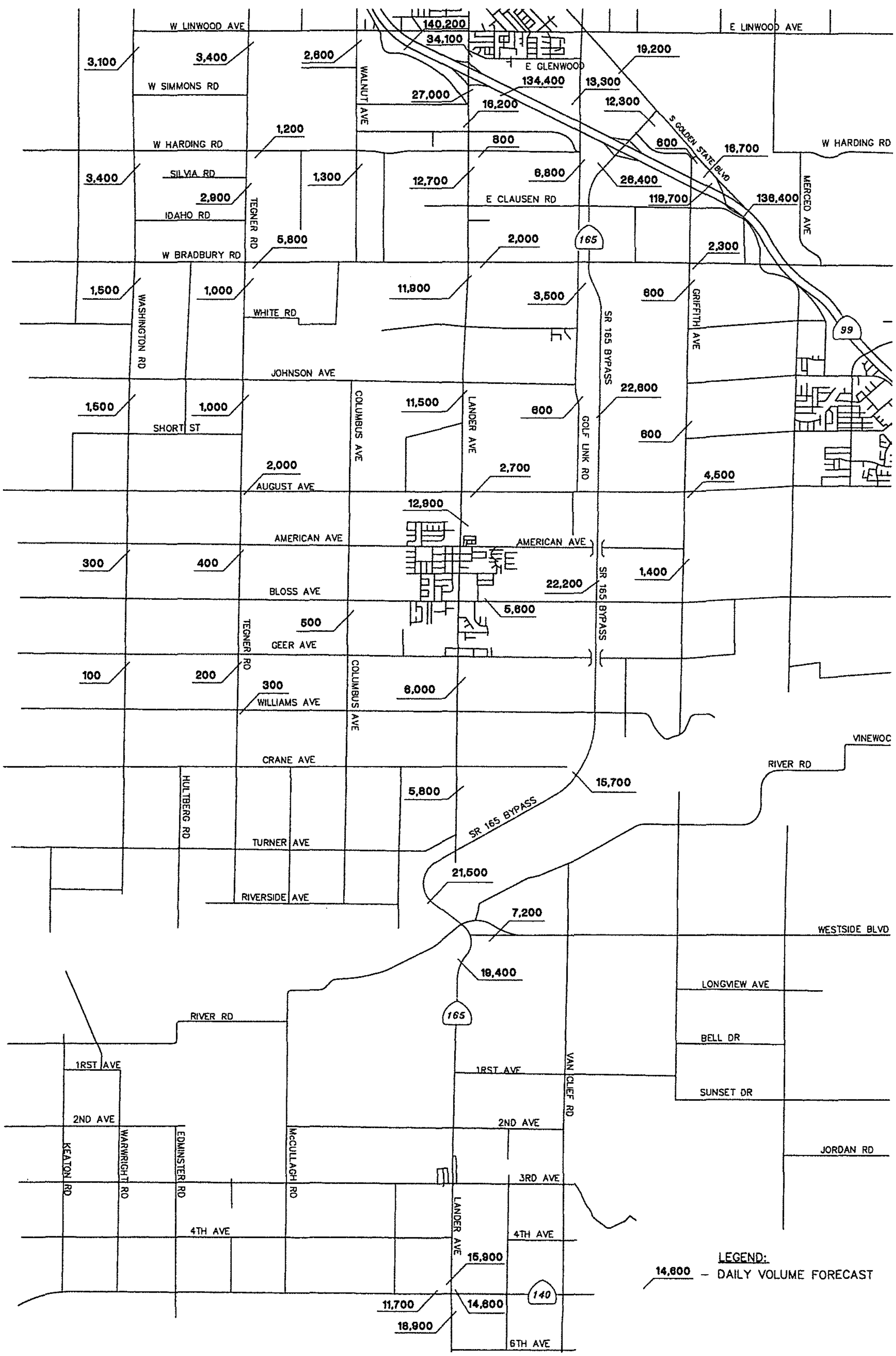
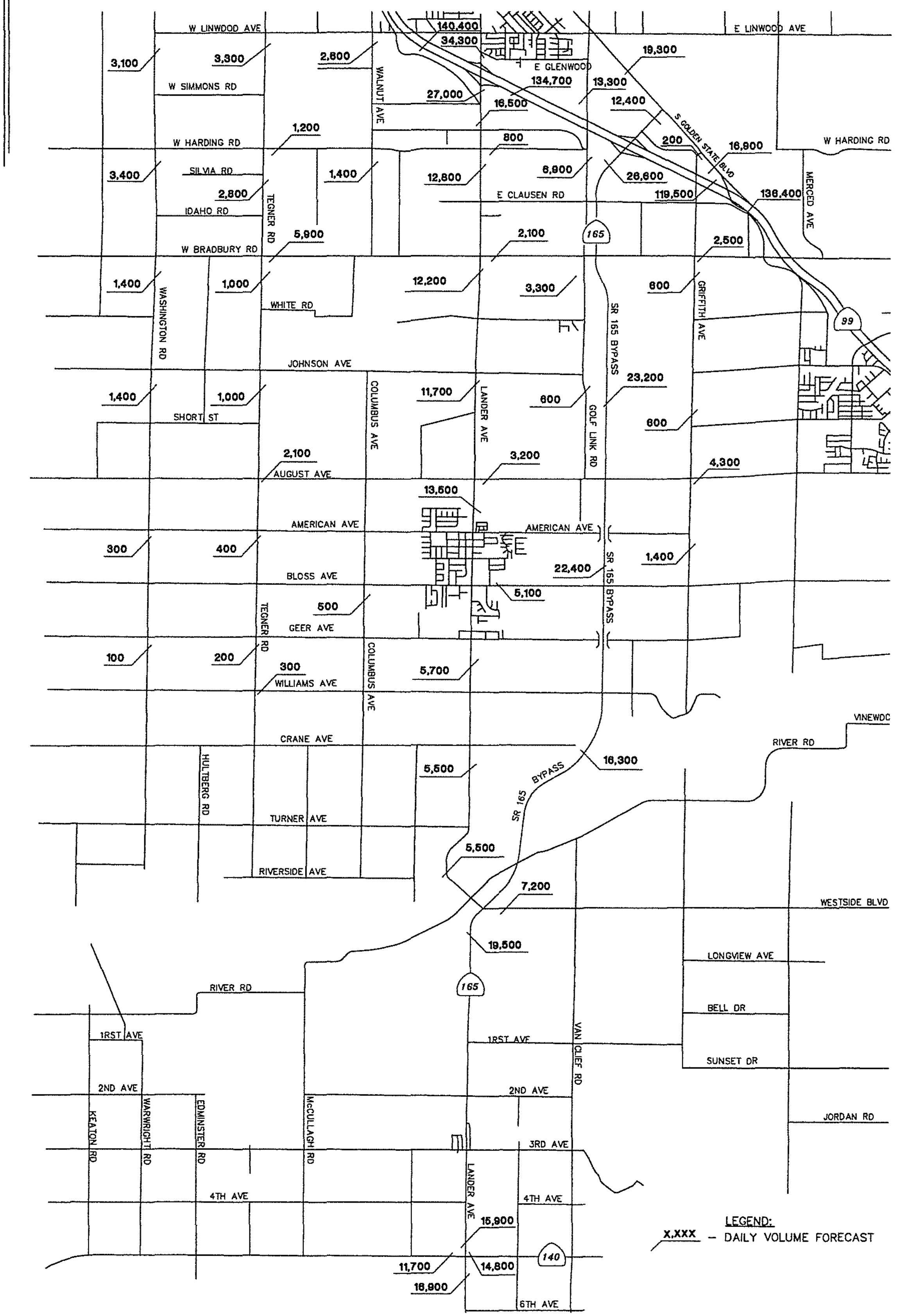


SR 99/SR 165 PSR

Figure 3

Year 2030 Traffic Volumes - Alternative D (Option 1)

Job No: 25-4701-01



SR 99/SR 165 PSR

Figure 4

Year 2030 Traffic Volumes - Alternative D (Option 2)

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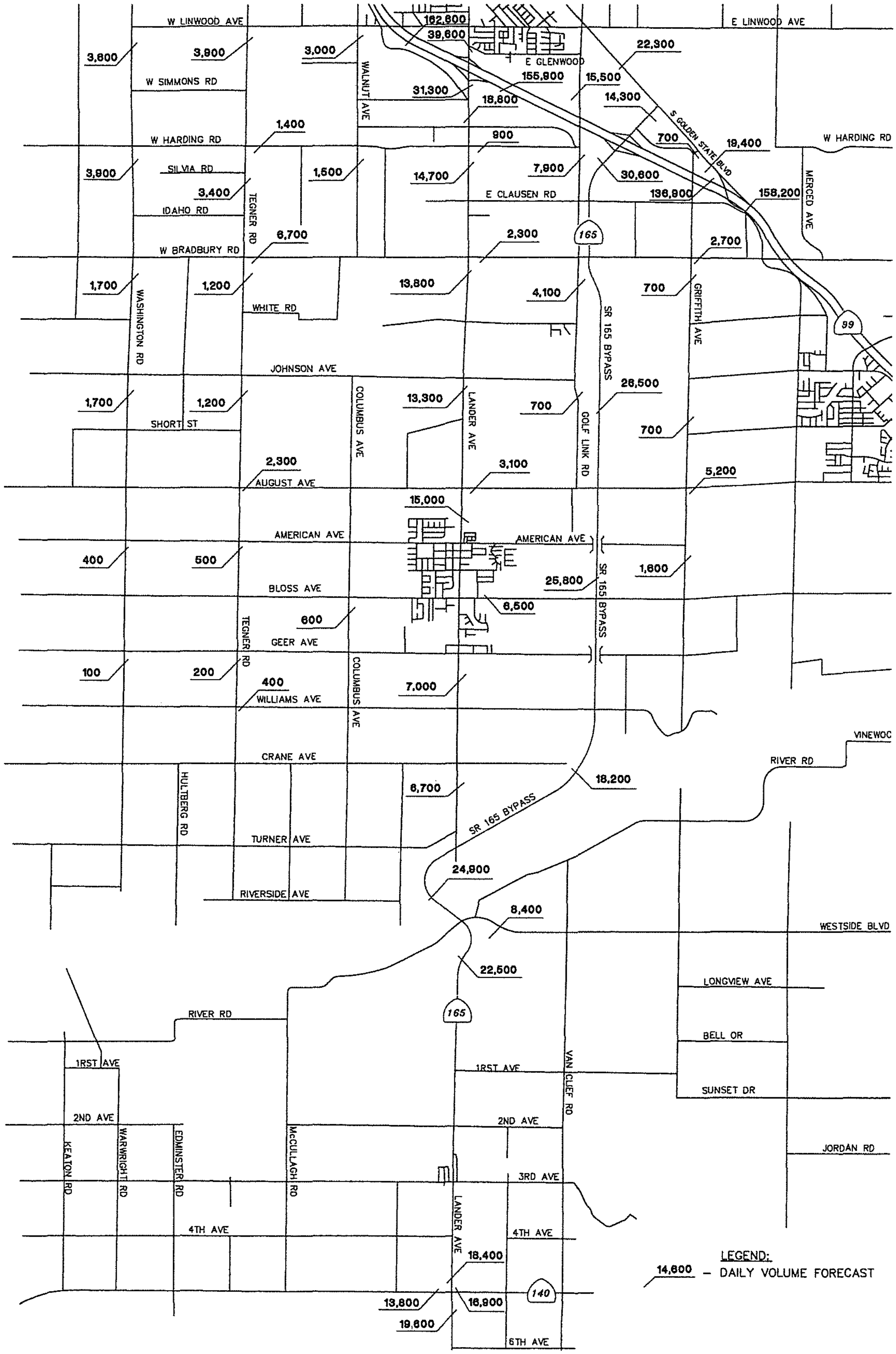
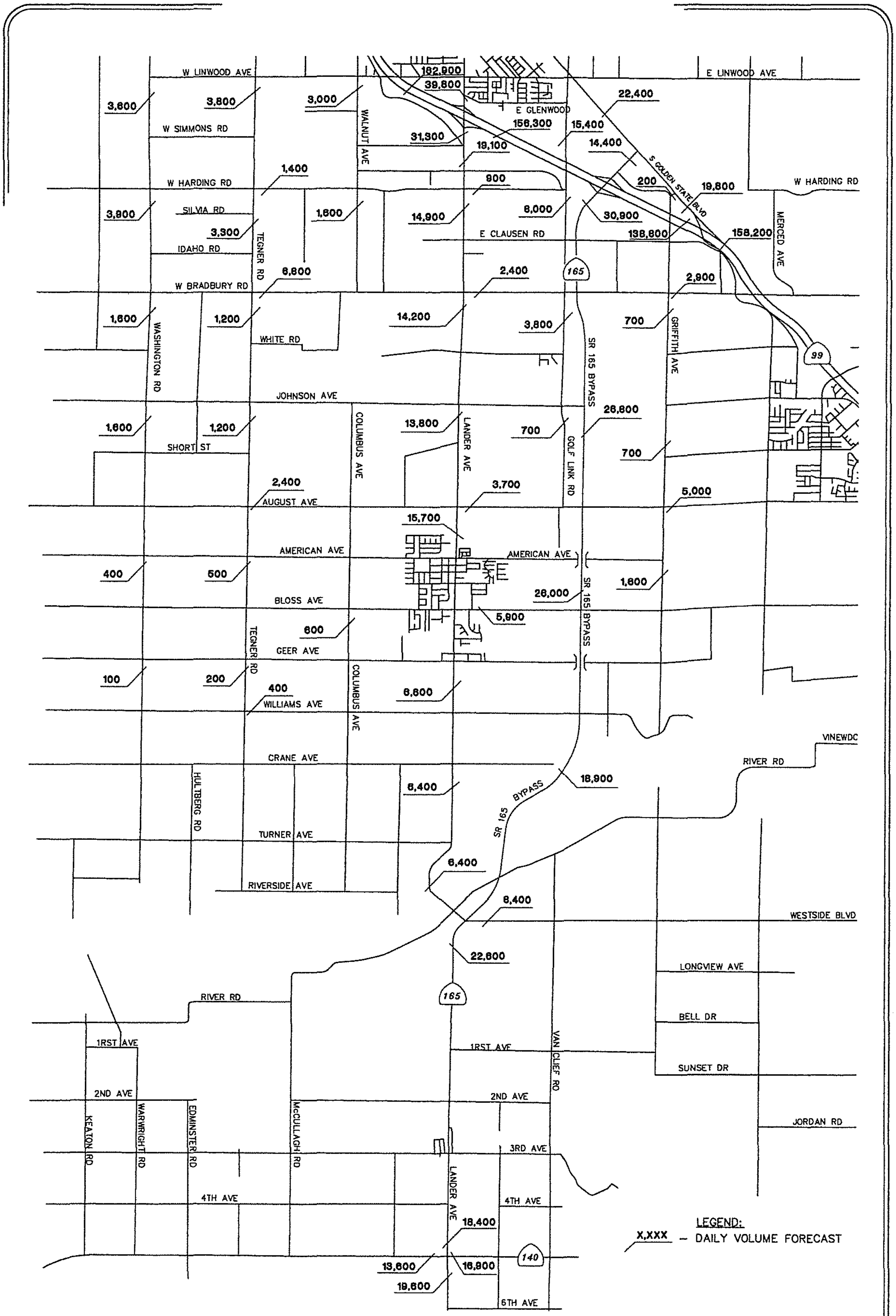
Job No: 25-4701-01



SR 99/SR 165 PSR

Figure 5

Year 2035 Traffic Volumes - Alternative D (Option 1)

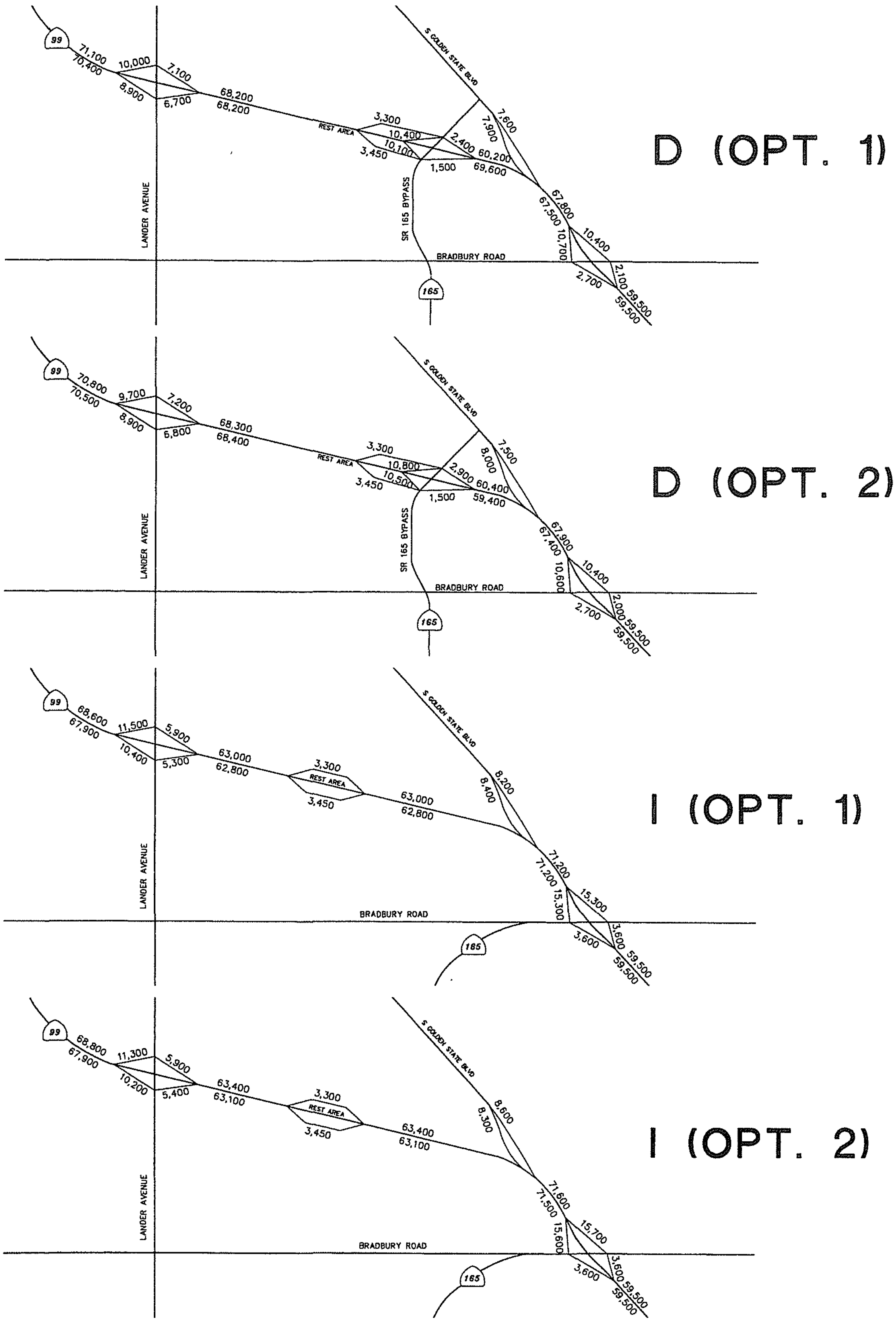


SR 99/SR 165 PSR

Figure 6

Year 2035 Traffic Volumes - Alternative D (Option 2)

Job No: 25-4701-01



SR 99/SR 165 PSR

Figure 7

Year 2035 Daily SR 99 Mainline and Ramp Volumes - Alternatives D & I

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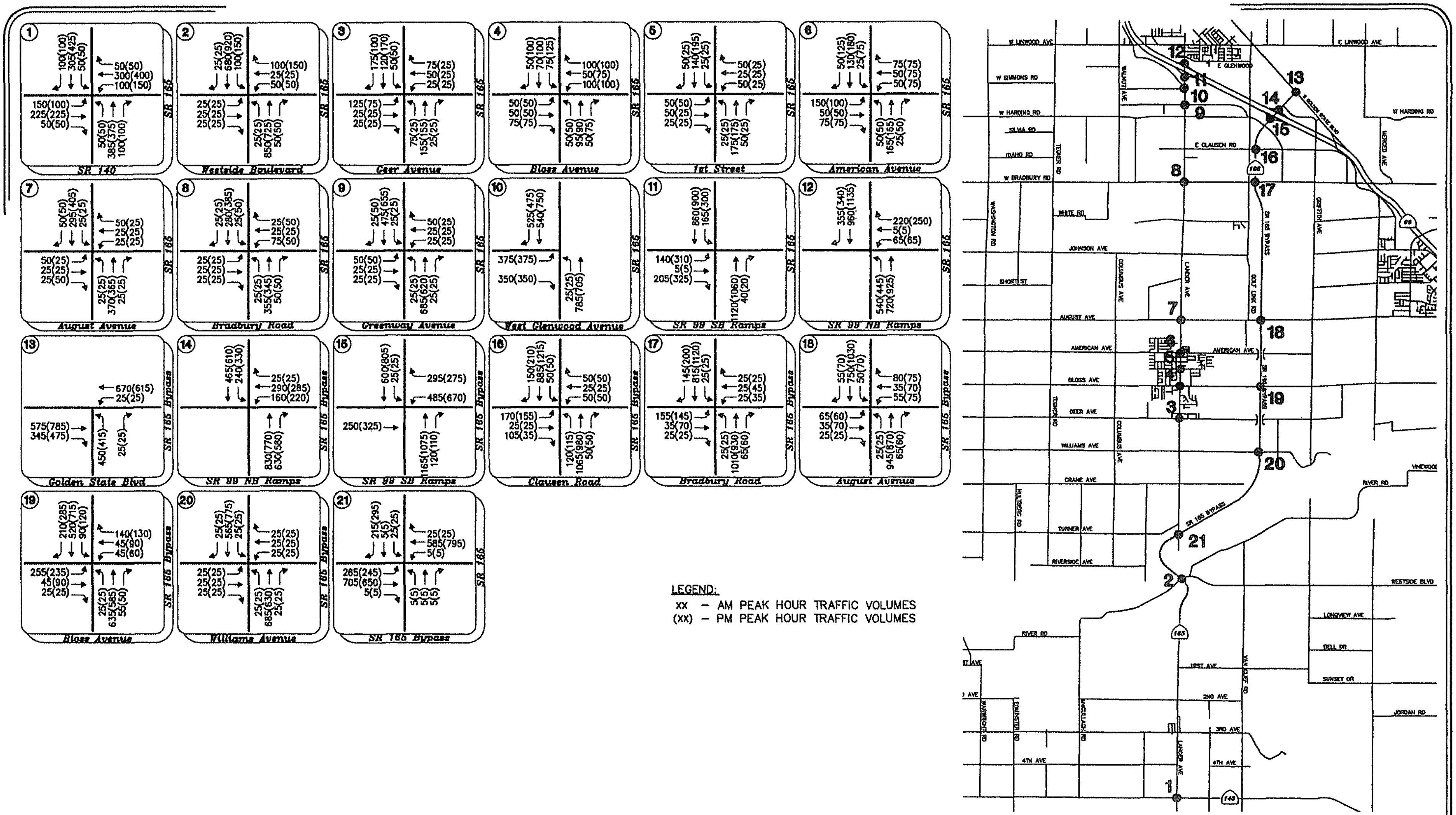
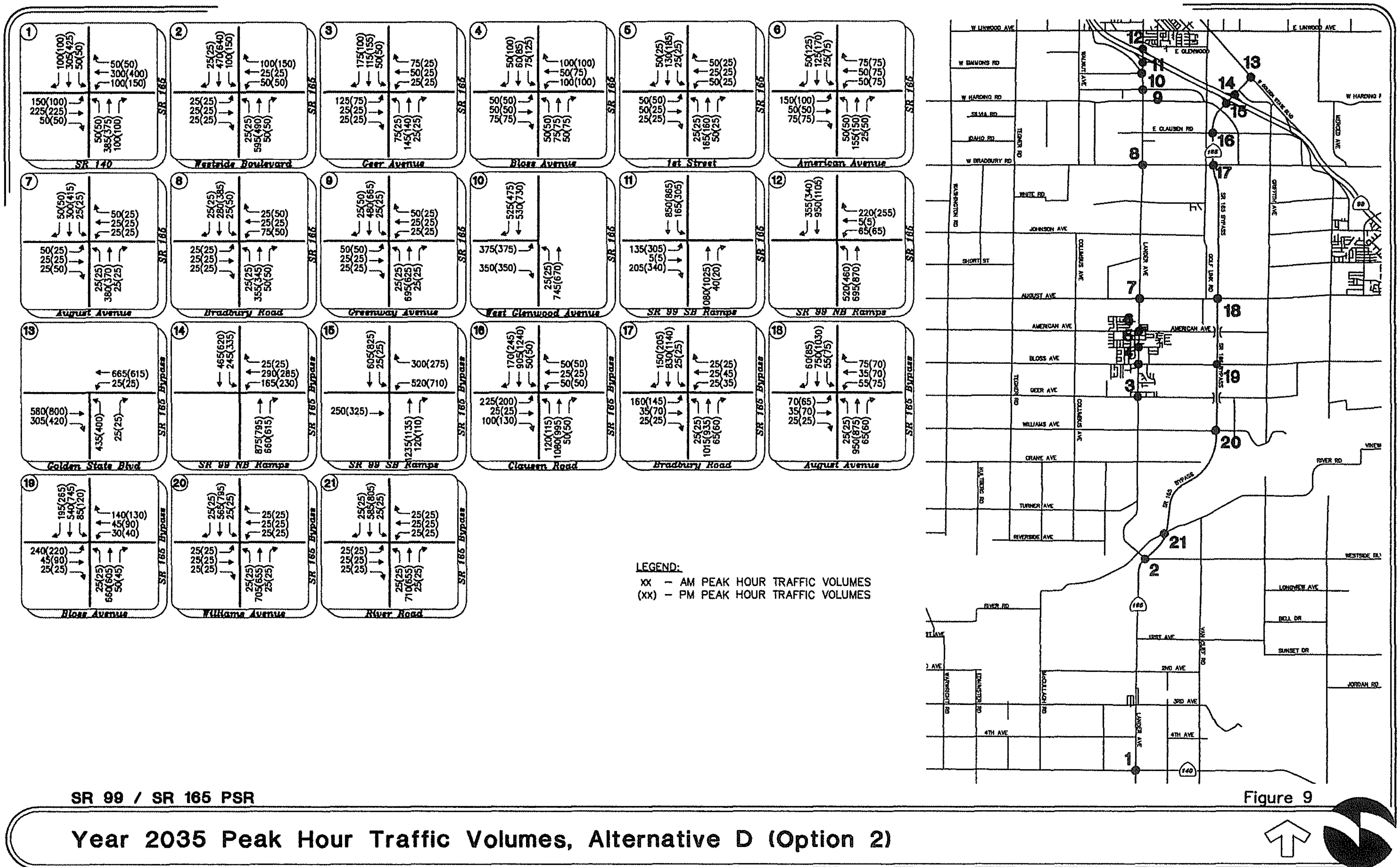
Job No: 25-4701-01



SR 99 / SR 165 PSR

Figure 8

Year 2035 Peak Hour Traffic Volumes, Alternative D (Option 1)

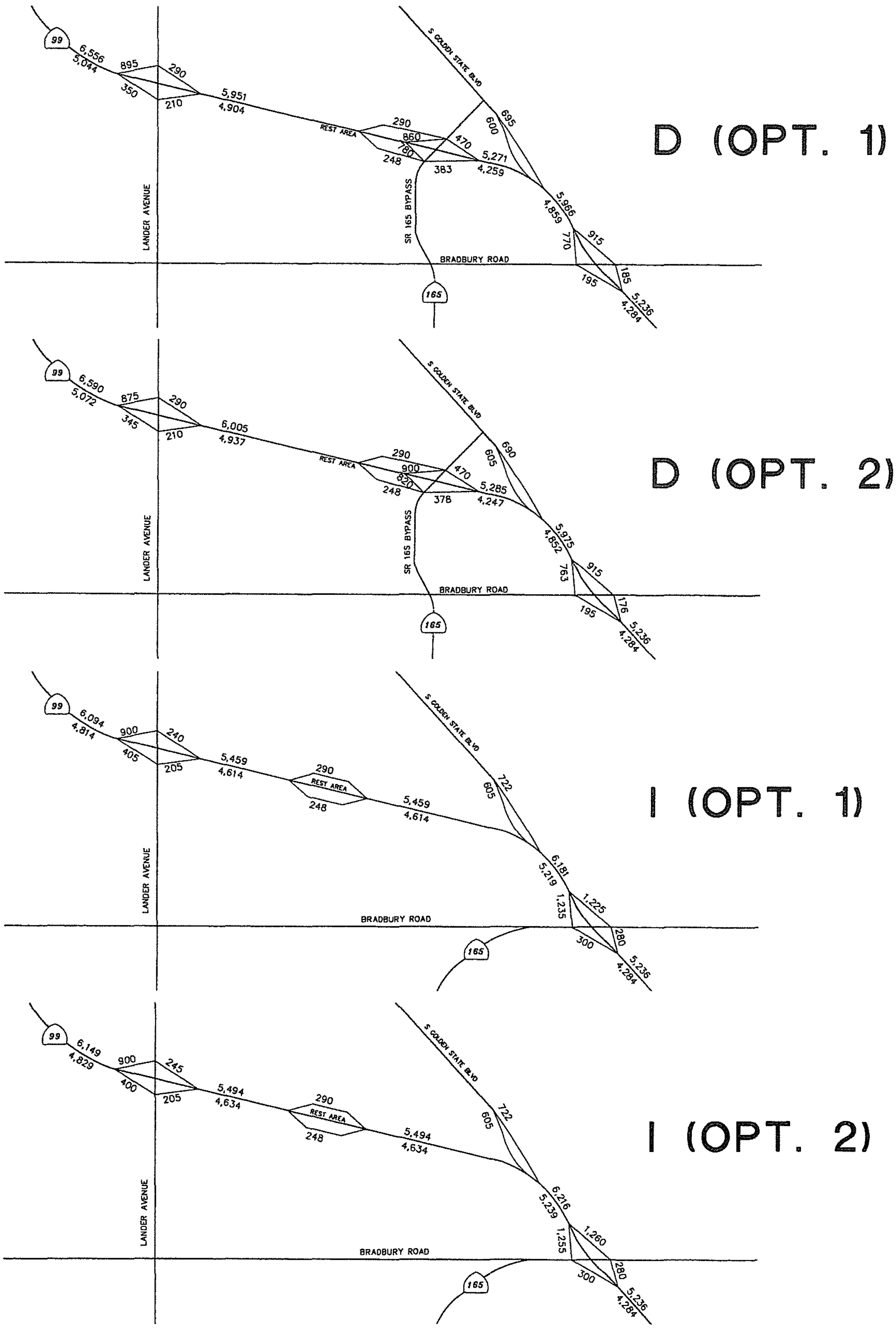


SR 99 / SR 165 PSR

Figure 9

Year 2035 Peak Hour Traffic Volumes, Alternative D (Option 2)

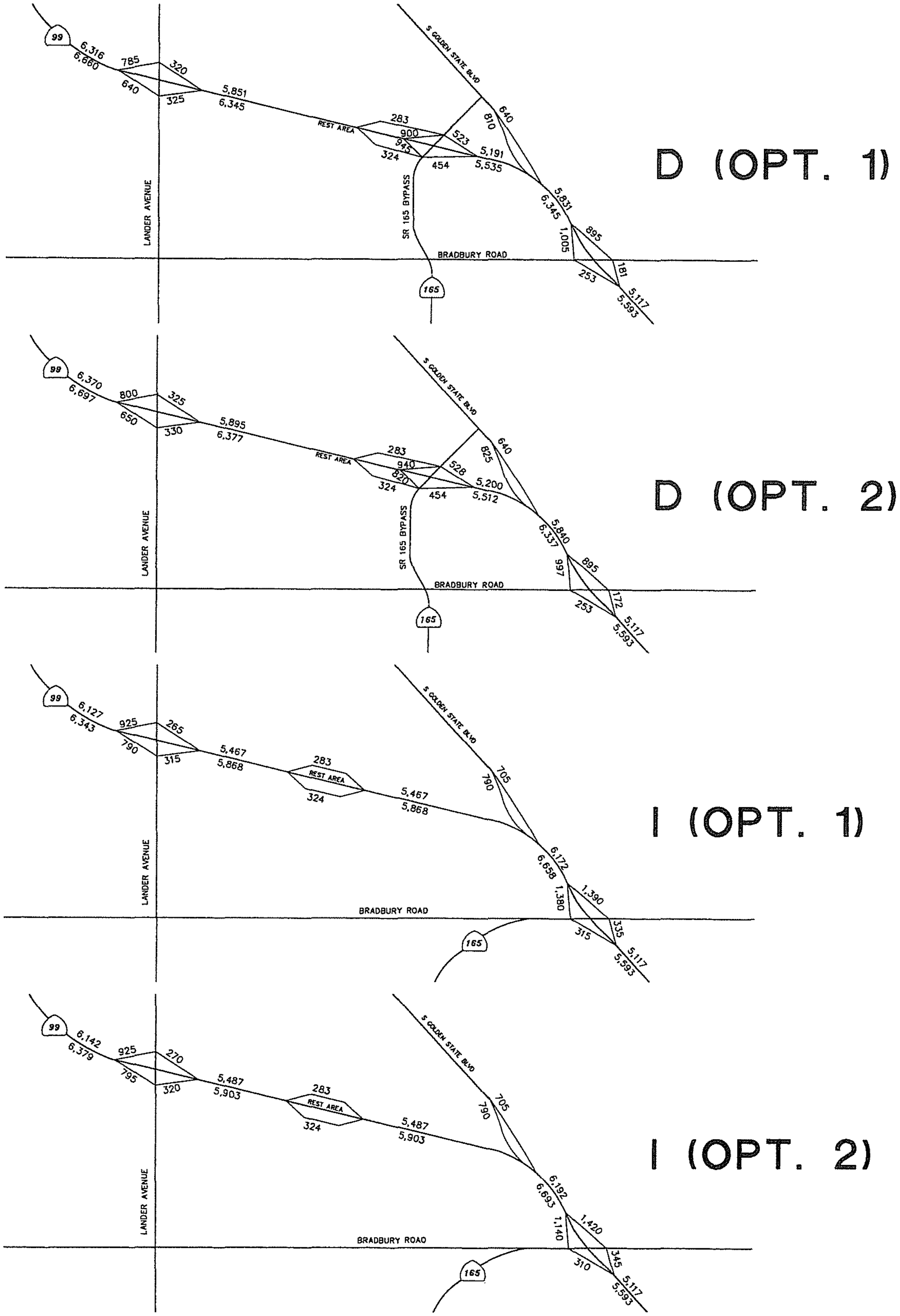
Job No: 25-4701-01



SR 99/SR 165 PSR

Figure 10

Year 2035 AM SR 99 Mainline and Ramp Volumes - Alternatives D & I



SR 99/SR 165 PSR

Figure 11

Year 2035 PM SR 99 Mainline and Ramp Volumes - Alternatives D & I

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Job No: 25-4701-01

ALTERNATIVE D INTERSECTION GEOMETRICS AND CONTROLS

Proposed intersection geometrics and controls for Alternative D (Option 1) are shown on **Figure 12** and for Alternative D (Option 2) on **Figure 13** (Option 2).

YEAR 2035 CONDITIONS – ALTERNATIVE D TRAFFIC OPERATIONS

Table 1 presents the projected Alternative D (Option 1) 2035 peak hour intersection Level-of-Service (LOS) while Table 2 presents the projected Alternative D (Option 2) 2035 peak hour intersection Level-of-Service (LOS).

TABLE 1
YEAR 2035 CONDITIONS – ALTERNATIVE D (OPTION 1)
INTERSECTION LEVEL OF SERVICE (LOS)

#	Intersection	Control Type	Target LOS	AM Peak Hour		PM Peak Hour	
				Delay	LOS	Delay	LOS
1	SR 165 / SR 140	Signal	D	38.2	D	44.0	D
2	SR 165 / Westside Boulevard	Signal	D	14.4	B	16.0	B
3	Lander Ave (SR 165) / Geer Avenue	TWSC[1]	D	46.6	E	18.2	C
4	Lander Ave (SR 165) / Bloss Avenue	Signal	D	17.9	B	19.2	B
5	Lander Ave (SR 165) / 1st Street	Signal	D	16.3	B	18.6	B
6	Lander Ave (SR 165) / American Avenue	Signal	D	13.2	B	13.3	B
7	Lander Ave (SR 165) / August Avenue	Signal	D	14.8	B	13.1	B
8	Lander Ave (SR 165) / Bradbury Road	Signal	D	12.1	B	12.8	B
9	Lander Ave (SR 165) / Greenway Avenue	Signal	D	17.4	B	15.9	B
10	Lander Ave (SR 165) / W. Glenwood Avenue	Signal	D	18.3	B	21.0	C
11	Lander Ave (SR 165) / SR 99 SB Ramps	Signal	D	14.0	B	21.4	C
12	Lander Ave (SR 165) / SR 99 NB Ramps	Signal	D	29.0	C	37.1	D
13	SR 165 Bypass / Golden State Blvd	Signal	D	9.5	A	9.8	A
14	SR 165 Bypass / SR 99 NB Ramps	Signal	D	25.6	C	33.3	C
15	SR 165 Bypass / SR 99 SB Ramps	Signal	D	18.7	B	32.1	C
16	SR 165 Bypass / Clausen Road	Signal	D	21.2	C	14.5	B
17	SR 165 Bypass / Bradbury Road	Signal	D	14.9	B	16.5	B
18	SR 165 Bypass / August Avenue	Signal	D	14.9	B	18.1	B
19	SR 165 Bypass / Bloss Avenue	Signal	D	24.7	C	28.2	C
20	SR 165 Bypass / Williams Avenue	TWSC[1]	D	18.4	C	20.6	C
21	SR 165 Bypass / SR 165	Signal	D	15.6	B	17.9	B

1. TWSC = Two Way Stop Control – LOS & Delay based on worst minor street approach for TWSC intersections

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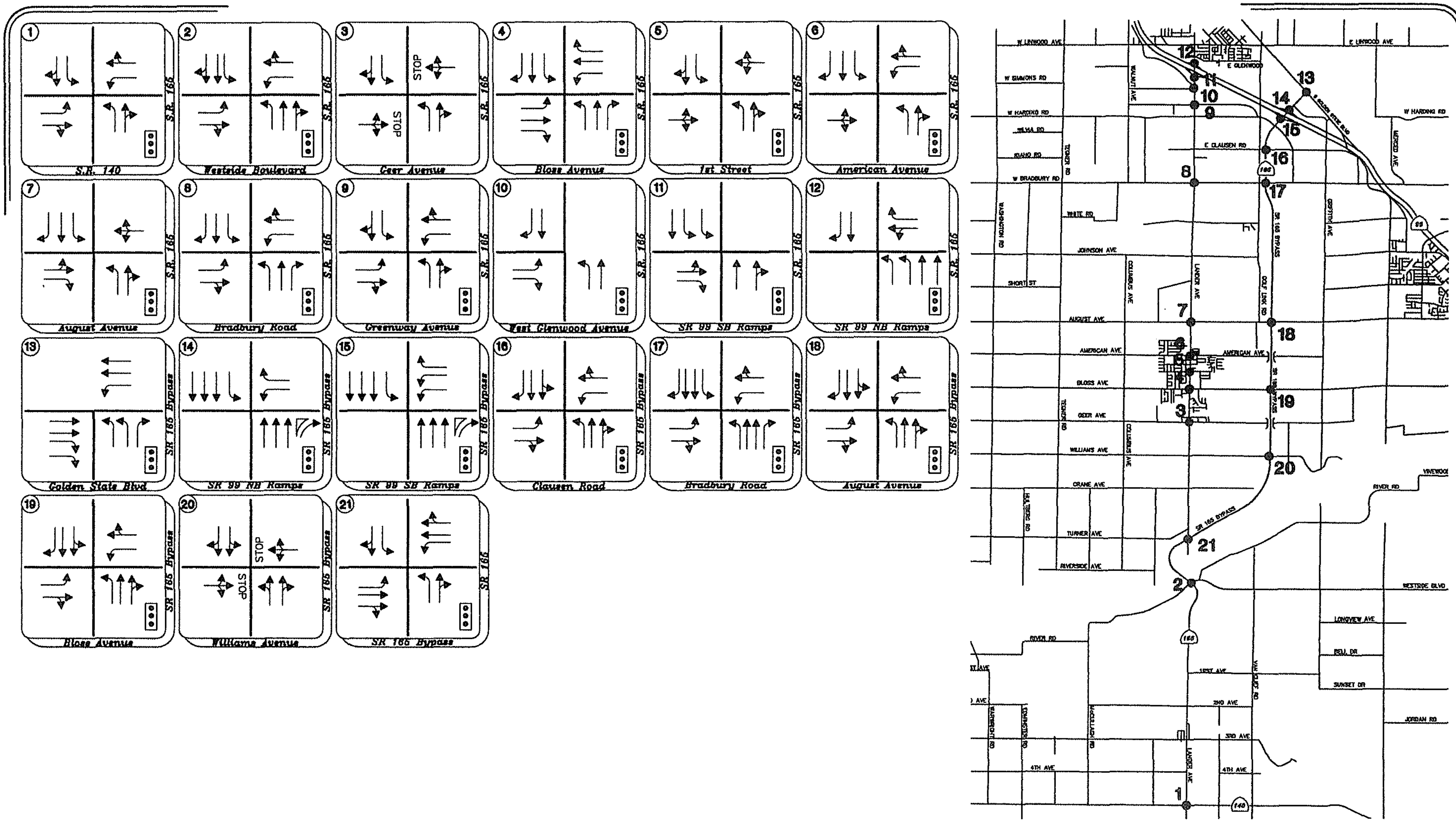

SR 99 / SR 165 PSR

Figure 12

Year 2035 Intersection Geometrics & Control, Alternative D (Option 1)

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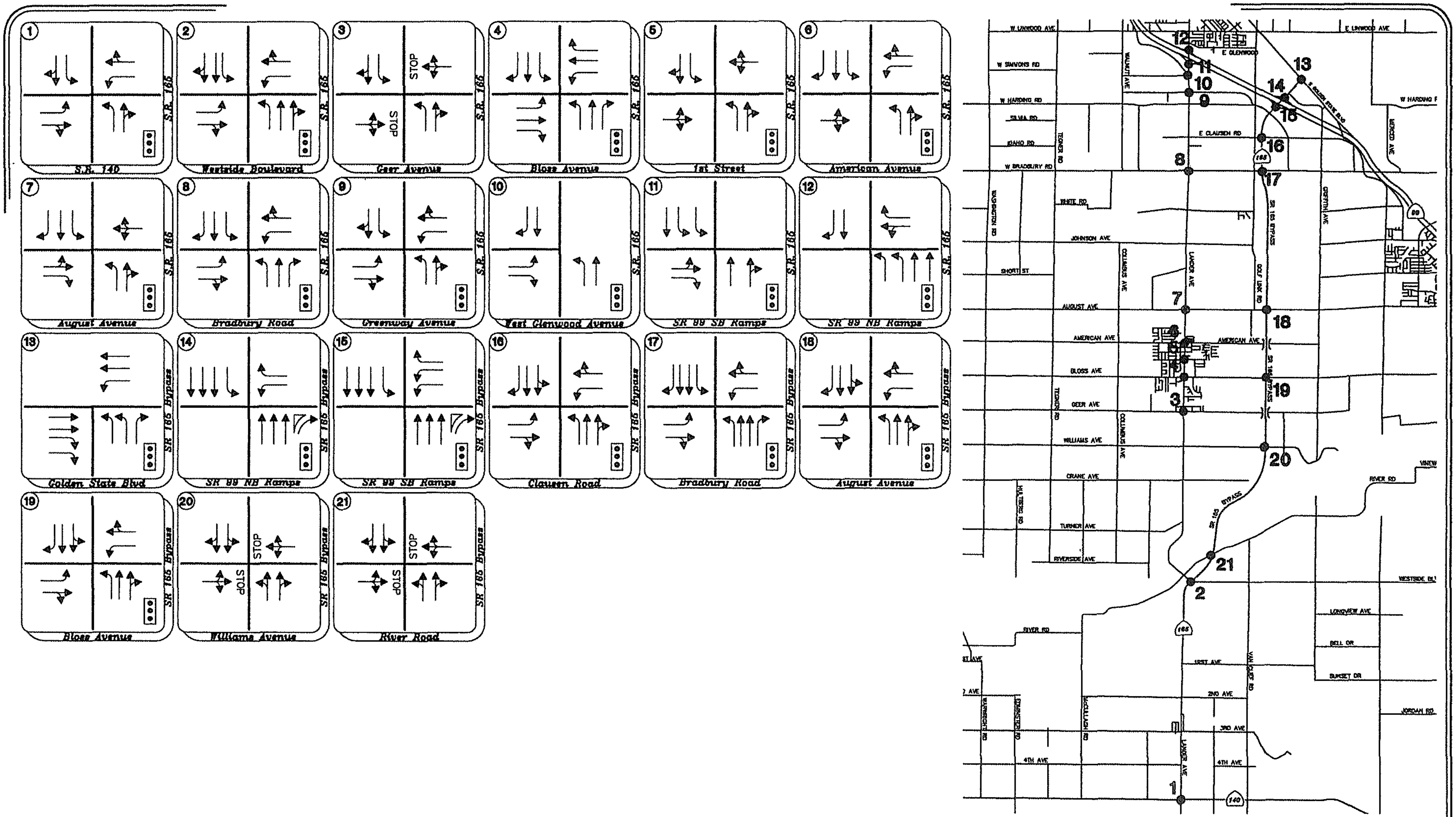
Job No: 25-4701-01



SR 99 / SR 165 PSR

Figure 13

Year 2035 Intersection Geometrics & Control, Alternative D (Option 2)

Job No: 25-4701-01

TABLE 2
YEAR 2035 CONDITIONS – ALTERNATIVE D (OPTION 2)
INTERSECTION LEVEL OF SERVICE (LOS)

#	Intersection	Control Type	Target LOS	AM Peak Hour		PM Peak Hour	
				Delay	LOS	Delay	LOS
1	SR 165 / SR 140	Signal	D	38.2	D	44.0	D
2	SR 165 / Westside Boulevard	Signal	D	13.8	B	15.6	B
3	Lander Ave (SR 165) / Geer Avenue	TWSC[1]	D	43.6	E	17.3	C
4	Lander Ave (SR 165) / Bloss Avenue	Signal	D	17.7	B	19.0	B
5	Lander Ave (SR 165) / 1st Street	Signal	D	16.3	B	18.9	B
6	Lander Ave (SR 165) / American Avenue	Signal	D	13.2	B	13.1	B
7	Lander Ave (SR 165) / August Avenue	Signal	D	15.0	B	13.3	B
8	Lander Ave (SR 165) / Bradbury Road	Signal	D	12.1	B	12.8	B
9	Lander Ave (SR 165) / Greenway Avenue	Signal	D	17.7	B	16.8	B
10	Lander Ave (SR 165) / West Glenwood Avenue	Signal	D	19.6	B	20.8	C
11	Lander Ave (SR 165) / SR 99 SB Ramps	Signal	D	14.9	B	22.1	C
12	Lander Ave (SR 165) / SR 99 NB Ramps	Signal	D	27.2	C	36.3	D
13	SR 165 Bypass / Golden State Blvd	Signal	D	9.4	A	9.7	A
14	SR 165 Bypass / SR 99 NB Ramps	Signal	D	23.7	C	33.3	C
15	SR 165 Bypass / SR 99 SB Ramps	Signal	D	18.8	B	32.1	C
16	SR 165 Bypass / Clausen Road	Signal	D	12.4	B	15.3	B
17	SR 165 Bypass / Bradbury Road	Signal	D	15.0	B	16.0	B
18	SR 165 Bypass / August Avenue	Signal	D	15.1	B	17.8	B
19	SR 165 Bypass / Bloss Avenue	Signal	D	24.8	C	28.5	C
20	SR 165 Bypass / Williams Avenue	TWSC[1]	D	18.7	C	21.2	C
21	SR 165 Bypass / River Road	TWSC[1]	D	19.0	C	21.4	C

1. TWSC = Two Way Stop Control – LOS & Delay based on worst minor street approach for TWSC intersections

Table 3 presents the projected Alternative D (Option 1) 2035 peak hour Level-of-Service (LOS) along various segments of mainline SR 99 while Table 4 presents the projected Alternative D (Option 2) 2035 peak hour Level-of-Service (LOS) along various segments of mainline SR 99.

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TABLE 3
YEAR 2035 CONDITIONS – ALTERNATIVE D (OPTION 1) SR 99 MAINLINE LEVEL OF SERVICE (LOS)

Freeway Mainline Segment	# Lanes	AM Peak Hour			PM Peak Hour		
		Volume	Density, (pc/mi/ln)[1]	LOS	Volume	Density, (pc/mi/ln)[1]	LOS
NB SR 99 (between Shanks Road and Bradbury Road)	3	5,236	33.8	D	5,117	32.6	D
NB SR 99 (between Bradbury Road and Golden State Boulevard)	3	5,966	44.2	E	5,831	41.8	E
NB SR 99 (between Golden State Boulevard and SR 165 Bypass)	3	5,271	34.2	D	5,191	33.3	D
NB SR 99 (between SR 165 Bypass and Lander Avenue)	3	5,951	OVR	F	5,851	43.3	E
SB SR 99 (between Lander Avenue and SR 165 Bypass)	3	4,904	31.2	D	6,345	OVR	F
SB SR 99 (between SR 165 Bypass and Golden State Boulevard)	3	4,259	26.2	D	5,535	38.4	E
SB SR 99 (between Golden State Boulevard and Bradbury Road)	3	4,859	30.2	D	6,345	OVR	F
SB SR 99 (between Bradbury Road and Shanks Road)	3	4,284	25.9	C	5,593	38.2	E

1. OVR = Over capacity, density measure not reported by HCS analysis software.

TABLE 4
YEAR 2035 CONDITIONS – ALTERNATIVE D (OPTION 2) SR 99 MAINLINE LEVEL OF SERVICE (LOS)

Freeway Mainline Segment	# Lanes	AM Peak Hour			PM Peak Hour		
		Volume	Density, (pc/mi/ln)[1]	LOS	Volume	Density, (pc/mi/ln)[1]	LOS
NB SR 99 (between Shanks Road and Bradbury Road)	3	5,236	33.8	D	5,117	32.6	D
NB SR 99 (between Bradbury Road and Golden State Boulevard)	3	5,975	44.4	E	5,840	41.9	E
NB SR 99 (between Golden State Boulevard and SR 165 Bypass)	3	5,285	34.4	D	5,200	33.5	D
NB SR 99 (between SR 165 Bypass and Lander Avenue)	3	6,005	OVR	F	5,895	44.4	E
SB SR 99 (between Lander Avenue and SR 165 Bypass)	3	4,937	31.5	D	6,377	OVR	F
SB SR 99 (between SR 165 Bypass and Golden State Boulevard)	3	4,247	26.1	D	5,512	38.1	E
SB SR 99 (between Golden State Boulevard and Bradbury Road)	3	4,852	30.2	D	6,337	OVR	F
SB SR 99 (between Bradbury Road and Shanks Road)	3	4,284	25.9	C	5,593	38.2	E

1. OVR = Over capacity, density measure not reported by HCS analysis software.

Table 5 presents the projected Alternative D (Option 1) 2035 peak hour Level-of-Service (LOS) at various ramp junctions along SR 99 while Table 6 presents the projected Alternative D (Option 2) 2035 peak hour Level-of-Service (LOS) at various ramp junctions along SR 99.

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TABLE 5
YEAR 2035 CONDITIONS – ALTERNATIVE D (OPTION 1) SR 99 RAMP JUNCTION LEVEL OF SERVICE (LOS)

Interchange Location	Junction Type	AM Peak Hour Speed (mph)	AM Peak Hour Density (pc/mi/ln)	AM Peak Hour LOS	PM Peak Hour Speed (mph)	PM Peak Hour Density (pc/mi/ln)	PM Peak Hour LOS
SR 99/Rest Area							
SR 99 NB On-Ramp	Merge	35	34.9	D	35	34.2	D
SR 99 SB Off-Ramp	Diverge	35	33.4	D	35	44.0	E
SR 99/SR 165 Bypass							
SR 99 NB Off-Ramp	Diverge	35	35.3	E	35	35.0	D
SR 99 SB Off-Ramp	Diverge	35	33.0	D	35	40.0	E
SR 99 NB On-Ramp	Merge	35	34.8	D	35	34.4	D
SR 99 SB On-Ramp	Merge	35	25.9	C	35	33.1	D
SR 99/Golden State Boulevard							
SR 99 NB Off-Ramp	Weave[1]	35	35.7	E	35	34.7	D
SR 99 SB On-Ramp	Weave[1]	35	28.9	D	35	41.5	E
SR 99/Bradbury Road							
SR 99 NB Off-Ramp	Diverge	35	35.3	E	35	34.7	D
SR 99 SB Off-Ramp	Weave[1]	35	28.9	D	35	41.5	E
SR 99 NB On-Ramp	Weave[1]	35	35.7	E	35	34.7	D
SR 99 SB On-Ramp	Merge	35	24.5	C	35	31.8	D

Notes:
1. Weaving analysis was performed at these ramp locations due to an existing auxiliary lane between the Golden State and Bradbury interchanges.

TABLE 6
YEAR 2035 CONDITIONS – ALTERNATIVE D (OPTION 2) SR 99 RAMP JUNCTION LEVEL OF SERVICE (LOS)

Interchange Location	Junction Type	AM Peak Hour Speed (mph)	AM Peak Hour Density (pc/mi/ln)	AM Peak Hour LOS	PM Peak Hour Speed (mph)	PM Peak Hour Density (pc/mi/ln)	PM Peak Hour LOS
SR 99/Rest Area							
SR 99 NB On-Ramp	Merge	35	35.4	E	35	34.5	D
SR 99 SB Off-Ramp	Diverge	35	33.6	D	35	44.4	E
SR 99/SR 165 Bypass							
SR 99 NB Off-Ramp	Diverge	35	35.3	E	35	35.0	D
SR 99 SB Off-Ramp	Diverge	35	33.2	D	35	40.3	E
SR 99 NB On-Ramp	Merge	35	35.2	E	35	34.7	D
SR 99 SB On-Ramp	Merge	35	25.8	C	35	32.9	D
SR 99/Golden State Boulevard							
SR 99 NB Off-Ramp	Weave[1]	35	35.9	E	35	34.8	D
SR 99 SB On-Ramp	Weave[1]	35	29.0	D	35	41.5	E
SR 99/Bradbury Road							
SR 99 NB Off-Ramp	Diverge	35	35.2	E	35	34.7	D
SR 99 SB Off-Ramp	Weave[1]	35	29.0	D	35	41.5	E
SR 99 NB On-Ramp	Weave[1]	35	35.9	E	35	34.8	D
SR 99 SB On-Ramp	Merge	35	24.5	C	35	31.8	D

Notes:
1. Weaving analysis was performed at these ramp locations due to an existing auxiliary lane between the Golden State and Bradbury interchanges.

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ALTERNATIVE "I" TRAFFIC FORECASTS AND TRAFFIC OPERATIONS

TRAFFIC FORECASTS

Year 2030 traffic forecasts for Alternative I were developed using the SR 99 – SR 165 Corridor Model developed for this project. Adjustments were made within this model to include new roadway connections and access opportunities/constraints proposed with Alternative I. Year 2030 study area average daily traffic forecasts for this alternative are shown on **Figure 14** and **Figure 15**.

Year 2035 conditions were forecasted by increasing the year 2030 forecasts by a 3% per year annual growth rate over five years (2030 to 2035). The 3% per year annual growth rate was determined by the Policy Committee during their May 3, 2007 meeting and subsequently approved by the various member agency Boards and Councils. Year 2035 study area average daily traffic forecasts for this alternative are shown on **Figure 7**, **Figure 16** and **Figure 17** while year 2035 peak hour traffic forecasts are shown on **Figure 10, Figure 11, Figure 18** and **Figure 19**.

ALTERNATIVE I INTERSECTION GEOMETRICS AND CONTROLS

Proposed intersection geometrics and controls for Alternative I (Option 1) are shown on **Figure 20** and for Alternative I (Option 2) on **Figure 21** (Option 2).

YEAR 2035 CONDITIONS – ALTERNATIVE I TRAFFIC OPERATIONS

Table 7 presents the projected Alternative I (Option 1) 2035 peak hour intersection Level-of-Service (LOS) while Table 8 presents the projected Alternative I (Option 2) 2035 peak hour intersection Level-of-Service (LOS).

TABLE 7
YEAR 2035 CONDITIONS – ALTERNATIVE I (OPTION 1)
INTERSECTION LEVEL OF SERVICE (LOS)

#	Intersection	Control Type	Target LOS	AM Peak Hour Delay	AM Peak Hour LOS	PM Peak Hour Delay	PM Peak Hour LOS
1	SR 165 / SR 140	Signal	D	38.2	D	44.0	D
2	SR 165 / Westside Boulevard	Signal	D	13.8	B	16.2	B
3	SR 165 / Geer Avenue	TWSC[1]	D	43.6	E	21.3	C
4	SR 165 / Bloss Avenue	Signal	D	17.7	B	19.5	B
5	SR 165 / 1st Street	Signal	D	16.3	B	14.0	B
6	SR 165 / American Avenue	Signal	D	13.2	B	14.2	B
7	SR 165 / August Avenue	Signal	D	15.0	B	13.6	B
8	SR 165 / Bradbury Road	Signal	D	12.1	B	12.9	B
9	SR 165 / Greenway Avenue	Signal	D	17.7	B	18.3	B
10	SR 165 / West Glenwood Avenue	Signal	D	18.2	B	25.1	C
11	SR 165 / SR 99 SB Ramps	Signal	D	14.6	B	25.8	C
12	SR 165 / SR 99 NB Ramps	Signal	D	25.0	C	50.4	D
13	SR 165 Bypass / SR 99 NB Ramps	Signal	D	14.8	B	17.0	B
14	SR 165 Bypass / SR 99 SB Ramps	Signal	D	19.5	B	23.8	C
15	SR 165 Bypass / Merced Avenue	Signal	D	22.2	C	13.2	B
16	SR 165 Bypass / Bradbury Road	TWSC[1]	D	16.4	C	19.9	C
17	SR 165 Bypass / Griffith Road	Signal	D	18.2	B	20.2	C
18	SR 165 Bypass / August Avenue	Signal	D	13.9	B	16.7	B
19	SR 165 Bypass / Bloss Avenue	Signal	D	20.3	C	24.1	C
20	SR 165 Bypass / Williams Avenue	TWSC[1]	D	16.5	C	18.3	C
21	SR 165 Bypass / SR 165	Signal	D	15.8	B	18.1	B

1. TWSC = Two Way Stop Control – LOS & Delay based on worst minor street approach for TWSC intersections

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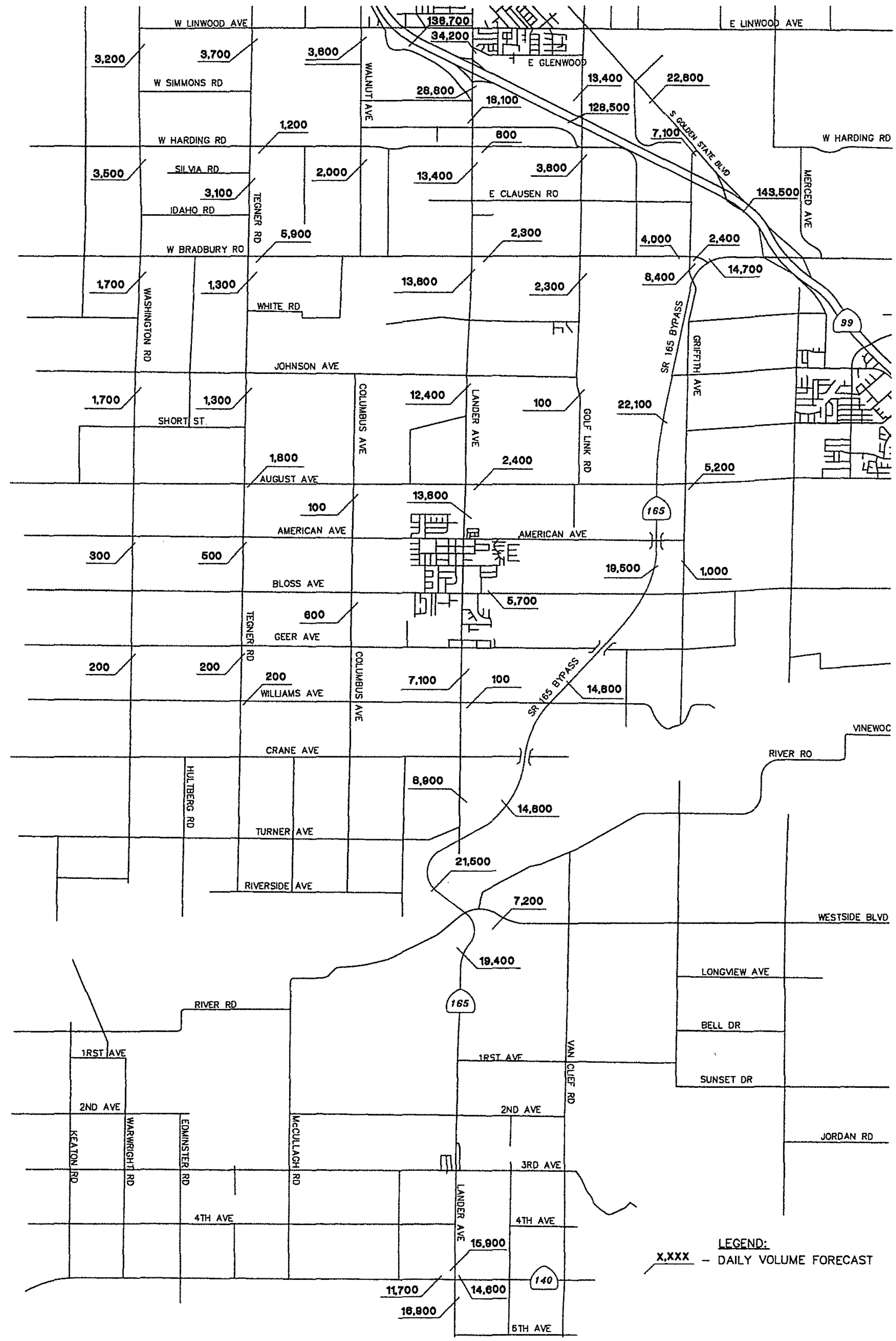
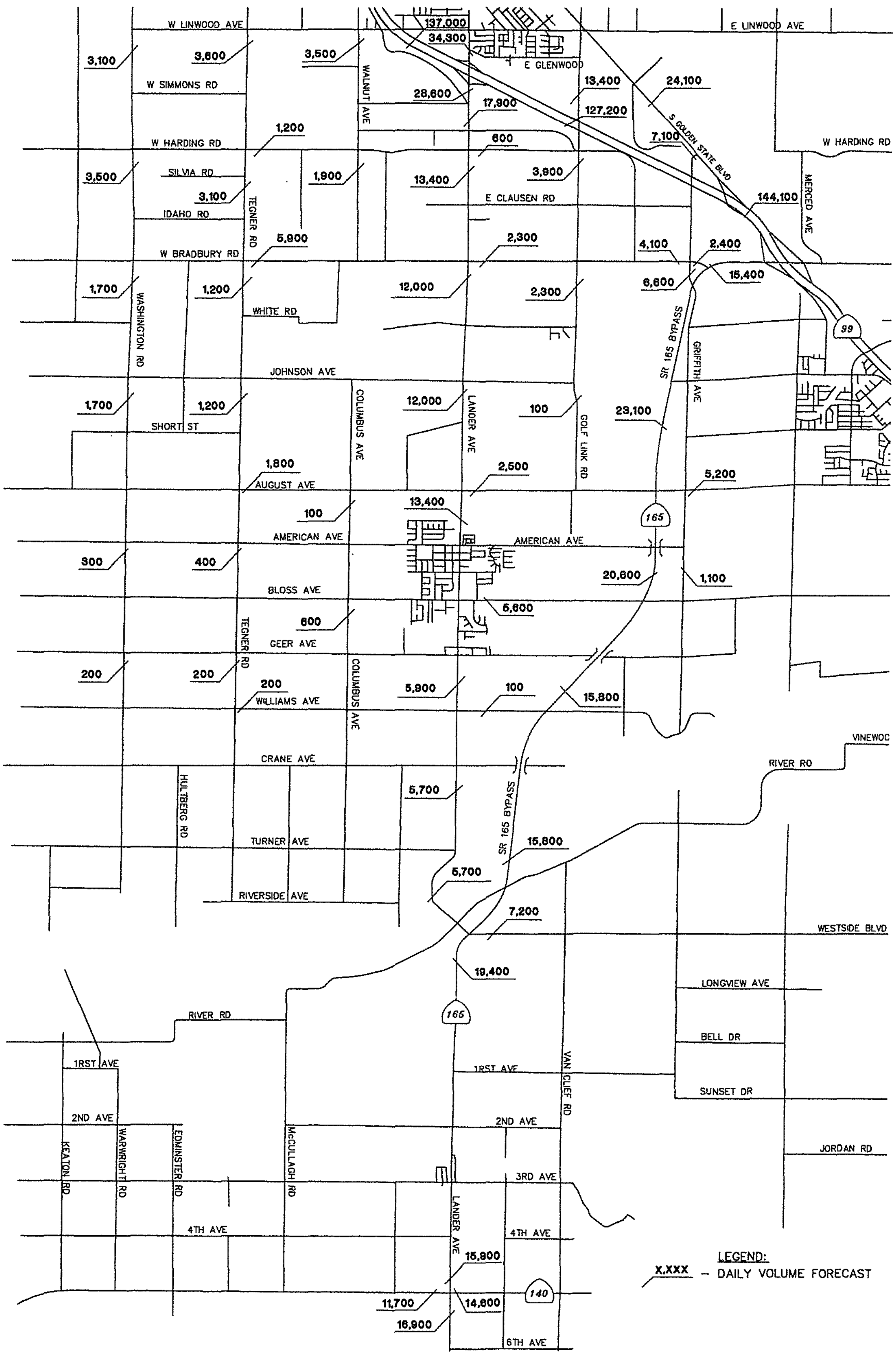


SR 99/SR 165 PSR

Figure 14

Year 2030 Traffic Volumes - Alternative I (Option 1)



SR 99/SR 165 PSR

Figure 15

Year 2030 Traffic Volumes - Alternative I (Option 2)

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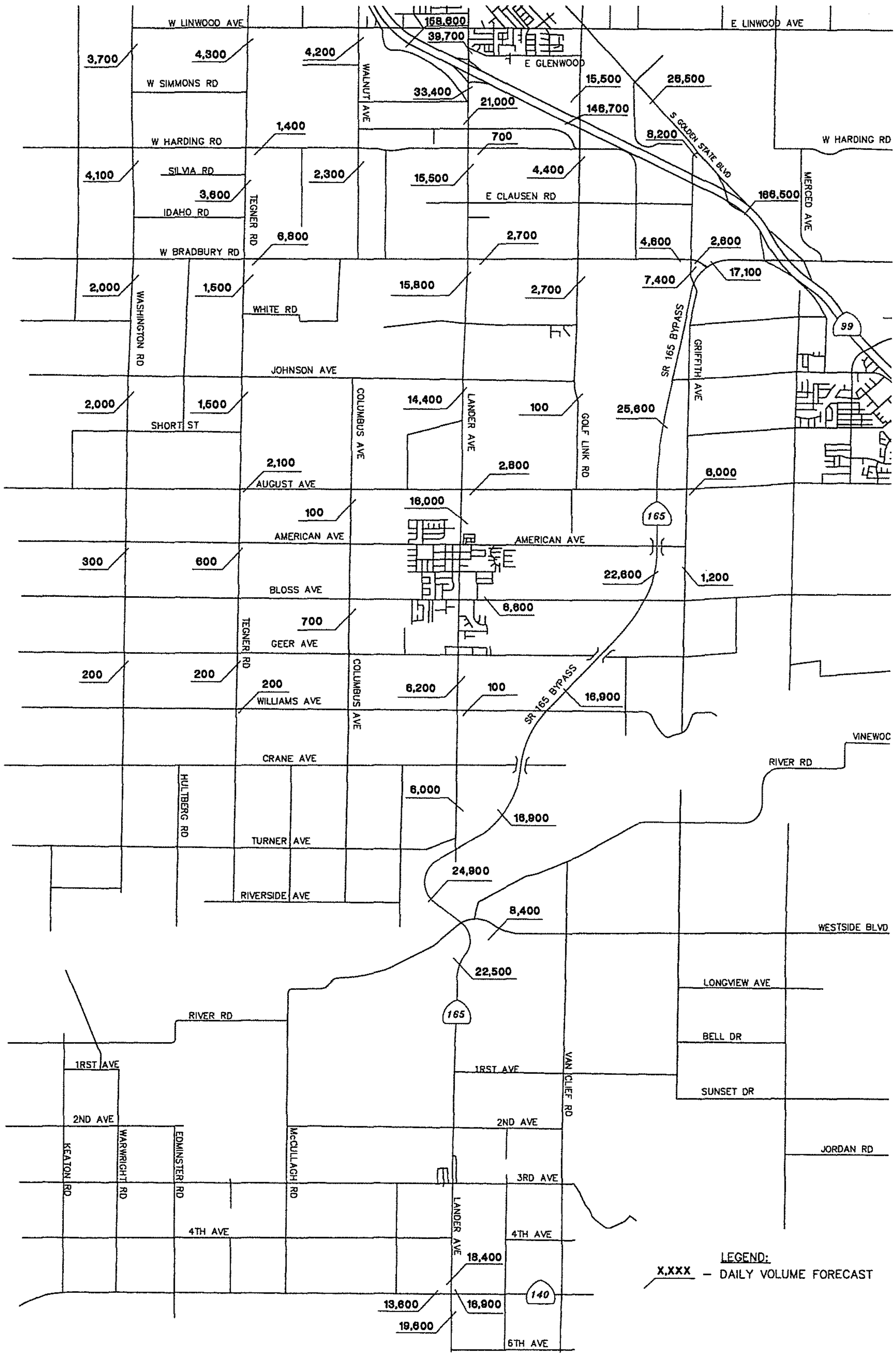
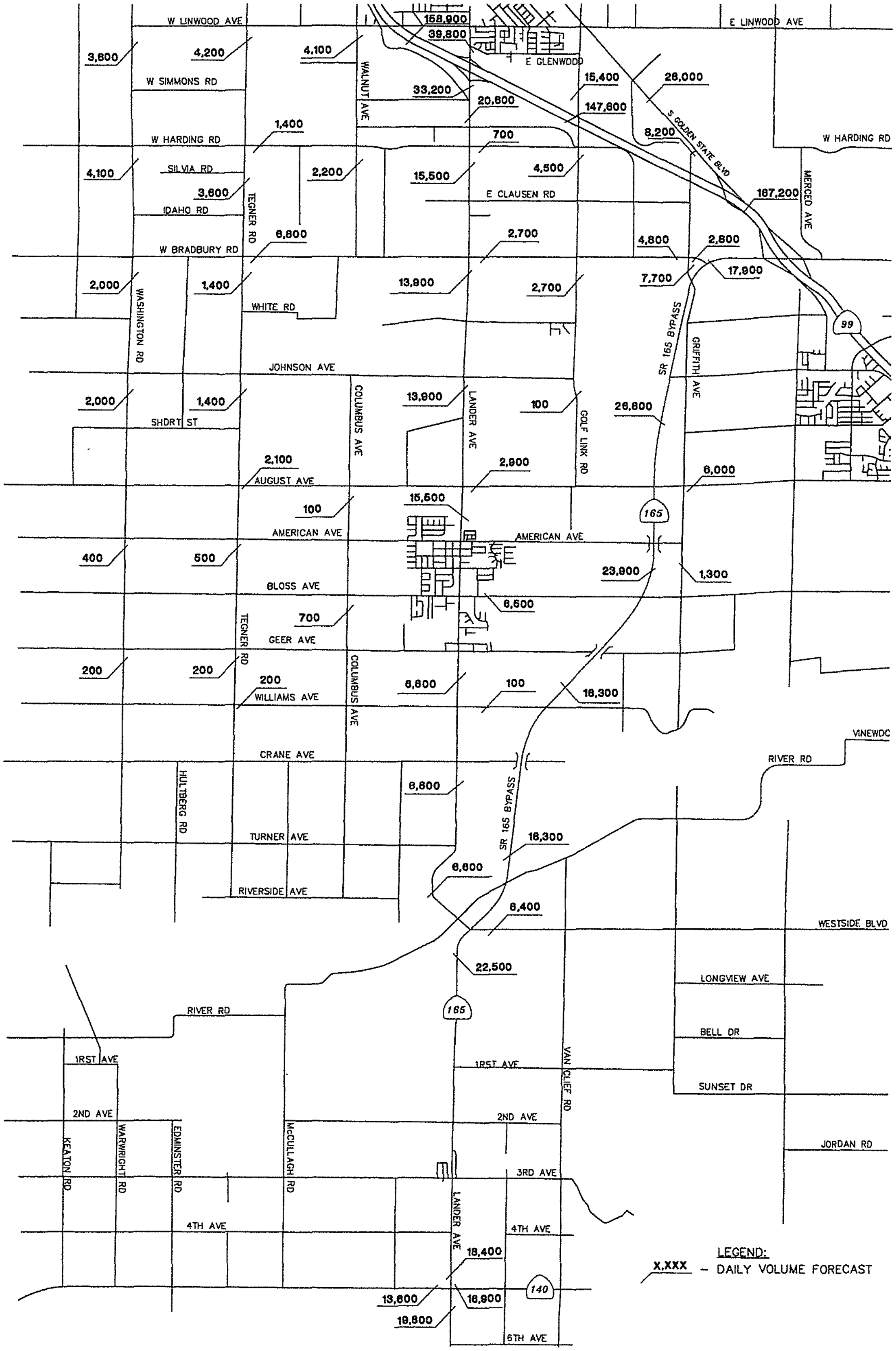
Job No: 25-4701-01



SR 99/SR 165 PSR

Figure 16

Year 2035 Traffic Volumes - Alternative I (Option 1)



SR 99/SR 165 PSR

Figure 17

Year 2035 Traffic Volumes - Alternative I (Option 2)

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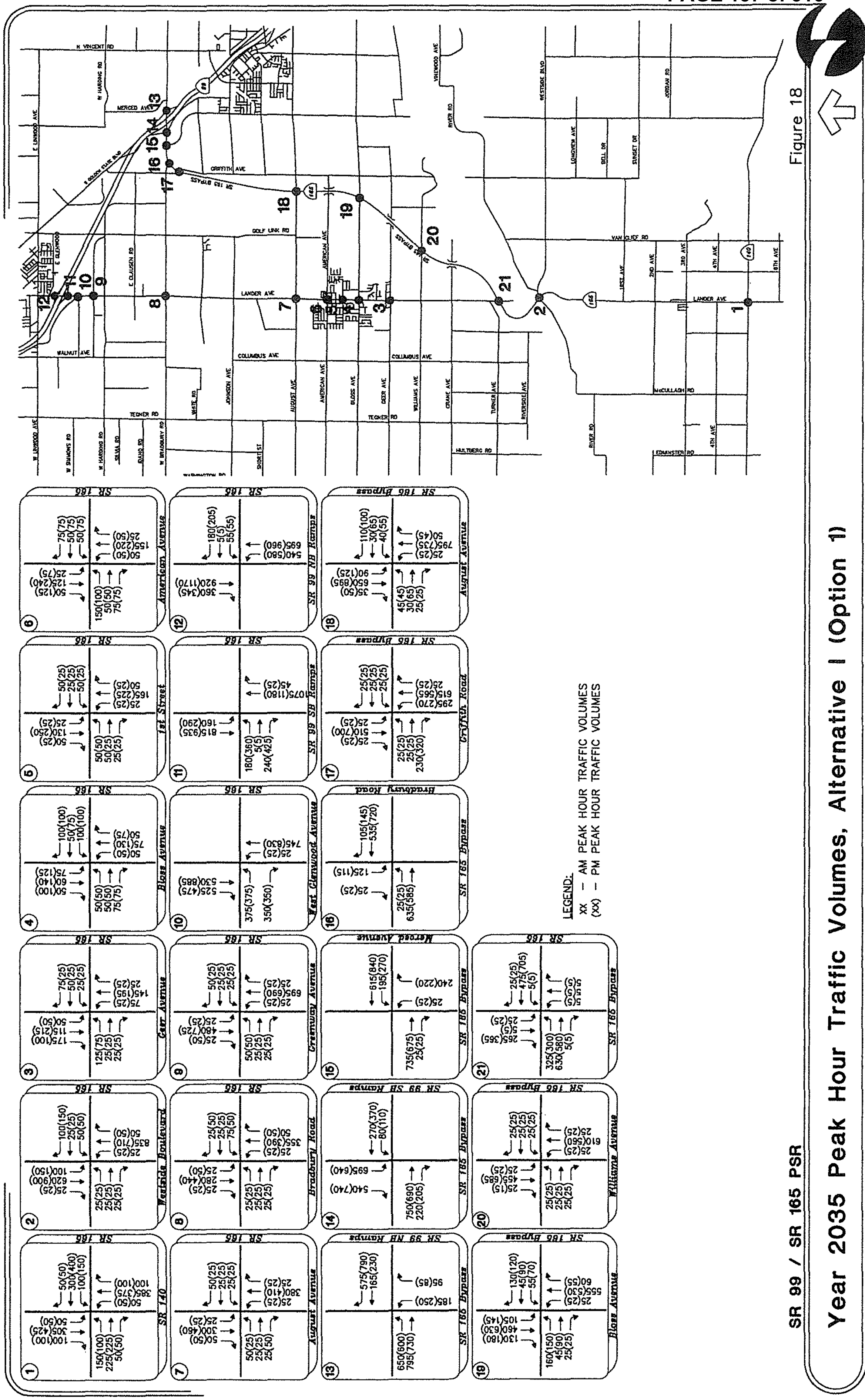
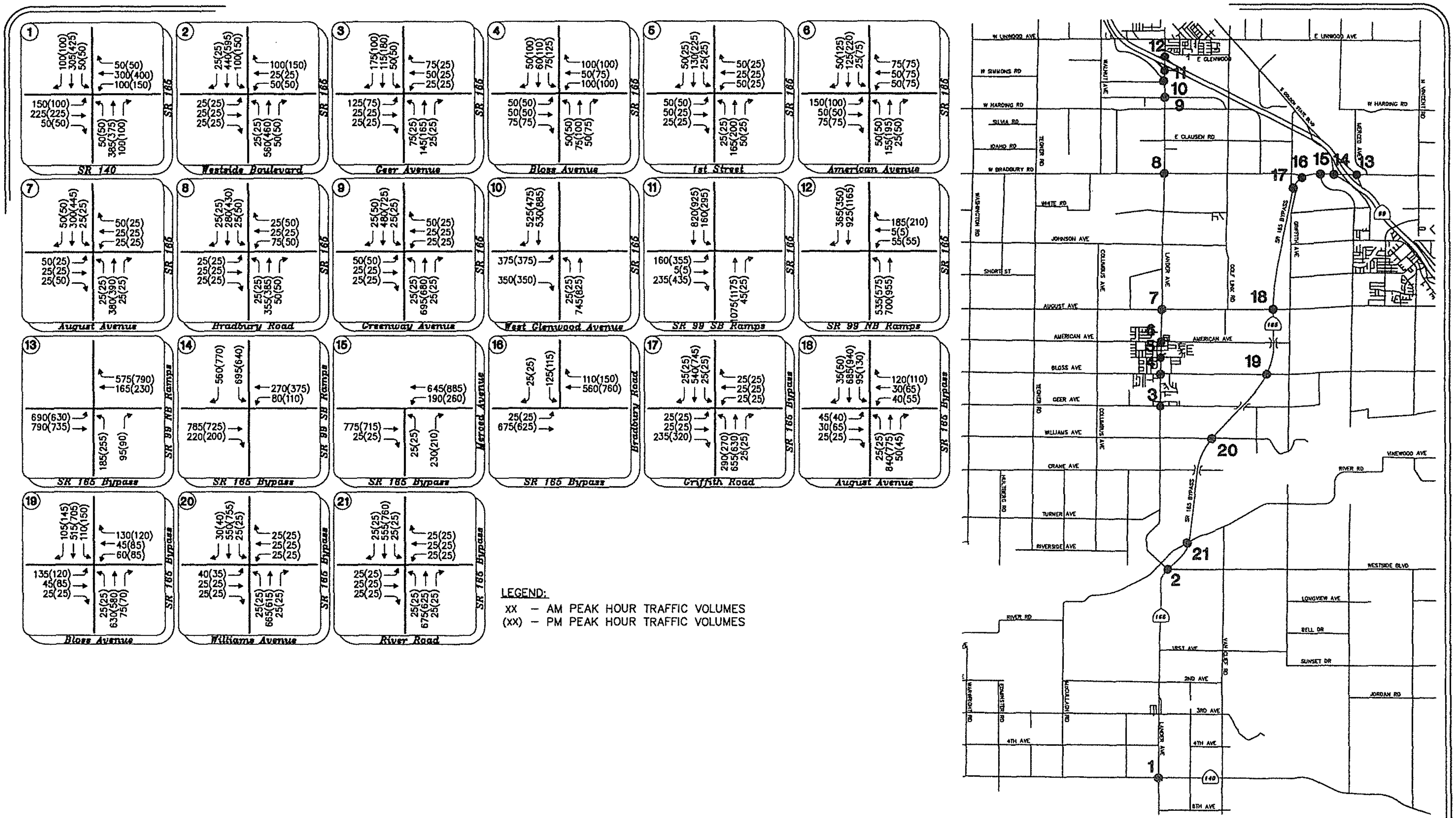
Job No: 25-4701-01


SR 99 / SR 165 PSR
Year 2035 Peak Hour Traffic Volumes, Alternative 1 (Option 1)
Figure 18
LEGEND:
XX - AM PEAK HOUR TRAFFIC VOLUMES
(XX) - PM PEAK HOUR TRAFFIC VOLUMES



SR 99 / SR 165 PSR

Figure 19

Year 2035 Peak Hour Traffic Volumes, Alternative I (Option 2)

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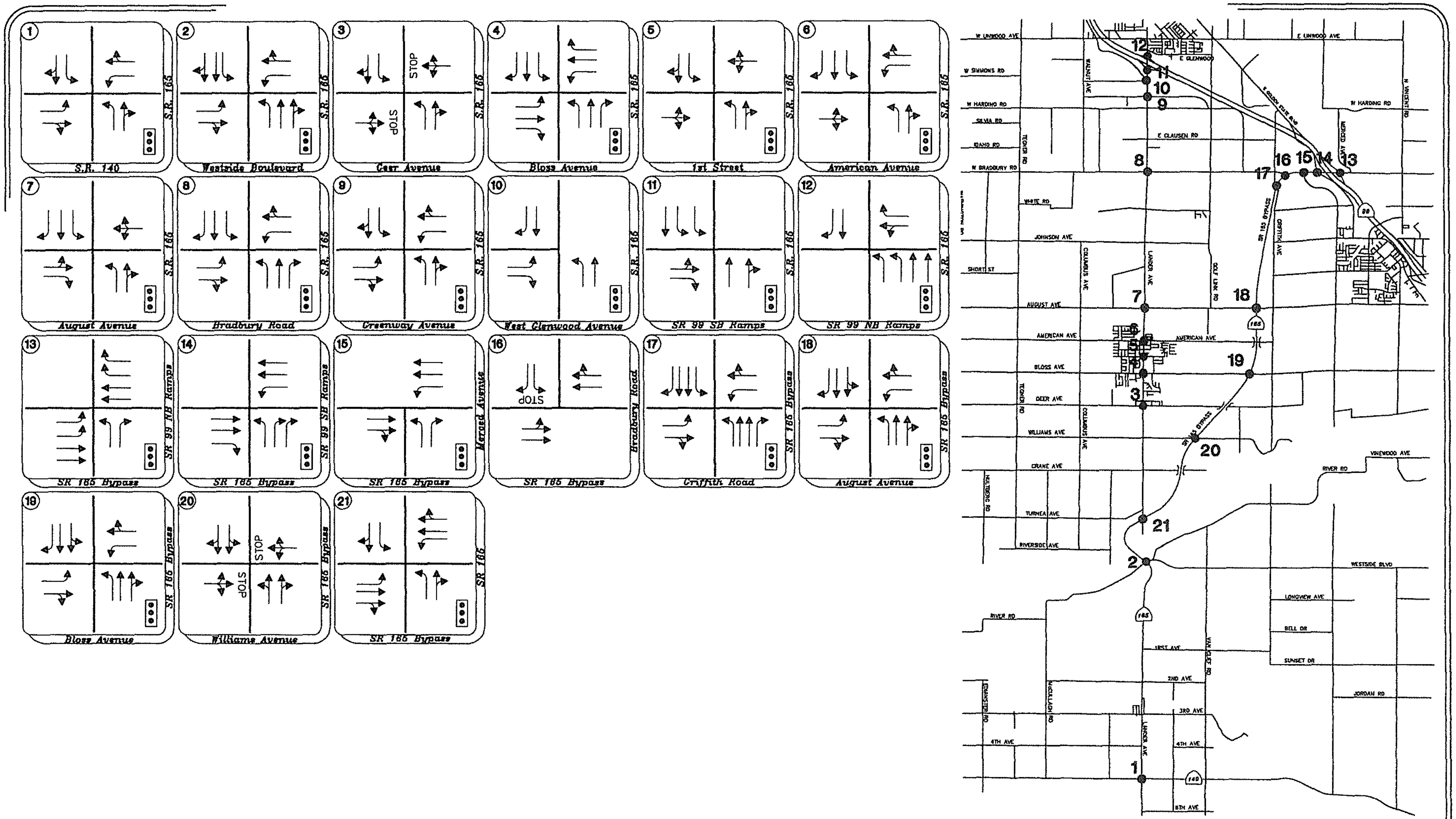
Job No: 25-4701-01



SR 99 / SR 165 PSR

Figure 20

Year 2035 Intersection Geometrics & Control, Alternative I (Option 1)

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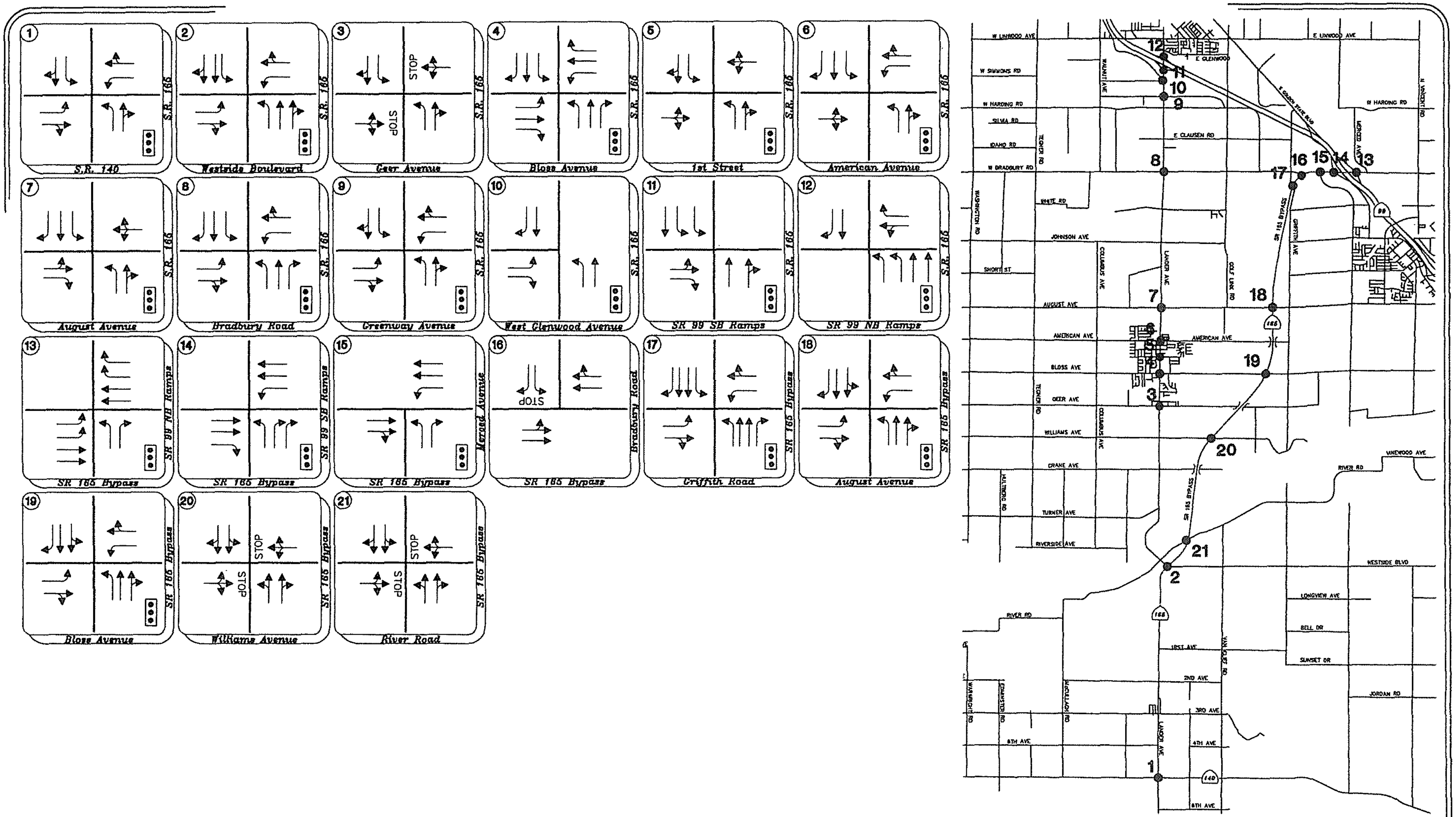
Job No: 25-4701-01



SR 99 / SR 165 PSR

Figure 21

Year 2035 Intersection Geometrics & Control, Alternative I (Option 2)

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Job No: 25-4701-01

TABLE 8
YEAR 2035 CONDITIONS – ALTERNATIVE I (OPTION 2)
INTERSECTION LEVEL OF SERVICE (LOS)

#	Intersection	Control Type	Target LOS	AM Peak Hour		PM Peak Hour	
				Delay	LOS	Delay	LOS
1	SR 165 / SR 140	Signal	D	38.2	D	44.0	D
2	SR 165 / Westside Boulevard	Signal	D	13.8	B	15.7	B
3	SR 165 / Geer Avenue	TWSC[1]	D	43.6	E	18.9	C
4	SR 165 / Bloss Avenue	Signal	D	17.7	B	19.2	B
5	SR 165 / 1st Street	Signal	D	16.3	B	18.7	B
6	SR 165 / American Avenue	Signal	D	13.2	B	13.9	B
7	SR 165 / August Avenue	Signal	D	15.0	B	13.5	B
8	SR 165 / Bradbury Road	Signal	D	12.1	B	12.8	B
9	SR 165 / Greenway Avenue	Signal	D	17.7	B	18.3	B
10	SR 165 / West Glenwood Avenue	Signal	D	18.2	B	25.1	C
11	SR 165 / SR 99 SB Ramps	Signal	D	14.5	B	26.0	C
12	SR 165 / SR 99 NB Ramps	Signal	D	24.8	C	49.2	D
13	SR 165 Bypass / SR 99 NB Ramps	Signal	D	14.0	B	15.5	B
14	SR 165 Bypass / SR 99 SB Ramps	Signal	D	20.4	C	23.0	C
15	SR 165 Bypass / Merced Avenue	Signal	D	22.3	C	12.6	B
16	SR 165 Bypass / Bradbury Road	TWSC[1]	D	17.1	C	21.2	C
17	SR 165 Bypass / Griffith Road	Signal	D	18.0	B	20.1	C
18	SR 165 Bypass / August Avenue	Signal	D	15.0	B	17.1	B
19	SR 165 Bypass / Bloss Avenue	Signal	D	20.1	C	22.2	C
20	SR 165 Bypass / Williams Avenue	TWSC[1]	D	16.4	C	21.6	C
21	SR 165 Bypass / River Road	TWSC[1]	D	18.2	C	20.2	C

1. TWSC = Two Way Stop Control – LOS & Delay based on worst minor street approach for TWSC intersections

Table 9 presents the projected Alternative I (Option 1) 2035 peak hour Level-of-Service (LOS) along various segments of mainline SR 99 while Table 10 presents the projected Alternative I (Option 2) 2035 peak hour Level-of-Service (LOS) along various segments of mainline SR 99.

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TABLE 9
YEAR 2035 CONDITIONS – ALTERNATIVE I (OPTION 1) SR 99 MAINLINE LEVEL OF SERVICE (LOS)

Freeway Mainline Segment	# Lanes	AM Peak Hour Volume	AM Peak Hour Density, (pc/mi/ln)[1]	AM Peak Hour LOS	PM Peak Hour Volume	PM Peak Hour Density, (pc/mi/ln)[1]	PM Peak Hour LOS
NB SR 99 (between Shanks Road and Bradbury Road)	3	5,236	33.8	D	5,117	32.6	D
NB SR 99 (between Bradbury Road and Golden State Boulevard)	3	6,181	OVR	F	6,172	OVR	F
NB SR 99 (between Golden State Boulevard and Lander Avenue)	3	5,459	36.4	E	5,467	36.5	E
NB SR 99 (between Lander Avenue and West Main Street)	3	6,094	OVR	F	6,127	OVR	F
SB SR 99 (between West Main Street and Lander Avenue)	3	4,814	29.9	D	6,343	OVR	F
SB SR 99 (between Lander Avenue and Golden State Boulevard)	3	4,614	28.8	D	5,868	43.9	E
SB SR 99 (between Golden State Boulevard and Bradbury Road)	3	5,219	33.6	D	6,658	OVR	F
SB SR 99 (between Bradbury Road and Shanks Road)	3	4,284	25.9	C	5,593	38.2	E

1. OVR = Over capacity, density measure not reported by HCS analysis software.

TABLE 10
YEAR 2035 CONDITIONS – ALTERNATIVE I (OPTION 2) SR 99 MAINLINE LEVEL OF SERVICE (LOS)

Freeway Mainline Segment	# Lanes	AM Peak Hour Volume	AM Peak Hour Density, (pc/mi/ln)[1]	AM Peak Hour LOS	PM Peak Hour Volume	PM Peak Hour Density, (pc/mi/ln)[1]	PM Peak Hour LOS
NB SR 99 (between Shanks Road and Bradbury Road)	3	5,236	33.8	D	5,117	32.6	D
NB SR 99 (between Bradbury Road and Golden State Boulevard)	3	6,216	OVR	F	6,192	OVR	F
NB SR 99 (between Golden State Boulevard and Lander Avenue)	3	5,494	36.8	E	5,487	36.7	E
NB SR 99 (between Lander Avenue and West Main Street)	3	6,149	OVR	F	6,142	OVR	F
SB SR 99 (between West Main Street and Lander Avenue)	3	4,829	30	D	6,379	OVR	F
SB SR 99 (between Lander Avenue and Golden State Boulevard)	3	4,634	28.9	D	5,903	44.6	E
SB SR 99 (between Golden State Boulevard and Bradbury Road)	3	5,239	33.9	D	6,693	OVR	F
SB SR 99 (between Bradbury Road and Shanks Road)	3	4,284	25.9	C	5,593	38.2	E

1. OVR = Over capacity, density measure not reported by HCS analysis software.

Table 11 presents the projected Alternative I (Option 1) 2035 peak hour Level-of-Service (LOS) at various ramp junctions along SR 99 while Table 12 presents the projected Alternative I (Option 2) 2035 peak hour Level-of-Service (LOS) at various ramp junctions along SR 99.

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TABLE 11
YEAR 2035 CONDITIONS – ALTERNATIVE I (OPTION 1) SR 99 RAMP JUNCTION LEVEL OF SERVICE (LOS)

Interchange Location	Junction Type	AM Peak Hour			PM Peak Hour		
		Speed (mph)	Density (pc/mi/ln)	LOS	Speed (mph)	Density (pc/mi/ln)	LOS
SR 99/Golden State Boulevard							
SR 99 NB Off-Ramp	Weave[1]	35	38.3	E	35	40.5	E
SR 99 SB On-Ramp	Weave[1]	35	34.2	D	35	47.2	F
SR 99/Bradbury Road							
SR 99 NB Off-Ramp	Diverge	35	35.4	E	35	34.9	D
SR 99 SB Off-Ramp	Weave[1]	35	34.2	D	35	47.2	F
SR 99 NB On-Ramp	Weave[1]	35	38.3	E	35	40.5	E
SR 99 SB On-Ramp	Merge	35	24.8	C	35	32.0	D

Notes:
1. Weaving analysis was performed at these ramp locations due to an existing auxiliary lane between the Golden State and Bradbury interchanges.

TABLE 12
YEAR 2035 CONDITIONS – ALTERNATIVE I (OPTION 2) SR 99 RAMP JUNCTION LEVEL OF SERVICE (LOS)

Interchange Location	Junction Type	AM Peak Hour			PM Peak Hour		
		Speed (mph)	Density (pc/mi/ln)	LOS	Speed (mph)	Density (pc/mi/ln)	LOS
SR 99/Golden State Boulevard							
SR 99 NB Off-Ramp	Weave[1]	35	40.0	E	35	40.1	E
SR 99 SB On-Ramp	Weave[1]	35	34.3	D	35	47.5	F
SR 99/Bradbury Road							
SR 99 NB Off-Ramp	Diverge	35	35.4	E	35	34.9	D
SR 99 SB Off-Ramp	Weave[1]	35	34.3	D	35	47.5	F
SR 99 NB On-Ramp	Weave[1]	35	40.0	E	35	40.1	E
SR 99 SB On-Ramp	Merge	35	24.8	C	35	32.0	D

Notes:
1. Weaving analysis was performed at these ramp locations due to an existing auxiliary lane between the Golden State and Bradbury interchanges.

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ATTACHMENT 4

PRELIMINARY PROJECT ALTERNATIVES EVALUATION AND MATRIX SCREENING PROCESS AND RESULTS

SR 99 – SR 165 Project Study Report (PSR)

Preliminary Project Alternatives Evaluation and Matrix Screening Process and Results

Working Paper #2

Prepared for:
Merced County Association of Governments (MCAG)

Prepared By

omni·means
ENGINEERS · PLANNERS

SR 99 / SR 165 PROJECT STUDY REPORT (PSR)

PRELIMINARY PROJECT ALTERNATIVES EVALUATION AND MATRIX SCREENING PROCESS AND RESULTS

WORKING PAPER #2

PREPARED FOR:
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INTRODUCTION

This report was prepared by Omni-Means to present the evaluation results for the preliminary project alternatives. Nine (9) primary State Route 165 (SR 165) alignments (Alternative A through Alternative I) were identified for this preliminary evaluation. In addition, sub-alternatives to Alternative D through Alternative I were identified that brings the total number of possible project alternatives to 19. Each alternative also considers either connections to existing SR 99 interchanges such as the SR 165 (Lander Avenue) interchange (Alternatives A, B, C and G) or the Bradbury Road interchange (Alternative I) or to a new interchange on SR 99 (Alternatives D, E, F and H). Figure 1 shows the approximate location of the 19 possible project alternatives. A copy of the conceptual drawings for each alternative is also provided in **Attachment A**.

This report also presents the results of a matrix evaluation that compares each alternative to the other alternatives. The matrix evaluation is a screening process designed to provide an objective method to compare the different alternative transportation improvement concepts developed for this study. Omni-Means has developed the *Alternative Selection Decision Matrix* (ASDM) process to formalize and simplify this procedure.

MATRIX EVALUATION

The matrix evaluation is a screening process designed to provide an objective method to compare the different alternative transportation improvement concepts developed for this study. The ASDM provides a means to identify and either quantitatively or qualitatively evaluate the advantages and disadvantages of each of the alternative transportation improvement concepts. The ASDM provides a means to "weigh" the importance of each criterion, so that the advantages and disadvantages of each alternative can be compared and ranked in relation to each other. These rankings allow the identification of preferred alternative(s), taking into consideration the technical and social concerns of the community.

Each alternative likely meets or exceeds the threshold for some criterion, and fall short on others. In the end, this ASDM procedure, based upon the criterion importance weighting and scoring, determines the relative merits of each alternative. The ultimate purpose of the ASDM is to provide direction on, and documentation of, the selection of alternatives to be studied further.

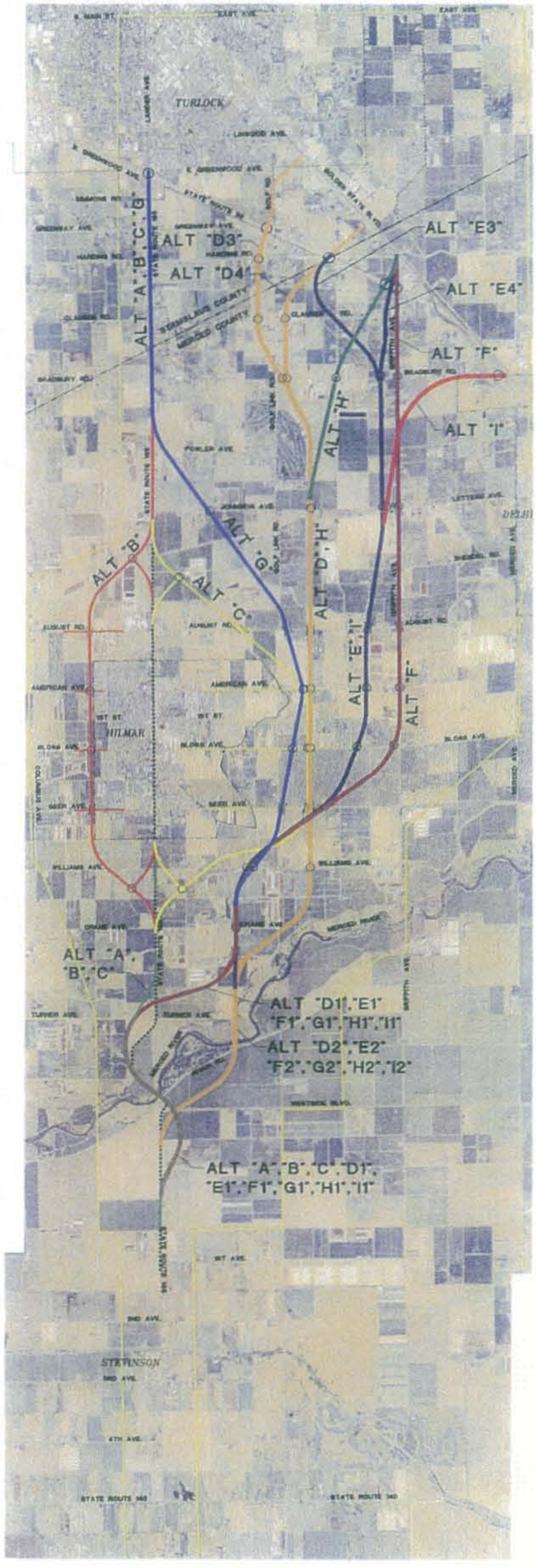
The overall ASDM procedure involves a multiple-step process:

1) Purpose and Need
    a. Identify "Evaluation Criteria"
    b. Fatal Flaw Conditions
2) Determine "Relative Weighing" for each "Evaluation Criteria"
3) Evaluate each alternative based on the identified "Evaluation Criteria"
4) Score each alternative for each "Evaluation Criteria"
5) Calculate the final weighted scores and final rankings for each alternative

The following discussion provides a more detailed description of the process.

PURPOSE AND NEED

The first step in the ASDM process is to develop the Purpose and Need that is used develop the "Evaluation Criteria" for comparing one alternative to another. The Purpose and Need has been developed and concurred with by the Project Development Team (PDT), the Citizens Advisory Committee (CAC) and Policy Committee (PC), and has been approved by the member Boards and Councils. The Purpose and Need for the SR 99 – SR 165 PSR project is as follows:



SR 99 / 165 PSR

FIGURE 1

PRELIMINARY PROJECT ALTERNATIVES

Need:

There is a need to improve current traffic operations and reduce traffic congestion experienced along SR 165 (also referred to as Lander Avenue). Various highway segments including the SR 165 bridge over the Merced River and intersections currently experience AM and/or PM peak hour Levels of Service "E/F". There is a need to reduce truck impacts on traffic operations on SR 165. Regional, inter-regional and local trucks which currently represent between 10-percent (average condition) to 20-percent (during harvest season) of all traffic traveling on SR 165 contribute to congested traffic conditions including through the community of Hilmar. There is a need to improve safety along SR 165. Highway segments currently experience actual accident rates that are higher than the corresponding average accident rates from the intersection with SR 140 to north of Bradbury Road. There is a need to design traffic circulation improvements on or adjacent to SR 165 that will support continued growth in local general plans, community plans and specific plans, combined with future increases in regional and inter-regional traffic to the year 2035 (future growth). Future growth will further increase congestion along SR 165 and lead to increased congestion on both the adjacent county and city roadway systems. There is also a need to design traffic circulation improvements, including improved freeway access between SR 99 and the local roadway system that will support future growth.

Purpose:

The primary purpose of this project is to improve safety and traffic operations and reduce current and future congestion along SR 165, including congestion within the community of Hilmar, and to improve freeway access between SR 99 and the local roadway system to support continued growth in local general plans, community plans and specific plans.

Secondary purposes of the project include:

- Facilitate goods movement including the movement of agricultural products from field to processing plant and from processing plant to market.
- Widen, replace or relocate the existing SR 165 Bridge over the Merced River.
- Move regional and inter-regional truck traffic around the community of Hilmar.
- Improve local traffic circulation within the project study area.
- Support continued growth in the Merced County, Stanislaus County and City of Turlock General Plans; the communities of Hilmar and Delhi Community Plans; and the City of Turlock's SE Turlock Specific Plan.
- Implement long-term circulation system solutions that can be built in phases.

a. Identify Evaluation Criteria

Based on the Project's "Purpose", criteria are identified to use as a test to determine if individual alternatives meet the purpose and need of the project. These evaluation criteria include the following.

1. Congestion and Traffic Operations

This criterion quantifies the potential reduction in traffic congestion and improvements in traffic operations associated with each of the alternatives so that the "relative" operating merits of the alternatives can be assessed from a traffic impact standpoint. Congestion and traffic operations are generally quantified through the determination of "Level of Service" (LOS). LOS is a qualitative measure of traffic operating conditions, whereby a letter grade "A" through "F" is assigned representing progressively worsening traffic conditions. The projected traffic operations resulting with each alternative is then used to score the alternatives in direct relationship to each other.

The project study area extends through multiple jurisdictions each with their own acceptable LOS standard. The following table provides the applicable LOS standard by jurisdiction. The applicable LOS standard is generally taken as the minimum acceptable operating standard for study transportation facilities within the ASDM evaluation process.

TABLE 1
LEVEL OF SERVICE (LOS) STANDARD BY JURISDICTION

Agency	LOS Standard	LOS Application
Caltrans (2025 Concept LOS)		
SR 99:	C	Bradbury Rd. to Lander Ave. (SR 165) Interchanges (Rural)
	D	North of Lander Ave. (SR 165) Interchange (Urban)
SR 165:	D	Entire Length
Merced County (GP)	C	Rural Areas
	D	Specific Urban Development Areas such as Hilmar and Delhi
Stanislaus County (GP)	C	On all roadways
City of Turlock (GP)	C	General standard with exceptions for city facilities not located within project study area

GP – General Plan

2. *Safety*

This criterion evaluates the potential improvement in traffic safety associated with each of the alternatives through the quantification of the potential accident cost savings associated with an alternative when compared to the "No Build" condition. Potential accident cost savings can be calculated using "Collision Data on California State Highways" published by Caltrans which includes basic average accident rates for various highway, intersection and ramp junction types in conjunction with average accident costs. The potential accident cost savings for each alternative is then used to score the alternatives in direct relationship to each other.

3. *Improved Freeway Access between State Route 99 (SR 99) and the Local Roadway System*

This criterion quantifies the amount of daily traffic projected to enter and exit at each interchange ramp as an indicator as to whether improved access between SR 99 and the local roadway system would be provided by each alternative. The projected daily traffic at each interchange ramp for each alternative is then used to score the alternatives in direct relationship to each other.

4. *Goods Movement – Local, Regional and Interregional*

SR 165 is north/south route connecting Interstate 5 (I-5) south of Santa Nella with State Route 99 (SR 99) in the City of Turlock and provides a connection for regional traffic including heavy trucks between I-5 and SR 99. SR 165 also carries a large amount of agricultural truck traffic needed to transport the significant agricultural resources produced along this corridor from field to processing plant and from processing plant to market. SR 165 also serves as the primary north/south arterial through the community of Hilmar. The highway traverses past schools (Elim Union Elementary School and Hilmar High School), residences and through the central business district.

Approximately 10% of the traffic traveling on SR 165 north of the junction with SR 140 is truck traffic with trucks increasing to approximately 22% of all traffic on this route during the harvest season. Regional and interregional truck traffic is estimated to represent approximately 6% of all traffic traveling on this route. Regional and interregional truck traffic is primarily bound to destinations within the City of Turlock or to destinations further north on SR 99. This criterion uses estimated reductions in travel time between SR 140 and SR 99 when compared to the "No Build" condition as the indicator of whether trucks will utilize each alternative alignment. The reduction in travel time for each alternative is then used to score the alternatives in direct relationship to each other.

5. Local Traffic Circulation within Project Study Area

This criterion considers the potential effects of an alternative on local traffic circulation within the project study area by determining whether an alternative results in an increase or decrease in traffic using the local roadways within the study area. This criterion compares the change in daily traffic projected with each alternative on various local roadways to the "No Build" condition. The projected change in daily traffic for each alternative is then used to score the alternatives in direct relationship to each other.

6. Coordination with Community, Specific and General Plans

This criterion assigns a point value based on whether an alternative is included within the circulation element or sections of an approved various Community Plans (CP – Hilmar and Delhi), Specific Plans (SP - SE Turlock) and General Plans (GP - Merced County, Stanislaus County and City of Turlock); is consistent in concept with the Policies, Goals, and Objectives within the various CP, SP and GP; or is neither included in nor consistent with the various CP, SP and GP. The point values earned by each alternative are then used to score the alternatives in direct relationship to each other.

7. Constructability / Phasing

This criterion assigns a point value based on whether an alternative can be constructed in phases. The point values earned by each alternative are then used to score the alternatives in direct relationship to each other.

The PDT also identified the following secondary criteria to be evaluated with each individual alternative:

8. Environmental Impacts

This criterion assigns a point value based on the potential environmental impacts resulting from each of the alternatives. These could include impacts to cultural resources (historic areas or properties), land use (for noise), farmland (Williamson Act contracts), FEMA Floodzones (Merced River), Biological Resources (special status species and wetlands) etc. The point values earned by each alternative are then used to score the alternatives in direct relationship to each other.

9. Right of Way Impacts

This criterion quantifies the potential right of way impacts resulting with each alternative based on the following three (3) criteria.

1) Total number of parcels from which right of way would be required.
2) The estimated number of parcels in which an alternative divides a parcel resulting a portion of the remaining parcel located to either side of an alignment.
3) The estimated number of buildings or structures that could be impacted by an alternative.

Potential right of way impacts for each criteria are quantified for each alternative and then used to score the alternatives in direct relationship to each other. The individual criteria scores are then added together and the total for each alternative is then used to determine the final scoring for each alternative.

10. Design Standards

Roadway and interchange design standards are set by the local agency, Caltrans and the FHWA. This criteria assigns a point value to each alternative as it relates to these design standards. The point values earned by each alternative are then used to score the alternatives in direct relationship to each other.

11. Cost

The cost criteria provides a means to include the potential costs for each alternative into the decision making process, and is based upon rough planning level cost estimates. Both construction and right of way costs are estimated for each alternative. These estimated costs are then used to score the alternatives in direct relationship to each other. *{Note: The costs presented in the ASDM are planning level estimates for comparative purposes only and do not represent actual costs. Actual project construction costs for each listed* *component or as totaled may vary substantially and therefore should not be used outside of the context of this comparison.}*

b. Fatal Flaw Conditions

There may be conditions present that would preclude considering a potential project alignment or improvement. Currently, the PDT has identified the following conditions that are to be avoided when considering possible project alternatives. The PDT also noted that the presence of Jurisdictional waters and wetlands could affect alternative selection.

- Land-uses that are classified as 4(f) such as public parks, schools, public golf courses, etc.

WEIGHTING EVALUATION CRITERIA

The next step in the ASDM evaluation procedure is determining the "relative importance" by the PDT of each evaluation criteria by assigning a weighted value to each. Certain criterion is typically considered to be more important than others. Therefore, each evaluated criterion is assigned a relative weighted value to indicate its relative importance in relation to the other criteria.

Each of the evaluation criterions is weighted on a scale of one to five. Five is the upper end of the scale and indicates that the evaluated criterion is of extreme importance. One therefore is the low end of the scale and indicates that the evaluation criterion is far less important. Each criterion is weighted independent of the others. For example, multiple criteria may be considered extremely important and each assigned a five. Conversely, other criteria may be considered far less important and assigned lower numbers.

Weighted Scale

Relative Weight Scale	
1	Not Important
2	Less Important
3	Important
4	Very Important
5	Most Important

Each of the evaluation criterions were weighted by each participating agency on the PDT. The following table presents the relative importance identified by agency for each of the criterion and the average score for each of the criteria. As shown in the table, "Congestion and Traffic Operations" and "Safety" scored the highest and are considered the most important evaluation criterion while "Local Traffic Circulation" and "Design Standards scored the lowest.

TABLE 2
WEIGHTING OF INDIVIDUAL EVALUATION CRITERIA

	PDT/Agency Input								
Criteria	**Caltrans**	**MCAG**	**StanCOG**	**Stanislaus County**	**Merced County**	**City of Turlock**	**Total Score**	**Average Score**	**%**
Congestion and Traffic Operations	5	5	4	4	5	5	28	4.67	11.34%
Safety	5	5	5	4	5	5	29	4.83	11.74%
Improved Access with SR 99	4	5	4	3	3	5	24	4.00	9.72%
Goods Movement	3	3	3	4	4	3	20	3.33	8.10%
Local Traffic Circulation	2	1	3	2	3	5	16	2.67	6.48%
Coordination with CP, SP and GP	2	3	5	4	5	5	24	4.00	9.72%
Constructability / Phasing	3	4	4	5	3	5	24	4.00	9.72%
Environmental Impacts	5	3	4	4	4	5	25	4.17	10.12%
Right of Way Impacts	4	2	3	3	4	3	19	3.17	7.69%
Design Standards	4	1	4	3	3	3	18	3.00	7.29%
Cost	3	4	3	4	3	3	20	3.33	8.10%
						Total	**247**	**41.17**	**100%**

ALTERNATIVES EVALUATION BASED ON EVALUATION CRITERIA

This section provides either a quantitative or qualitative evaluation of each of the project alternatives based on the evaluation criteria. As previously noted in this report, nine (9) primary State Route 165 (SR 165) alignments (Alternative A through Alternative I) were identified for this preliminary evaluation. In addition, sub-alternatives to Alternative D through Alternative I were identified that brings the total number of possible project alternatives to 19. Each alternative also considers either connections to existing SR 99 interchanges such as the SR 165 (Lander Avenue) interchange (Alternatives A, B, C and G) or the Bradbury Road interchange (Alternative I) or to a new interchange on SR 99 (Alternatives D, E, F and H). **Figure 1** shows the approximate location of the 19 possible project alternatives. A copy of the conceptual drawings for each alternative is also provided in **Attachment A**.

1. Congestion and Traffic Operations

Year 2035 daily traffic forecasts were developed for each of the identified project alternatives. For evaluating projected congestion and traffic operations, a daily Level of Service (LOS) was quantified at various segments along SR 165 for each project alternative. In cases where an alternative either includes a bypass route on existing SR 165 or potentially a new highway alignment, then daily LOS was quantified along both the existing highway route and the new highway alignment. Table 3 presents the project 2035 average daily traffic (ADT) volumes and projected LOS for each project alternative.

TABLE 3
PROJECTED 2035 DAILY TRAFFIC VOLUMES AND LEVEL OF SERVICE (LOS)

Roadway Segment	No Build ADT	Alternative A		Alternative B				Alternative C				Alternative D1 (D3&D4)			
		SR 165 ADT	LOS	SR 165 ADT	LOS	Bypass ADT	LOS	SR 165 ADT	LOS	Bypass ADT	LOS	SR 165 ADT	LOS	Bypass ADT	LOS
SR 165, south of Westside Boulevard	20,200	22,700	C	22,700	C			22,500	B			22,500	B		
SR 165, south of Turner Avenue	21,600	25,100	C	25,100	C			24,900	B			25,000	B		
SR 165, south of Crane Avenue	19,400	25,100	C	25,100	C			24,900	B			6,800	A	18,300	A
SR 165, south of Geer Avenue	16,300	25,400	C	5,300	A	19,900	B	5,000	A	20,000	B	7,000	A	18,300	A
SR 165, south of American Avenue	15,000	26,700	D	4,600	A	27,600	D	5,500	A	20,300	C	6,200	A	25,800	B
SR 165, south of Johnson Avenue	18,700	37,000	B	36,900	B			35,800	B			13,400	C	26,500	B
SR 165, south of Bradbury Road	19,500	38,900	B	38,800	B			37,600	B			13,800	C	26,500	B
SR 165, south of Harding Road	18,700	37,100	B	37,500	B			37,300	B			14,800	D	29,800	B
SR 165, south of SR 99	36,300	51,300	D	51,600	D			51,400	D			18,900	F	30,700	C

Roadway Segment	Alternative D2 (D3&D4)				Alternative E1 (E3 & E4)				Alternative E2 (E3 & E4)				Alternative F1			
	SR 165 ADT	LOS	Bypass ADT	LOS	SR 16S ADT	LOS	Bypass ADT	LOS	SR 165 ADT	LOS	Bypass ADT	LOS	SR 165 ADT	LOS	Bypass ADT	LOS
SR 165, south of Westside Boulevard	22,700	C			22,700	C			22,800	C			22,700	C		
SR 165, south of Turner Avenue	6,400	A	18,900		25,100	B			6,700	A	18,800	A	25,100	B		
SR 165, south of Crane Avenue	6,400	A	18,900	A	7,000	A	18,300	A	6,700	A	18,800	A	7,100	A	18,000	A
SR 165, south of Geer Avenue	6,700	A	18,900	A	7,200	A	18,300	A	6,800	A	18,800	A	7,500	A	18,300	A
SR 165, south of American Avenue	6,000	A	26,000	B	6,900	A	26,700	B	6,700	A	27,400	B	7,000	A	27,600	B
SR 165, south of Johnson Avenue	13,600	C	26,900	B	14,300	D	29,500	C	14,400	D	30,100	C	14,400	D	30,900	C
SR 165, south of Bradbury Road	14,200	D	26,900	B	15,800	D	28,300	C	15,800	D	28,900	C	15,800	D	30,000	C
SR 165, south of Harding Road	14,900	D	30,100	C	15,600	D	26,100	B	15,900	D	27,500	B	15,600	D	27,800	B
SR 165, south of SR 99	19,200	F	30,900	C	20,500	F	28,100	C	21,100	F	29,700	C	20,700	F	28,900	C

Roadway Segment	Alternative F2				Alternative G1				Alternative G2				Alternative H1			
	SR 165 ADT	LOS	Bypass ADT	LOS	SR 165 ADT	LOS	Bypass ADT	LOS	SR 165 ADT	LOS	Bypass ADT	LOS	SR 165 ADT	LOS	Bypass ADT	LOS
SR 165, south of Westside Boulevard	22,700	C			22,700	C			22,700	C			22,700	C		
SR 165, south of Turner Avenue	7,000	A	18,300	A	25,200	B			4,900	A	20,300	A	25,100	B		
SR 165, south of Crane Avenue	7,000	A	18,300	A	5,000	A	20,100	A	4,900	A	20,300	A	6,400	A	18,600	A
SR 165, south of Geer Avenue	7,400	A	18,500	A	5,400	A	20,100	A	5,200	A	20,300	A	6,700	A	18,600	A
SR 165, south of American Avenue	7,000	A	28,000	B	4,900	A	24,400	B	4,900	A	24,500	B	6,100	A	26,300	B
SR 165, south of Johnson Avenue	14,900	D	31,100	C	14,700	D	21,500	A	14,700	D	21,600	A	13,300	C	28,500	C
SR 165, south of Bradbury Road	16,000	D	30,200	C	38,000	B			38,100	B			14,900	D	27,100	B
SR 165, south of Harding Road	15,600	D	28,200	C	36,900	B			36,900	B			15,200	D	27,600	B
SR 165, south of SR 99	21,300	F	29,100	C	41,700	C			41,700	C			20,800	F	30,200	C

Roadway Segment	Alternative H2				Alternative I1				Alternative I2			
	SR 165 ADT	LOS	Bypass ADT	LOS	SR 165 ADT	LOS	Bypass ADT	LOS	SR 165 ADT	LOS	Bypass ADT	LOS
SR 165, south of Westside Boulevard	22,700	C			22,500	B			22,500	B		
SR 165, south of Turner Avenue	6,700	A	18,700	A	25,000	B			7,100	A	17,900	A
SR 165, south of Crane Avenue	6,700	A	18,700	A	8,600	B	16,400	A	7,100	A	17,900	A
SR 165, south of Geer Avenue	6,800	A	18,600	A	8,900	B	16,400	A	7,400	A	18,000	A
SR 165, south of American Avenue	6,200	A	26,100	B	8,200	A	23,000	B	7,400	A	24,300	B
SR 165, south of Johnson Avenue	13,600	C	28,900	C	14,800	D	26,300	B	14,200	D	27,200	B
SR 165, south of Bradbury Road	15,100	D	27,500	B	16,000	D	25,200	B	15,800	D	26,000	B
SR 165, south of Harding Road	15,500	D	28,000	B	15,500	D	16,900	A	15,600	D	17,600	A
SR 165, south of SR 99	20,900	F	30,300	C	20,700	F	31,000	C	20,700	F	31,900	C

2. *Safety*

This criterion evaluates the potential improvement in traffic safety associated with each of the alternatives through the quantification of the potential accident cost savings associated with an alternative when compared to the "No Build" condition. Potential accident cost savings for each alternative were calculated using "Collision Data on California State Highways" published by Caltrans which includes basic average accident rates for various highway, intersection and ramp junction types in conjunction with average accident costs. Table 4 presents the estimated cost for all accidents based on available data for the "No Build" condition and for each project alternative. As shown in the table, each of the project alternatives are estimated to result in accident costs lower than the "No Build" condition.

TABLE 4
ESTIMATED ACCIDENT COSTS

Alternative	Estimated Accident Costs ($1000)	Estimated Cost Difference to "No Build" ($1000)
"No Build"	$2,786.5	
Alternative A	$2,621.0	-$165.5
Alternative B	$2,677.0	-$109.5
Alternative C	$2,703.6	-$82.9
Alternative D1/D3	$1,863.4	-$923.1
Alternative D1/D4	$1,774.5	-$1,102.0
Alternative D2/D3	$1,798.9	-$987.6
Alternative D2/D4	$1,710.0	-$1,076.5
Alternative E1/E3	$1,856.8	-$929.7
Alternative E1/E4	$1,659.0	-$1,127.5
Alternative E2/E3	$1,790.8	-$995.7
Alternative E2/E4	$1,593.0	-$1,193.5
Alternative F1	$1,769.5	-$1,017.0
Alternative F2	$1,703.6	-$1,082.9
Alternative G1	$2,067.0	-$719.5
Alternative G2	$2,001.1	-$785.4
Alternative H1	$1,568.3	-$1,218.2
Alternative H2	$1,502.3	-$1,284.2
Alternative I1	$1,560.4	-$1,226.1
Alternative I2	$1,494.4	-$1,292.1

3. *Improved Freeway Access between State Route 99 (SR 99) and the Local Roadway System*

Each alternative either connects to existing SR 99 interchanges at the SR 165 (Lander Avenue) interchange (Alternatives A, B, C, G1 and G2) and the Bradbury Road interchange (Alternatives I1 and I2) or to a new interchange on SR 99 (Alternatives D3, D4, E3, E4, F1, F2, H1 and H2). This criterion considers the amount of daily traffic projected to enter and exit at each interchange ramp as an indicator as to whether improved access between SR 99 and the local roadway system would be provided by each alternative. Table 5 presents the projected "No Build" condition year 2035 average daily traffic (ADT) volumes and the projected ADT for each alternative on the various interchange ramps. Also shown in the table by project alternative is the total ADT on the various interchange ramps and the net difference with the "No Build" condition ADT.

Alternatives E1/E4, E2/E4, F1, F2, H1 and H2 propose new interchanges on SR 99 less than 1-mile from the existing Golden State Boulevard interchange. It is likely that these alternatives would require closure of the existing Golden State Boulevard interchange. As shown in Table 5, on and off ramp daily traffic volumes are not shown at the Golden State Boulevard interchange for these alternatives.

TABLE 5
PROJECTED 2035 DAILY TRAFFIC VOLUMES ON VARIOUS SR 99 INTERCHANGE RAMPS

SR 99 Interchange	No Build	Alternative A	Alternative B	Alternative C	Alternative D1/D3
	ADT	ADT	ADT	ADT	ADT
Lander Avenue (SR 165)					
NB Off-Ramp	7,400	6,500	6,500	6,300	10,500
NB On-Ramp	15,200	17,900	18,100	18,000	10,400
SB Off-Ramp	14,100	17,000	17,100	17,100	9,600
SB On-Ramp	6,900	5,800	5,700	5,800	9,700
New Interchange					
NB Off-Ramp					2,500
NB On-Ramp					13,600
SB Off-Ramp					12,500
SB On-Ramp					2,100
Golden State Boulevard					
NB Off-Ramp	9,100	10,600	10,600	10,700	9,900
SB On-Ramp	9,700	11,100	11,100	11,100	10,500
Bradbury Road					
NB Off-Ramp	3,800	2,900	2,900	2,900	2,900
NB On-Ramp	13,400	13,300	13,300	12,800	12,000
SB Off-Ramp	13,600	13,300	13,300	12,900	12,500
SB On-Ramp	3,600	2,800	2,800	2,700	2,700
Total	**96,800**	**101,200**	**101,400**	**100,300**	**121,400**
Net Difference with No-Build		**4,400**	**4,600**	**3,500**	**24,600**

SR 99 Interchange	Alternative D1/D4	Alternative D2/D3	Alternative D2/D4	Alternative E1/E3	Alternative E1/E4
	ADT	ADT	ADT	ADT	ADT
Lander Avenue (SR 165)					
NB Off-Ramp	8,200	10,400	8,300	8,500	8,200
NB On-Ramp	12,000	10,000	11,900	12,300	12,700
SB Off-Ramp	10,500	9,300	10,700	11,100	11,500
SB On-Ramp	7,600	9,600	7,700	7,700	7,600
New Interchange					
NB Off-Ramp	3,100	2,500	2,900	1,300	7,000
NB On-Ramp	10,900	13,800	11,400	11,900	9,300
SB Off-Ramp	10,800	12,700	10,800	11,300	9,000
SB On-Ramp	1,800	2,100	1,700	1,300	7,000
Golden State Boulevard					
NB Off-Ramp	9,600	9,900	9,700	9,600	
SB On-Ramp	10,000	10,600	10,000	9,800	
Bradbury Road					
NB Off-Ramp	1,900	2,900	2,000	3,100	3,200
NB On-Ramp	12,500	12,000	12,500	11,200	11,300
SB Off-Ramp	12,700	12,600	12,800	11,600	11,300
SB On-Ramp	2,900	2,700	3,100	3,200	3,100
Total	**114,500**	**121,100**	**115,500**	**113,900**	**101,200**
Net Difference with No-Build	**17,700**	**24,300**	**18,700**	**17,100**	**4,400**

TABLE 5 (CONTINUED)
PROJECTED 2035 DAILY TRAFFIC VOLUMES ON VARIOUS SR 99 INTERCHANGE RAMPS

SR 99 Interchange	Alternative E2/E3	Alternative E2/E4	Alternative F1	Alternative F2	Alternative G1
	ADT	ADT	ADT	ADT	ADT
Lander Avenue (SR 165)					
NB Off-Ramp	8,600	8,200	8,200	8,200	6,100
NB On-Ramp	12,500	12,800	12,700	12,800	18,000
SB Off-Ramp	11,100	11,600	11,600	11,600	17,200
SB On-Ramp	7,800	7,600	7,500	7,600	5,500
New Interchange					
NB Off-Ramp	1,300	7,000	6,700	6,700	
NB On-Ramp	11,900	9,300	9,900	9,900	
SB Off-Ramp	11,400	9,000	9,700	9,700	
SB On-Ramp	1,300	7,000	6,700	6,700	
Golden State Boulevard					
NB Off-Ramp	9,600				10,700
SB On-Ramp	9,800				11,100
Bradbury Road					
NB Off-Ramp	3,100	3,200	3,400	3,400	2,800
NB On-Ramp	11,200	11,300	10,500	10,500	12,600
SB Off-Ramp	11,600	11,300	10,500	10,700	12,700
SB On-Ramp	3,200	3,100	3,300	3,300	2,700
Total	**114,400**	**101,400**	**100,700**	**101,100**	**99,400**
Net Difference with No-Build	**17,600**	**4,600**	**3,900**	**4,300**	**2,600**

SR 99 Interchange	Alternative G2	Alternative H1	Alternative H2	Alternative I1	Alternative I2
	ADT	ADT	ADT	ADT	ADT
Lander Avenue (SR 165)					
NB Off-Ramp	6,100	8,000	8,200	6,800	7,100
NB On-Ramp	18,000	12,700	12,700	12,900	13,200
SB Off-Ramp	17,200	11,400	11,600	11,800	12,000
SB On-Ramp	5,600	7,400	7,500	6,100	6,500
New Interchange					
NB Off-Ramp		8,900	8,900		
NB On-Ramp		8,700	8,700		
SB Off-Ramp		8,500	8,500		
SB On-Ramp		8,900	8,900		
Golden State Boulevard					
NB Off-Ramp	10,800			10,000	10,000
SB On-Ramp	11,100			9,700	9,700
Bradbury Road					
NB Off-Ramp	2,800	1,800	1,800	3,800	3,800
NB On-Ramp	12,600	12,300	12,300	18,300	18,600
SB Off-Ramp	12,700	12,500	12,600	18,000	18,500
SB On-Ramp	2,700	1,700	1,900	4,100	4,100
Total	**99,600**	**102,800**	**103,600**	**101,500**	**103,500**
Net Difference with No-Build	**2,800**	**6,000**	**6,800**	**4,700**	**6,700**

4. *Goods Movement – Local, Regional and Interregional*

This criterion compares travel time along the SR 165 corridor as the indicator of whether trucks will utilize either an improved SR 165 or one of the alternative highway alignments. Travel times have been estimated for the "No Build" condition and for each of the project alternatives from a point just south of Westside Boulevard north to the SR 165 (Lander Avenue) interchange with SR 99. For the alternatives that do not connect directly to the SR 165 (Lander Avenue) interchange, travel times were also estimated between those alternatives junctions with SR 99 to the SR 165 (Lander Avenue) interchange. Table 6 presents the estimated travel times in minutes and by direction of travel for each project alternative. As shown in the table, each of the project alternatives are estimated to result in travel times lower then the "No Build" condition.

TABLE 6
ESTIMATED HIGHWAY TRAVEL TIMES

Alternative	Estimated Travel Times (minutes)	Estimated Travel Time Difference to "No Build" (minutes)
"No Build"	21.0	
Alternative A	11.6	-9.4
Alternative B	11.4	-9.6
Alternative C	11.6	-9.4
Alternative D1/D3	11.7	-9.3
Alternative D1/D4	12.1	-8.9
Alternative D2/D3	11.3	-9.7
Alternative D2/D4	11.8	-9.2
Alternative E1/E3	12.1	-8.9
Alternative E1/E4	12.6	-8.4
Alternative E2/E3	12.3	-8.7
Alternative E2/E4	12.3	-8.7
Alternative F1	12.9	-8.1
Alternative F2	12.5	-8.5
Alternative G1	11.0	-10.0
Alternative G2	10.8	-10.2
Alternative H1	12.7	-8.3
Alternative H2	12.3	-8.7
Alternative I1	14.0	-7.0
Alternative I2	13.7	-7.3

5. *Local Traffic Circulation within Project Study Area*

This criterion considers the potential effects of an alternative on local traffic circulation within the project study area by determining whether an alternative results in an increase or decrease in traffic using the local roadways within the study area. Table 7 presents the projected "No Build" condition average daily traffic (ADT) volumes and the projected ADT for the alternatives on various local roadway segments both to the north of SR 99 and to the south of SR 99. For this criterion, the roadway segments south of SR 99 include the Lander Avenue (SR 165) segments from south of Geer Avenue to south of American Avenue. Also shown in the table by project alternative is the total ADT for the various roadway segments and the net difference with the "No Build" condition ADT both to the north of SR 99 and to the south of SR 99.

TABLE 7
PROJECTED 2035 DAILY TRAFFIC VOLUMES ON THE LOCAL ROADWAY SYSTEM

Roadway Segments North of SR 99	No Build ADT	Alternative A ADT	Alternative B ADT	Alternative C ADT	Alternative D1/D3 ADT
Lander Ave n/o of SR 99	37,700	37,000	37,000	37,000	38,600
Golf Rd. n/o SR 99	16,200	15,500	15,600	15,300	16,000
Griffith Rd. n/o SR 99	6,800	5,400	5,400	5,100	3,700
Golden State Blvd. @ Griffith Ave.	21,000	24,500	24,500	24,500	23,800
Total ADT Volumes	**81,700**	**82,400**	**82,500**	**81,900**	**82,100**
Net Difference with No-Build ADT Volumes		**700**	**800**	**200**	**400**
Roadway Segments South of SR 99	**No Build ADT**	**Alternative A ADT**	**Alternative B ADT**	**Alternative C ADT**	**Alternative D1/D3 ADT**
Lander Ave s/o of Geer Ave	16,300	25,400	5,300	5,000	7,000
Lander Ave s/o of American Ave	15,000	26,700	4,600	5,500	6,200
Columbus Ave. s/o August Ave.	2,200	600	1,300	600	600
Golf Link Rd. n/o August Rd.	1,800	300	300	1,200	600
Golf Link Rd. n/o Bradbury Rd.	3,400	1,100	1,100	1,200	1,500
Griffith Rd. n/o August Rd.	6,600	3,500	3,400	3,000	1,000
Griffith Rd. s/o Bradbury Rd.	6,800	3,600	3,600	3,100	1,000
Bloss Ave. w/o Griffeth Rd	6,300	3,400	3,400	8,600	6,900
Bloss Ave. e/o Griffeth Rd	4,500	2,400	2,400	3,100	3,200
August Rd. w/o Golf Link Rd	3,100	3,300	3,400	2,100	5,000
August Rd. e/o Griffeth Rd	2,900	3,600	4,100	3,800	5,500
Bradbury Rd. w/o Golf Link Rd	2,400	5,400	5,500	4,700	6,400
Bradbury Rd. e/o Griffeth Rd	4,900	4,500	4,400	3,900	4,100
Total ADT Volumes	**76,200**	**83,800**	**42,800**	**45,800**	**49,000**
Net Difference with No-Build ADT Volumes		**7,600**	**-33,400**	**-30,400**	**-27,200**

Roadway Segments North of SR 99	Alternative D1/D4 ADT	Alternative D2/D3 ADT	Alternative D2/D4 ADT	Alternative E1/E3 ADT	Alternative E1/E4 ADT
Lander Ave n/o of SR 99	35,300	38,700	35,300	35,200	38,300
Golf Rd. n/o SR 99	15,500	16,000	15,400	15,400	16,000
Griffith Rd. n/o SR 99	300	3,700	500	400	21,800
Golden State Blvd. @ Griffith Ave.	20,000	23,900	19,900	19,700	0
Total ADT Volumes	**71,100**	**82,300**	**71,100**	**70,700**	**76,100**
Net Difference with No-Build ADT Volumes	**-10,600**	**600**	**-10,600**	**-11,000**	**-5,600**
Roadway Segments South of SR 99	**Alternative D1/D4 ADT**	**Alternative D2/D3 ADT**	**Alternative D2/D4 ADT**	**Alternative E1/E3 ADT**	**Alternative E1/E4 ADT**
Lander Ave s/o of Geer Ave	7,000	6,700	6,700	7,200	7,200
Lander Ave s/o of American Ave	6,200	6,000	6,000	6,900	6,900
Columbus Ave. s/o August Ave.	600	600	600	600	600
Golf Link Rd. n/o August Rd.	600	600	600	200	200
Golf Link Rd. n/o Bradbury Rd.	1,500	1,500	1,500	1,500	1,500
Griffith Rd. n/o August Rd.	1,000	1,000	1,000	300	300
Griffith Rd. s/o Bradbury Rd.	1,000	1,100	1,100	300	300
Bloss Ave. w/o Griffeth Rd	6,900	6,800	6,800	9,000	9,000
Bloss Ave. e/o Griffeth Rd	3,200	3,100	3,100	4,100	4,100
August Rd. w/o Golf Link Rd	5,000	5,100	5,100	5,600	5,600
August Rd. e/o Griffeth Rd	5,500	5,500	5,500	5,900	5,900
Bradbury Rd. w/o Golf Link Rd	6,400	6,500	6,500	4,700	4,700
Bradbury Rd. e/o Griffeth Rd	4,100	4,100	4,100	4,300	4,300
Total ADT Volumes	**49,000**	**48,600**	**48,600**	**50,600**	**50,600**
Net Difference with No-Build ADT Volumes	**-27,200**	**-27,600**	**-27,600**	**-25,600**	**-25,600**

TABLE 7 (CONTINUED)
PROJECTED 2035 DAILY TRAFFIC VOLUMES ON THE LOCAL ROADWAY SYSTEM

Roadway Segments North of SR 99	Alternative E2/E3 ADT	Alternative E2/E4 ADT	Alternative F1 ADT	Alternative F2 ADT	Alternative G1 ADT
Lander Ave n/o of SR 99	35,200	38,300	38,100	38,400	37,100
Golf Rd. n/o SR 99	15,400	16,100	16,100	16,100	15,600
Griffith Rd. n/o SR 99	3,800	21,800	21,700	21,700	5,000
Golden State Blvd. @ Griffith Ave.	19,300	0	0	0	21,800
Total ADT Volumes	**73,700**	**76,200**	**75,900**	**76,200**	**79,500**
Net Difference with No-Build ADT Volumes	**-8,000**	**-5,500**	**-5,800**	**-5,500**	**-2,200**
Roadway Segments South of SR 99	**Alternative E2/E3 ADT**	**Alternative E2/E4 ADT**	**Alternative F1 ADT**	**Alternative F2 ADT**	**Alternative G1 ADT**
Lander Ave s/o of Geer Ave	6,800	6,800	7,500	7,400	5,400
Lander Ave s/o of American Ave	6,700	6,700	7,000	7,000	4,900
Columbus Ave. s/o August Ave.	600	600	700	600	600
Golf Link Rd. n/o August Rd.	200	200	200	300	2,600
Golf Link Rd. n/o Bradbury Rd.	2,200	2,200	2,000	2,000	1,900
Griffith Rd. n/o August Rd.	300	300	0	0	1,900
Griffith Rd. s/o Bradbury Rd.	300	300	0	0	2,000
Bloss Ave. w/o Griffeth Rd	9,300	9,300	6,200	6,400	6,600
Bloss Ave. e/o Griffeth Rd	4,300	4,300	4,400	4,400	2,800
August Rd. w/o Golf Link Rd	5,500	5,500	2,700	2,800	2,300
August Rd. e/o Griffeth Rd	5,800	5,800	8,300	8,300	4,700
Bradbury Rd. w/o Golf Link Rd	4,600	4,600	2,700	2,600	2,400
Bradbury Rd. e/o Griffeth Rd	4,600	4,600	5,100	5,000	3,800
Total ADT Volumes	**51,200**	**51,200**	**46,800**	**46,800**	**41,900**
Net Difference with No-Build ADT Volumes	**-25,000**	**-25,000**	**-29,400**	**-29,400**	**-34,300**

Roadway Segments North of SR 99	Alternative G2 ADT	Alternative H1 ADT	Alternative H2 ADT	Alternative I1 ADT	Alternative I2 ADT
Lander Ave n/o of SR 99	37,100	38,300	38,300	39,000	39,000
Golf Rd. n/o SR 99	15,500	15,900	16,000	16,100	16,100
Griffith Rd. n/o SR 99	5,000	21,800	21,900	2,700	2,700
Golden State Blvd. @ Griffith Ave.	21,800	0	0	19,600	19,600
Total ADT Volumes	**79,400**	**76,000**	**76,200**	**77,400**	**77,400**
Net Difference with No-Build ADT Volumes	**-2,300**	**-5,700**	**-5,500**	**-4,300**	**-4,300**
Roadway Segments South of SR 99	**Alternative G2 ADT**	**Alternative H1 ADT**	**Alternative H2 ADT**	**Alternative I1 ADT**	**Alternative I2 ADT**
Lander Ave s/o of Geer Ave	5,200	6,700	6,800	8,900	7,400
Lander Ave s/o of American Ave	4,900	6,100	6,200	8,200	7,400
Columbus Ave. s/o August Ave.	600	700	600	700	700
Golf Link Rd. n/o August Rd.	2,700	1,000	1,000	800	800
Golf Link Rd. n/o Bradbury Rd.	1,900	2,800	2,700	4,500	4,500
Griffith Rd. n/o August Rd.	1,900	300	300	300	300
Griffith Rd. s/o Bradbury Rd.	2,000	300	300	300	300
Bloss Ave. w/o Griffeth Rd	6,600	7,300	7,200	7,900	7,900
Bloss Ave. e/o Griffeth Rd	2,800	2,800	2,800	2,900	2,900
August Rd. w/o Golf Link Rd	2,300	3,000	3,800	3,000	3,000
August Rd. e/o Griffeth Rd	4,700	5,100	5,000	6,400	6,400
Bradbury Rd. w/o Golf Link Rd	2,400	2,400	2,200	2,800	2,800
Bradbury Rd. e/o Griffeth Rd	3,800	1,300	1,600	8,300	8,300
Total ADT Volumes	**41,800**	**39,800**	**40,500**	**55,000**	**52,700**
Net Difference with No-Build ADT Volumes	**-34,400**	**-36,400**	**-35,700**	**-21,200**	**-23,500**

6. Coordination with Community, Specific and General Plans

This criterion considers whether an alternative is included within the circulation element or sections of an approved various Community Plans (CP – Hilmar and Delhi), Specific Plans (SP - SE Turlock) and General Plans (GP - Merced County, Stanislaus County and City of Turlock); or is consistent in concept with the Policies, Goals, and Objectives within the various CP, SP and GP.

Both Alternative B and Alternative C which include a SR 165 bypass around the community of Hilmar are considered to be consistent with or included in an approved plan. Alternatives D1/D3, D1/D4, D2/D3, D2/D4, E1/E3, E2/E3, G1, G2, I1 and I2 though not currently included in an approved plan, can be considered to be consistent in concept with the Policies, Goals, and Objectives within various CP, SP and GP. Alternative A which includes improvements along the existing SR 165 alignment is neither included in an approved plan nor consistent in concept with the Policies, Goals, and Objectives within various CP, SP and GP. Finally, Alternatives E1/E4, E2/E4, F1, F2, H1 and H2 propose new interchanges on SR 99 less than 1-mile from the existing Golden State Boulevard interchange. It is likely that these alternatives would require closure of the existing Golden State Boulevard interchange which is neither included in an approved plan nor consistent in concept with the Policies, Goals, and Objectives within various CP, SP and GP.

7. Constructability / Phasing

This criterion considers whether an alternative can be constructed in phases. Each of the preliminary alternatives can be constructed in one or more phases. Alternative A involves improvements to existing SR 165. With this alternative, SR 165 could be improved in multiple phases generally starting at the SR 99 interchange and working south. Alternatives B and C which include a bypass route around the community of Hilmar also involve improvements to SR 165 both north and south of the bypass. For both of these alternatives, it would also be possible to construct the improvements in multiple phases. Alternative G involves bringing the new highway alignment back into existing SR 165 to the south of Bradbury Road. It would be possible to phase this alternative by first improving the SR 165 (Lander Avenue) interchange with SR 99 and the existing highway segment south to Bradbury Road. These initial improvements would also be consistent with Alternatives A, B and C.

The remaining alternatives (Alternatives D, E, F, H and I) involve an entirely new highway alignment. Though right of way would need to be acquired along the entire length of each alignment, it may be possible to only initially construct two of the ultimate four travel lanes as a first project phase. All bridges across the Merced River and any new or modified interchanges with SR 99 would also be constructed in the first project phase.

8. Environmental Impacts

This criterion considers the potential environmental impacts resulting from each of the alternatives. These could include impacts to cultural resources (historic areas or properties), land use (for noise), farmland (Williamson Act contracts), FEMA Floodzones (Merced River), Biological Resources (special status species and wetlands) etc.

Each of the project alternatives will result in one or more environmental impacts that will require mitigation. Those these impacts could be significant, most should be mitigable. Alternatives A, B, C, D1, E1, F1, G1, H1 and I1 propose replacement of the existing SR 165 highway bridge over the Merced River in approximately the same location as the existing bridge. Alternatives D2, E2, F2, G2, H2 and I2 propose the construction of a new bridge over the Merced River at a new location further to the east.

9. Right of Way Impacts

Potential right of way impacts associated with each project alternative have been quantified based on the estimated total number of parcels from which right of way will be acquired; the estimated number of parcels in which an alignment divides a parcel resulting a portion of the remaining parcel located to either side of an alignment; and the estimated number of buildings or structures that would be impacted by an alignment. Table 8 presents the estimated right of way costs and right of way take areas for each alternative.

TABLE 8
PRELIMINARY RIGHT OF WAY IMPACTS

Alternative	Total Parcels Impacted	Number of Parcels Divided	Number of Buildings Impacted
Alternative A	252	10	31
Alternative B	133	34	16
Alternative C	136	33	14
Alternative D1/D3	90	28	8
Alternative D1/D4	79	29	8
Alternative D2/D3	80	27	9
Alternative D2/D4	69	27	9
Alternative E1/E3	83	38	8
Alternative E1/E4	71	32	7
Alternative E2/E3	75	36	9
Alternative E2/E4	63	30	8
Alternative F1	113	22	24
Alternative F2	105	20	25
Alternative G1	138	30	13
Alternative G2	131	28	14
Alternative H1	78	24	13
Alternative H2	68	23	14
Alternative I1	67	27	4
Alternative I2	59	25	5

10. Design Standards

Roadway and interchange design standards are set by the local agency, Caltrans and the FHWA. Each of the project alternatives primarily either involve improvement to existing SR 165 or the provision of a bypass route or alternative alignment for the highway. The intent is to construct any new improvement that meets all design requirements. However, when designing new improvements on an existing highway (Alternatives A, B, C and G) or at an existing interchange (Alternatives A, B, C, G and I), non-standard design features are often identified that, due to constraints, can not be made standard. Caltrans typically classifies non-standard design features as either requiring an Advisory Design Exception or Mandatory Design Exception. At this time, it is assumed that at least one or more non-standard design feature will be identified for Alternatives A, B, C, G, and I that will require at least an Advisory Design Exception.

Alternatives D, E, F, and H all include the construction of a new interchange on SR 99 either involving the existing rest areas on SR 99 or less than 1-mile from the existing Golden State Boulevard interchange with SR 99. Per the Highway Design Manual (HDM), Index 501.3 Spacing, "**The minimum interchanging spacing shall be one mile in urban areas, two miles in rural areas, and two miles between freeway to freeway interchanges and local street interchanges.**" Based on this HDM design standard, it is likely that Alternatives D, E, F and H will require the preparation of a Mandatory Design Exception which will require Caltrans approval.

Finally, there are design preferences that do not require a separate approval process but must be justifiable. An example of a design preference is not to provide loop off-ramps from a freeway facility. Alternatives D3 (NB), D4 (SB) and E3 (SB) each propose a loop off-ramp from SR 99. Each of these alternatives propose interchanges on SR 99 adjacent to and involving the rest areas. The loop off-ramps are proposed to facilitate access between the interchanges and rest areas with SR 99.

11. Cost

Preliminary construction and right of way costs have been developed for each project alternative with the estimated costs shown in Table 9.

TABLE 9
PRELIMINARY CONSTRUCTION AND RIGHT OF WAY COST ESTIMATES

Alternative	Preliminary Construction Costs	Preliminary Right of Way Costs	Total Construction & Right of Way Costs
A	$135,140,000	$77,110,000	$212,250,000
B	$161,770,000	$71,250,000	$233,020,000
C	$162,790,000	$72,090,000	$234,880,000
D1/D3	$238,280,000	$68,870,000	$307,150,000
D1/D4	$218,990,000	$69,700,000	$288,690,000
D2/D3	$219,150,000	$63,590,000	$282,740,000
D2/D4	$199,850,000	$64,420,000	$264,270,000
E1/E3	$235,510,000	$68,020,000	$303,530,000
E1/E4	$210,610,000	$62,390,000	$273,000,000
E2/E3	$220,620,000	$63,720,000	$284,340,000
E2/E4	$195,720,000	$58,090,000	$253,810,000
F1	$215,070,000	$87,470,000	$302,540,000
F2	$189,020,000	$82,090,000	$271,110,000
G1	$211,960,000	$80,020,000	$291,980,000
G2	$179,430,000	$74,640,000	$254,070,000
H1	$221,000,000	$60,090,000	$281,090,000
H2	$191,900,000	$54,700,000	$246,600,000
I1	$210,540,000	$55,120,000	$265,660,000
I2	$178,540,000	$49,730,000	$228,270,000

ALTERNATIVES SCORING BASED ON EVALUATION CRITERIA

The next step in the ASDM procedure is scoring each alternative within each evaluation category. Each criterion has either quantifiable measurements (criterion numbers 1, 2, 3, 4, 5, 9 and 11) or assigns a point value (criterion numbers 6, 7, 8 and 10). For each criterion, an alternative can be scored in relationship to the other alternatives based on either the quantified measurement or the point value. The alternative whose measurement best satisfies the purpose of the criterion or the one with the with the fewest points for that criterion is initially scored as one (1), the alternative whose measurement is the second best or has the second lowest point total is scored as two (2), This process is repeated until all 19 alternatives have been scored for each criterion. It is also possible for multiple alternatives to have the same score if these alternatives have the same quantified measurement or point total for that criterion.

1. Congestion and Traffic Operations

In order to help score the alternatives based on Levels of Service, a point system is applied to quantify LOS operations only for the various SR 165 highway segments (existing alignment, existing alignment plus bypass route or new alignment) for the facilities analyzed. Table 10A provides how points were assigned for LOS "A" through "F" based on the applicable LOS standard and Table 10B shows the point total for each alternative based on the LOS shown in Table 3. As shown in Table 10B, each alternative results in a LOS point total of "9". Since all alternatives received the same point total, each alternative was also assigned a "Score" of "1" as also shown in Table 10B.

TABLE 10A
LEVEL OF SERVICE (LOS) CRITERIA POINT SYSTEM

Level of Service	LOS C Standard Point Value	LOS D Standard Point Value
A	1.0	1.0
B	1.0	1.0
C	1.0	1.0
D	1.5	1.0
E	2.0	2.0
F	3.0	3.0

Note: Lower point value is best.

TABLE 10B
CONGESTION AND TRAFFIC OPERATIONS SCORING

Alternative	LOS Point Total	Score
A	9	1
B	9	1
C	9	1
D1/D3	9	1
D1/D4	9	1
D2/D3	9	1
D2/D4	9	1
E1/E3	9	1
E1/E4	9	1
E2/E3	9	1
E2/E4	9	1
F1	9	1
F2	9	1
G1	9	1
G2	9	1
H1	9	1
H2	9	1
I1	9	1
I2	9	1

2. *Safety*

The previous section identified through the quantification of the potential accident cost savings associated with an alternative, that each of the project alternatives are projected to result in an improvement in traffic safety when compared to the "No Build" condition. Each alternative is scored in relationship to the other alternatives based on how much of a cost savings may be provided. The alternative achieving the greatest cost savings receives the lowest score and the alternative achieving the least cost savings receives the highest score. Table 11 provides the resulting scoring for each alternative based on the potential accident cost savings as provided in Table 4. As shown in Table 11, Alternative I2 is estimated to result in the greatest cost savings and received a score of 1 while Alternative C is estimated to result in the least cost savings and received a score of 19 out of 19 alternatives

TABLE 11
SAFETY CRITERIA SCORING

Alternative	Estimated Cost Difference with "No Build" ($1000)	Score
A	-$165.5	17
B	-$109.5	18
C	-$82.9	19
D1/D3	-$923.1	14
D1/D4	-$1,102.0	10
D2/D3	-$987.6	12
D2/D4	-$1,076.5	8
E1/E3	-$929.7	13
E1/E4	-$1,127.5	6
E2/E3	-$995.7	11
E2/E4	-$1,193.5	5
F1	-$1,017.0	9
F2	-$1,082.9	7
G1	-$719.5	16
G2	-$785.4	15
H1	-$1,218.2	4
H2	-$1,284.2	2
I1	-$1,226.1	3
I2	-$1,292.1	1

3. Improved Freeway Access between State Route 99 (SR 99) and the Local Roadway System

Each alternative either connects to existing SR 99 interchanges at the SR 165 (Lander Avenue) interchange (Alternatives A, B, C, G1 and G2) and the Bradbury Road interchange (Alternatives I1 and I2) or to a new interchange on SR 99 (Alternatives D3, D4, E3, E4, F1, F2, H1 and H2). This criterion scores each alternative using the estimated increase in daily traffic projected to enter and exit SR 99 within the study area as an indicator as to whether improved access between SR 99 and the local roadway system would be provided by each alternative. The previous section quantified the net difference between each alternative and the "No Build" condition in average daily traffic (ADT) volumes projected at the various interchange on and off ramps which was presented in Table 5. The estimated increase in daily traffic by alternative as provided in Table 5 is also shown in Table 12.

Each alternative is scored in relationship to the other alternatives based on how much additional traffic when compared to the "No Build" condition would be entering and exiting SR 99 within the study area. The alternative providing the greatest increase in daily traffic receives the lowest score and the alternative providing the lowest increase in daily traffic receives the highest score. Table 12 provides the resulting scoring for each alternative. As shown in Table 12, Alternative D1/D3 is estimated to result in the greatest increase in daily traffic entering/exiting SR 99 within the study and received a score of 1 while Alternative G1 is estimated to result in the least cost savings and received a score of 19 out of 19 alternatives

TABLE 12
IMPROVED FREEWAY ACCESS SCORING

Alternative	Estimated Net Difference in Daily Ramp Volumes to "No Build"	Score
A	4,400	13
B	4,600	11
C	3,500	17
D1/D3	24,600	1
D1/D4	17,700	3
D2/D3	24,300	2
D2/D4	18,700	4
E1/E3	17,100	6
E1/E4	4,400	13
E2/E3	17,600	5
E2/E4	4,600	11
F1	3,900	16
F2	4,300	15
G1	2,600	19
G2	2,800	18
H1	6,000	9
H2	6,800	7
I1	4,700	10
I2	6,700	8

4. Goods Movement – Local, Regional and Interregional

This criterion compares travel time along each alternative alignment corridor as the indicator of whether trucks will utilize either an improved SR 165 or one of the alternative highway alignments. The previous section identified that each of the project alternatives are projected to result in reduction in travel times when compared to the "No Build" condition. Each alternative is scored in relationship to the other alternatives based on how much of a reduction in travel time may be provided. The alternative achieving the greatest reduction receives the lowest score and the alternative achieving the lowest reduction receives the highest score. Table 13 provides the resulting scoring for each alternative based on the projected travel time reductions as provided in Table 6. As shown in Table 13, Alternative G2 is estimated to result in the greatest reduction in travel times and received a score of 1 while Alternative I1 is estimated to result in the lowest reduction in travel times and received a score of 19 out of 19 alternatives

TABLE 13
GOODS MOVEMENT SCORING

Alternative	Estimated Travel Time Difference to "No Build" (minutes)	Score
A	-9.4	5
B	-9.6	4
C	-9.4	5
D1/D3	-9.3	5
D1/D4	-8.9	9
D2/D3	-9.7	3
D2/D4	-9.2	8
E1/E3	-8.9	9
E1/E4	-8.4	15
E2/E3	-8.7	11
E2/E4	-8.7	11
F1	-8.1	17
F2	-8.5	14
G1	-10.0	2
G2	-10.2	1
H1	-8.3	16
H2	-8.7	11
I1	-7.0	19
I2	-7.3	18

5. *Local Traffic Circulation within Project Study Area*

This criterion considers the potential effects of an alternative on local traffic circulation by determining whether an alternative results in an increase or decrease in traffic using the local roadways within the study area. Table 7 presented the projected "No Build" condition average daily traffic (ADT) volumes and the projected ADT for the alternatives on various local roadway segments both to the north of SR 99 and to the south of SR 99. For this criterion, the roadway segments south of SR 99 include the Lander Avenue (SR 165) segments from south of Geer Avenue to south of American Avenue. Table 7 also presented the total ADT for the various roadway segments and the net difference with the "No Build" condition ADT both to the north of SR 99 and to the south of SR 99.

In order to score the alternatives based on this criterion, each alternative is first scored based on the projected reduction in ADT both to the north and to the south of SR 99. The scores obtained for the roadways north of SR 99 and the scores obtained for the roadways south of SR 99 are then combined for a total score. The final scoring for each alternative is then determined based on the total combined score with the alternative with the lowest total combined score receiving the lowest final score and the alternative with the highest total combined score receiving the highest final score. Table 14 shows how each alternative scored both for the roadway segments north of SR 99 and those to the south of SR 99. Table 14 then shows the total combined score and the final score for each alternative. As shown in Table 14, Alternative H1 has the lowest total combined score and received a final score of 1 while Alternative A has the highest total combined score and received a final score of 19 out of 19 alternatives.

TABLE 14
LOCAL TRAFFIC CIRCULATION SCORING

Alternative	Net Difference in ADT with "No Build" Condition North of SR 99	Score	Net Difference in ADT with "No Build" Condition South of SR 99	Score	Total Combined Score	Final Score
A	700	16	7,600	19	35	19
B	800	15	-33,400	5	20	11
C	200	19	-30,400	6	25	14
D1/D3	400	18	-27,200	11	29	17
D1/D4	-10,600	2	-27,200	11	13	5
D2/D3	600	17	-27,600	9	26	15
D2/D4	-10,600	3	-27,600	9	12	3
E1/E3	-11,000	1	-25,600	13	14	6
E1/E4	-5,600	7	-25,600	13	20	11
E2/E3	-8,000	4	-25,000	13	17	9
E2/E4	-5,500	8	-25,000	13	21	13
F1	-5,800	5	-29,400	7	12	3
F2	-5,500	8	-29,400	7	15	7
G1	-2,200	14	-34,300	4	18	10
G2	-2,300	13	-34,400	3	16	8
H1	-5,700	6	-36,400	1	7	1
H2	-5,500	8	-35,700	2	10	2
I1	-4,300	11	-21,200	18	29	17
I2	-4,300	11	-23,500	17	28	16

6. Coordination with Community, Specific and General Plans

This criterion considers whether an alternative is included within the circulation element or sections of an approved various Community Plans (CP – Hilmar and Delhi), Specific Plans (SP - SE Turlock) and General Plans (GP - Merced County, Stanislaus County and City of Turlock); or is consistent in concept with the Policies, Goals, and Objectives within the various CP, SP and GP, or is not included within the circulation element/section and is not consistent with the Policies, Goals, and Objectives within the various CP, SP and GP. Table 15A provides how points were assigned based on each condition.

Both Alternative B and Alternative C which include a SR 165 bypass around the community of Hilmar are considered to be consistent with or included in an approved plan. Alternatives D1/D3, D1/D4, D2/D3, D2/D4, E1/E3, E2/E3, G1, G2, I1 and I2 though not currently included in an approved plan, can be considered to be consistent in concept with the Policies, Goals, and Objectives within various CP, SP and GP. Alternative A which includes improvements along the existing SR 165 alignment is neither included in an approved plan nor consistent in concept with the Policies, Goals, and Objectives within various CP, SP and GP. Finally, Alternatives E1/E4, E2/E4, F1, F2, H1 and H2 propose new interchanges on SR 99 less than 1-mile from the existing Golden State Boulevard interchange. It is likely that these alternatives would require closure of the existing Golden State Boulevard interchange which is neither included in an approved plan nor consistent in concept with the Policies, Goals, and Objectives within various CP, SP and GP. Table 15B shows how points were assigned to each alternative based on the point scale shown in Table 15A and how each alternative scored based on its point total. Alternatives with the lowest number of points received the lowest score while alternatives with the highest number of points also received the highest score.

TABLE 15A
COORDINATION WITH CP, SP AND GP CRITERIA POINT SYSTEM

Point Scale	
1	Alternative is included within an approved CP, SP and GP.
2	Alternative is not included but is consistent with Policies, Goals, and Objectives within a CP, SP and GP.
3	Alternative is not consistent with Policies, Goals, Objectives within a CP, SP and GP.

Note: Lower point total is best.

TABLE 15B
COORDINATION WITH CP, SP AND GP SCORING

Alternative	Points	Score
A	3	13
B	1	1
C	1	1
D1/D3	2	3
D1/D4	2	3
D2/D3	2	3
D2/D4	2	3
E1/E3	2	3
E1/E4	3	13
E2/E3	2	3
E2/E4	3	13
F1	3	13
F2	3	13
G1	2	3
G2	2	3
H1	3	13
H2	3	13
I1	2	3
I2	2	3

7. Constructability / Phasing

This criterion considers whether an alternative can be constructed in phases. The previous section concluded that each of the alternatives can be constructed in one or more phases and each alternative would have the same score as shown in Table 16.

TABLE 16
CONSTRUCTABILITY/PHASING SCORING

Alternative	Score
A	1
B	1
C	1
D1/D3	1
D1/D4	1
D2/D3	1
D2/D4	1
E1/E3	1
E1/E4	1
E2/E3	1
E2/E4	1
F1	1
F2	1
G1	1
G2	1
H1	1
H2	1
I1	1
I2	1

8. *Environmental Impacts*

This criterion considers the potential environmental impacts resulting from each of the alternatives. These could include impacts to cultural resources (historic areas or properties), land use (for noise), farmland (Williamson Act contracts), FEMA Floodzones (Merced River), Biological Resources (special status species and wetlands) etc. Each of the project alternatives will result in one or more environmental impacts that will require mitigation. Those these impacts could be significant, most should be mitigable. Alternatives A, B, C, D1, E1, F1, G1, H1 and I1 propose replacement of the existing SR 165 highway bridge over the Merced River in approximately the same location as the existing bridge. Alternatives D2, E2, F2, G2, H2 and I2 propose the construction of a new bridge over the Merced River at a new location further to the east. Table 17B shows how points were assigned to each alternative based on the point scale shown in Table 17A and how each alternative scored based on its point total. Alternatives with the lowest number of points received the lowest score while alternatives with the highest number of points also received the highest score.

TABLE 17A
ENVIRONMENTAL IMPACTS CRITERIA POINT SYSTEM

Point Scale	
1	No impacts present
2	Impacts present that can be mitigated
3	Significant impacts present that may be difficult to mitigate.

Note: Lower point score is best.

TABLE 17B
ENVIRONMENTAL IMPACTS SCORING

Alternative	Points	Score
A	2	1
B	2	1
C	2	1
D1/D3	2	1
D1/D4	2	1
D2/D3	3	12
D2/D4	3	12
E1/E3	2	1
E1/E4	2	1
E2/E3	3	12
E2/E4	3	12
F1	2	1
F2	3	12
G1	2	1
G2	3	12
H1	2	1
H2	3	12
I1	2	1
I2	3	12

9. *Right of Way Impacts*

Potential right of way impacts associated with each project alternative have been quantified based on three (3) elements; the estimated total number of parcels from which right of way will be acquired; the estimated number of parcels in which an alignment divides a parcel resulting a portion of the remaining parcel located to either side of an alignment; and the estimated number of buildings or structures that would be impacted by an alignment.

In order to score the alternatives based on this criterion, each alternative is first scored based on each of the three elements. The scores obtained for each element are then combined for a total score. The final scoring for each alternative is then determined based on the total combined score with the alternative with the lowest total combined score receiving the lowest final score and the alternative with the highest total combined score receiving the highest final score. Table 18 shows how each alternative scored for each element. Table 18 then shows the total combined score and the final score for each alternative. As shown in Table 18, Alternative I2 has the lowest total combined score and received a final score of 1 while Alternative B has the highest total combined score and received a final score of 19 out of 19 alternatives.

TABLE 18
PRELIMINARY RIGHT OF WAY IMPACTS

Alternative	Total Parcels Impacted	Score	Number of Parcels Divided	Score	Number of Buildings Impacted	Score	Total Combined Score	Final Score
Alternative A	252	19	10	1	31	19	39	16
Alternative B	133	16	34	17	16	16	49	19
Alternative C	136	17	33	16	14	13	46	18
Alternative D1/D3	90	12	28	10	8	4	26	10
Alternative D1/D4	79	9	29	12	8	4	25	8
Alternative D2/D3	80	10	27	7	9	8	25	8
Alternative D2/D4	69	5	27	7	9	8	20	4
Alternative E1/E3	83	11	38	19	8	4	34	13
Alternative E1/E4	71	6	32	15	7	3	24	7
Alternative E2/E3	75	7	36	18	9	8	33	11
Alternative E2/E4	63	2	30	13	8	4	19	3
Alternative F1	113	14	22	3	24	17	34	13
Alternative F2	105	13	20	2	25	18	33	11
Alternative G1	138	18	30	13	13	11	42	17
Alternative G2	131	15	28	10	14	13	38	15
Alternative H1	78	8	24	5	13	11	24	5
Alternative H2	68	4	23	4	14	13	21	5
Alternative I1	67	3	27	7	4	1	11	2
Alternative I2	59	1	25	6	5	2	9	1

10. Design Standards

Roadway and interchange design standards are set by the local agency, Caltrans and the FHWA. The roadway design standards criteria are divided into State and Local facilities. On the State highway system, it is required that a Design Exception Fact Sheet be prepared and approved for each deviation from a mandatory or advisory standard. Design preferences do not require a separate approval process; however any deviation from a preferred design must be justifiable. Table 19A shows the rating scale for this criterion based on whether an alternative can be designed to meet all applicable design standards; an alternative can generally be designed to meet all applicable design standards but may vary from design "Preferences" and/or may have nonstandard "Advisory" design features; or an alternative may have nonstandard "Mandatory" design features.

At this time, it is assumed that at least one or more non-standard design feature will be identified for Alternatives A, B, C, G, and I that will require at least an Advisory Design Exception. Alternatives D3 (NB), D4 (SB) and E3 (SB) each propose a loop off-ramp from SR 99. The proposed loop off-ramps represent a design preference. Alternatives D, E, F, and H all include the construction of a new interchange on SR 99 either involving the existing rest areas on SR 99 or less than 1-mile from the existing Golden State Boulevard interchange with SR 99. It is likely that Alternatives D, E, F and H will require the preparation of a Mandatory Design Exception which will require Caltrans approval. Table 19B presents the points scored for each alternative based on the point scale presented in Table 19A and how each alternative scored based on its point total. Alternatives with the lowest number of points received the lowest score while alternatives with the highest number of points also received the highest score.

TABLE 19A
DESIGN STANDARDS CRITERIA POINTS SYSTEM

Point Scale	
1	Alternative can be designed to meet all applicable design standards.
2	Alternative can generally be designed to meet all applicable design standards but may vary from design "Preferences" and/or may have nonstandard "Advisory" design features.
3	Alternative may have nonstandard "Mandatory" design features.

Note: Lower point score is best.

TABLE 19B
DESIGN STANDARDS SCORING

Alternative	Points	Score
A	2	1
B	2	1
C	2	1
D1/D3	3	8
D1/D4	3	8
D2/D3	3	8
D2/D4	3	8
E1/E3	3	8
E1/E4	3	8
E2/E3	3	8
E2/E4	3	8
F1	3	8
F2	3	8
G1	2	1
G2	2	1
H1	3	8
H2	3	8
I1	2	1
I2	2	1

11. Cost

Estimated construction and right of way costs have been developed for each project alternative with these costs shown in Table 9. Each alternative is scored in relationship to the other alternatives based on the estimated costs. The alternative with the lowest estimated construction and right of way costs receives the lowest score and the alternative with the highest estimated construction and right of way costs receives the highest score. Table 20 provides the resulting scoring for each alternative based on the estimated construction and right of way costs. As shown in Table 20, Alternative G2 is estimated to result in the greatest reduction in travel times and received a score of 1 while Alternative I1 is estimated to result in the lowest reduction in travel times and received a score of 19 out of 19 alternatives

TABLE 20
COST CRITERIA SCORING

Alternative	Estimated Construction & R/W Costs ($1000)	Score
A	$212,250	1
B	$233,020	3
C	$234,880	4
D1/D3	$307,150	19
D1/D4	$288,690	15
D2/D3	$282,740	13
D2/D4	$264,270	8
E1/E3	$303,530	18
E1/E4	$273,000	11
E2/E3	$284,340	14
E2/E4	$253,810	6
F1	$302,540	17
F2	$271,110	10
G1	$291,980	16
G2	$254,070	7
H1	$281,090	12
H2	$246,600	5
I1	$265,550	9
I2	$228,270	2

COMPOSITE SCORES

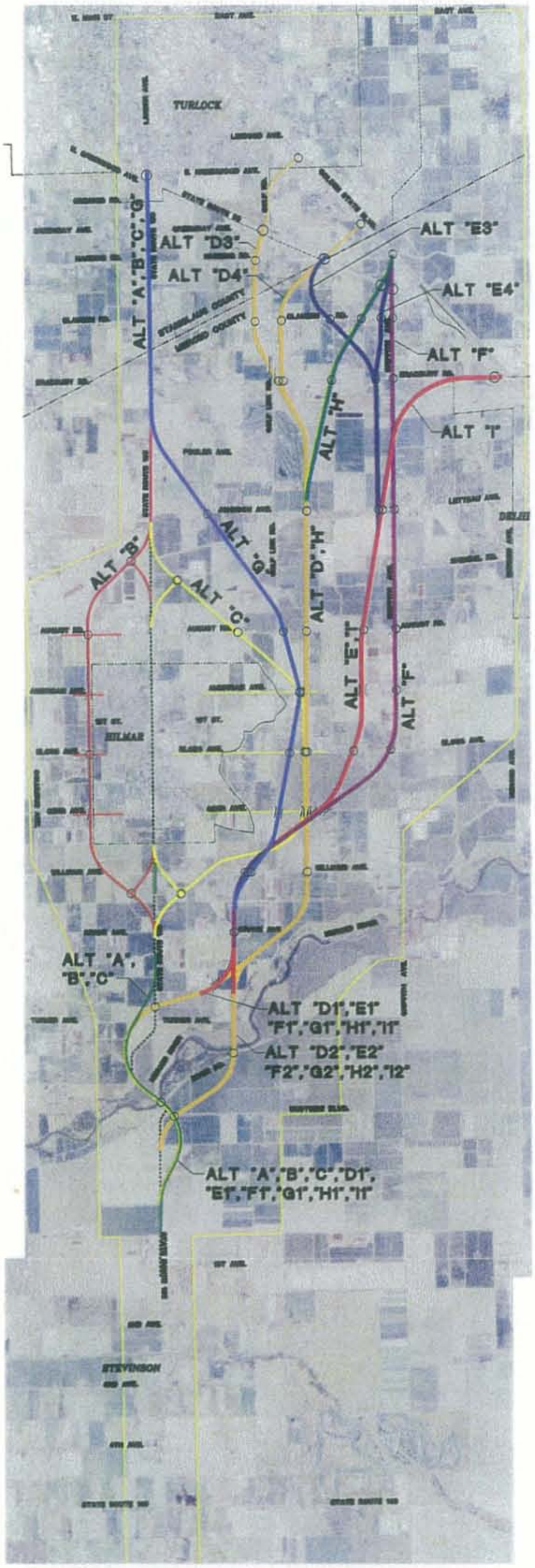
The final step in the ASDM procedure is to multiply an alternatives final score for each criteria by the "Importance Weighting". If a criterion has an importance weighting of 11.33%, then its score is multiplied by 0.1133. This process is repeated for each criterion and provides the "Total Weighed Score". The sum of the weighted scores for each alternative gives an overall indication of its standing or ranking with respect to the other alternatives. The alternative, or alternatives, that receive the lowest weighted score can then be identified as candidate projects for further detailed evaluation. Table 21 presents the composite scores for the 19 project alternatives.

TABLE 21
ALTERNATIVES COMPOSITE SCORES

Criteria	Importance Weighting	Score	Alternative Number																		
			A	B	C	D1/D3	D1/D4	D2/D3	D2/D4	E1/E3	E1/E4	E2/E3	E2/E4	F1	F2	G1	G2	H1	H2	I1	I2
Congestion and Traffic Operations	4.67	Unweighted Score	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
	11.33%	Weighted Score	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.11
Safety	4.83	Unweighted Score	17	18	19	14	10	12	8	13	6	11	5	9	7	16	15	4	2	3	1
	11.73%	Weighted Score	1.99	2.11	2.23	1.64	1.17	1.41	0.94	1.52	0.70	1.29	0.59	1.06	0.82	1.88	1.76	0.47	0.23	0.35	0.12
Improved Access with SR 99	4.00	Unweighted Score	13	11	17	1	3	2	4	6	13	5	11	16	15	19	18	9	7	10	8
	9.72%	Weighted Score	1.26	1.07	1.65	0.10	0.29	0.19	0.39	0.58	1.26	0.49	1.07	1.56	1.46	1.85	1.75	0.87	0.68	0.97	0.78
Goods Movement	3.33	Unweighted Score	5	4	5	5	9	3	8	9	15	11	11	17	14	2	1	16	11	19	18
	8.10%	Weighted Score	0.41	0.32	0.41	0.41	0.73	0.24	0.65	0.73	1.22	0.89	0.89	1.38	1.13	0.16	0.08	1.30	0.89	1.54	1.46
Local Traffic Circulation	2.67	Unweighted Score	19	11	14	17	5	15	3	6	11	9	13	3	7	10	8	1	2	17	16
	6.48%	Weighted Score	1.23	0.71	0.91	1.10	0.32	0.97	0.19	0.39	0.71	0.58	0.84	0.19	0.45	0.65	0.52	0.06	0.13	1.10	1.04
Coordination with CP, SP and GP	4.00	Unweighted Score	13	1	1	3	3	3	3	3	13	3	13	13	13	3	3	13	13	3	3
	9.72%	Weighted Score	1.26	0.10	0.10	0.29	0.29	0.29	0.29	0.29	1.26	0.29	1.26	1.26	1.26	0.29	0.29	1.26	1.26	0.29	0.29
Constructability / Phasing	4.00	Unweighted Score	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
	9.72%	Weighted Score	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10
Environmental Impacts	4.17	Unweighted Score	1	1	1	1	1	12	12	1	1	12	12	1	12	1	12	1	12	1	12
	10.12%	Weighted Score	0.10	0.10	0.10	0.10	0.10	1.21	1.21	0.10	0.10	1.21	1.21	0.10	1.21	0.10	1.21	0.10	1.21	0.10	1.21
Right of Way Impacts	3.17	Unweighted Score	16	19	18	10	8	8	4	13	7	11	3	13	11	17	15	6	5	2	1
	7.69%	Weighted Score	1.23	1.46	1.38	0.77	0.62	0.62	0.31	1.00	0.54	0.85	0.23	1.00	0.85	1.31	1.15	0.46	0.38	0.15	0.08
Design Standards	3.00	Unweighted Score	1	1	1	8	8	8	8	8	8	8	8	8	8	1	1	8	8	1	1
	7.29%	Weighted Score	0.07	0.07	0.07	0.58	0.58	0.58	0.58	0.58	0.58	0.58	0.58	0.58	0.58	0.07	0.07	0.58	0.58	0.07	0.07
Cost	3.33	Unweighted Score	1	3	4	19	15	13	8	18	11	14	6	17	10	16	7	12	5	9	2
	8.10%	Weighted Score	0.08	0.24	0.32	1.54	1.22	1.05	0.65	1.46	0.89	1.13	0.49	1.38	0.81	1.30	0.57	0.97	0.41	0.73	0.16
		Total Unweighted Score	88	71	82	80	64	78	60	79	87	86	84	99	99	87	82	72	67	67	64
		Total Weighted Score	7.85	6.40	7.38	6.74	5.53	6.78	5.42	6.87	7.48	7.53	7.38	8.72	8.79	7.81	7.62	6.30	6.00	5.52	5.42
		Ranking	**17**	**7**	**12**	**9**	**4**	**10**	**1**	**11**	**14**	**15**	**12**	**18**	**19**	**16**	**8**	**6**	**5**	**3**	**1**

Attachment A

Preliminary Alternatives Alignments



PRELIMINARY PROJECT ALTERNATIVES

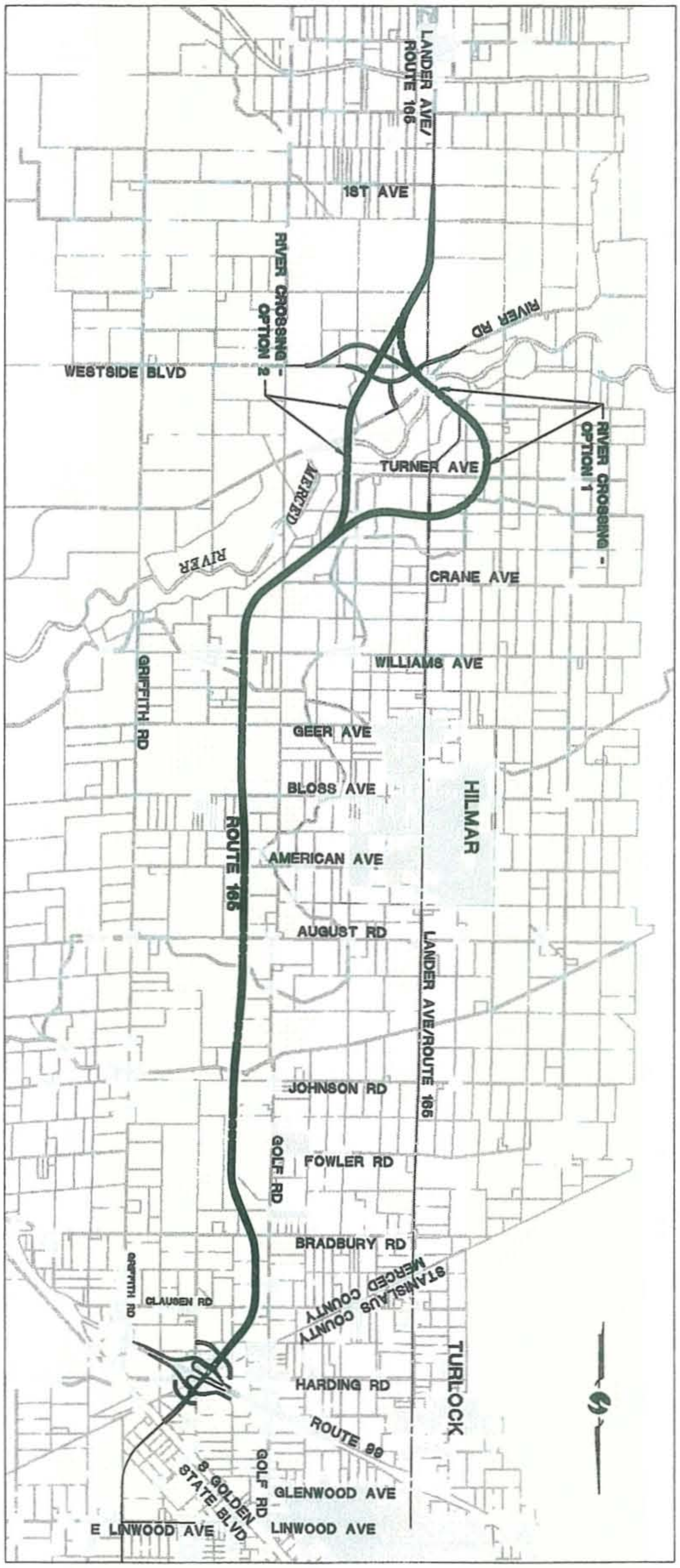
RECOMMENDED PROJECT ALTERNATIVES

SR 99 / 165 PSR

PROJECT ALTERNATIVE ALIGNMENTS

ATTACHMENT 5

ALTERNATIVE D ALIGNMENT EXHIBITS



ALTERNATIVE D

EM1

EXHIBIT MAP
ALTERNATIVE D
ROUTE 165 PSR

MERCED COUNTY, CALIFORNIA

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ENGINEERS PLANNERS

PRELIMINARY
APPROVED
BID
CONSTRUCTION
RECORD

REVISIONS

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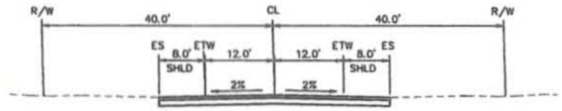
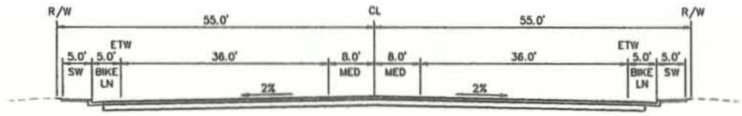
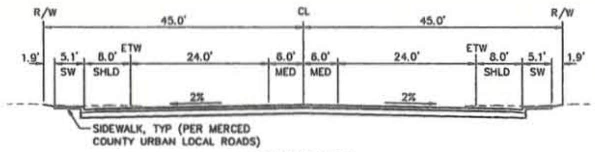


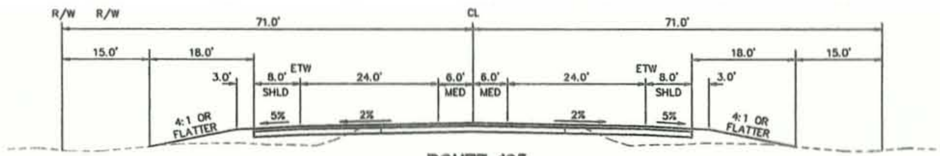
2-LANE RURAL ROADWAY (MAJOR COLLECTOR)
COUNTY OF MERCED



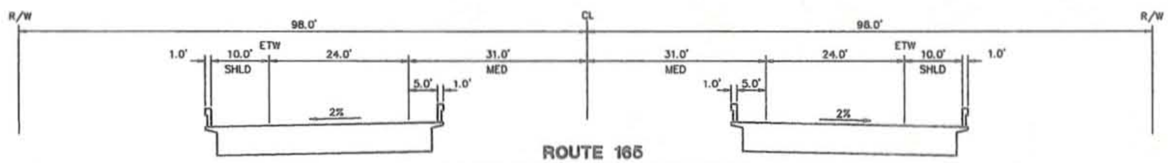
6-LANE URBAN ARTERIAL
CITY OF TURLOCK



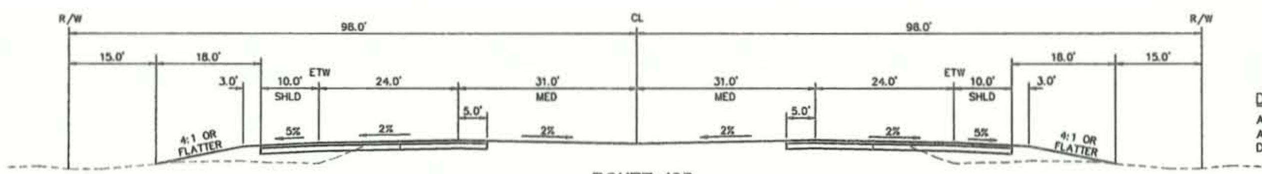
ROUTE 165
4-LANE CONVENTIONAL HIGHWAY (URBAN AREAS)



ROUTE 165
4-LANE CONVENTIONAL HIGHWAY (RURAL AREAS)



ROUTE 165
4-LANE EXPRESSWAY (BRIDGE(S))



ROUTE 165
4-LANE EXPRESSWAY (RURAL AREAS)

2-LN MAJOR COLLECTOR - COUNTY
ALTERNATIVE D

DESIGN DESIGNATION		STRUCTURAL SECTION
ADT (2015) = 1,500 ADT (2035) = 3,700 DHV = 370	D = 60% T = 5% V = 60 MPH	TI = 9.5 R = 25 AC = 0.50' AB = 1.05'

6-LN ARTERIAL - CITY/URBAN
ALTERNATIVE D

DESIGN DESIGNATION		STRUCTURAL SECTION
ADT (2015) = 2,800 ADT (2035) = 14,400 DHV = 1,440	D = 60% T = 5% V = 50 MPH	TI = 10.5 R = 25 AC = 0.55' AB = 1.05' ASB = 0.40'

4-LN CONVENTIONAL HWY - URBAN
ALTERNATIVE D

DESIGN DESIGNATION		STRUCTURAL SECTION
ADT (2015) = 9,500 ADT (2035) = 30,900 DHV = 3,090	D = 60% T = 10% V = 65 MPH	TI = 13.0 R = 25 AC = 0.70' AB = 1.05' ASB = 0.75'

4-LN CONVENTIONAL HWY - RURAL
ALTERNATIVE D

DESIGN DESIGNATION		STRUCTURAL SECTION
ADT (2015) = 7,800 ADT (2035) = 22,600 DHV = 2,260	D = 60% T = 10% V = 65 MPH	TI = 12.5 R = 25 AC = 0.65' AB = 1.05' ASB = 0.75'

EXPRESSWAY - RURAL
ALTERNATIVE D

DESIGN DESIGNATION		STRUCTURAL SECTION
ADT (2015) = 9,500 ADT (2035) = 26,900 DHV = 2,690	D = 60% T = 10% V = 65 MPH	TI = 12.5 R = 25 AC = 0.65' AB = 1.05' ASB = 0.75'

REVISIONS

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CONSTRUCTION
RECORD

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TYPICAL CROSS SECTIONS
ALTERNATIVE D
ROUTE 165 PSR
MERCED COUNTY, CALIFORNIA

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DESIGNED	CS
DRAWN	CS
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DATE	-

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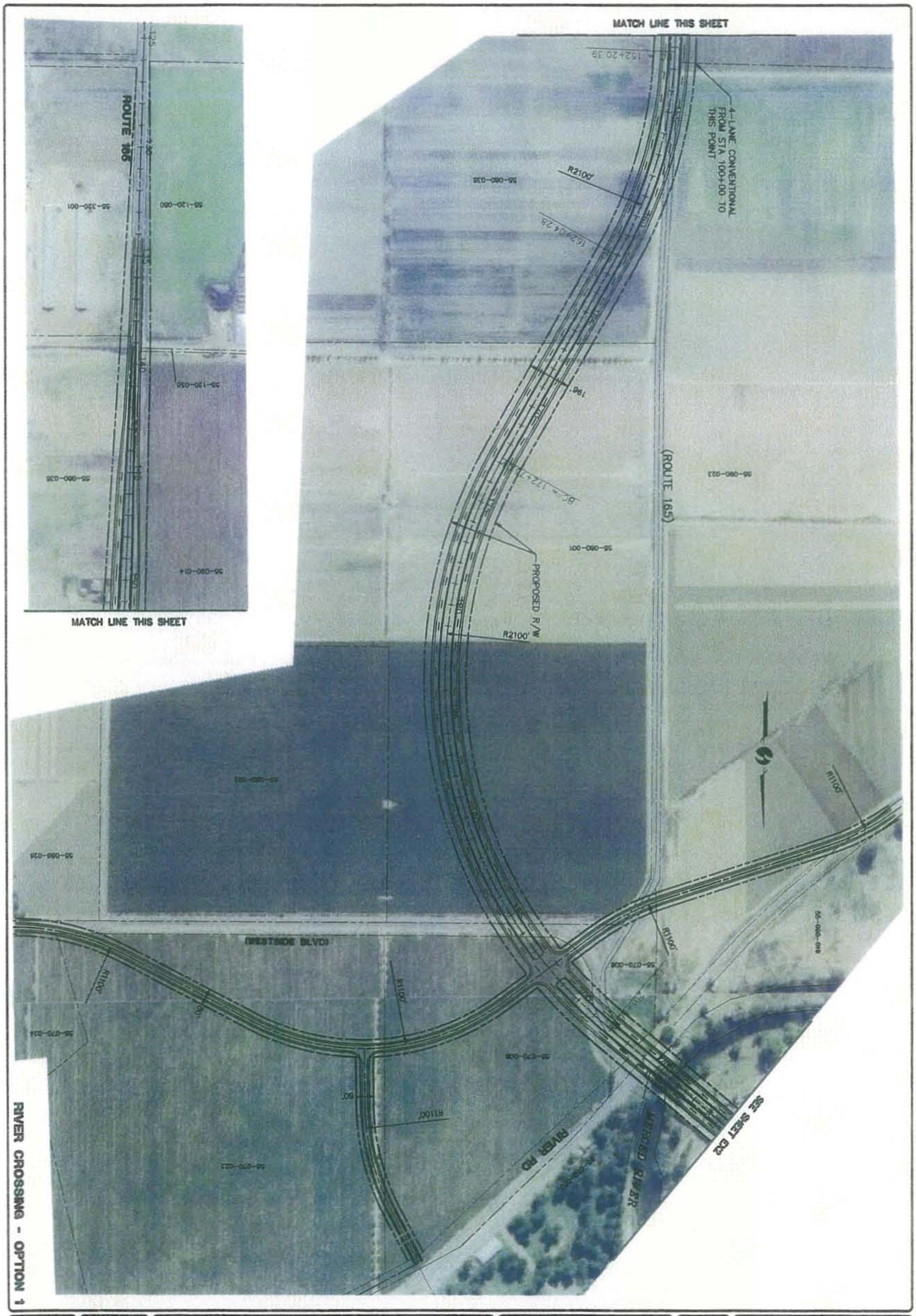

EX1

EXHIBIT
RIVER CROSSING - OPTION 1
ROUTE 165 PSR
(ALT D)
MERCED COUNTY, CALIFORNIA

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- APPROVED
- BID
- CONSTRUCTION
- RECORD

REVISIONS

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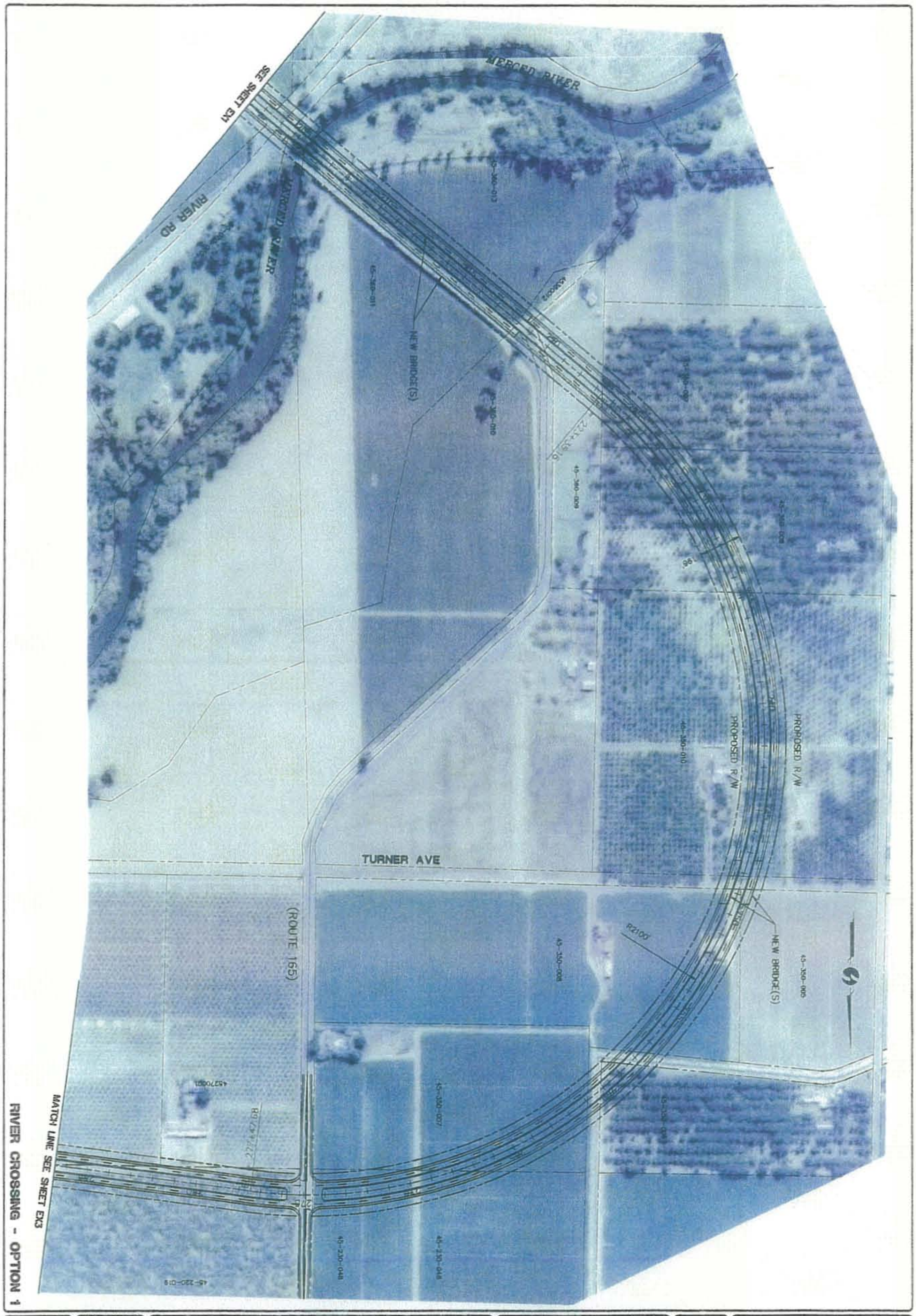

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EXHIBIT
RIVER CROSSING - OPTION 1
ROUTE 165 PSR
(ALT D)
MERCED COUNTY, CALIFORNIA

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☐ BID
☐ CONSTRUCTION
☐ RECORD

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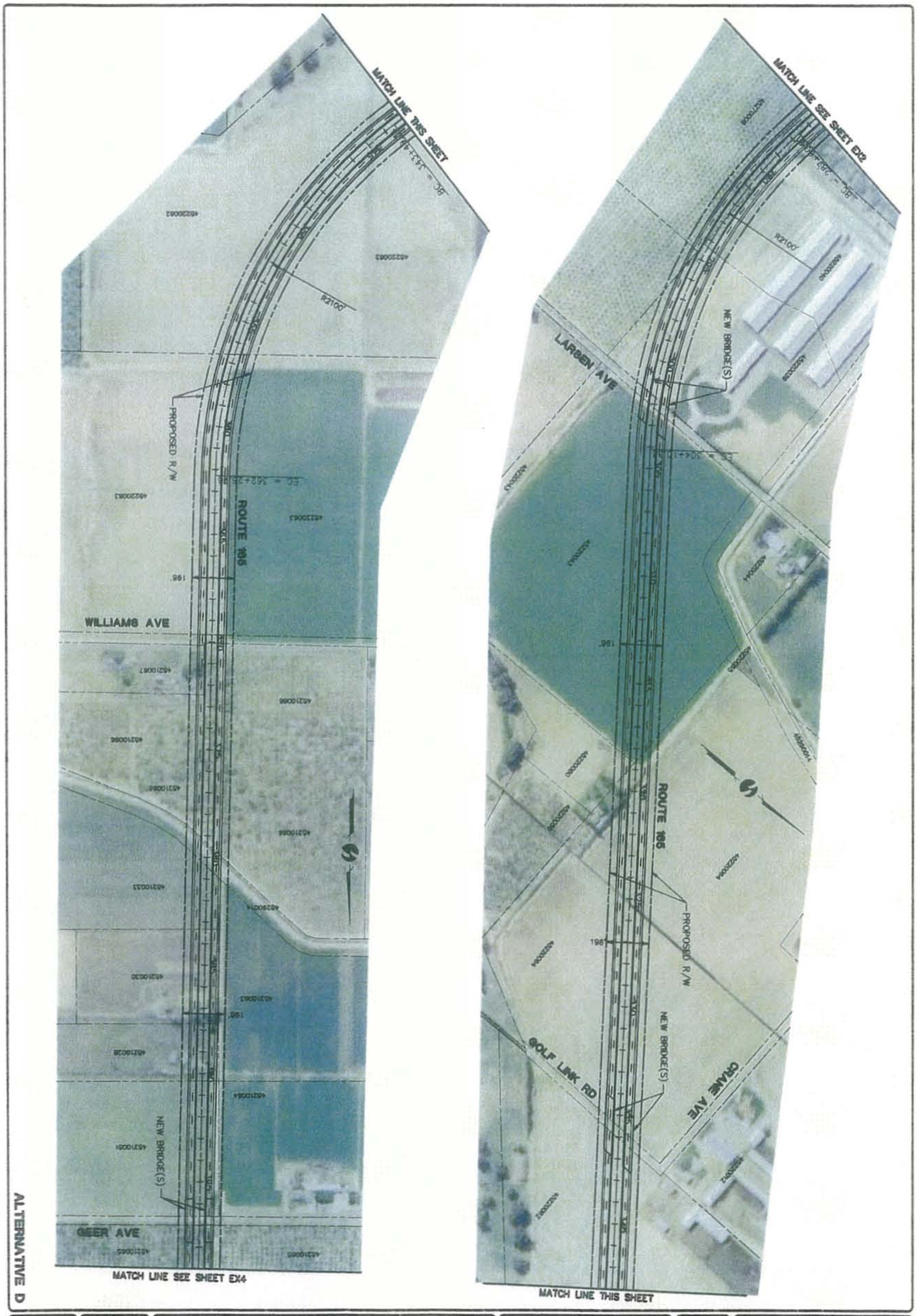

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EXHIBIT
ALTERNATIVE D
ROUTE 165 PSR
MERCED COUNTY, CALIFORNIA

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APPROVED
BID
CONSTRUCTION
RECORD

REVISIONS

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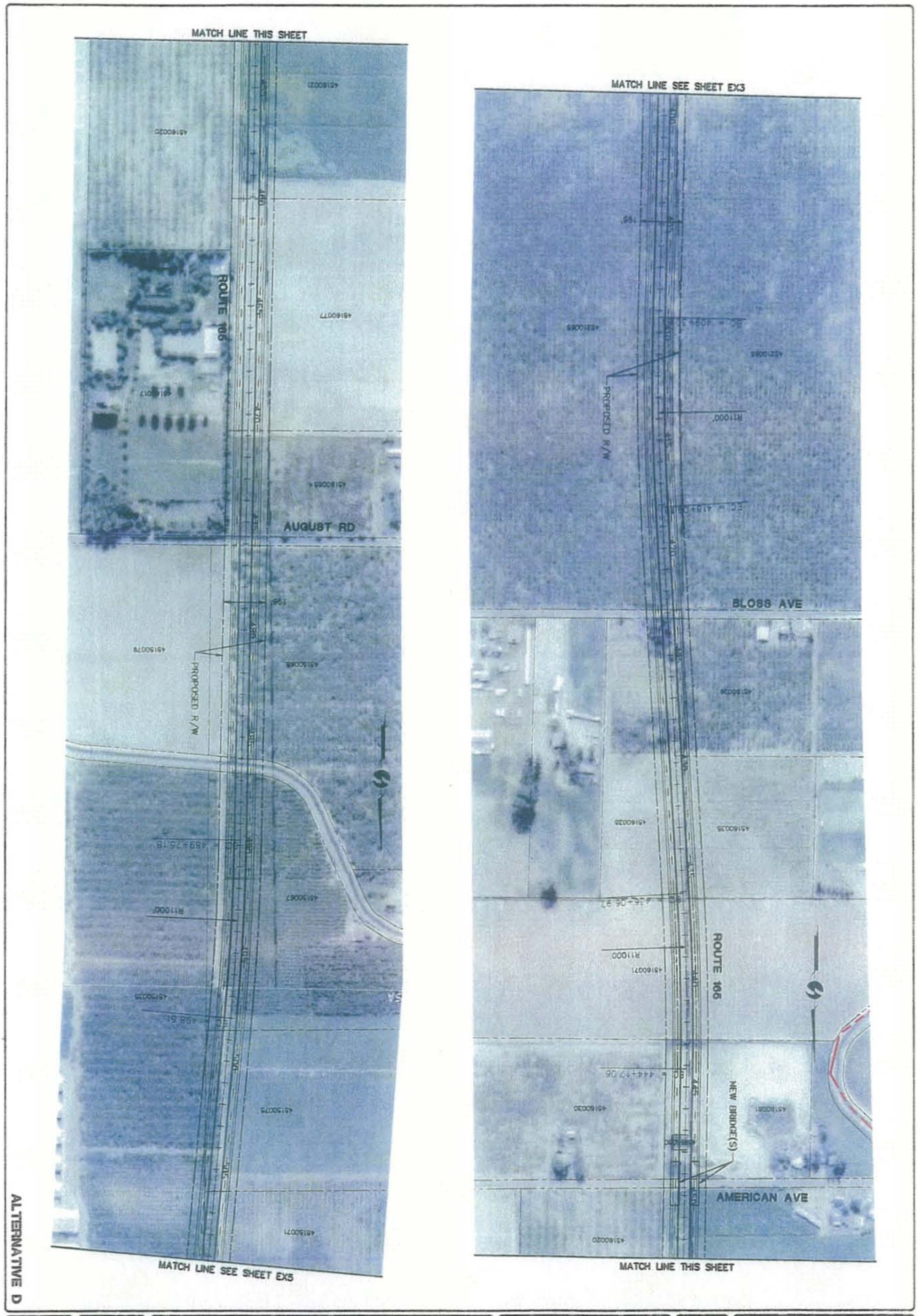

EX4

EXHIBIT
ALTERNATIVE D
ROUTE 165 PSR

MERCED COUNTY, CALIFORNIA

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APPROVED
BID
CONSTRUCTION
RECORD

REVISIONS

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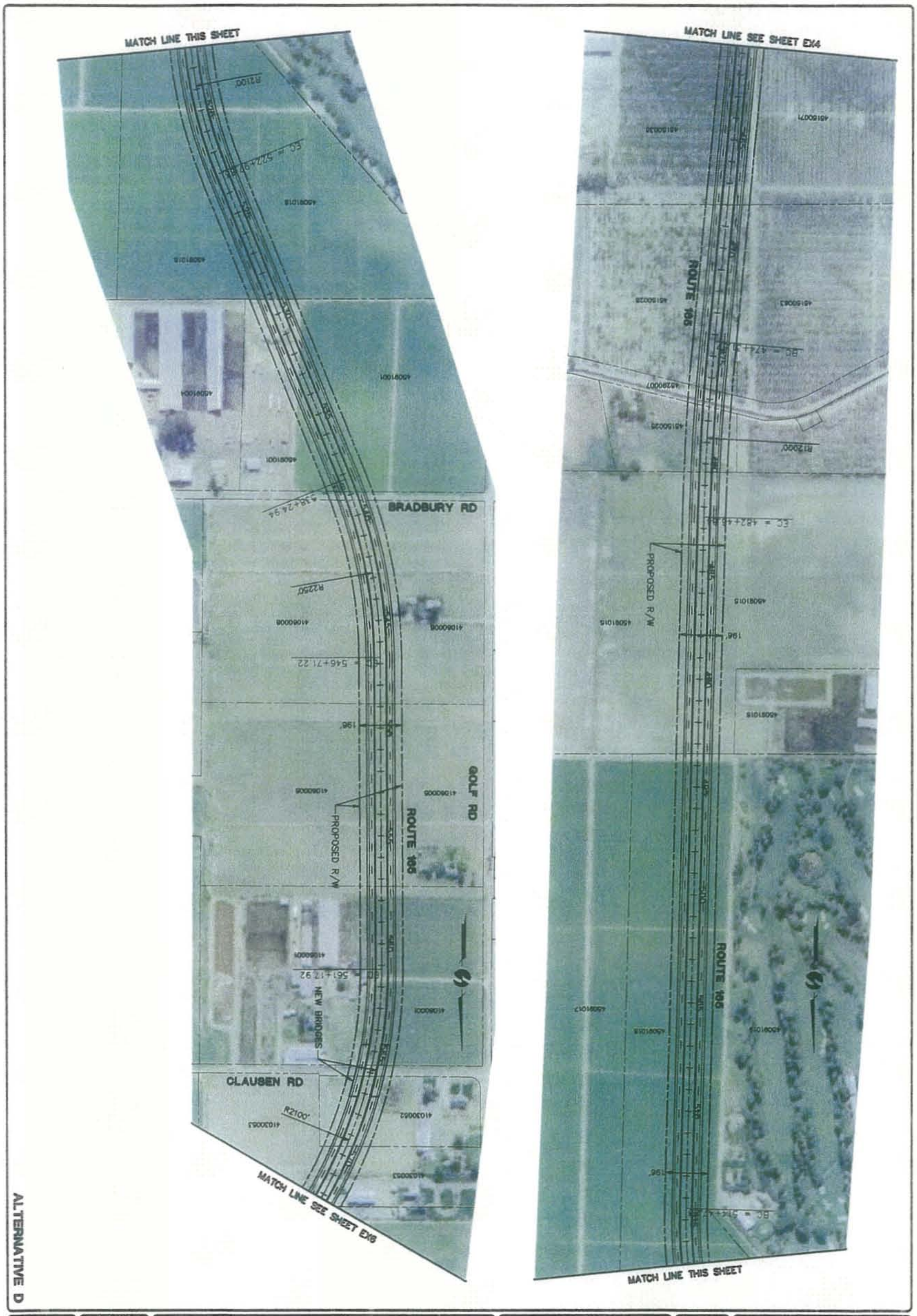

EX6

EXHIBIT
ALTERNATIVE D
ROUTE 165 PSR
MERCED COUNTY, CALIFORNIA

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REVISIONS

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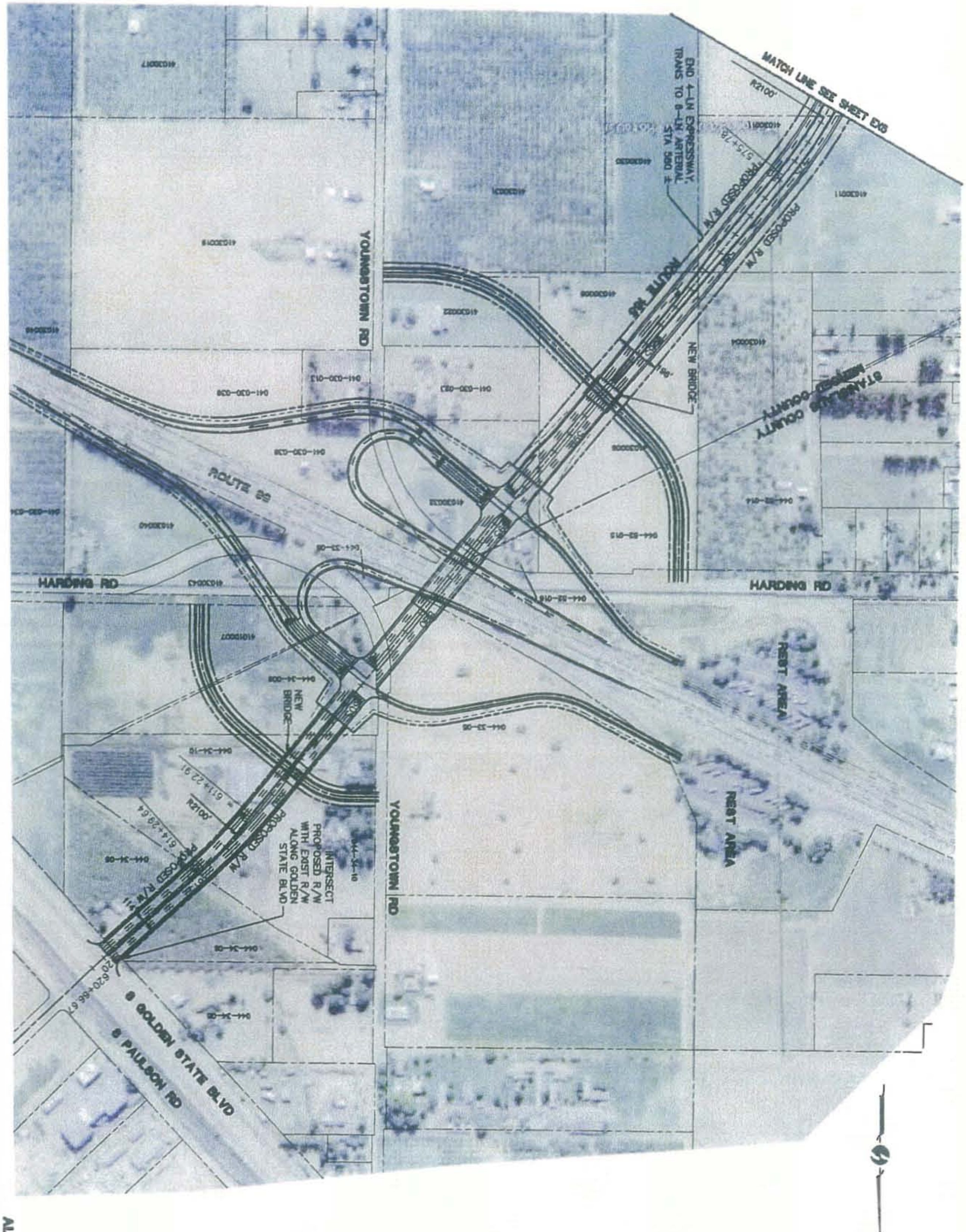

ALTERNATIVE D

EX6

EXHIBIT
ALTERNATIVE D
ROUTE 165 PSR

MERCED COUNTY, CALIFORNIA

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APPROVED
BID
CONSTRUCTION
RECORD

REVISIONS

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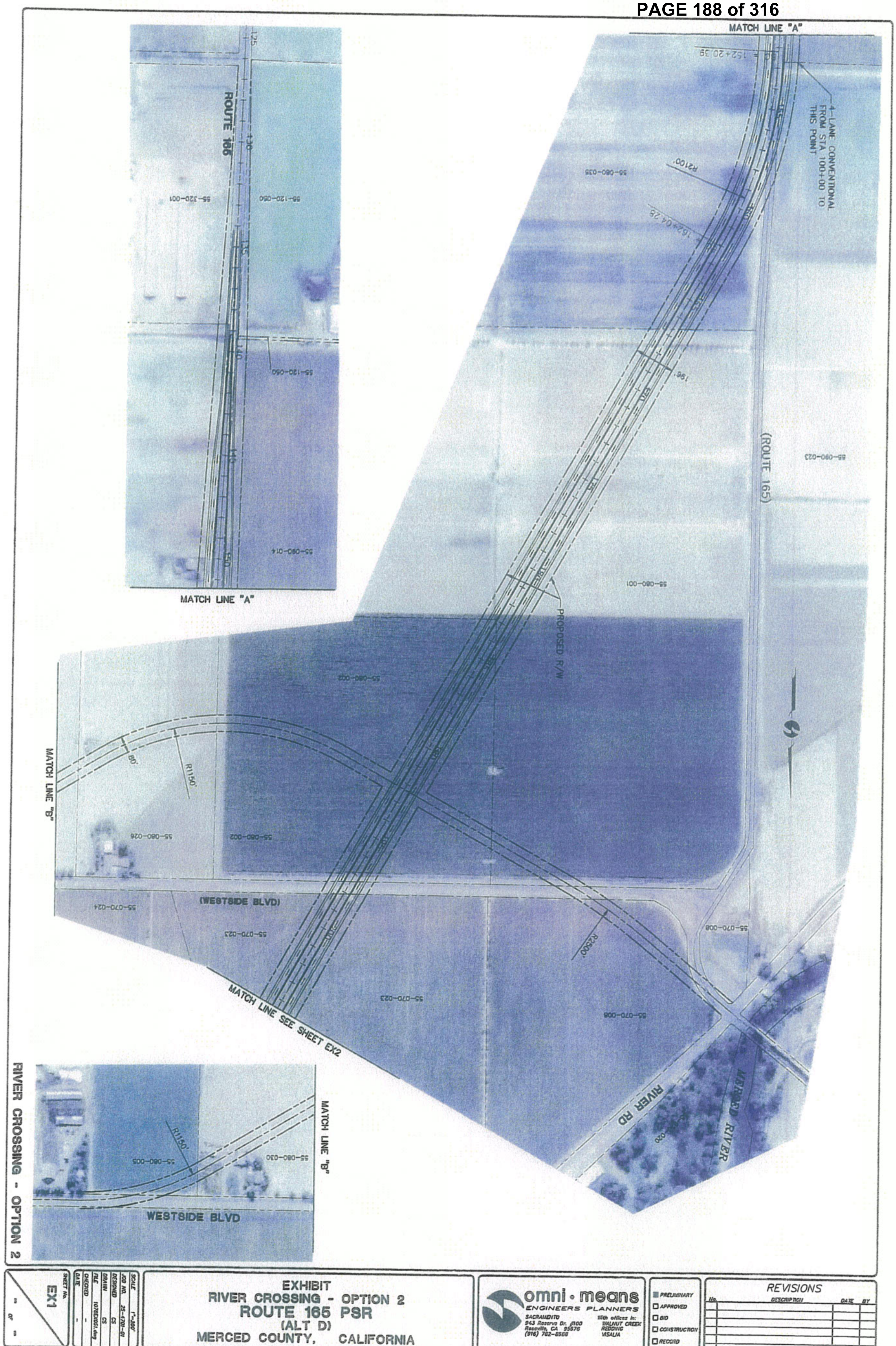

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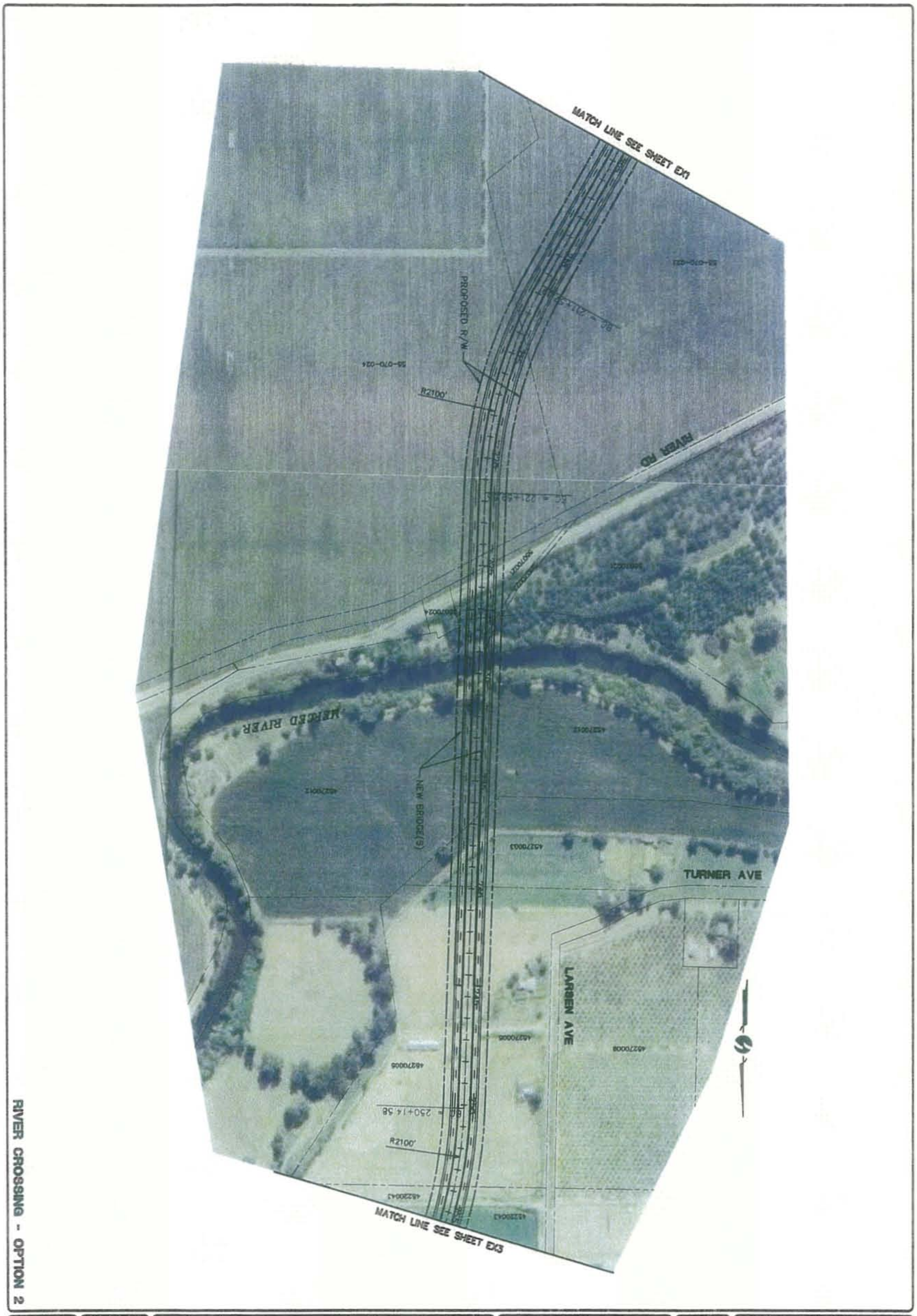

EXHIBIT
RIVER CROSSING - OPTION 2
ROUTE 165 PSR
(ALT D)
MERCED COUNTY, CALIFORNIA

SHEET No. EX2

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ENGINEERS PLANNERS
SACRAMENTO
943 Reserve Dr. #100
Roseville, CA 95678
(916) 782-8688
With offices in:
WALNUT CREEK
REDDING
VISALIA

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CONSTRUCTION
RECORD

REVISIONS

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EXHIBIT
ALTERNATIVE D
ROUTE 165 PSR
MERCED COUNTY, CALIFORNIA

EX3

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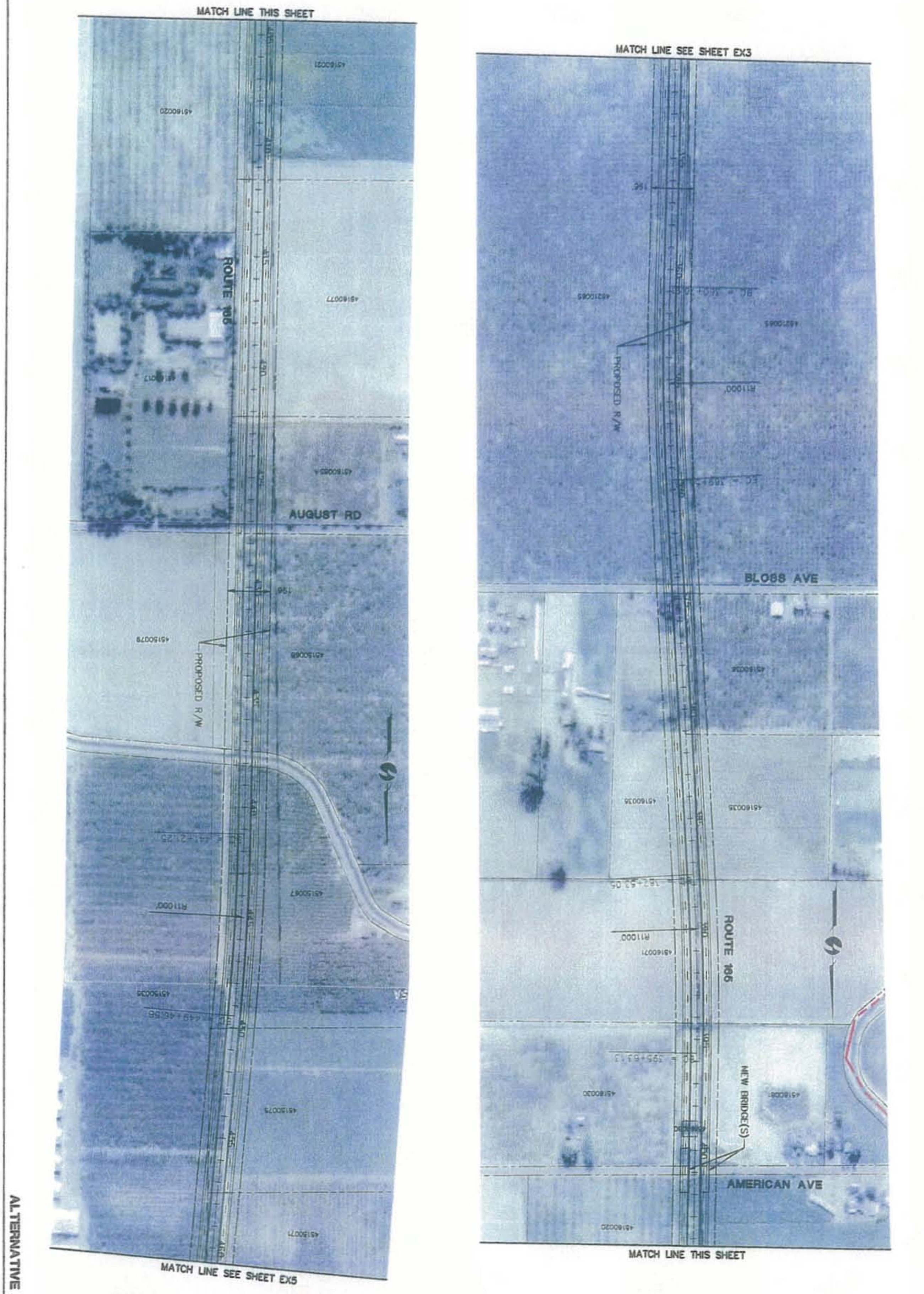

EX4

EXHIBIT
ALTERNATIVE D
ROUTE 165 PSR
MERCED COUNTY, CALIFORNIA

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ENGINEERS PLANNERS

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RECORD

REVISIONS

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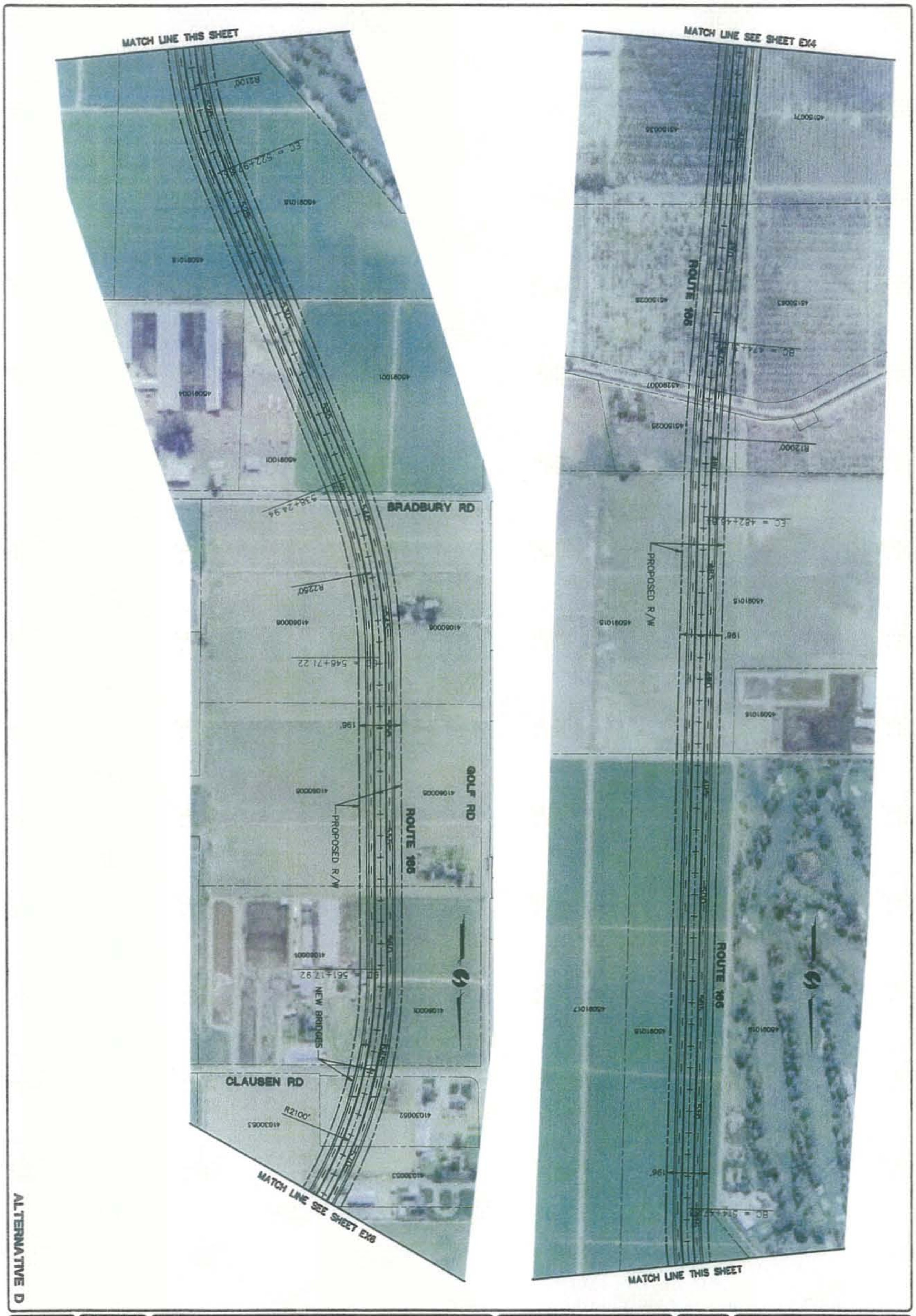

EXHIBIT
ALTERNATIVE D
ROUTE 165 PSR

MERCED COUNTY, CALIFORNIA

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SHEET NO. EX5

REVISIONS

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EXHIBIT
ALTERNATIVE D
ROUTE 165 PSR
COUNTY, CALIFORNIA

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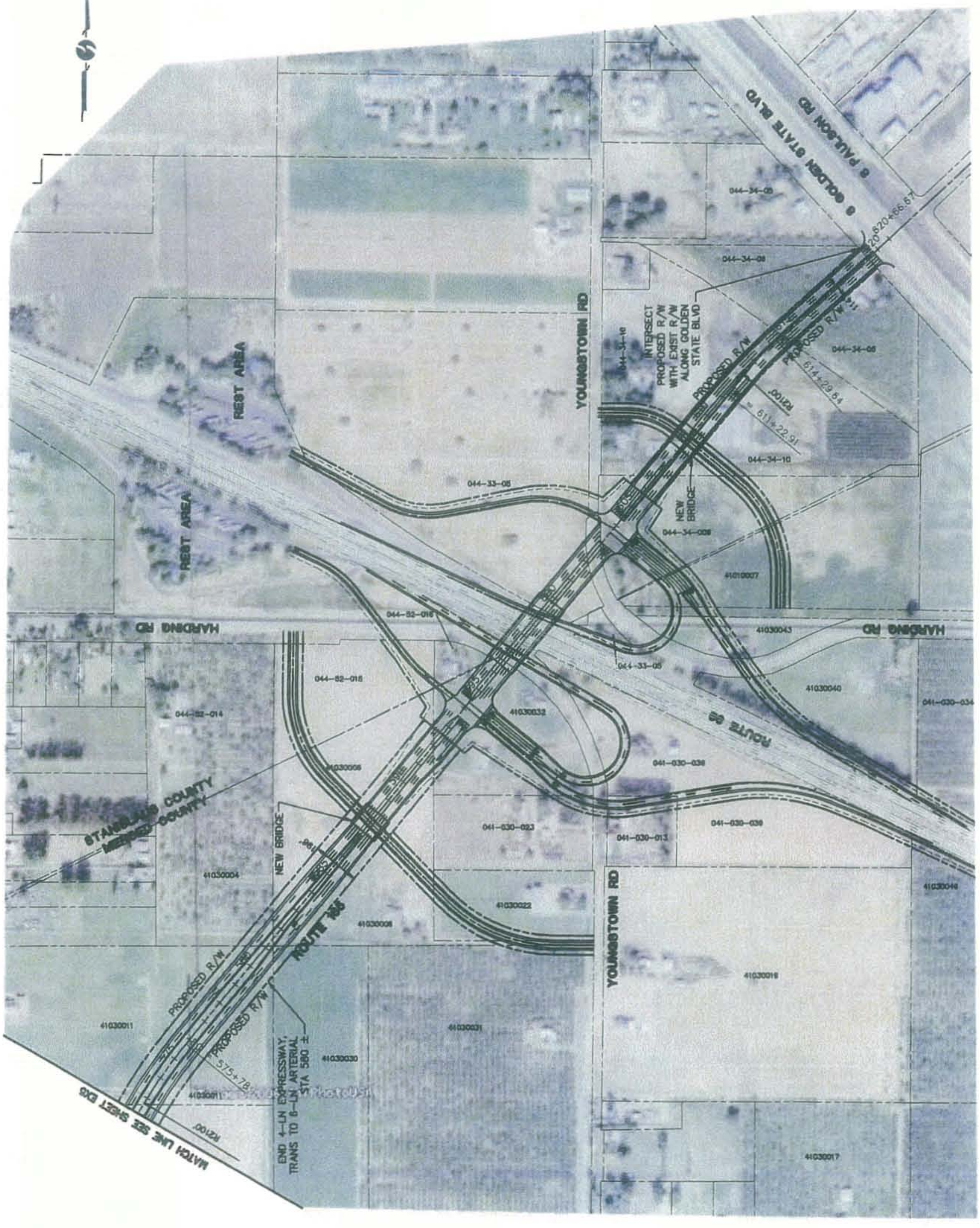
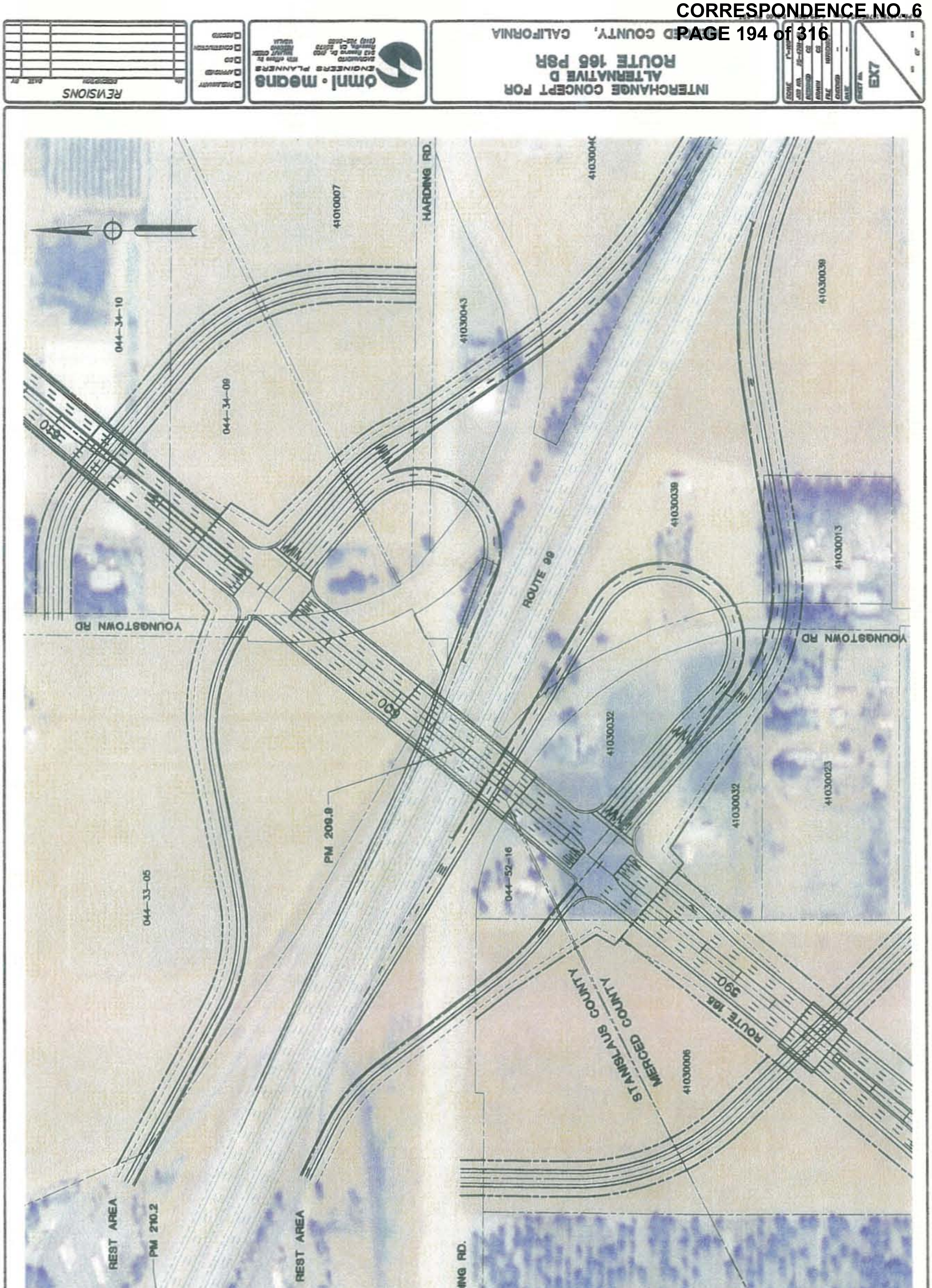
ENGINEERS PLANNERS

REVISIONS

EX6

ALTERNATIVE D




INTERCHANGE CONCEPT FOR
ALTERNATIVE D
ROUTE 165 PSR
MERCED COUNTY, CALIFORNIA
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ENGINEERS PLANNERS
REVISIONS
EX7
HARDING RD.
YOUNGSTOWN RD
ROUTE 99
ROUTE 165
STANISLAUS COUNTY
MERCED COUNTY
REST AREA
REST AREA
PM 209.9
PM 210.2
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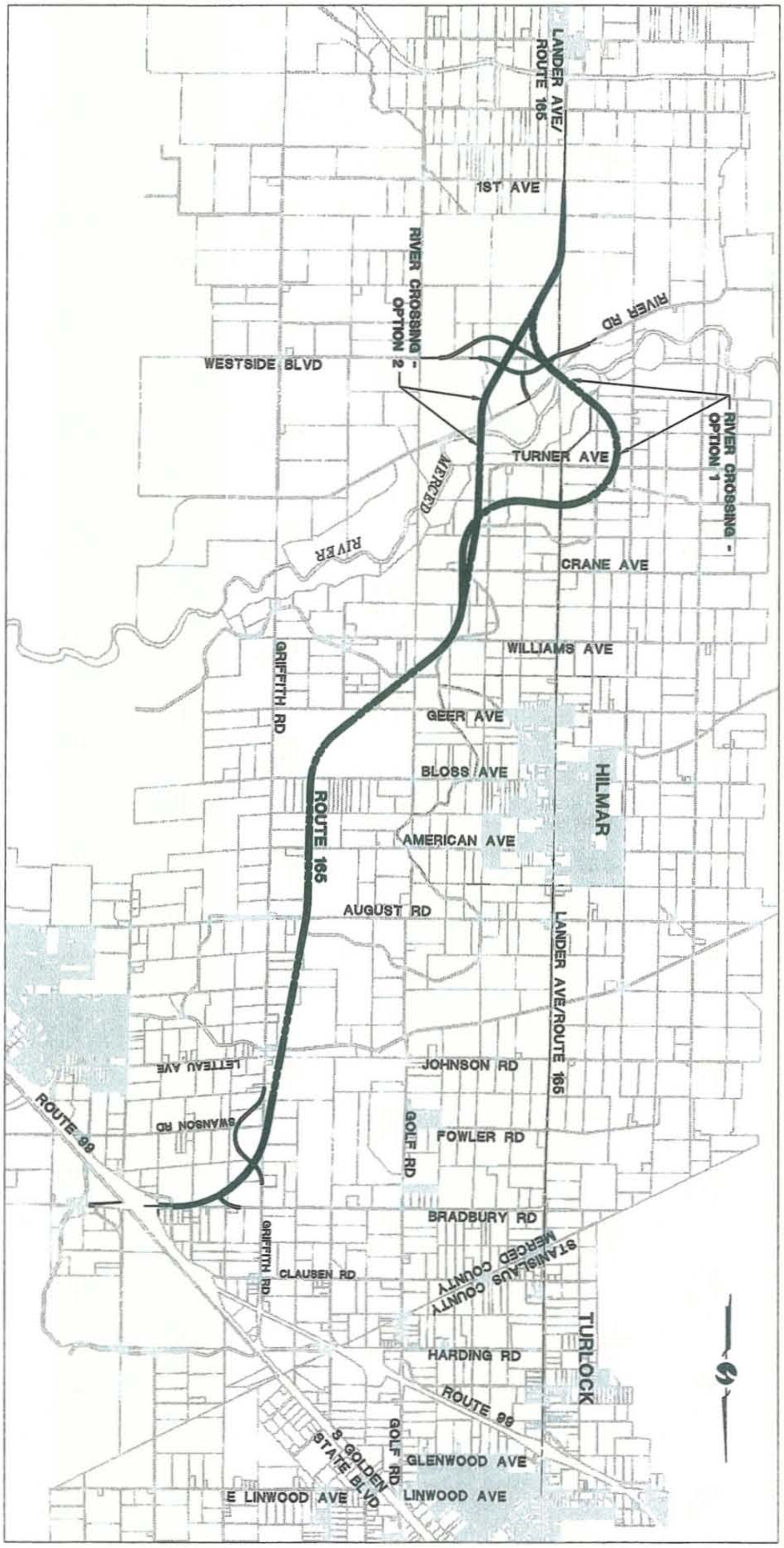
ATTACHMENT 6

ALTERNATIVE I ALIGNMENT EXHIBITS



ALTERNATIVE I

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EXHIBIT MAP
ALTERNATIVE I
ROUTE 165 PSR

MERCED COUNTY, CALIFORNIA

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- [ ] BID
- [ ] CONSTRUCTION
- [ ] RECORD

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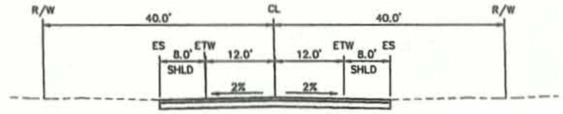
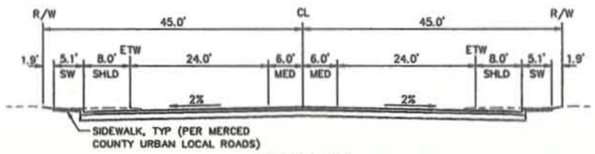
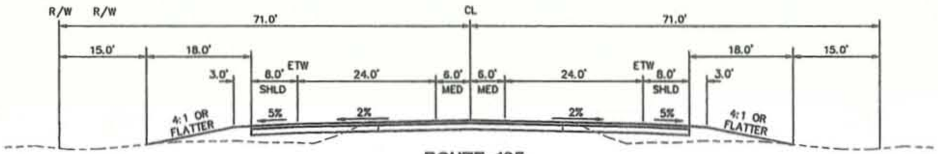


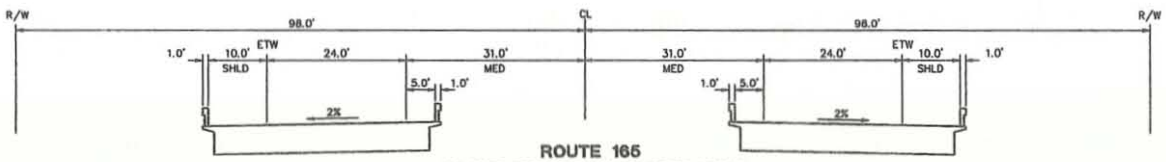
2-LANE RURAL ROADWAY (MAJOR COLLECTOR)
COUNTY OF MERCED



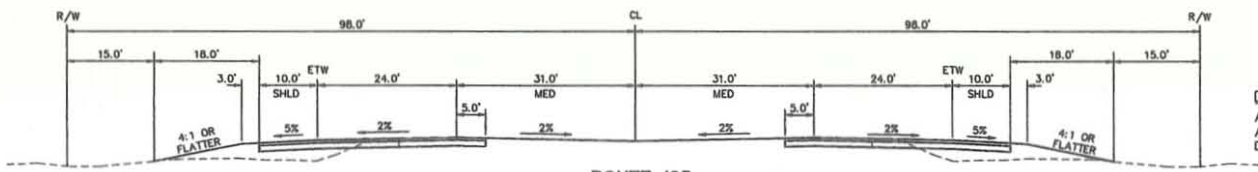
ROUTE 165
4-LANE CONVENTIONAL HIGHWAY (URBAN AREAS)



ROUTE 165
4-LANE CONVENTIONAL HIGHWAY (RURAL AREAS)



ROUTE 165
4-LANE EXPRESSWAY (BRIDGE(S))



ROUTE 165
4-LANE EXPRESSWAY (RURAL AREAS)

2-LN MAJOR COLLECTOR - COUNTY
ALTERNATIVE I

DESIGN DESIGNATION		STRUCTURAL SECTION
ADT (2015) = 1,500	D = 60%	TI = 9.5 R = 25
ADT (2035) = 4,800	T = 5%	AC = 0.50'
DHV = 480	V = 60 MPH	AB = 1.05'

4-LN CONVENTIONAL HWY - URBAN
ALTERNATIVE I

DESIGN DESIGNATION		STRUCTURAL SECTION
ADT (2015) = 9,500	D = 60%	TI = 12.5 R = 25
ADT (2035) = 17,900	T = 10%	AC = 0.65'
DHV = 1,700	V = 65 MPH	AB = 1.05'
		ASB = 0.75'

4-LN CONVENTIONAL HWY - RURAL
ALTERNATIVE I

DESIGN DESIGNATION		STRUCTURAL SECTION
ADT (2015) = 7,800	D = 60%	TI = 12.5 R = 25
ADT (2035) = 22,500	T = 10%	AC = 0.65'
DHV = 2,250	V = 65 MPH	AB = 1.05'
		ASB = 0.75'

EXPRESSWAY - RURAL
ALTERNATIVE I

DESIGN DESIGNATION		STRUCTURAL SECTION
ADT (2015) = 9,500	D = 60%	TI = 12.5 R = 25
ADT (2035) = 26,800	T = 10%	AC = 0.65'
DHV = 2,680	V = 65 MPH	AB = 1.05'
		ASB = 0.75'

REVISIONS

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TYPICAL CROSS SECTIONS
ALTERNATIVE I
ROUTE 165 PSR
MERCED COUNTY, CALIFORNIA

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DRAWN	CS
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CHECKED	-
DATE	-

SHEET No. X1
1 of 1

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EXHIBIT
RIVER CROSSING - OPTION 1
ROUTE 165 PSR
(ALT I)
MERCED COUNTY, CALIFORNIA
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ENGINEERS PLANNERS
REVISIONS
EX1
RIVER CROSSING - OPTION 1
SEE SHEET EX2
MERCED RIVER
RIVER RD
WESTSIDE BLVD
R1100'
PROPOSED R/W
(ROUTE 165)
R2100'
MATCH LINE THIS SHEET
4-LANE CONVENTIONAL FROM STA 100+00 TO THIS POINT
ROUTE 165


EXHIBIT
RIVER CROSSING - OPTION 1
ROUTE 165 PSR
(ALT I)
COUNTY, CALIFORNIA
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REVISIONS
EX2
RIVER CROSSING - OPTION 1
MATCH LINE SEE SHEET EX3
ROUTE 165
(ROUTE 165)
TURNER AVE
NEW BRIDGE(S)
PROPOSED R/W
R2100'
MERCED RIVER
RIVER RD
SEE SHEET EX1
45-220-019
45270001
45270008
45-350-005
45-350-006
45-350-010
45-350-011
45-350-013

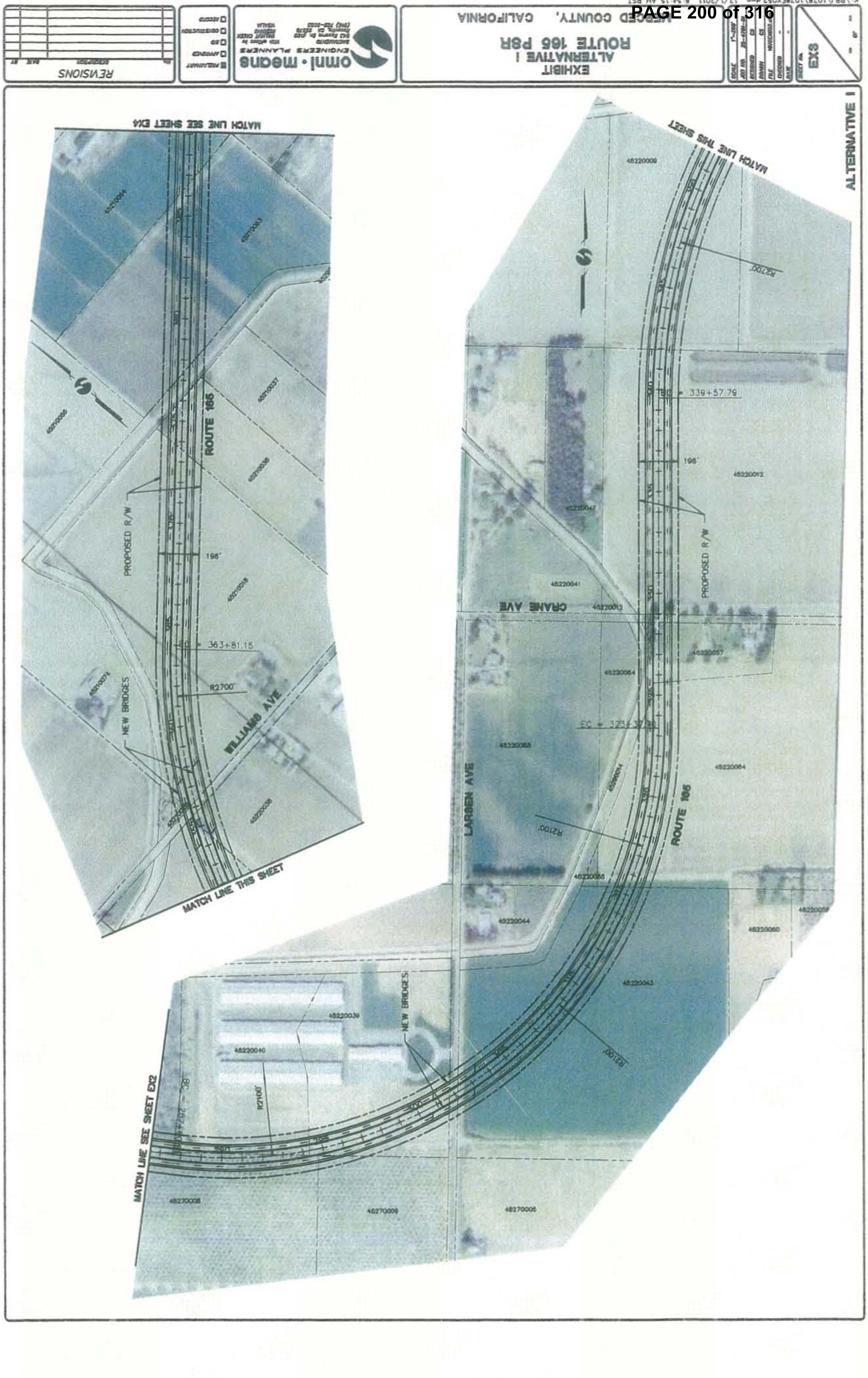
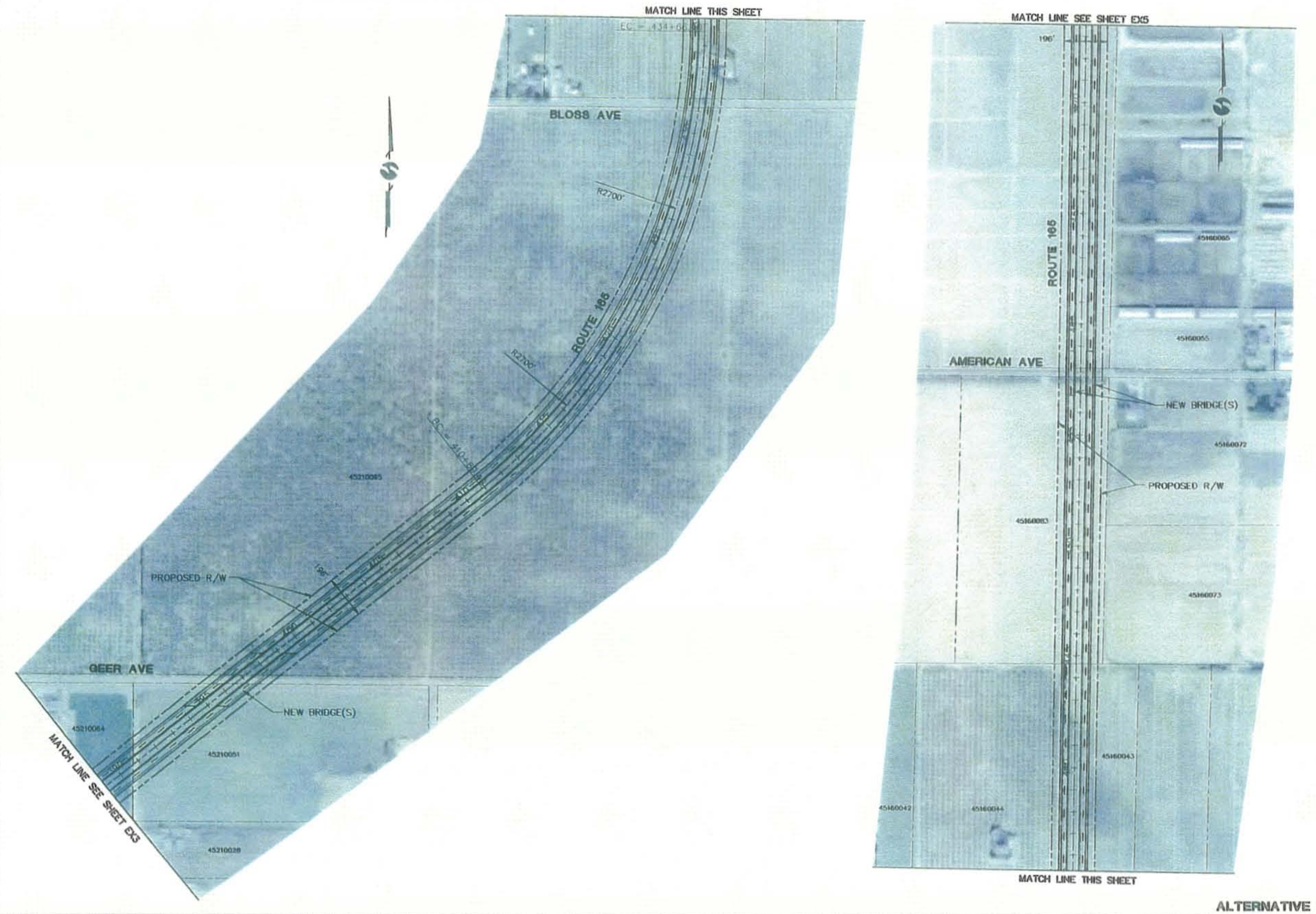


EXHIBIT
ALTERNATIVE I
ROUTE 165 PSR
MERCED COUNTY, CALIFORNIA
omni · means
ENGINEERS PLANNERS
REVISIONS
EX3
ALTERNATIVE I
MATCH LINE SEE SHEET EX4
MATCH LINE THIS SHEET
ROUTE 165
PROPOSED R/W
196'
363+81.15
R2700'
WILLIAMS AVE
NEW BRIDGES
BC = 339+57.79
R2700'
CRANE AVE
LARSEN AVE
R2100'
MATCH LINE SEE SHEET EX2



REVISIONS

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☐ APPROVED
☐ BID
☐ CONSTRUCTION
☐ RECORD

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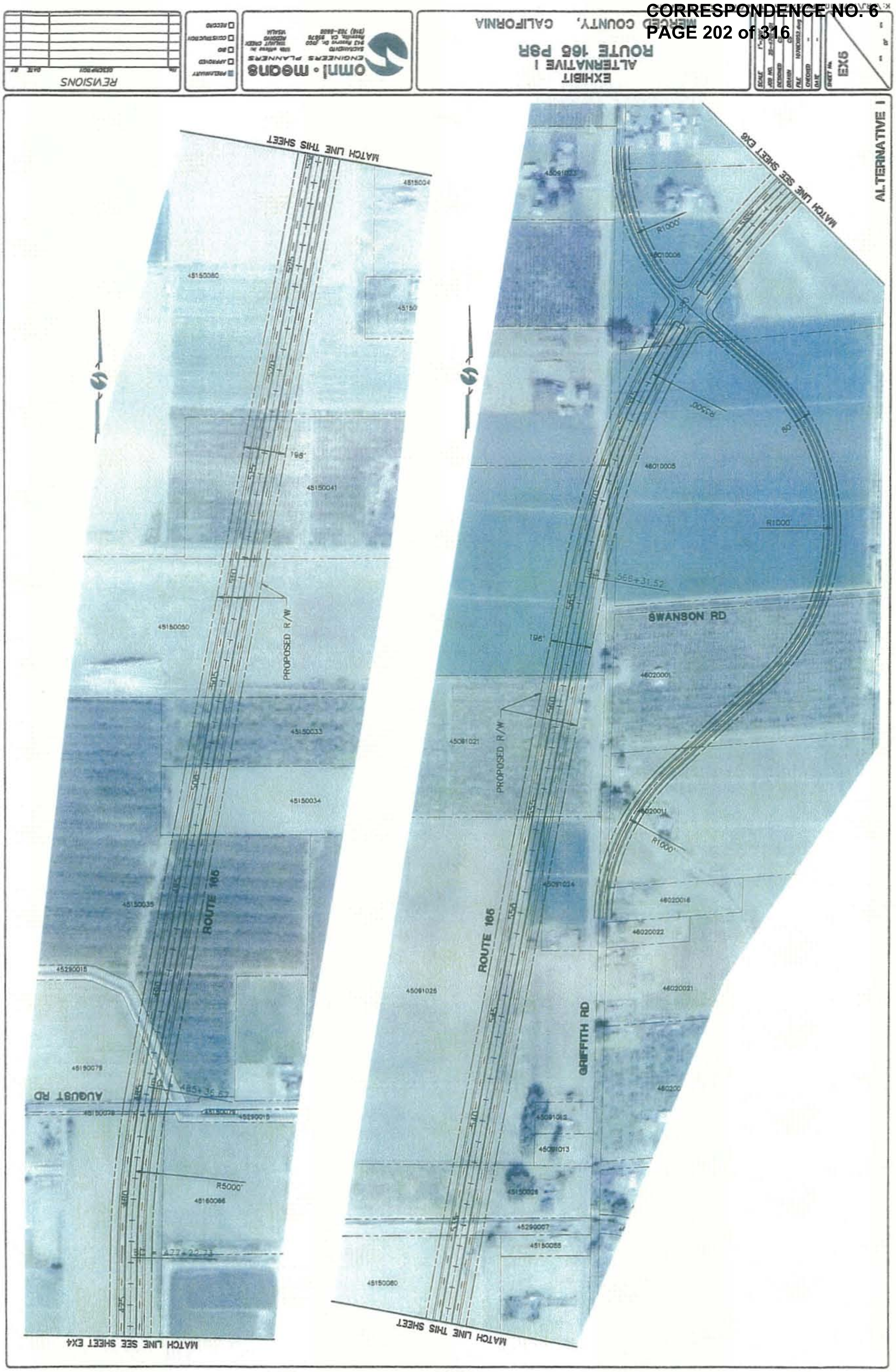
ENGINEERS PLANNERS

EXHIBIT
ALTERNATIVE I
ROUTE 165 PSR
MERCED COUNTY, CALIFORNIA

SHEET No.
EX4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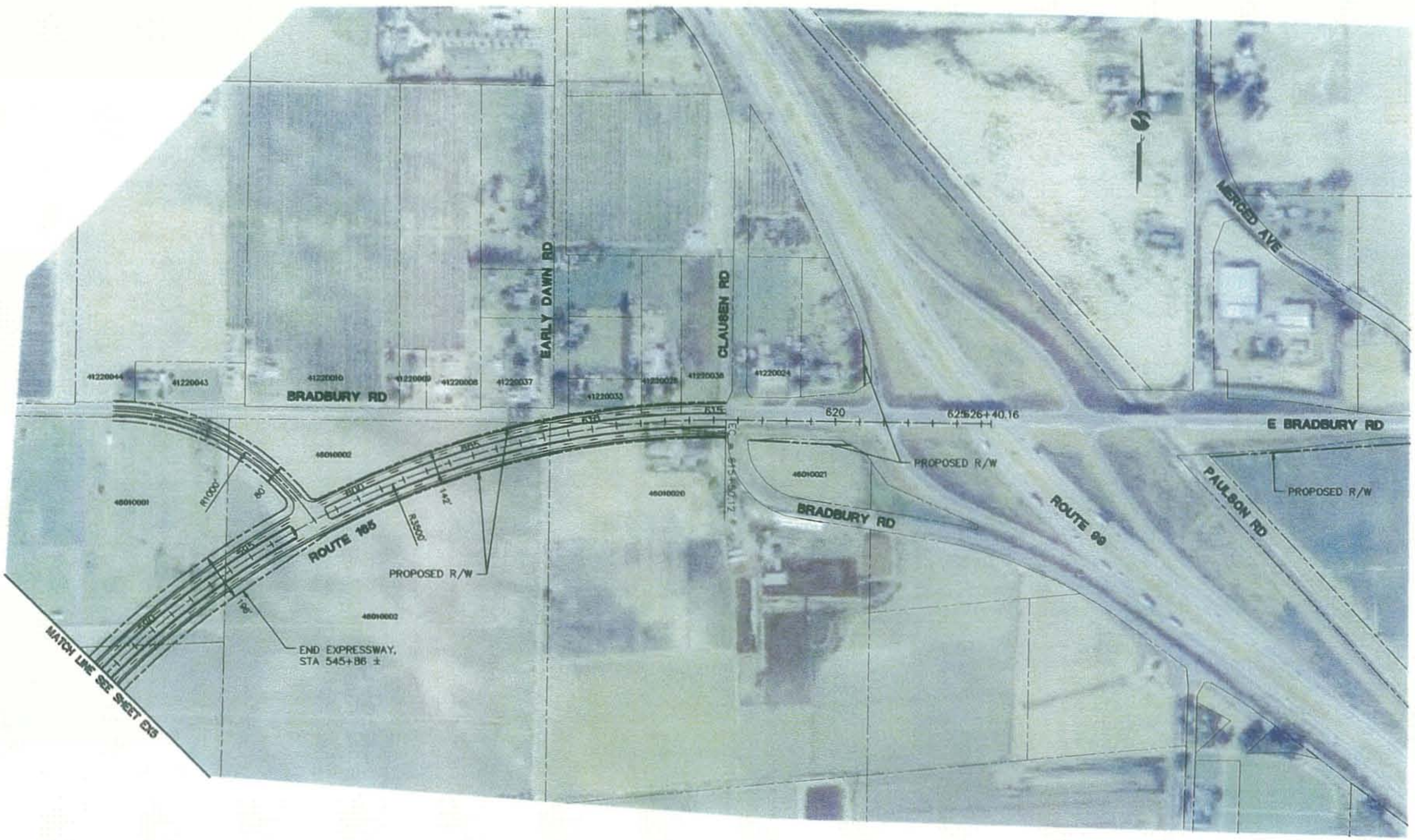
ALTERNATIVE I
ROUTE 165 PSR
MERCED COUNTY, CALIFORNIA
omni-means
ENGINEERS PLANNERS
REVISIONS
EX5
ALTERNATIVE I
MATCH LINE THIS SHEET
MATCH LINE SEE SHEET EX4
MATCH LINE SEE SHEET EX6
ROUTE 165
PROPOSED R/W
AUGUST RD
SWANSON RD
GRIFFITH RD
198'
R5000'
R1000'
R2500'
80'
566+31.52
485+36.52

NOTE:
1. THE PROPOSED IMPROVEMENTS ALSO INCLUDE MODIFICATIONS TO THE EXISTING BRADBURY ROAD INTERCHANGE WITH SR99. SEE SHEET NO. 1 OF 1 FOR PROPOSED INTERCHANGE IMPROVEMENTS.



ALTERNATIVE I

REVISIONS

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EXHIBIT
ALTERNATIVE I
ROUTE 165 PSR
MERCED COUNTY, CALIFORNIA

SCALE 1"=200'
SHEET No. EX6

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EXHIBIT
ALTERNATIVE 1
ROUTE 165 PSR
MERCED COUNTY, CALIFORNIA

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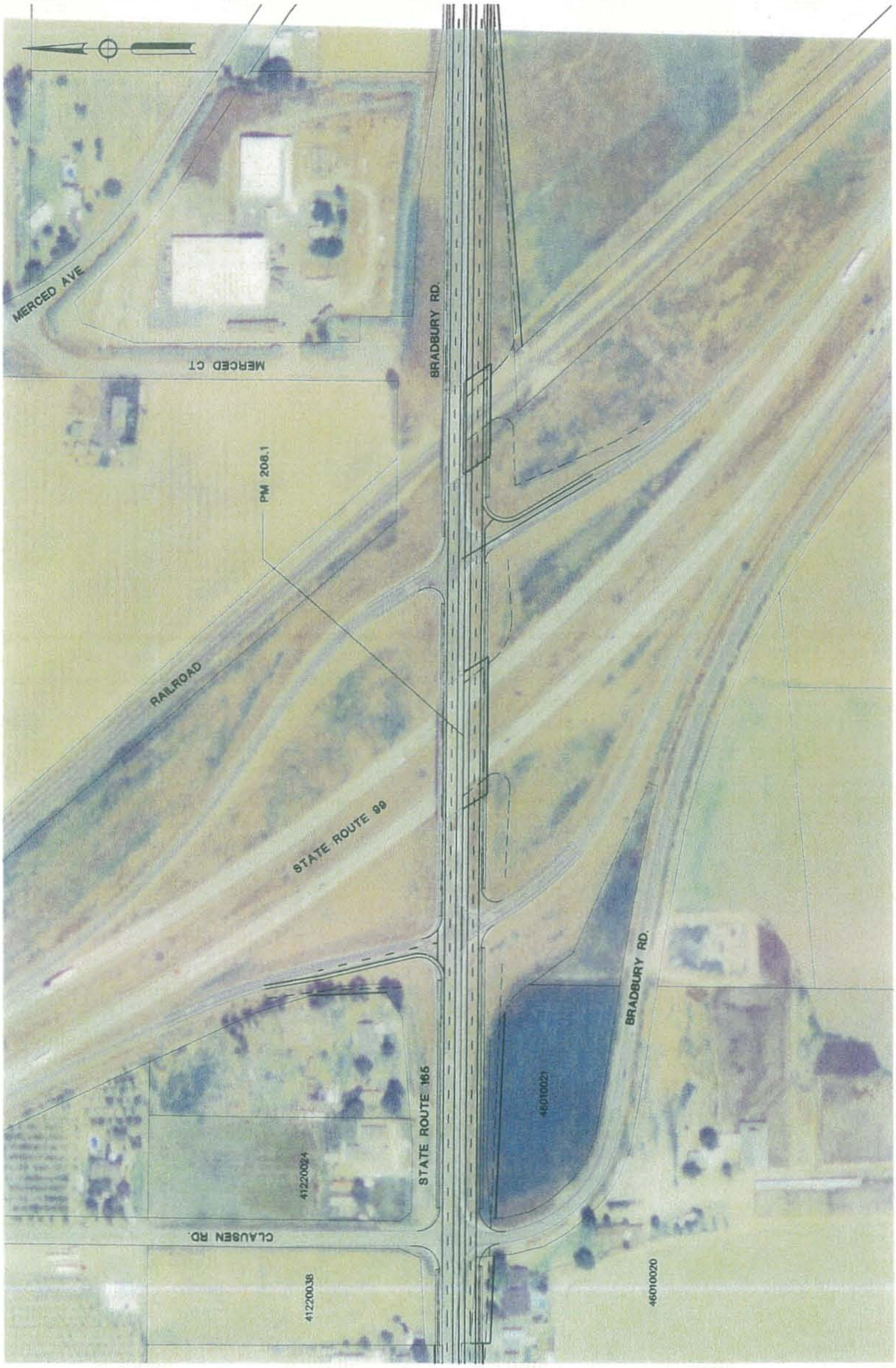


NOTE:
1. PROPOSED IMPROVEMENTS TO EXISTING BRADBURY ROAD INTERCHANGE WITH SR99.

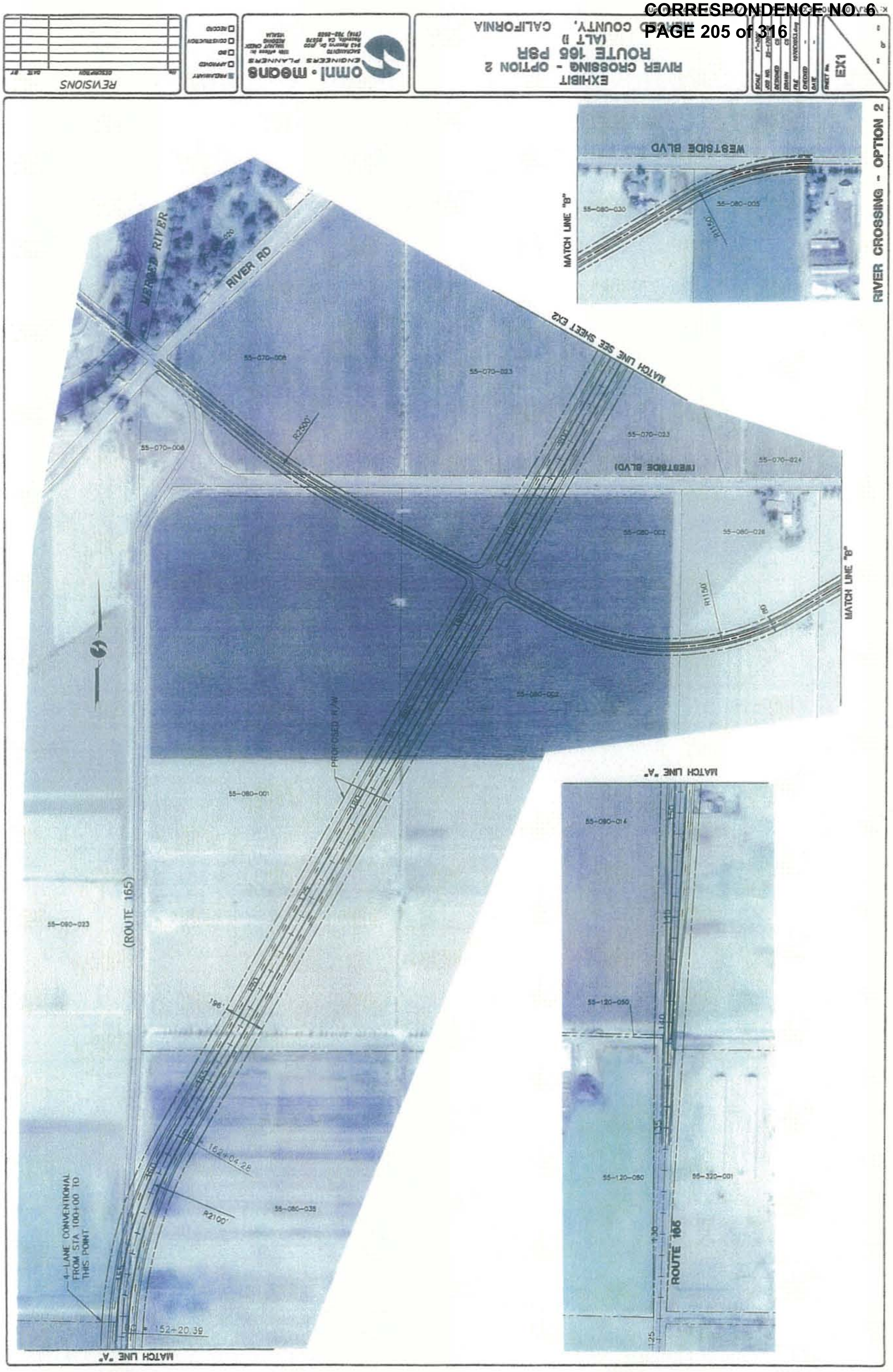


EXHIBIT
RIVER CROSSING - OPTION 2
ROUTE 165 PSR
(ALT I)
MERCED COUNTY, CALIFORNIA
omni-means
ENGINEERS PLANNERS
REVISIONS
EX1
RIVER CROSSING - OPTION 2
WESTSIDE BLVD
MATCH LINE "B"
MERCED RIVER
RIVER RD
MATCH LINE SEE SHEET EX2
(WESTSIDE BLVD)
R2500'
R1150'
PROPOSED R/W
(ROUTE 165)
162+04.28
R2100'
4-LANE CONVENTIONAL FROM STA 100+00 TO THIS POINT
152+20.39
MATCH LINE "A"
ROUTE 165

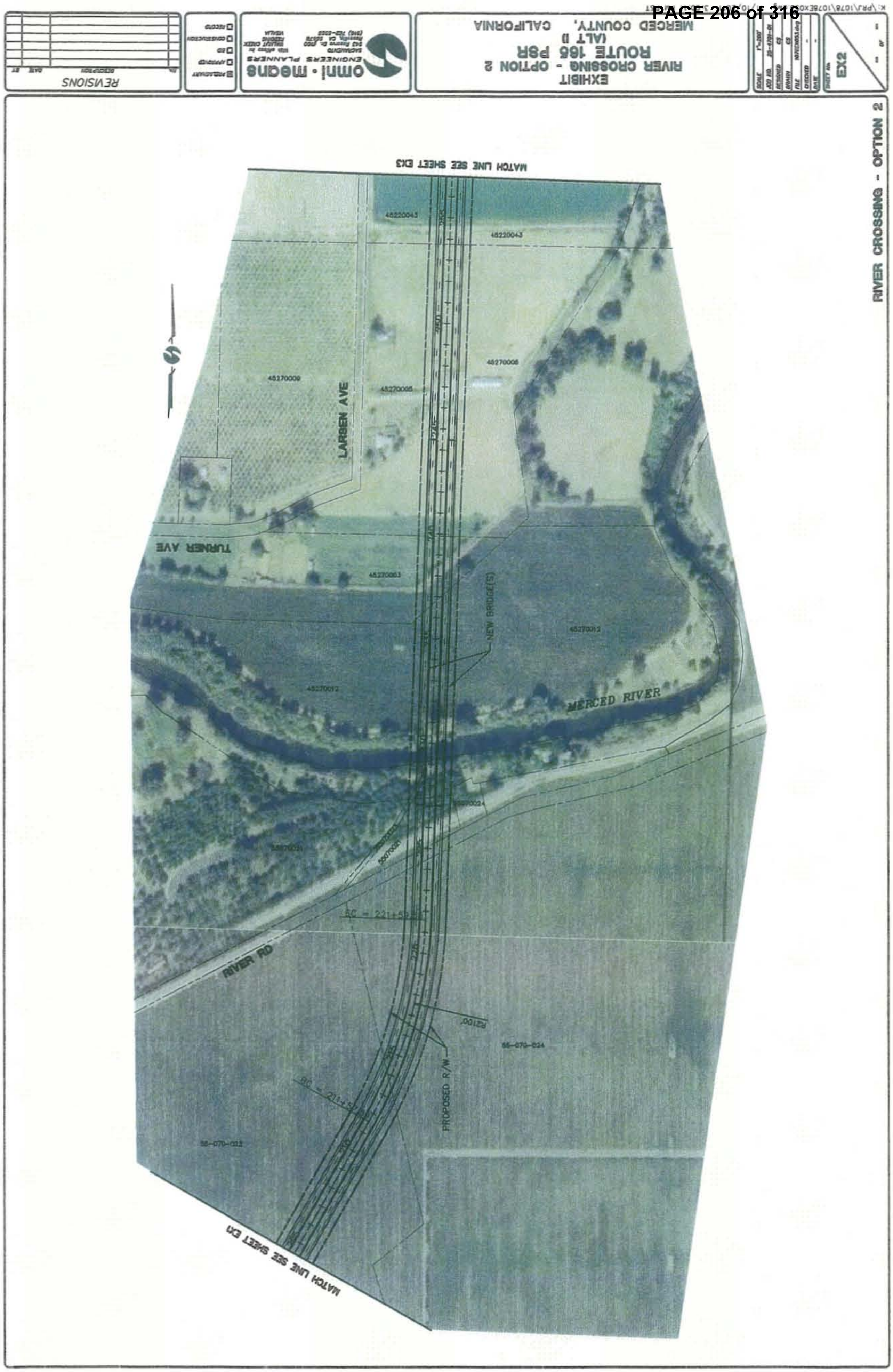


EXHIBIT
RIVER CROSSING - OPTION 2
ROUTE 165 PSR
(ALT I)
MERCED COUNTY, CALIFORNIA
omni-means
ENGINEERS PLANNERS
REVISIONS
EX2
RIVER CROSSING - OPTION 2
MATCH LINE SEE SHEET EX3
LARSEN AVE
TURNER AVE
NEW BRIDGE(S)
MERCED RIVER
RIVER RD
PROPOSED R/W
MATCH LINE SEE SHEET EX1

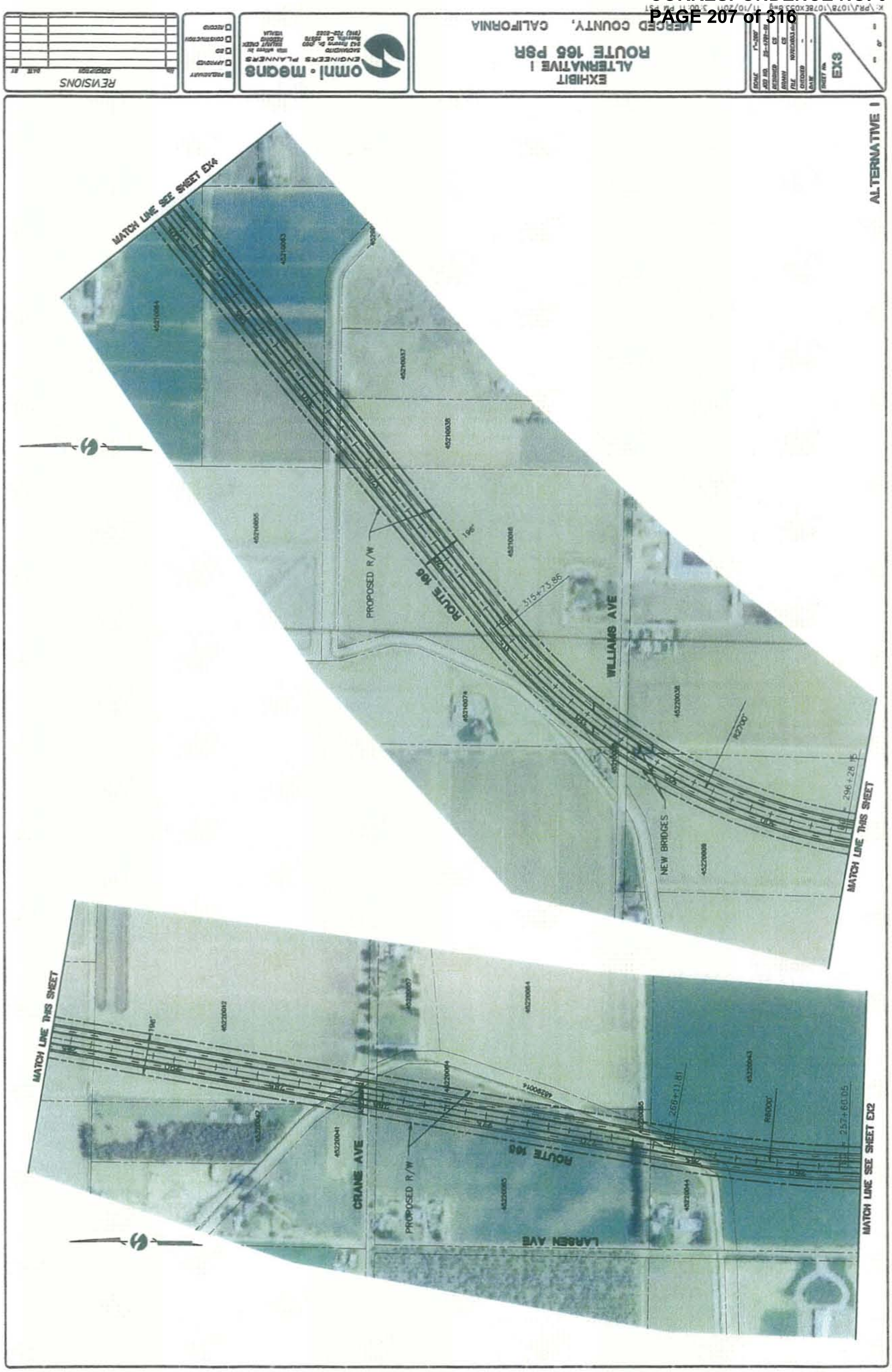


EXHIBIT
ALTERNATIVE I
ROUTE 165 PSR
MERCED COUNTY, CALIFORNIA
omni-means
ENGINEERS PLANNERS
REVISIONS
EX3
ALTERNATIVE I
MATCH LINE SEE SHEET EX4
PROPOSED R/W
ROUTE 165
196'
315+73.86
WILLIAMS AVE
R2700'
296+28.15
NEW BRIDGES
MATCH LINE THIS SHEET
MATCH LINE THIS SHEET
196'
CRANE AVE
PROPOSED R/W
ROUTE 165
256+11.81
R6000'
257+60.05
LARSEN AVE
MATCH LINE SEE SHEET EX2

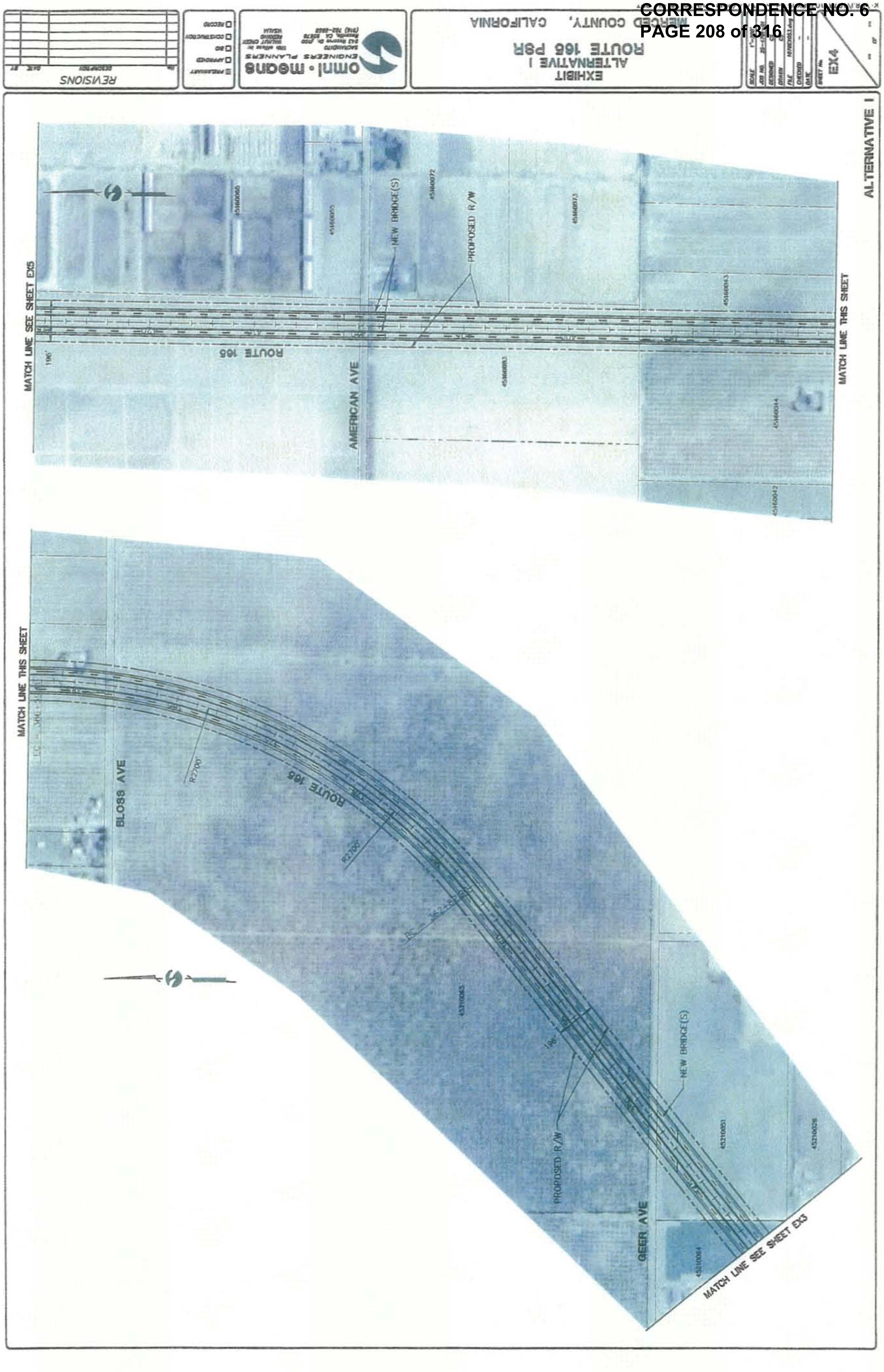


EXHIBIT
ALTERNATIVE I
ROUTE 165 PSR
MERCED COUNTY, CALIFORNIA
omni • means
ENGINEERS PLANNERS
REVISIONS
EX4
ALTERNATIVE I
MATCH LINE SEE SHEET EX5
ROUTE 165
AMERICAN AVE
NEW BRIDGE(S)
PROPOSED R/W
MATCH LINE THIS SHEET
BLOSS AVE
R2700'
GEER AVE
MATCH LINE SEE SHEET EX3

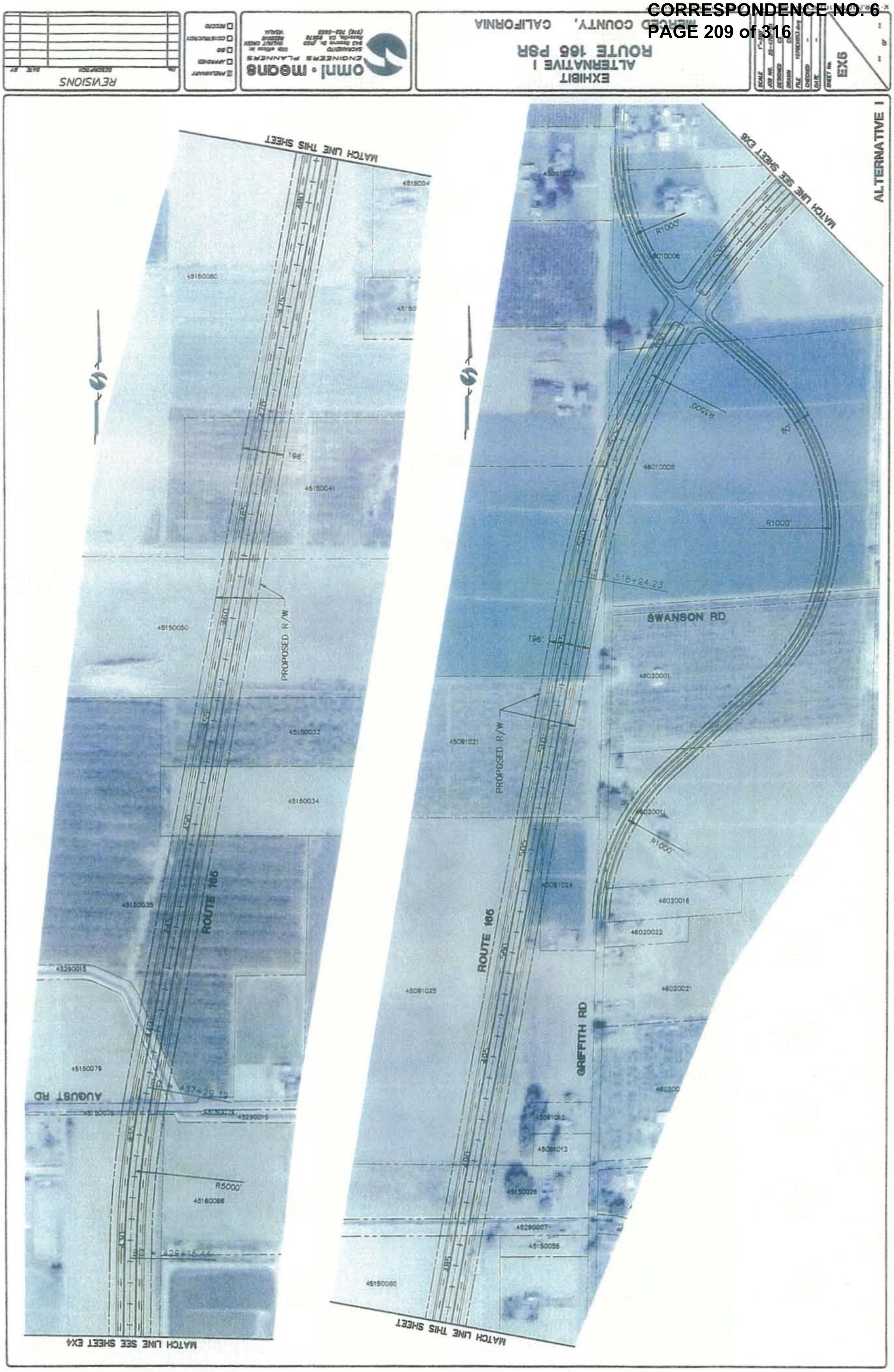
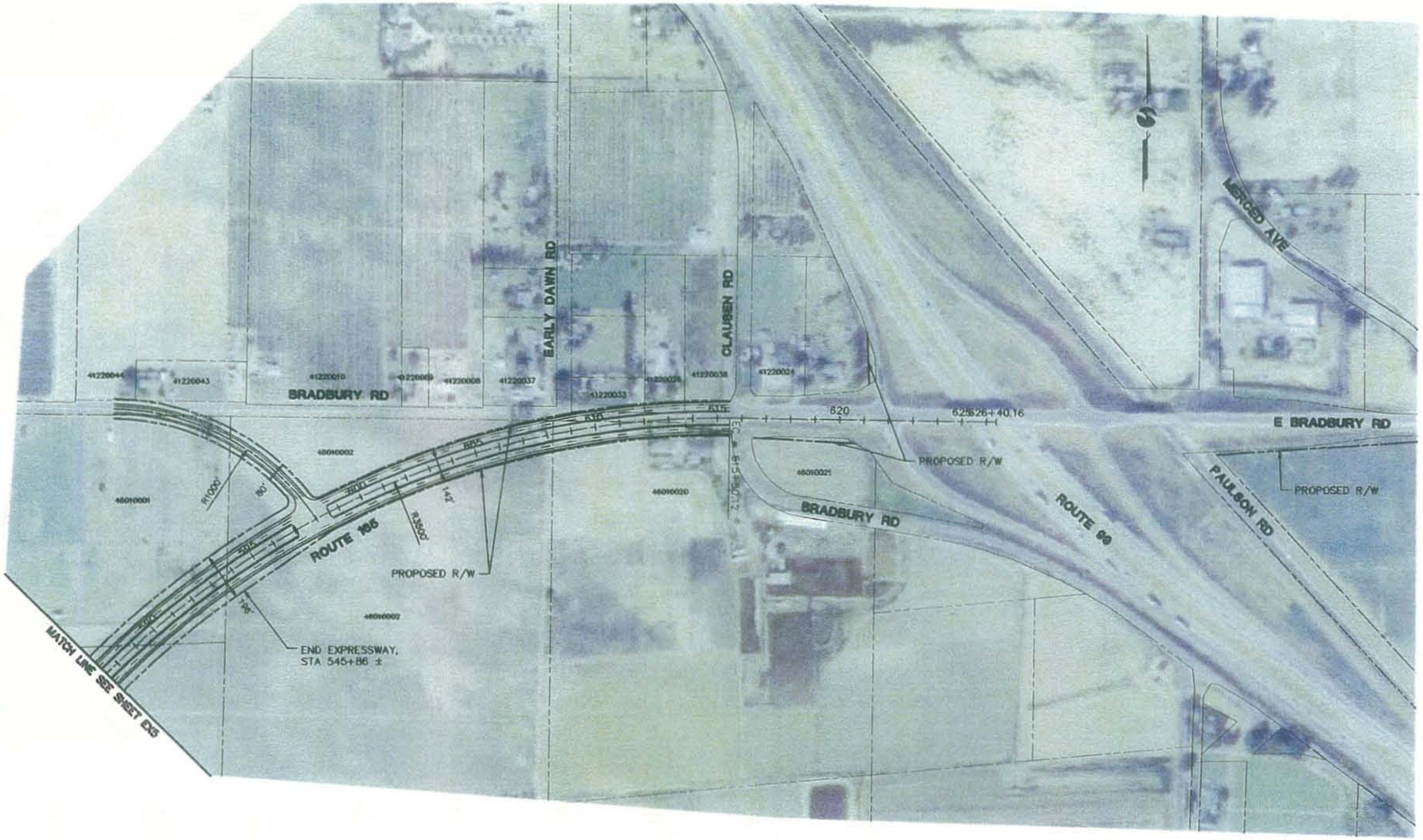


EXHIBIT
ALTERNATIVE I
ROUTE 165 PSR
MERCED COUNTY, CALIFORNIA
omni-means
ENGINEERS PLANNERS
REVISIONS
EX6
ALTERNATIVE I
MATCH LINE THIS SHEET
MATCH LINE SEE SHEET EX6
MATCH LINE SEE SHEET EX4
ROUTE 165
SWANSON RD
GRIFFITH RD
AUGUST RD
PROPOSED R/W
R1000'
R1000'
R1000'
R5000'
196'
196'
518+24.23

NOTE:

1. THE PROPOSED IMPROVEMENTS ALSO INCLUDE MODIFICATIONS TO THE EXISTING BRADBURY ROAD INTERCHANGE WITH SR99. SEE SHEET NO. 1 OF 1 FOR PROPOSED INTERCHANGE IMPROVEMENTS.



ALTERNATIVE I

EXHIBIT
ALTERNATIVE I
ROUTE 165 PSR
MERCED COUNTY, CALIFORNIA

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SCALE 1"=200'

SHEET No. EX6

EXHIBIT
ALTERNATIVE 1
ROUTE 165 PSR

MERCED COUNTY, CALIFORNIA

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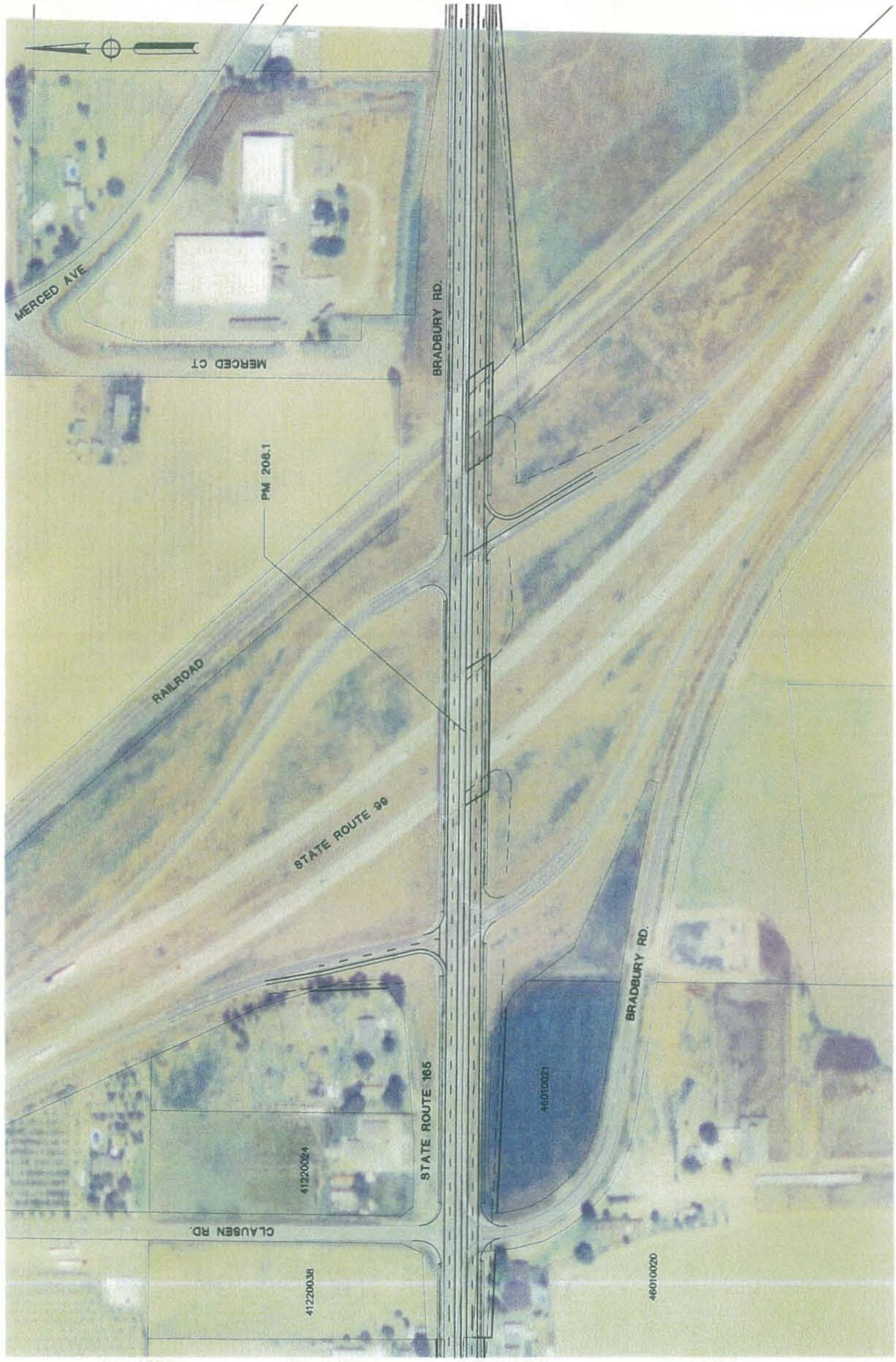
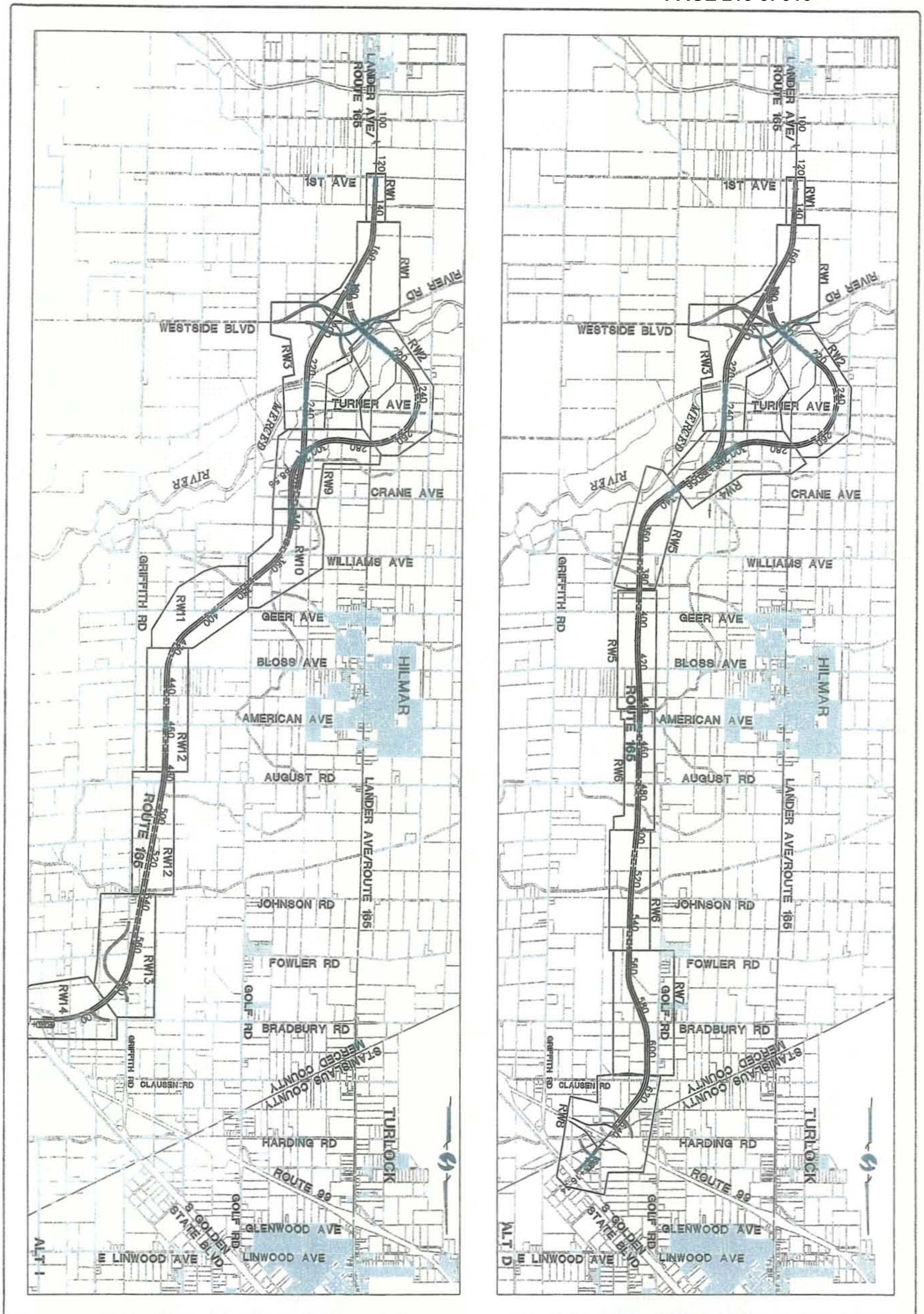


NOTE:
1. PROPOSED IMPROVEMENTS TO EXISTING BRADBURY ROAD INTERCHANGE WITH SR99.

ATTACHMENT 7

STUDY AREA BOUNDARY EXHIBITS



K1

KEY MAP

ROUTE 165 PSR

MERCED COUNTY, CALIFORNIA

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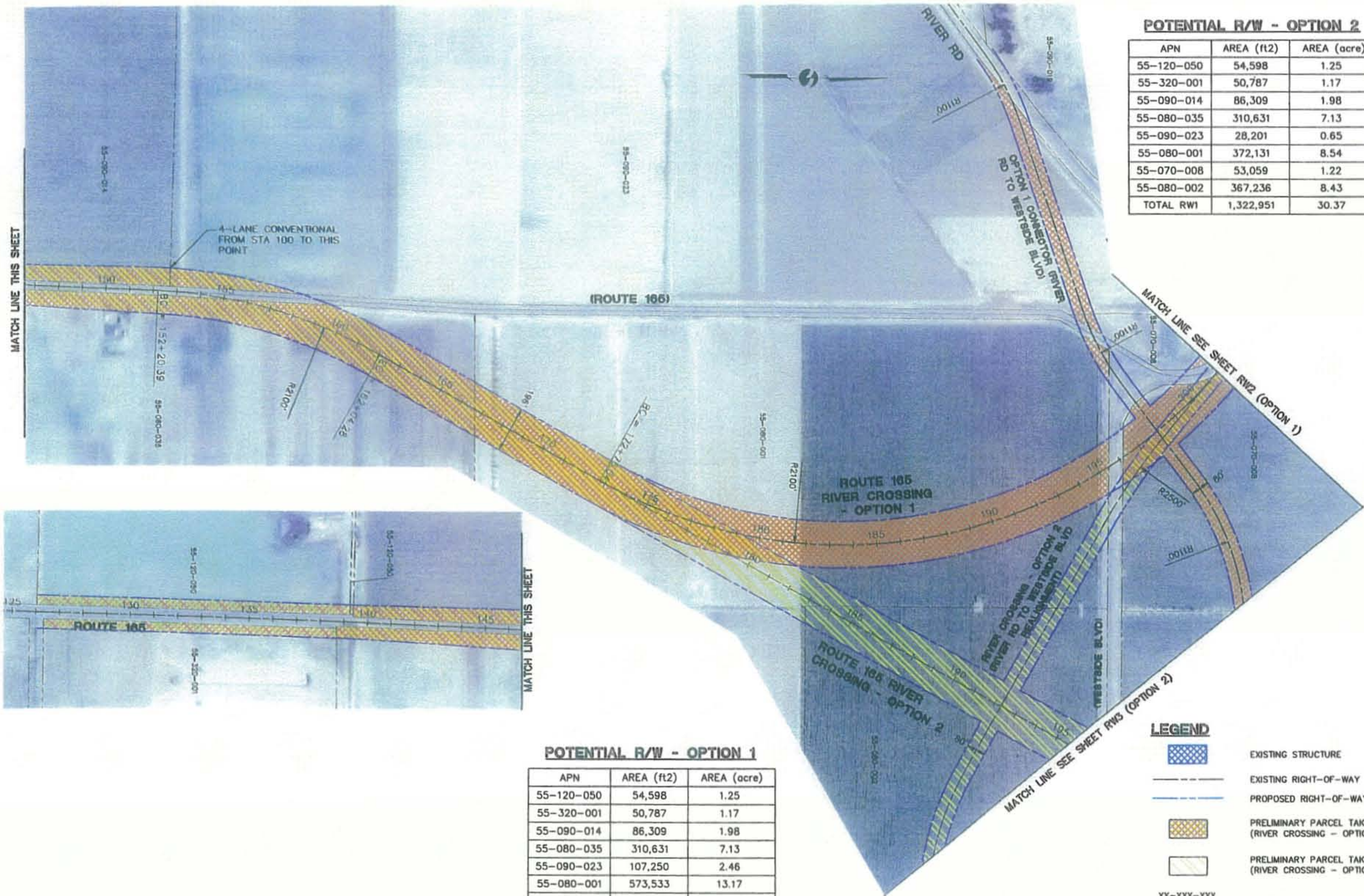
☐ APPROVED
☐ BID
☐ CONSTRUCTION
☐ RECORD

REVISIONS

No.	DESCRIPTION	DATE	BY



POTENTIAL R/W - OPTION 2

APN	AREA (ft2)	AREA (acre)
55-120-050	54,598	1.25
55-320-001	50,787	1.17
55-090-014	86,309	1.98
55-080-035	310,631	7.13
55-090-023	28,201	0.65
55-080-001	372,131	8.54
55-070-008	53,059	1.22
55-080-002	367,236	8.43
TOTAL RW1	1,322,951	30.37

POTENTIAL R/W - OPTION 1

APN	AREA (ft2)	AREA (acre)
55-120-050	54,598	1.25
55-320-001	50,787	1.17
55-090-014	86,309	1.98
55-080-035	310,631	7.13
55-090-023	107,250	2.46
55-080-001	573,533	13.17
55-070-008	216,872	4.98
55-090-019	692	0.02
TOTAL RW1	1,400,672	32.16

LEGEND

- EXISTING STRUCTURE
- EXISTING RIGHT-OF-WAY
- PROPOSED RIGHT-OF-WAY
- PRELIMINARY PARCEL TAKE (RIVER CROSSING - OPTION 1)
- PRELIMINARY PARCEL TAKE (RIVER CROSSING - OPTION 2)
- XX-XXX-XXX OR XXXXXXXX — ASSESSOR'S PARCEL NUMBER

RIVER CROSSING - OPTIONS 1 & 2

REVISIONS

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R/W EXHIBIT
RIVER CROSSING - OPTIONS 1 & 2
ROUTE 165 PSR
MERCED COUNTY, CALIFORNIA

SCALE	1"=200'
JOB NO.	25-4701-01
DESIGNED	CS
DRAWN	CS
FILE	1078EX046.dwg
CHECKED	-
DATE	-

SHEET No. RW1

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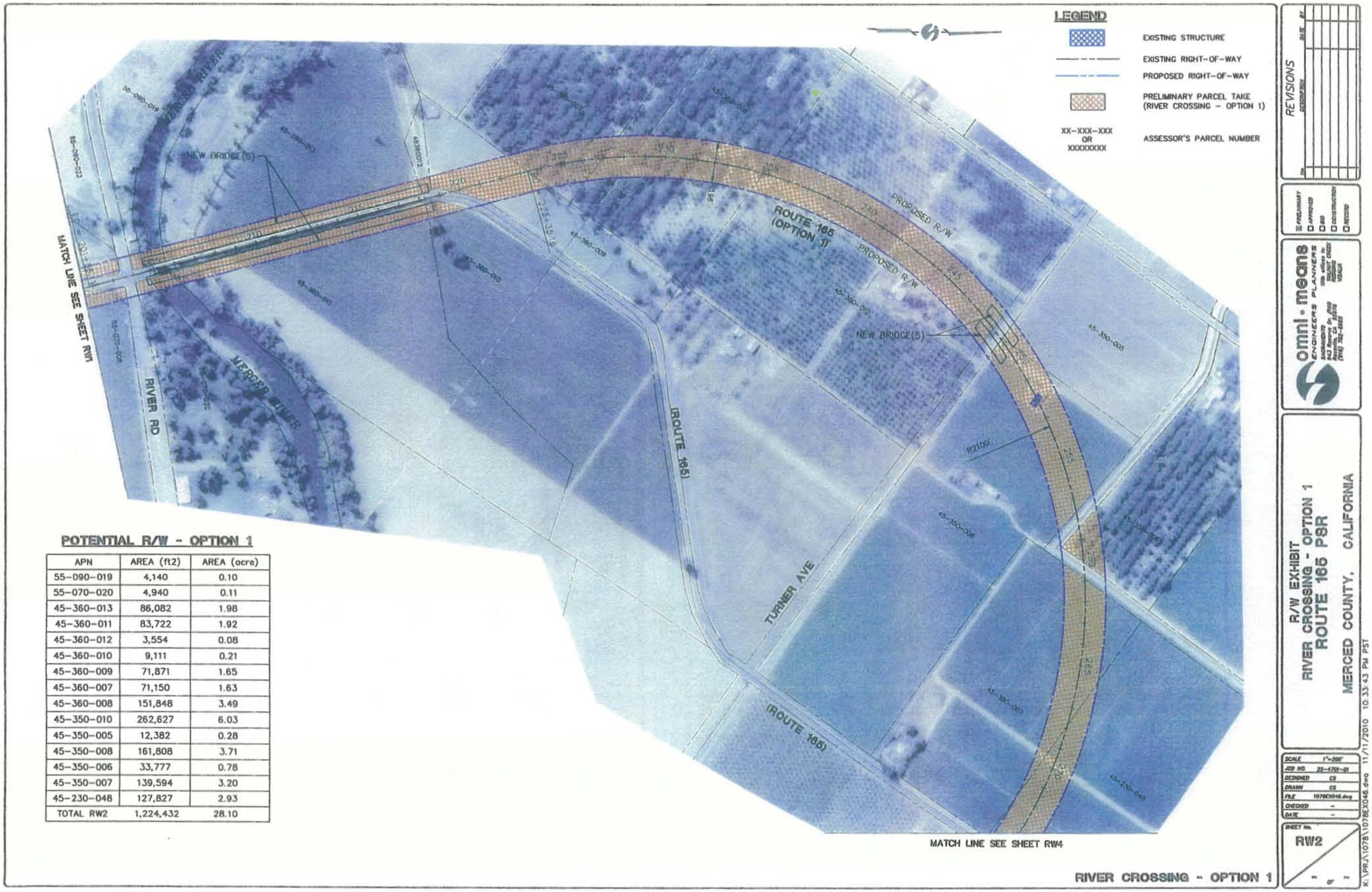


POTENTIAL R/W - OPTION 1

APN	AREA (ft2)	AREA (acre)
55-090-019	4,140	0.10
55-070-020	4,940	0.11
45-360-013	86,082	1.98
45-360-011	83,722	1.92
45-360-012	3,554	0.08
45-360-010	9,111	0.21
45-360-009	71,871	1.65
45-360-007	71,150	1.63
45-360-008	151,848	3.49
45-350-010	262,627	6.03
45-350-005	12,382	0.28
45-350-008	161,808	3.71
45-350-006	33,777	0.78
45-350-007	139,594	3.20
45-230-048	127,827	2.93
TOTAL RW2	1,224,432	28.10

LEGEND

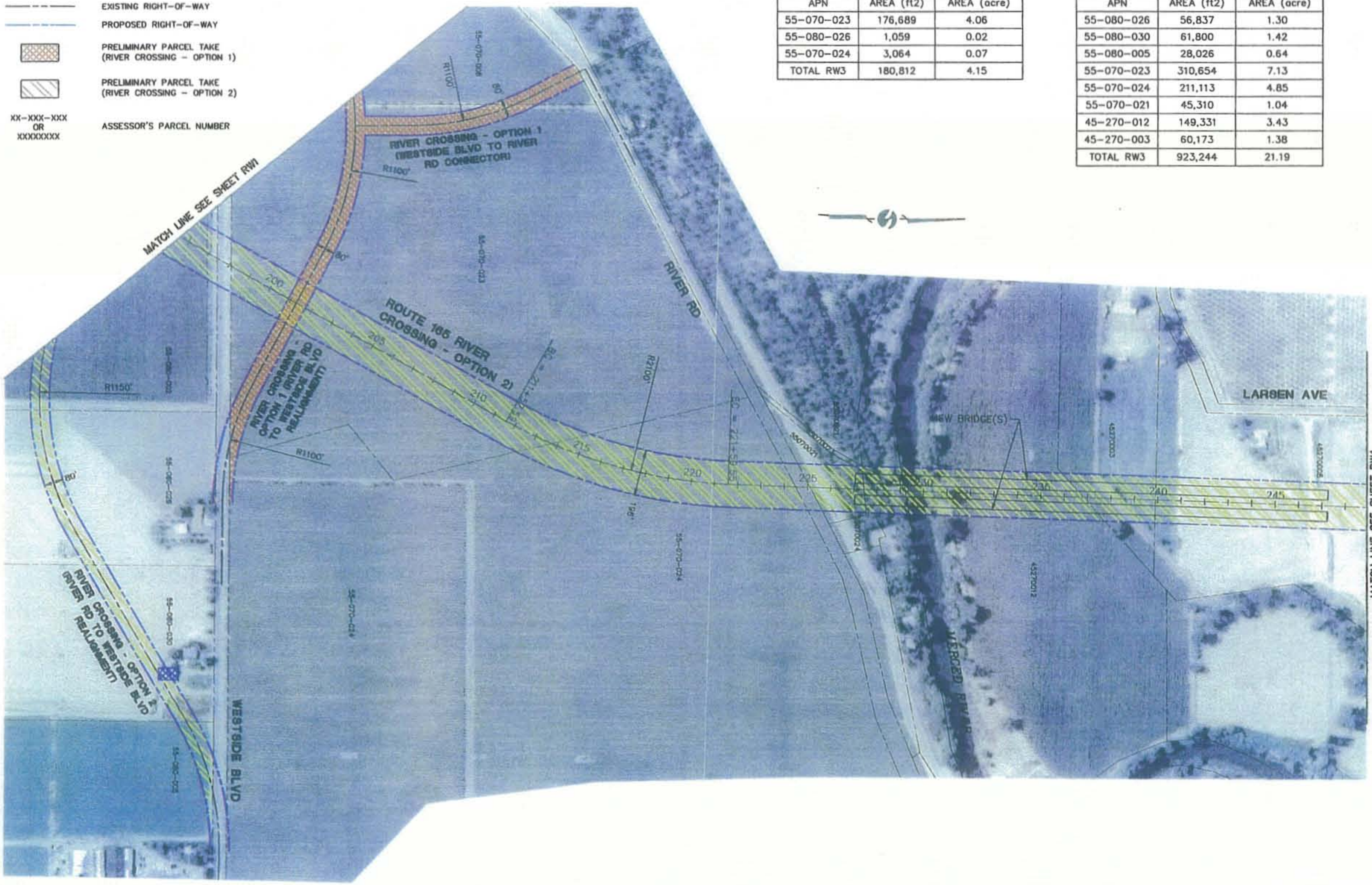
(symbol)	EXISTING STRUCTURE
(symbol)	EXISTING RIGHT-OF-WAY
(symbol)	PROPOSED RIGHT-OF-WAY
(symbol)	PRELIMINARY PARCEL TAKE (RIVER CROSSING – OPTION 1)
(symbol)	PRELIMINARY PARCEL TAKE (RIVER CROSSING – OPTION 2)
XX-XXX-XXX OR XXXXXXXX	ASSESSOR'S PARCEL NUMBER

POTENTIAL R/W - OPTION 1

APN	AREA (ft2)	AREA (acre)
55-070-023	176,689	4.06
55-080-026	1,059	0.02
55-070-024	3,064	0.07
TOTAL RW3	180,812	4.15

POTENTIAL R/W - OPTION 2

APN	AREA (ft2)	AREA (acre)
55-080-026	56,837	1.30
55-080-030	61,800	1.42
55-080-005	28,026	0.64
55-070-023	310,654	7.13
55-070-024	211,113	4.85
55-070-021	45,310	1.04
45-270-012	149,331	3.43
45-270-003	60,173	1.38
TOTAL RW3	923,244	21.19



RIVER CROSSING - OPTION 2

REVISIONS

No.	DESCRIPTION	DATE	BY

☒ PRELIMINARY
☐ APPROVED
☐ BID
☐ CONSTRUCTION
☐ RECORD

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ENGINEERS PLANNERS
SACRAMENTO
943 Reserve Dr. #100
Roseville, CA 95678
(916) 782-8688
With offices in: WALNUT CREEK, REDDING, VISALIA

R/W EXHIBIT
RIVER CROSSING - OPTION 2
ROUTE 165 PSR
MERCED COUNTY, CALIFORNIA

SCALE	1"=200'
JOB NO.	25-4701-01
DESIGNED	CS
DRAWN	CS
FILE	1078EX046.dwg
CHECKED	-
DATE	-

SHEET No.
RW3
- of -

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POTENTIAL R/W - OPTION 2

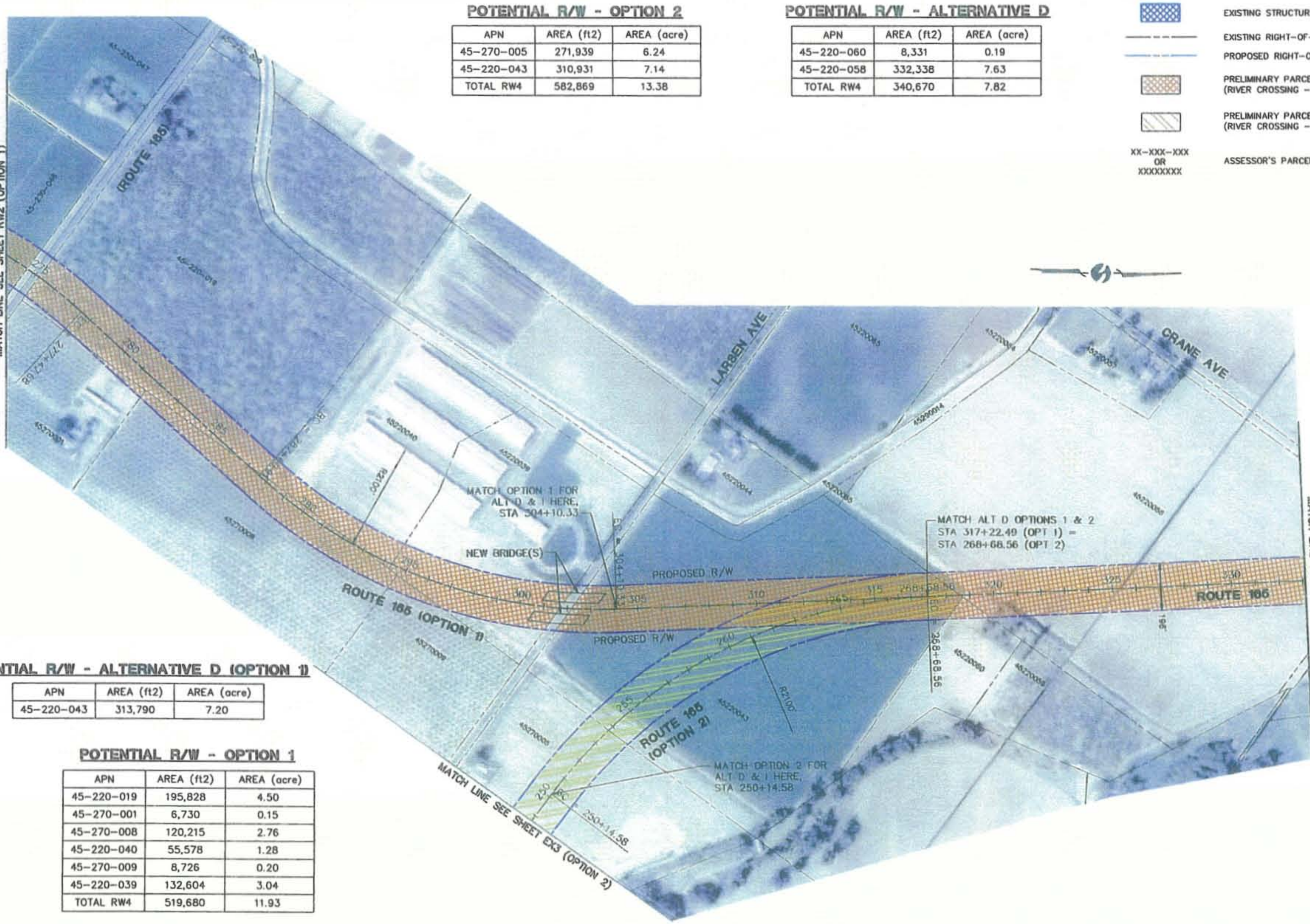
APN	AREA (ft2)	AREA (acre)
45-270-005	271,939	6.24
45-220-043	310,931	7.14
TOTAL RW4	582,869	13.38

POTENTIAL R/W - ALTERNATIVE D

APN	AREA (ft2)	AREA (acre)
45-220-060	8,331	0.19
45-220-058	332,338	7.63
TOTAL RW4	340,670	7.82

LEGEND

EXISTING STRUCTURE
EXISTING RIGHT-OF-WAY
PROPOSED RIGHT-OF-WAY
PRELIMINARY PARCEL TAKE (RIVER CROSSING - OPTION 1)
PRELIMINARY PARCEL TAKE (RIVER CROSSING - OPTION 2)
XX-XXX-XXX OR XXXXXXXX ASSESSOR'S PARCEL NUMBER



POTENTIAL R/W - ALTERNATIVE D (OPTION 1)

APN	AREA (ft2)	AREA (acre)
45-220-043	313,790	7.20

POTENTIAL R/W - OPTION 1

APN	AREA (ft2)	AREA (acre)
45-220-019	195,828	4.50
45-270-001	6,730	0.15
45-270-008	120,215	2.76
45-220-040	55,578	1.28
45-270-009	8,726	0.20
45-220-039	132,604	3.04
TOTAL RW4	519,680	11.93

ALTERNATIVE D

REVISIONS

PRELIMINARY
APPROVED
BID
CONSTRUCTION
RECORD

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R/W EXHIBIT
ALTERNATIVE D
ROUTE 165 PSR
MERCED COUNTY, CALIFORNIA

SCALE 1"=200'
DESIGNED CS
DRAWN CS
FILE 1078EX046.dwg
CHECKED -
DATE -
SHEET No. RW4

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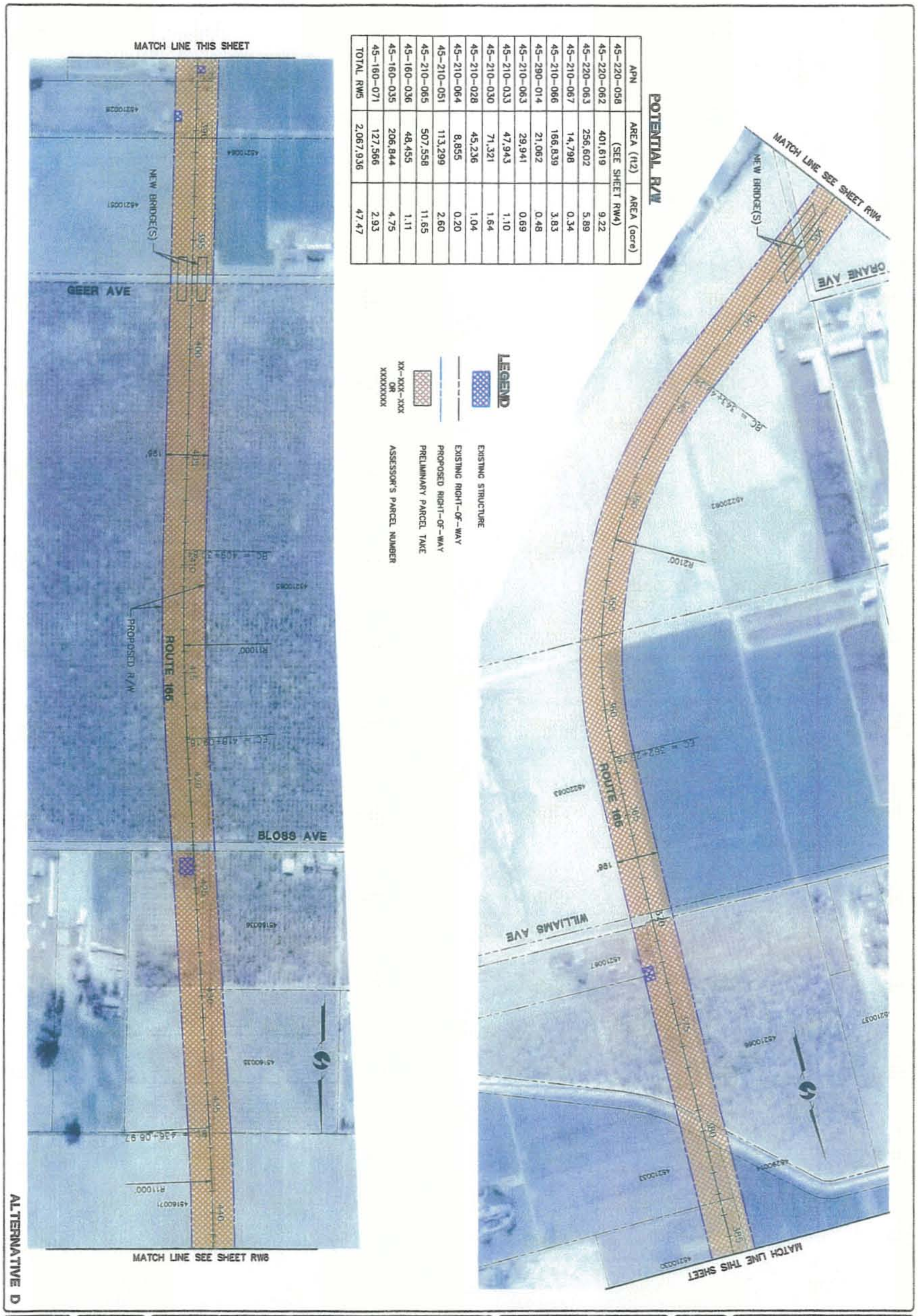

POTENTIAL R/W

APN	AREA (ft2)	AREA (acre)
45-220-058	(SEE SHEET RW4)	
45-220-062	401,619	9.22
45-220-063	256,602	5.89
45-210-067	14,798	0.34
45-210-066	166,839	3.83
45-290-014	21,062	0.48
45-210-063	29,941	0.69
45-210-033	47,943	1.10
45-210-030	71,321	1.64
45-210-028	45,236	1.04
45-210-064	8,855	0.20
45-210-051	113,299	2.60
45-210-065	507,558	11.65
45-160-036	48,455	1.11
45-160-035	206,844	4.75
45-160-071	127,566	2.93
TOTAL RW5	2,067,936	47.47

R/W EXHIBIT
ALTERNATIVE D
ROUTE 165 PSR
MERCED COUNTY, CALIFORNIA

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SHEET No. RW5

REVISIONS

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POTENTIAL R/W

APN	AREA (ft2)	AREA (acre)
45-220-058	(SEE SHEET RW5)	
45-160-081	125,895	2.89
45-160-080	4,898	0.11
45-160-021	204,542	4.70
45-160-077	208,957	4.80
45-160-085	95,886	2.20
45-150-068	193,734	4.45
45-150-067	233,406	5.36
45-150-075	128,430	2.95

POTENTIAL R/W (CON'D)

APN	AREA (ft2)	AREA (acre)
45-150-035	119,523	2.74
45-150-071	104,033	2.39
45-150-063	16,824	0.39
45-150-028	150,895	3.46
45-290-007	15,906	0.37
45-150-025	59,013	1.35
45-091-015	256,534	5.89
45-091-018	701,998	16.12
TOTAL RW6	60.16	2,620,474

LEGEND

- EXISTING STRUCTURE
- EXISTING RIGHT-OF-WAY
- PROPOSED RIGHT-OF-WAY
- PRELIMINARY PARCEL TAKE
- XX-XXX-XXX OR XXXXXXXX ASSESSOR'S PARCEL NUMBER

ALTERNATIVE D

R/W EXHIBIT
ALTERNATIVE D
ROUTE 165 PSR

MERCED COUNTY, CALIFORNIA

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SHEET No. RW6

REVISIONS

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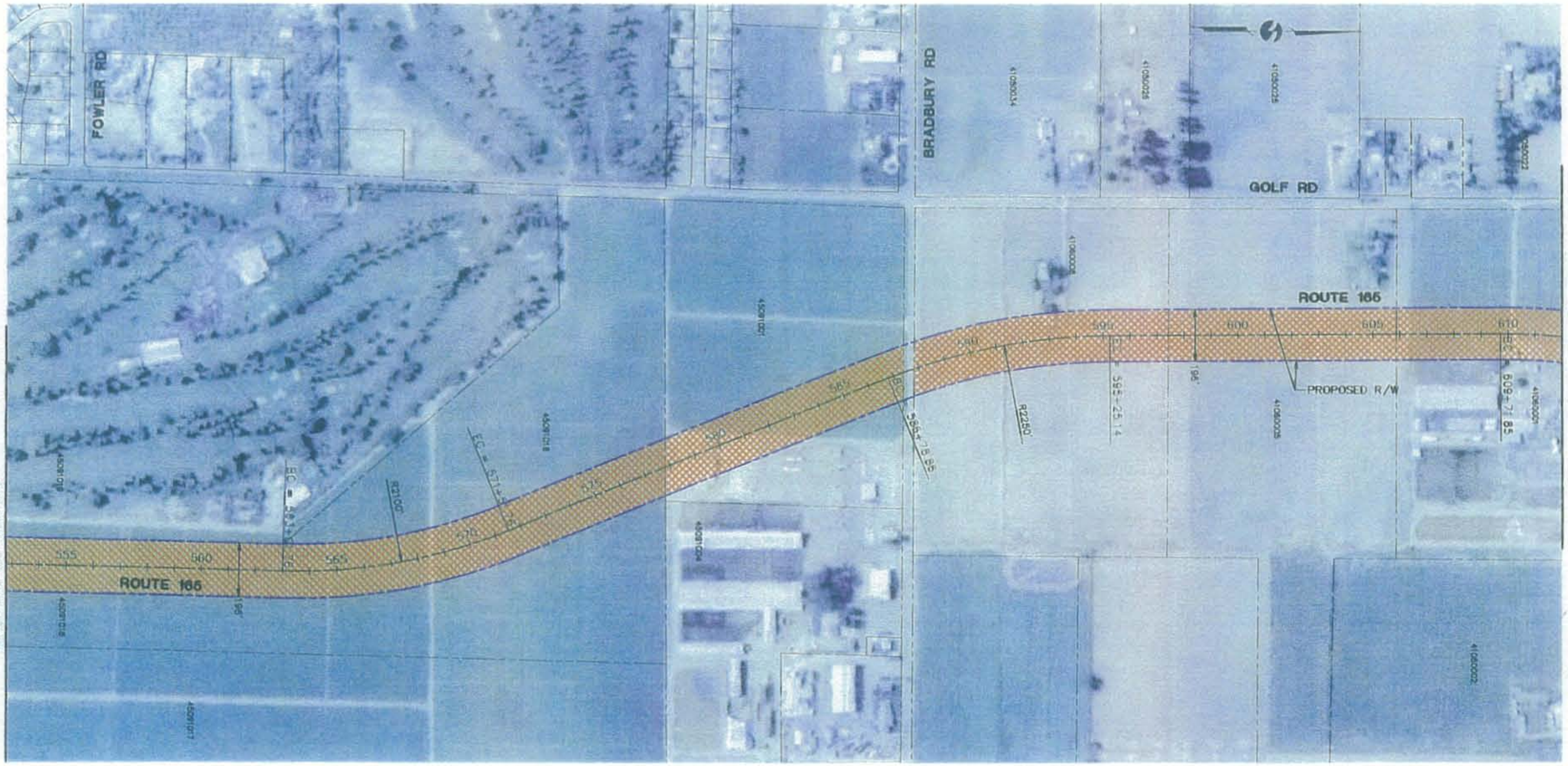
POTENTIAL R/W

APN	AREA (ft2)	AREA (acre)
45-091-018	(SEE SHEET RW6)	
45-091-001	187,782	4.31
41-060-008	188,037	4.32
41-060-005	166,010	3.81
41-060-001	162,867	3.74
TOTAL RW7	704,696	16.18

LEGEND

EXISTING STRUCTURE
EXISTING RIGHT-OF-WAY
PROPOSED RIGHT-OF-WAY
PRELIMINARY PARCEL TAKE
XX-XXX-XXX OR XXXXXXXX ASSESSOR'S PARCEL NUMBER



ALTERNATIVE D

R/W EXHIBIT
ALTERNATIVE D
ROUTE 165 PSR
MERCED COUNTY, CALIFORNIA

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ENGINEERS PLANNERS

REVISIONS

SCALE	1"=200'
JOB NO.	25-1701-01
DESIGNED	CS
DRAWN	CS
FILE	1078EX046.dwg
CHECKED	-
DATE	-

SHEET No.
RW7

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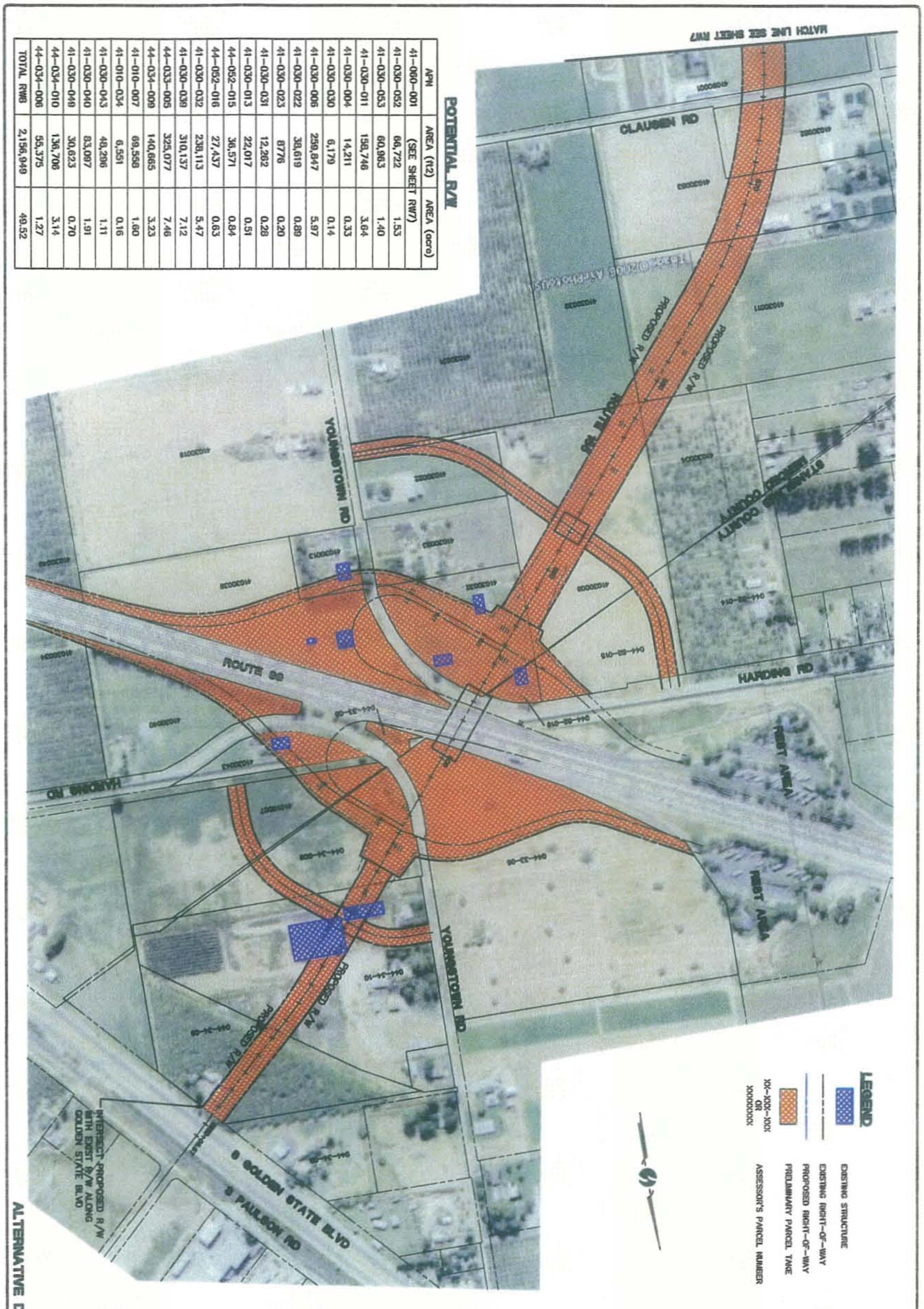

POTENTIAL R/W

APN	AREA (ft2)	AREA (acre)
41-060-001	(SEE SHEET RW7)	
41-030-052	66,722	1.53
41-030-053	60,963	1.40
41-030-011	158,746	3.64
41-030-004	14,211	0.33
41-030-030	6,179	0.14
41-030-006	259,847	5.97
41-030-022	38,619	0.89
41-030-023	8776	0.20
41-030-031	12,262	0.28
41-030-013	22,017	0.51
44-052-015	36,571	0.84
44-052-016	27,437	0.63
41-030-032	238,113	5.47
41-030-039	310,137	7.12
44-033-005	325,077	7.46
44-034-009	140,665	3.23
41-010-007	69,558	1.60
41-010-034	6,551	0.16
41-030-043	48,296	1.11
41-030-040	83,097	1.91
41-030-049	30,623	0.70
44-034-010	136,706	3.14
44-034-006	55,375	1.27
TOTAL RWB	2,156,949	49.52

RW8

R/W EXHIBIT
ALTERNATIVE D
ROUTE 165 PSR
MERCED COUNTY, CALIFORNIA

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RECORD

REVISIONS

No.	DESCRIPTION	DATE	BY

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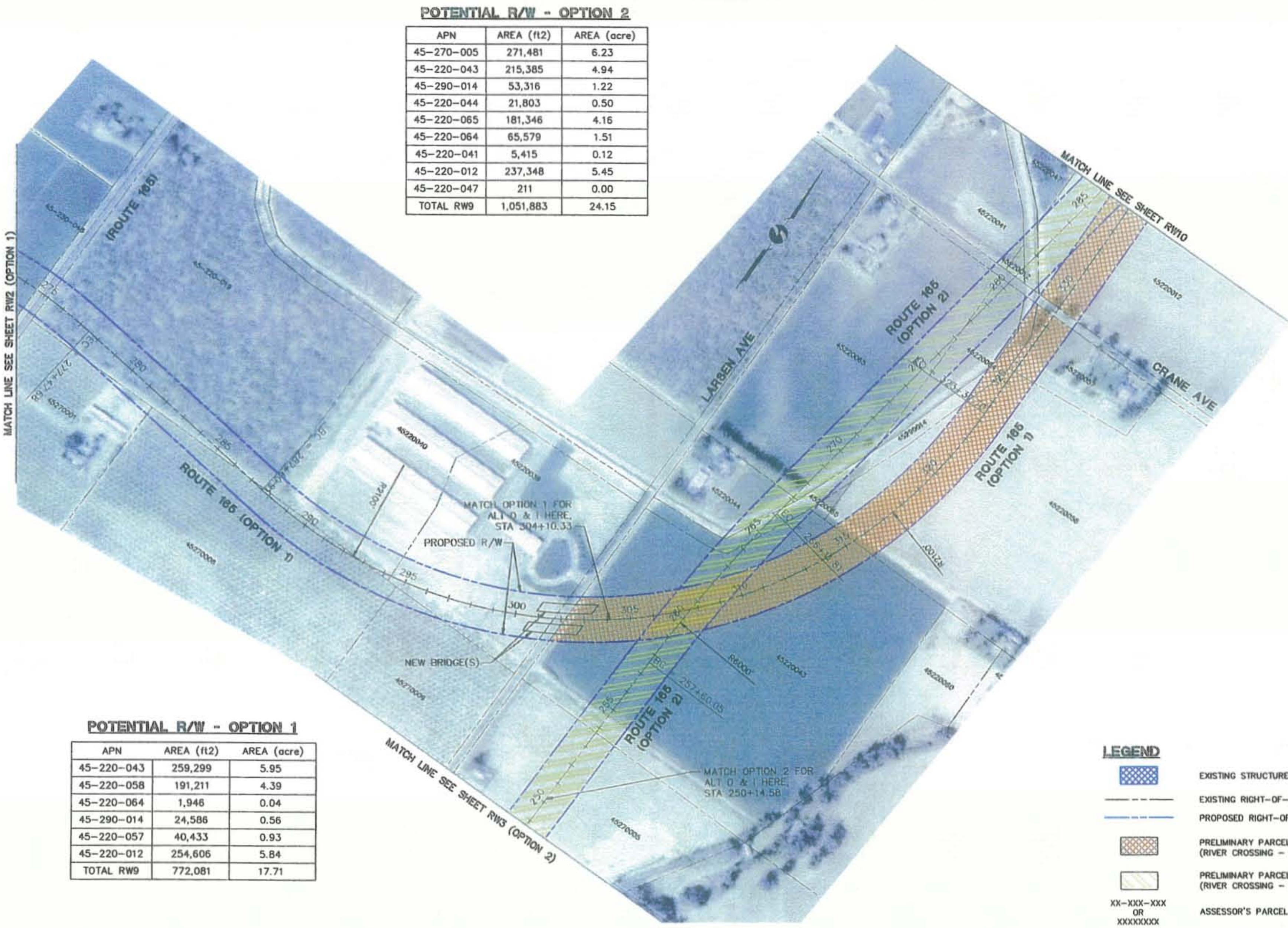
POTENTIAL R/W - OPTION 2

APN	AREA (ft2)	AREA (acre)
45-270-005	271,481	6.23
45-220-043	215,385	4.94
45-290-014	53,316	1.22
45-220-044	21,803	0.50
45-220-065	181,346	4.16
45-220-064	65,579	1.51
45-220-041	5,415	0.12
45-220-012	237,348	5.45
45-220-047	211	0.00
TOTAL RW9	1,051,883	24.15



POTENTIAL R/W - OPTION 1

APN	AREA (ft2)	AREA (acre)
45-220-043	259,299	5.95
45-220-058	191,211	4.39
45-220-064	1,946	0.04
45-290-014	24,586	0.56
45-220-057	40,433	0.93
45-220-012	254,606	5.84
TOTAL RW9	772,081	17.71

LEGEND

EXISTING STRUCTURE
EXISTING RIGHT-OF-WAY
PROPOSED RIGHT-OF-WAY
PRELIMINARY PARCEL TAKE (RIVER CROSSING - OPTION 1)
PRELIMINARY PARCEL TAKE (RIVER CROSSING - OPTION 2)
XX-XXX-XXX OR XXXXXXXX ASSESSOR'S PARCEL NUMBER

ALTERNATIVE I

R/W EXHIBIT
ALTERNATIVE I
ROUTE 165 PSR
MERCED COUNTY, CALIFORNIA

omni-means ENGINEERS PLANNERS

REVISIONS

SCALE 1"=200'
JOB NO. 25-4701-01
DESIGNED CS
DRAWN CS
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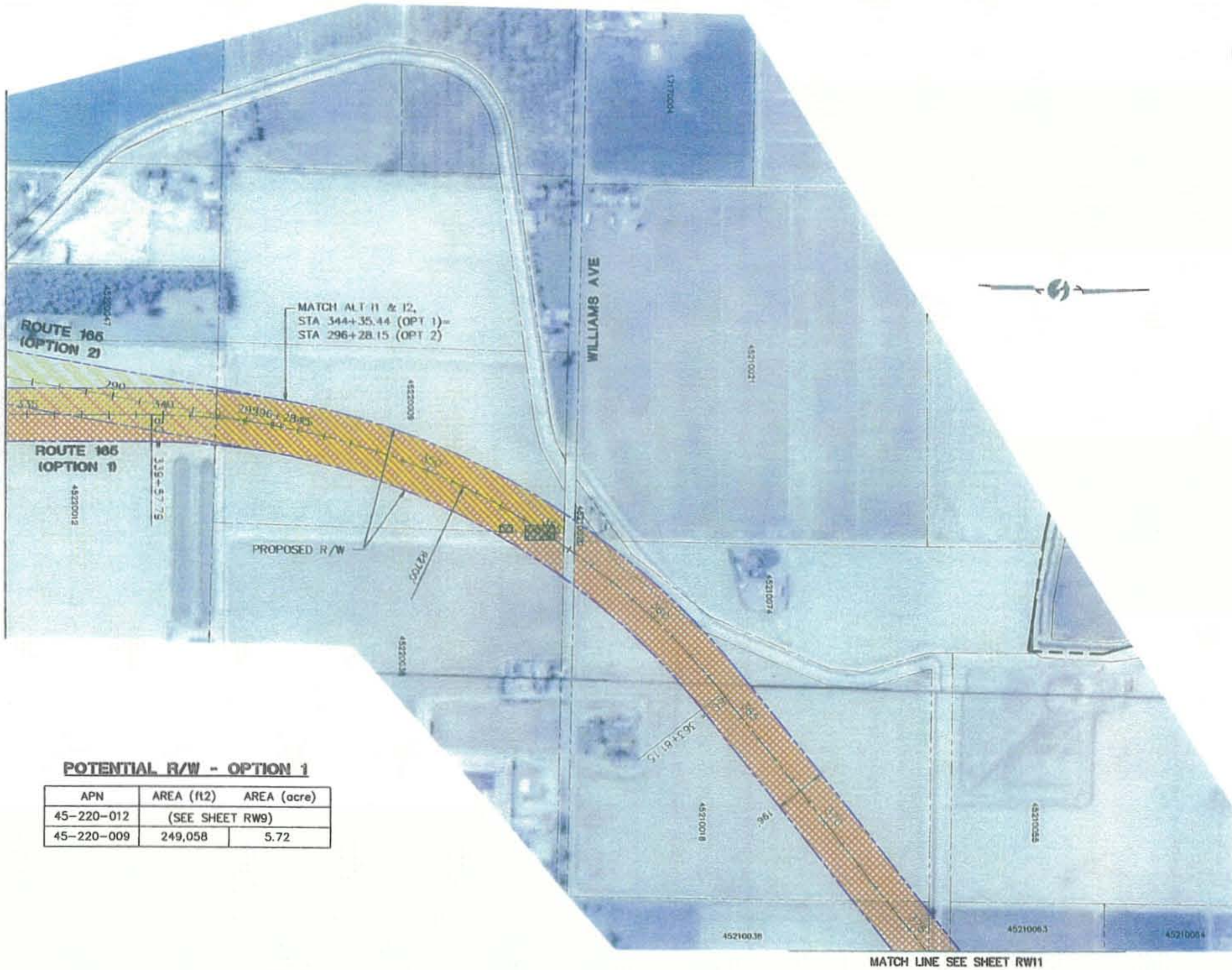
DATE -
SHEET No. RW9

POTENTIAL R/W - OPTION 2

APN	AREA (ft2)	AREA (acre)
45-220-012	(SEE SHEET RW9)	
45-220-009	249,304	5.72

POTENTIAL R/W - ALTERNATIVE I

APN	AREA (ft2)	AREA (acre)
45-220-038	21,418	0.49
45-210-020	3,806	0.09
45-290-014	34,466	0.79
45-210-018	326,692	7.50
45-210-038	49,290	1.13
TOTAL RW10	435,673	10.00



POTENTIAL R/W - OPTION 1

APN	AREA (ft2)	AREA (acre)
45-220-012	(SEE SHEET RW9)	
45-220-009	249,058	5.72

LEGEND

- EXISTING STRUCTURE
- EXISTING RIGHT-OF-WAY
- PROPOSED RIGHT-OF-WAY
- PRELIMINARY PARCEL TAKE (RIVER CROSSING - OPTION 1)
- PRELIMINARY PARCEL TAKE (RIVER CROSSING - OPTION 2)
- XX-XXX-XXX OR XXXXXXXX — ASSESSOR'S PARCEL NUMBER

ALTERNATIVE I

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MERCED COUNTY, CALIFORNIA

SCALE	1"=200'
JOB NO.	25-1701-01
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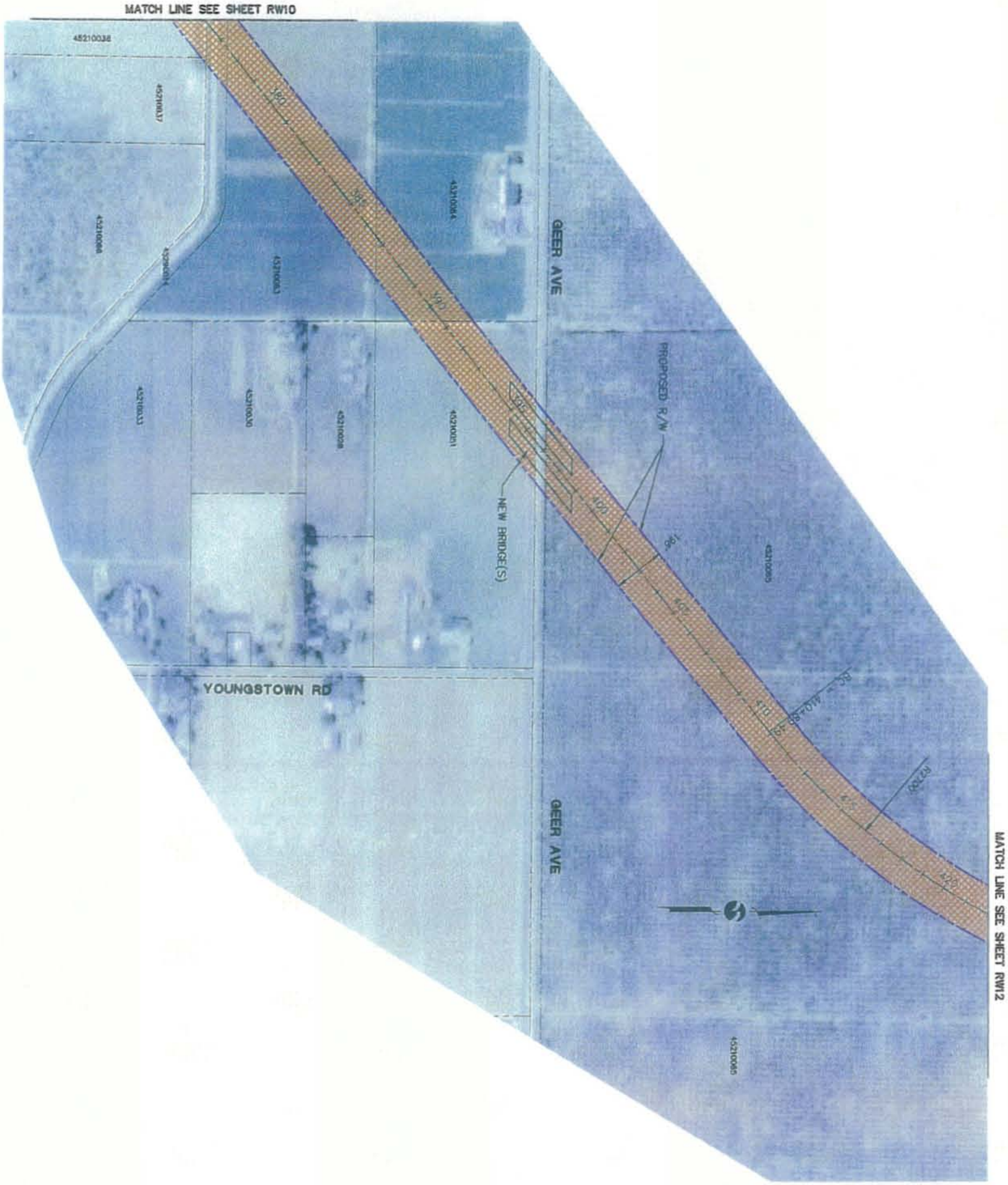

POTENTIAL R/W

APN	AREA (ft2)	AREA (acre)
45-290-014	(SEE SHEET RW10)	
45-210-038	(SEE SHEET RW10)	
45-210-037	174	0.00
45-210-063	180,223	4.14
45-210-064	80,617	1.85
45-210-051	114,432	2.63
45-210-065	666,506	15.30
TOTAL RW11	1,041,953	23.92

LEGEND

- EXISTING STRUCTURE
- EXISTING RIGHT-OF-WAY
- PROPOSED RIGHT-OF-WAY
- PRELIMINARY PARCEL TAKE
- XX-XXX-XXX OR XXXXXXXX — ASSESSOR'S PARCEL NUMBER

ALTERNATIVE I

SHEET No. RW11

R/W EXHIBIT
ALTERNATIVE I
ROUTE 165 PSR

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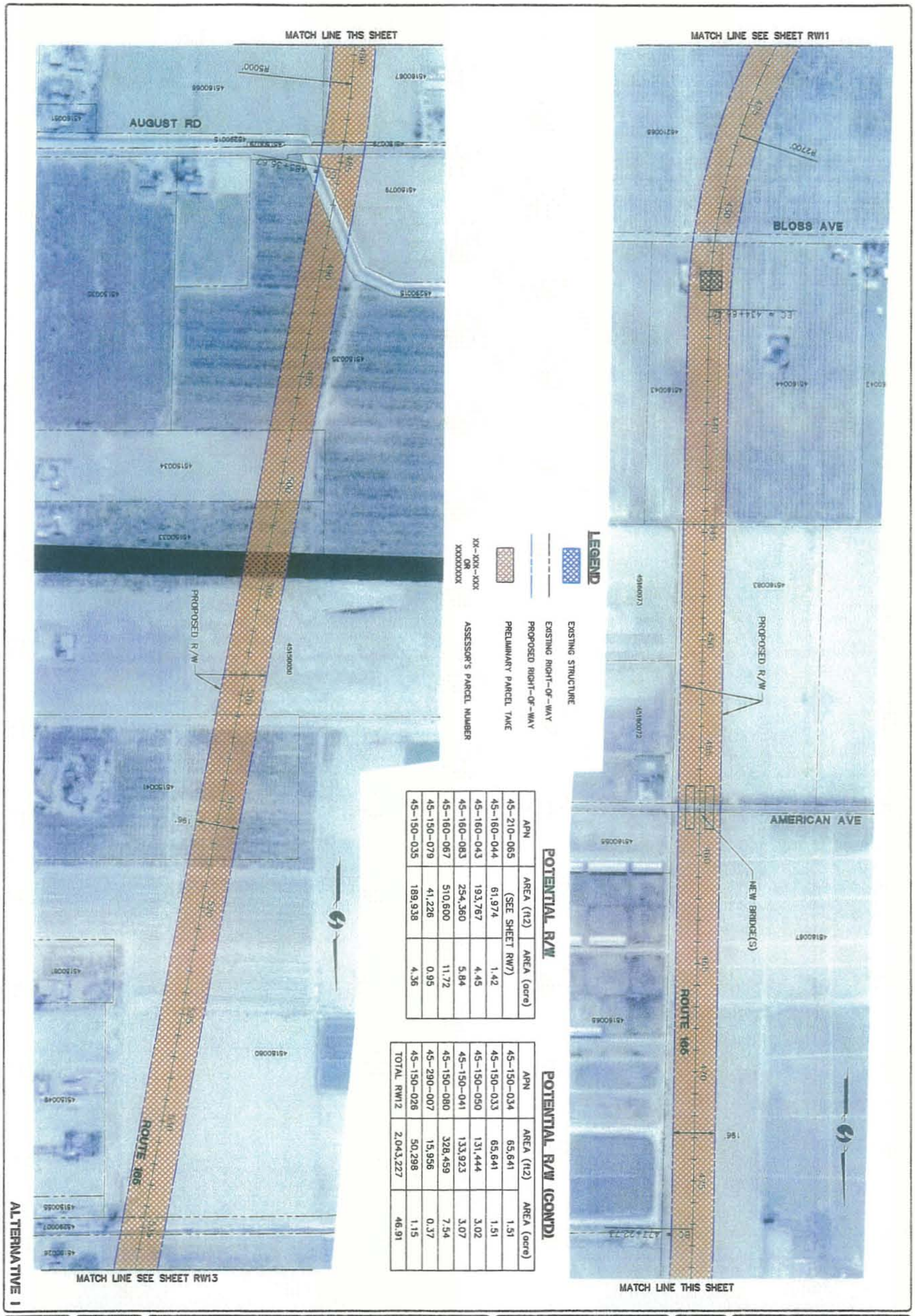

LEGEND

- EXISTING STRUCTURE
- EXISTING RIGHT-OF-WAY
- PROPOSED RIGHT-OF-WAY
- PRELIMINARY PARCEL TAKE
- XX-XXX-XXX OR XXXXXXXX — ASSESSOR'S PARCEL NUMBER

POTENTIAL R/W

APN	AREA (ft2)	AREA (acre)
45-210-065	(SEE SHEET RW7)	
45-160-044	61,974	1.42
45-160-043	193,767	4.45
45-160-083	254,360	5.84
45-160-067	510,600	11.72
45-150-079	41,226	0.95
45-150-035	189,938	4.36

POTENTIAL R/W (CONT'D)

APN	AREA (ft2)	AREA (acre)
45-150-034	65,641	1.51
45-150-033	65,641	1.51
45-150-050	131,444	3.02
45-150-041	133,923	3.07
45-150-080	328,459	7.54
45-290-007	15,956	0.37
45-150-026	50,298	1.15
TOTAL RW12	2,043,227	46.91

SHEET No. RW12

R/W EXHIBIT
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CONSTRUCTION
RECORD

REVISIONS

No.	DESCRIPTION	DATE	BY

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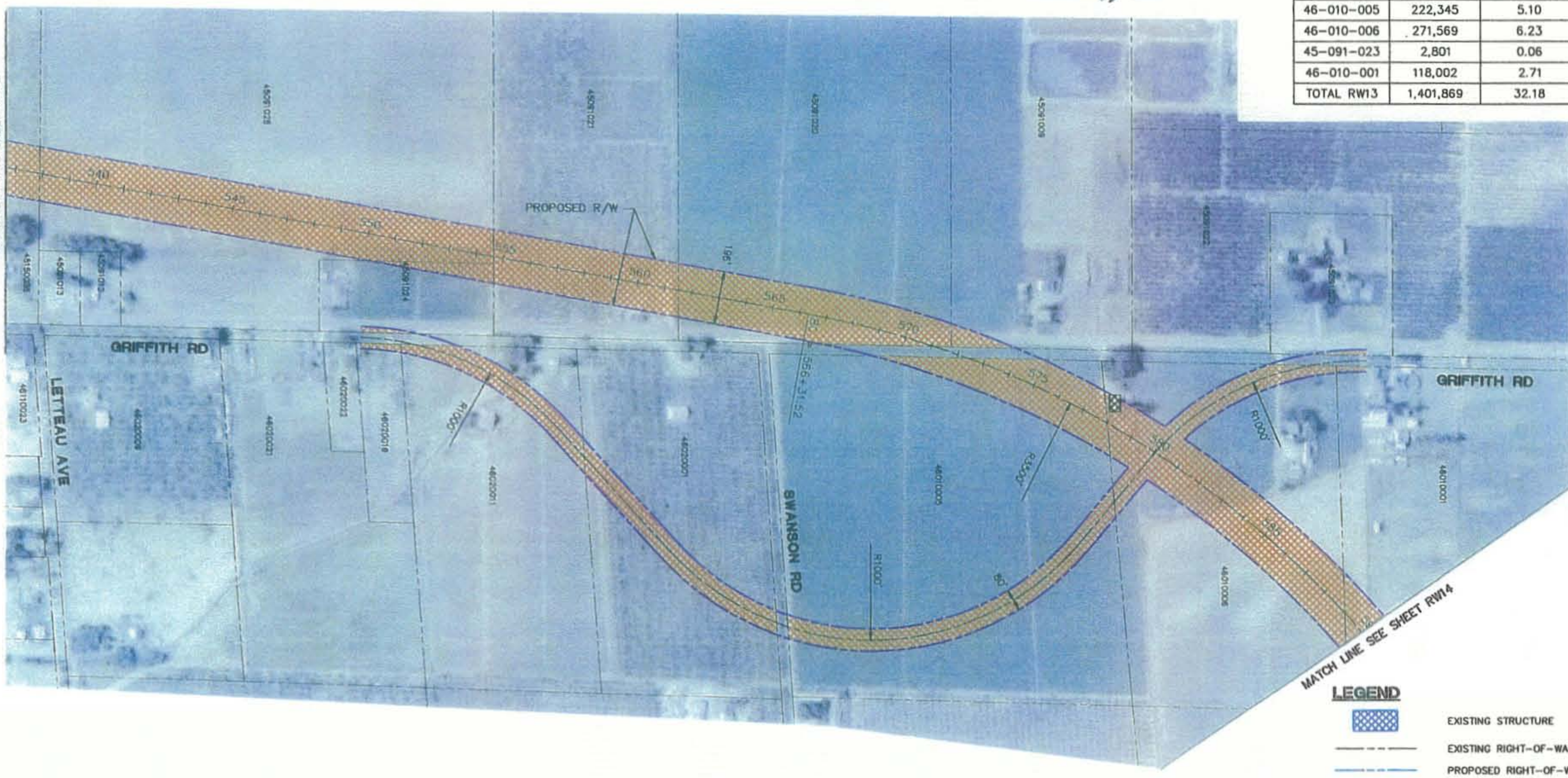
POTENTIAL R/W

APN	AREA (ft2)	AREA (acre)
45-150-026	(SEE SHEET RW7)	
45-091-025	312,019	7.16
45-091-024	19,200	0.44
45-091-021	134,550	3.09
45-091-020	174,549	4.01
45-091-009	10,295	0.24
46-020-016	3,464	0.08
46-020-011	58,640	1.35
46-020-001	74,433	1.71
46-010-005	222,345	5.10
46-010-006	271,569	6.23
45-091-023	2,801	0.06
46-010-001	118,002	2.71
TOTAL RW13	1,401,869	32.18



LEGEND

EXISTING STRUCTURE
EXISTING RIGHT-OF-WAY
PROPOSED RIGHT-OF-WAY
PRELIMINARY PARCEL TAKE
XX-XXX-XXX OR XXXXXXXX — ASSESSOR'S PARCEL NUMBER

ALTERNATIVE I

REVISIONS

No.	DESCRIPTION	DATE	BY

☒ PRELIMINARY
☐ APPROVED
☐ BID
☐ CONSTRUCTION
☐ RECORD

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ALTERNATIVE I
ROUTE 165 PSR
MERCED COUNTY, CALIFORNIA

SCALE	1"=200'
JOB NO.	25-4701-01
DESIGNED	CS
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DATE	-

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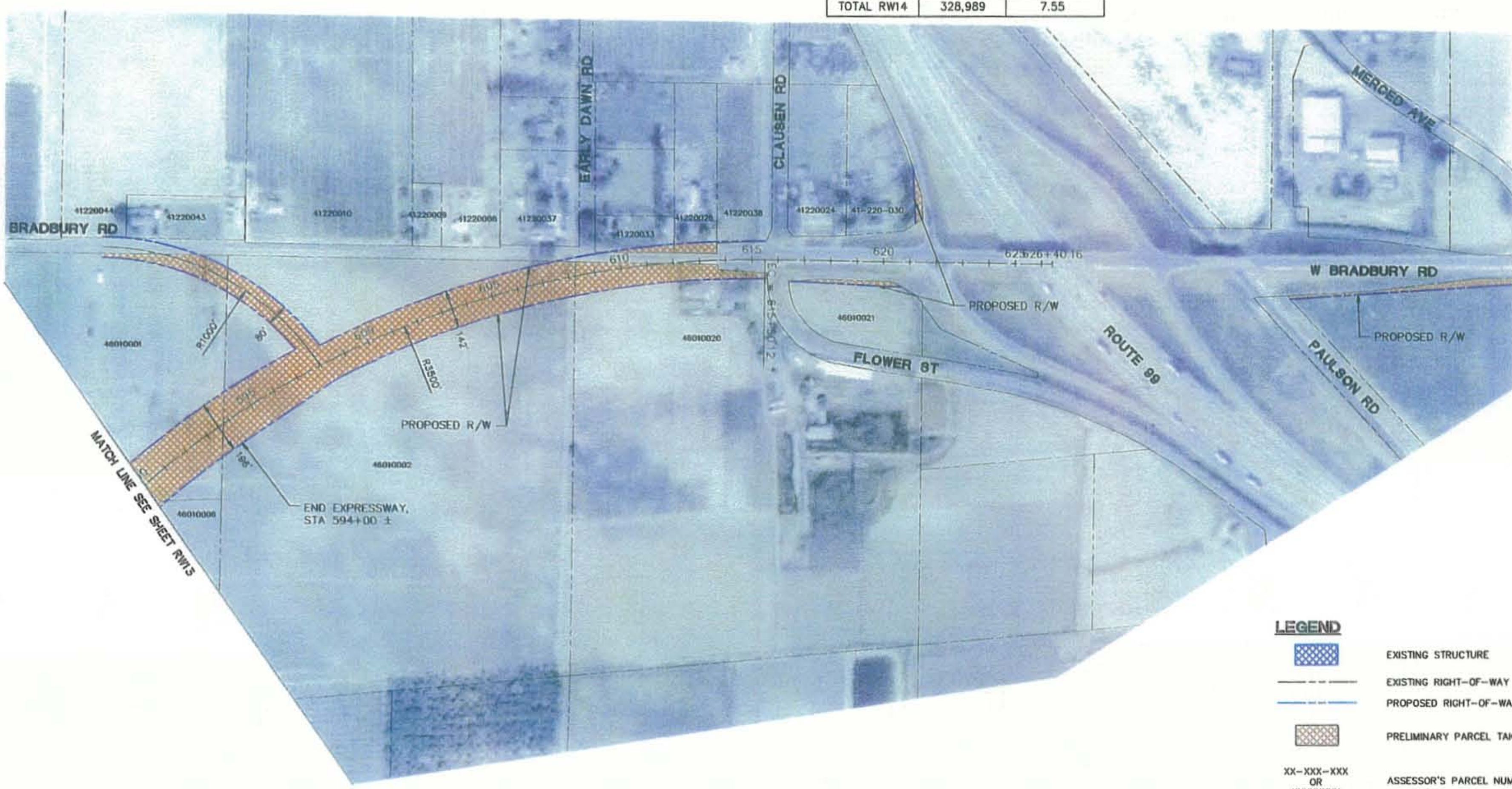
POTENTIAL R/W

APN	AREA (ft2)	AREA (acre)
46-010-001	(SEE SHEET RW8)	
46-010-006	(SEE SHEET RW8)	
41-220-044	330	0.01
41-220-043	11	0.00
46-010-002	256,167	5.88
46-010-020	50,496	1.16
41-220-033	5,010	0.12
41-220-026	6,687	0.15
41-220-038	673	0.02
46-010-021	5,334	0.12
41-220-030	4,280	0.10
TOTAL RW14	328,989	7.55



LEGEND

EXISTING STRUCTURE
EXISTING RIGHT-OF-WAY
PROPOSED RIGHT-OF-WAY
PRELIMINARY PARCEL TAKE
XX-XXX-XXX OR XXXXXXXX — ASSESSOR'S PARCEL NUMBER

ALTERNATIVE I

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SCALE 1"=200'
SHEET No. RW14

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ATTACHMENT 8

PRELIMINARY ENVIRONMENTAL ANALYSIS REPORT (PEAR)

PRELIMINARY ENVIRONMENTAL ANALYSIS REPORT

1. Project Information

District	County	Route	PM	EA: 10-0P810K
10	Merced (Mer) Stanislaus (Sta) Merced (Mer) Stanislaus (Sta)	165 165 99 99	26.87/36.72 0.00/1.45 R35.54/R37.30 R0.00/R1.00	
Project Title: SR 165 Bypass Project				
Project Manager Hartaranjeet (Tony) Singh			Phone # 209-948-7058	
Project Engineer Joe Weiland (Omni Means)			Phone # 916-782-8688	
Environmental Office Chief/Manager			Phone #	
PEAR Preparer Environmental Planner Generalist Andrew Martin (ICF International)			Phone # 408-216-2806	

2. Project Description

Purpose and Need

Purpose: The primary purpose of this project is to improve safety and traffic operations and reduce current and future congestion along SR 165, including congestion within the community of Hilmar, and to improve freeway access between SR 99 and the local roadway system to support continued growth in local general plans, community plans, and specific plans.

Secondary purposes of the project are to:

- Facilitate goods movement on or adjacent to SR 165, including the movement of agricultural products from field to processing plant and from processing plant to market.
- Widen and/or relocate the existing SR 165 bridge over the Merced River.
- Move truck traffic around the community of Hilmar.
- Improve local mobility within the project study area.[1]
- Support continued growth in local general plans, community plans and specific plans.
- Implement long-term circulation system solutions that can be built in phases.

Need: There is a need to improve current traffic operations and reduce traffic congestion experienced along SR 165 (also referred to as Lander Avenue). Various highway segments including the SR 165

[1] Unless otherwise specified, the "project study area" is defined for the purposes of this PEAR to include: (1) those areas that would be directly impacted by one or more project alternatives, either by way of a proposed improvement or by right-of-way acquisition, and (2) those areas that are within range of potential secondary and indirect project effects, including the adjacent rural areas of Merced County and Stanislaus County and the communities of Hilmar, Delhi, Stevinson, and Turlock.

bridge over the Merced River and intersections currently experience AM and/or PM peak hour Levels of Service "E/F". There is a need to reduce truck impacts on traffic operations on SR 165. Regional, inter-regional and local trucks which currently represent between 10-percent (average condition) to 20-percent (during harvest season) of all traffic traveling on SR 165 contribute to congested traffic conditions including through the community of Hilmar. There is a need to improve safety along SR 165. Highway segments currently experience actual accident rates that are higher than the corresponding average accident rates from the intersection with SR 140 to north of Bradbury Road. There is a need to design traffic circulation improvements on or adjacent to SR 165 that will support continued growth in local general plans, community plans and specific plans, combined with future increases in regional and inter-regional traffic to the year 2035 (future growth). Future growth will further increase congestion along SR 165 and lead to increased congestion on both the adjacent county and city roadway systems. There is also a need to design traffic circulation improvements, including improved freeway access between SR 99 and the local roadway system that will support future growth.

Description of work

Five local agencies (Merced County, Merced County Association of Governments (MCAG), Stanislaus County, Stanislaus Council of Governments (StanCOG), and the City of Turlock), in cooperation with the California Department of Transportation (Caltrans), are proposing transportation improvements involving SR 165 and SR 99 in and/or proximate to the City of Turlock, the County of Stanislaus, and the County of Merced. The proposed project consists of the construction of a new four-lane expressway and associated improvements along and adjacent to the existing SR 165 Corridor. The project will provide a bypass route around the community of Hilmar to reduce congested traffic operations in that area while providing the capacity necessary for increases in regional and inter-regional traffic by the project's design year of 2035. The project also includes new secondary road segments, bridges, intersections, major interchange improvements to SR 99, and realignments of existing roads to accommodate the new expressway, improve traffic access and safety, and provide additional roadway capacity.

Alternatives

The project agencies initially evaluated nine primary SR 165 alternative alignments (Alternative A through Alternative I), whereby, they compared the relative advantages and disadvantages of each alternative, while taking into consideration the specific technical and social concerns raised by the affected communities in the project study area. A "No-Build" Alternative was also considered by the project agencies. Under this alternative, there would be no improvements in traffic safety and operation along SR 165 or improved access along SR 99 and the local roadway system; thus, continued regional development would incrementally increase traffic congestion and would exacerbate existing regional traffic circulation. Such an alternative would maintain existing conditions and would not adequately address the project need. The No-Build Alternative was therefore not considered further.

Based on the results of the initial alternatives evaluation and public scoping process, two build alternatives — Alternatives D and I — were selected by the agencies to go forward and are, accordingly, proposed in the PSR (PDS). The Alternative D alignment is located within Merced and Stanislaus Counties with a southern terminus near the intersection of 1st Avenue and SR 165, approximately 1.25 miles north of the community of Stevinson, and extending north to Golden State Boulevard near the City of Turlock. The Alternative I alignment is entirely located within Merced County with a southern terminus as described for Alternative D and extending north to the Bradbury Road/SR 99 interchange near Delhi (see Attachment E, Figures 1 and 2).

Two design options are proposed for the Alternative D and I alignments from the southern projects limits to just north of the Merced River channel and floodplain. The first option, herein referred to as "Option 1," crosses the Merced River via the existing SR 165 alignment, requiring demolition and replacement of the existing two-lane bridge at that location. The second option, herein referred to as "Option 2," crosses the river east of the existing SR 165 alignment, requiring construction of new northbound and southbound spans.

In addition to the improvements previously described, Alternatives D and I include a number of other related improvements. These include:

- new secondary road segments and realignments of existing roads south of the Merced River, including:
    - a new secondary road connecting River Road to Westside Boulevard, which would intersect at grade with the existing SR 165 alignment and the Alternative D and I alignments (Option 1),
    - a new secondary road connecting on the north to River Road and on the south to the new River Road-Westside Boulevard connector road, described above (Alternative D and I, Option 1), and
    - a realigned segment of Westside Blvd, which would intersect at grade with the Alternative D and I alignments (Option 2);
- new bridges, intersections, and realignments of existing roads between the Merced River and SR 99, including:
    - new northbound and southbound bridges at Turner Avenue and Larsen Avenue (Alternative D and I, Option 1); Geer Avenue and American Avenue (Alternative D and I); Clausen Road and Harding Road/Youngstown Road connector (Alternative D); and Williams Avenue (Alternative I),
    - new at-grade intersections with existing Lander Avenue (SR 165) (Option 1), Williams Avenue (Alternative D), Crane Avenue (Alternative I), Bloss Avenue and August Road (Alternatives D and I); and Bradbury Road (Alternative D), and
    - realigned segments of Griffith Avenue and Bradbury Road, which would intersect at grade with the Alternative I alignment;
- a new interchange at SR 99, new secondary road segments north and south of the interchange, and new secondary access from the interchange to the rest areas near the junction of SR 99 and Harding Road (Alternative D);
- a new T-junction with Golden State Boulevard (Alternative D); and
- new bridge, roadway, and intersection improvements at the existing Bradbury Road/SR 99 interchange (Alternative I).

Detailed design drawings showing the improvements and right-of-way acquisition areas associated with each alternative are provided in Attachments 5 and 6, respectively in the PSR (PDS).

3. Anticipated Environmental Approval

Check the anticipated environmental determination or document for the proposed project in the table below.

CEQA		**NEPA**	
Environmental Determination			
Statutory Exemption	☐		
Categorical Exemption	☐	Categorical Exclusion	☐
Environmental Document			
Initial Study or Focused Initial Study with proposed Negative Declaration (ND) or Mitigated ND	☐	Routine Environmental Assessment with proposed Finding of No Significant Impact	☐
		Complex Environmental Assessment with proposed Finding of No Significant Impact	☐
Environmental Impact Report	☒	Environmental Impact Statement	☒
CEQA Lead Agency (if determined):			
Estimated length of time (months) to obtain environmental approval:		40 to 48 months	
Estimated person hours to complete identified tasks:			

4. Special Environmental Considerations

- Special environmental considerations will be the same for both alternatives and include Potential need for consultation with the Sacramento branch of the U.S. Fish and Wildlife Service (USFWS) on the federally listed vernal pool branchiopods, valley elderberry longhorn beetle, California tiger salamander, giant garter snake and San Joaquin kit fox, and with the National Marine Fisheries Service (NMFS) for Central Valley steelhead and its critical habitat, Central Valley spring-run Chinook salmon, and possibly green sturgeon, could result in delays in the permitting. For additional concerns and information, please see Item 7.

5. Anticipated Environmental Commitments

The anticipated California Environmental Quality Act (CEQA) environmental document for this project is an Environmental Impact Report (EIR). Caltrans would be the lead agency for CEQA. The anticipated National Environmental Protection Act (NEPA) environmental document for this project is an Environmental Impact Assessment (EIS). Caltrans, under authority assigned by the Federal Highway Administration (FHWA), would be the lead agency for NEPA.

Implementation of the proposed project could potentially result in visual, biological, air quality, and noise effects. Documentation of the proposed project's effects on climate change and cumulative impacts would be needed for the project file and environmental document. It is anticipated that implementation of any of the proposed project alternatives would require preparation of the following technical studies:

- Community Impact Assessment.
- Relocation Impact Statement.
- Noise Study Report.
- Air Quality Study.
- Water Quality Study.
- Cultural Resources Studies.
- Visual impact Analysis.
- Natural Environment Study.
- Biological Assessment.
- Section 4(f)
- Preliminary Hydraulics Report
- Preliminary Traffic Management Plan
- Preliminary Site Investigation-Hazardous Waste

In addition, consultation with the U.S. Fish and Wildlife Service (FWS) regarding vernal pool branchiopods, valley elderberry longhorn beetle, California tiger salamander, giant garter snake and San Joaquin kit fox, and with the National Marine Fisheries Service (NMFS) for Central Valley steelhead and its critical habitat, Central Valley spring-run Chinook salmon, and possibly green sturgeon, may be required. An incidental take permit from the California Department of Fish and Game (CDFG) may be required for California tiger salamander, Swainson's hawk, or San Joaquin kit fox.

6. Permits and Approvals

Depending on final project footprints, the results of future field surveys, and agency coordination, the following permits and authorizations may be required for the project. Please refer to Attachment D for the cost commitments associated with each permit.

- U.S. Army Corps of Engineers: Clean Water Act (CWA) Section 404 permit (for features that are considered to be waters of the U.S.).

- Central Valley Regional Water Quality Control Board (CVRWQCB): CWA Section 401 water quality certification (if a Section 404 permit is required) and/or waste discharge requirements for waters of the State.
- National Pollutant Discharge Elimination System (NPDES) Construction General Permit (as described under Item 8 in the section titled "Water Quality and Erosion").
- USFWS: Biological opinion for effects on federally listed species and possibly an Incidental Take Permit for potential effects on federally-listed species.
- Caltrans: standard encroachment permit.
- California Department of Fish & Game: Section 1600 Stream or Lakebed Alteration Agreement (SAA)
- California Department of Fish & Game: Section 2081 Incidental Take Permit for potential effects on state-listed species.

7. Level of Effort: Risks and Assumptions

The assumptions used in the preparation of this PEAR are:

- The study area limits will not change.
- The proposed project has some federal involvement (funding, permitting, etc.).
- Other project schedule elements will not delay environmental progress.
- There is an informal or formal public workshop/open house/hearing opportunity.

Future risks for the project include:

- Requirement to conduct breeding season surveys for sensitive and non-sensitive migratory bird nests. Conducting such surveys could delay the project construction schedule coincidental with the avian breeding season.
- Requirement to conduct one or more floristic surveys for special-status plants. Conducting such surveys could delay the project construction schedule coincidental with the reported blooming season.
- Potential requirement to avoid impacts on nesting swallows, which could include the need to limit construction to the non-breeding season or implement nest removal/nesting habitat modification measures prior to the breeding season to discourage birds from using the bridge for nesting.
- Potential requirement to conduct surveys for tree-roosting bats and avoid destruction of active bat roosts. Conducting such surveys could delay the project construction schedule coincidental with the bat breeding season.
- Potential need for consultation with the Sacramento branch of the U.S. Fish and Wildlife Service (USFWS) on the federally listed vernal pool branchiopods, valley elderberry longhorn beetle, California tiger salamander, giant garter snake and San Joaquin kit fox, and with the National Marine Fisheries Service (NMFS) for Central Valley steelhead and its critical habitat, Central Valley spring-run Chinook salmon, and possibly green sturgeon, could result in delays in the permitting.
- Potential need for consultation with the California Department of Fish & Game on state listed sensitive species including California tiger salamander, kit fox, giant garter snake and Swainson's hawk.
- Potential requirement for an Extended Phase I survey archaeological survey near the Merced River
- Potential need to obtain a CWA Section 404 permit (for features that are considered to be waters of the U.S.) and CWA Section 401 water quality certification (if a Section 404 permit is required).
- Unanticipated changes to technical study or environmental document format requirements.
- Delays in description of engineering design details that affect environmental analysis or permitting.
- Delays in review schedule.

8. PEAR Technical Summaries

Environmental Technical Reports or Studies Required

	Study	Document	N/A
Community Impact Study	☒	☐	☐
Farmland	☒	☐	☐
Section 4(f) Evaluation	☐	☒	☐
Visual Resources	☒	☐	☐
Water Quality	☒	☐	☐
Floodplain Evaluation	☐	☒	☐
Noise Study	☒	☐	☐
Air Quality Study	☒	☐	☐
Paleontology	☒	☐	☐
Energy	☐	☒	☐
Wild and Scenic River Consistency	☐	☐	☒
Cumulative Impacts	☐	☒	☐
Cultural			
ASR	☒	☐	☐
HRER	☒	☐	☐
HPSR	☒	☐	☐
Section 106	☐	☒	☐
State Historic Preservation Officer Concurrence	☐	☒	☐
Native American Coordination	☐	☒	☐
Finding of Effect	☒	☐	☐
Data Recovery Plan	☒	☐	☐
Other	☐	☐	☒
Hazardous Waste			
ISA (Additional)	☒	☐	☐
PSI	☒	☐	☐
Other: Structural Survey and ADL Testing	☒	☐	☐
Biological			
Endangered Species (Federal)	☒	☐	☐
Endangered Species (State)	☒	☐	☐
Species of Concern (CNPS, USFS, BLM, S, F)	☒	☐	☐
Biological Assessment (USFWS, NMFS, State)	☐	☒	☐
Wetlands	☒	☐	☐
Invasive Species	☒	☐	☐
Natural Environment Study	☒	☐	☐
NEPA 404 Coordination	☐	☒	☐
Other:	☐	☐	☒
Permits			
401 Permit Coordination	☒	☐	☐
404 Permit Coordination (NW)	☒	☐	☐
1600 SAA Coordination	☒	☐	☒
City/County Coastal Permit Coordination	☐	☐	☒
State Coastal Permit Coordination	☐	☐	☒
NPDES Coordination	☒	☐	☐
U.S. Coast Guard (Section 10)	☐	☐	☒
State 2081 Permit	☐	☒	☐

8.1 Land Use:

Existing and Future Land Use

Alternative D

The proposed project is located within unincorporated Merced County and Stanislaus County. It is bordered on the north by the City of Turlock, on the south by the community of Stevinson, on the east by the community of Hilmar, and on the west by the community of Delhi (Figure 1). Existing land uses in the immediate project area primarily consist of small- to large-scale agricultural uses, including, but not limited to, orchards, vineyards, row and field crops, fallow fields, pasturelands, dairies, barns and other farm structures, and irrigation canals. Residential development also occurs at low densities in the area, generally in association with farming operations. Two recreational facilities occur within the vicinity of the Alternative D alignment: Turlock Golf & Country Club golf, located near the intersection of Bradbury Road and Golf Link Road, and Hagaman Park, located along the banks of the Merced River near the existing SR 165 bridge, which presently permits passage over the river.

In Merced County, the project area is zoned as "A-1 – General Agricultural" (General Agricultural Zone, with a minimum parcel size of 20 acres) in accordance with the Merced County Code, and designated for agricultural use in the Merced County General Plan.

In Stanislaus County, the project area is zoned "Agricultural A-2-10" (General Agricultural District, with a minimum parcel size of 10 acres) in accordance with the Stanislaus County Zoning Ordinance, and designated for agricultural use in the Stanislaus County General Plan. A portion of the alignment also extends into the City of Turlock's Southeast Specific Plan Feasibility Study Area. Although currently zoned and designated for agricultural use by the County as described above, the area's pending designation as a future specific plan area indicates that the City of Turlock is exploring possible annexation and development of the area subject to City, County, and Local Agency Formation Commission (LAFCO) approval.

Alternative I

Existing land uses in the immediate project area are the same as described above for Alternative D, consisting of small- to large-scale agricultural operations and low density residential development. The project area is zoned as "A-1 – General Agricultural" (General Agricultural Zone, with a minimum parcel size of 20 acres) in accordance with the Merced County Code, and designated for agricultural use in the Merced County General Plan.

Consistency with State, Regional, and Local Plans

Land uses in the rural portions of the project study area are governed, respectively, by the Merced County General Plan and the Stanislaus County General Plan, and by the zoning ordinances enacted by each county to implement their general plan policies. In the communities of Delhi, Hilmar, Stevinson, and Turlock, land uses are governed, respectively, by the Hilmar Community Plan, Delhi Community Plan, Stevinson Specific Urban Development Plan (SUDP), and City of Turlock General Plan, and by the applicable zoning codes.

Alternative D

Although the project could influence growth, cause increases in traffic, and/or result in other secondary and indirect effects in the broader study area, it would directly impact rural portions of unincorporated Merced County and Stanislaus County in the immediate project area and thus would primarily be subject to the goals and policies contained in each county's general plan. Additionally, as a planned roadway project in need of regional discretionary funding, the project must be listed in each county's RTP to show that the project fulfills an identified transportation need for the region and is recognized as a regional investment priority, and must also conform with the regional goals and policies expressed in each county's RTP.

The proposed improvements are presumed to be consistent with planned development and transportation uses in the broader study area, as outlined in the applicable local and regional plans and zoning codes, described above. However, the project would permanently convert farmland in the immediate project area to non-agricultural use. As such, implementation of Alternative D would result in a conflict with the existing agricultural zoning and land use designation of the area.

Inconsistencies between the project and the local adopted plans or policies must be identified and discussed within the body of the environmental document. It may also be appropriate to prepare a separate Community Impact Assessment (CIA) or background study if concerns regarding one or more community issues are voiced by the affected communities, or can be reasonably anticipated by the project development team (PDT).

Alternative I

Alternative I is presumed to be consistent with planned development and transportation uses in the broader study area, as outlined in the applicable local and regional plans and zoning codes, but would have similar land use and zoning conflicts to those described for Alternative D.

Parks and Recreation

Alternative D

Hagaman Park is located on and along the south side of the Merced River in the southern portion of the project study area and could be impacted as a result of implementing Option 1. No other Section 4(f) park or recreation facilities, including other publicly owned park or recreation areas, historic sites, or recreational trails would be impacted by the proposed project.

Consultation with Caltrans/FHWA will be required to determine whether the affected park should be treated as a Section 4(f) resource. Depending on the outcome of this coordination, a Section 4(f) evaluation may be necessary.

Alternative I

The analysis for Alternative I is the same as that presented above for Alternative D.

8.2 Growth:

Alternative D

There are currently no ordinances or policies that prohibit growth within the study area. The project would add additional infrastructure that could potentially remove existing barriers to growth in the study area. However, the project is unlikely to substantially encourage development in the study area beyond what is already planned in the Merced County General Plan, Stanislaus County General Plan, Hilmar Community Plan, Delhi Community Plan, Stevinson SUDP, and City of Turlock General Plan, or to shift or hasten planned growth covered under these plans. Given the anticipated physical impacts of the project, a CIA would be required to document the project's effect on future growth and the existing communities affected (see Section 8.4, Community Impacts).

Alternative I

The analysis for Alternative I is the same as that presented above for Alternative D.

8.3 Farmlands/Timberlands:

There are no timberlands in the project study area.

In 2008, there were 834,276 acres of agricultural land in Stanislaus County, and the gross value of the County's agricultural production was $2,463,787,000. Agriculture represents one of the most important economic sectors for the County.

In 2008, there were 1,160,885 acres of farmland in Merced County, and the gross value of the County's agricultural production was $2,972,704,000. Agriculture represents one of the most important economic sectors for the County.

Alternative D

Alternative D would have impacts on areas designated by the Farmland Mapping and Monitoring Program (FMMP) as Prime Farmland, Farmland of Statewide Importance, and Unique Farmland. The project area is entirely zoned as "A-1 – General Agricultural" (General Agricultural Zone, with a minimum parcel size of 20 acres) in accordance with the Merced County Code, and designated for agricultural use in the Merced County General Plan. In Stanislaus County, the project area is zoned "Agricultural A-2-10" (General Agricultural District, with a minimum parcel size of 10 acres) in accordance with the Stanislaus County Zoning Ordinance, and designated for agricultural use in the Stanislaus County General Plan. Thus, implementation of Alternative D would cause the loss of farmland zoned and currently being used for agricultural purposes in the project area. Alternative D would also impact Williamson Act property in two places, a parcel north of August Avenue and several parcels near Lander Avenue both north and south of the Merced River.

Coordination with the Natural Resources Conservation Service, preparation of the Farmland Conversion Impact Rating, and notification of the Department of Conservation will be required.

Alternative I

Alternative I is contained entirely within Merced county (see above for Merced County farmland acres and agricultural production value).

Alternative I would have similar impacts on Prime Farmland, Farmland of Statewide Importance, and Unique Farmland, and would cause the loss of farmland zoned and currently being used for agricultural purposes in the project area, as described above. Alternative I would also impact Williamson Act property in several places including parcels south of Bradbury Road, directly north of August Avenue, and a parcel directly east of Larson Avenue.

Coordination with the Natural Resources Conservation Service, preparation of the Farmland Conversion Impact Rating, and notification of the Department of Conservation will be required.

8.4 Community Impacts:

To provide a broader context for socioeconomic conditions in the project study area, existing socioeconomic conditions within Merced and Stanislaus Counties are presented below. Potential local and community-level impacts resulting from implementation of the project alternatives are also addressed in the following sections.

Existing Socioeconomic Conditions

Merced County

Based on data from the 2010 Census, the population in Merced County totaled 255,793, of which 10,755 were in Delhi, 5,197 were in Hilmar, and 313 were in Stevinson (U.S. Census Bureau 2010). As of November 2010, employment in Merced County totaled 87,300 jobs, and the unemployment rate countywide was 18.6%. Nonfarm employment represented about 62% of total employment, and farm employment accounted for the remaining 38%, or 33,000 jobs (California Employment Development Department 2010a). Total personal income in Merced County was approximately $6.8 billion in 2008 or about .04% of the statewide total (U.S. Department of Commerce, Bureau of Economic Analysis 2010a). Personal income per capita was estimated to be $27,871 in 2008, much lower than the statewide per capita income of $43,852 in 2008 (U.S. Department of Commerce, Bureau of Economic Analysis 2010).

Stanislaus County

Based on data from the 2010 Census, the population in Stanislaus County totaled 514,453, of which 68,549 were in Turlock (U.S. Census Bureau 2010). As of November 2010, employment in Stanislaus County totaled 197,000 jobs, and the unemployment rate countywide was 17.2%.

Nonfarm employment represented about 76% of total employment, and farm employment accounted for the remaining 24%, or 52,200 jobs (California Employment Development Department 2010b). Total personal income in Stanislaus County was approximately $16 billion in 2008 or about 1% of the statewide total. Personal income per capita was estimated to be $31,871 in 2008, much lower than the statewide per capita income of $43,852 in 2008 (U.S. Department of Commerce, Bureau of Economic Analysis 2010b).

Economic Impacts

<u>Alternative D</u>

As discussed in 8.3, Farmlands/Timberlands, implementation of the proposed project would result in the permanent conversion of agricultural uses and the loss of productive farmland in the vicinity of the alignment. Economic impacts associated with losses of farmland could potentially include a loss in agriculture-related employment and a decline in personal income in Merced County, Stanislaus County, and in the study area. Additional effects could include a reduction in sales tax revenues resulting from declining purchases of taxable goods and services and reductions in property tax valuations and property tax revenues.

Implementation of Alternative D would also result in temporary increases in construction employment and personal income in the study area. Purchase of local goods and services during construction would also result in temporary increases in employment and income in urban centers, such as Hilmar, Dehli, Stevinson, and Turlock, and in rural commercial centers in both counties. These temporary direct and indirect increases in employment and income, although small when placed in the context of total employment (284,300 jobs) and personal income ($22.8 billion) generated in the study area, would be considered a temporary beneficial effect of Alternative D.

A Community Impact Report (CIA) would be required to document the project's effects on the local and regional economy. Before beginning the studies for the CIA, a meeting should be held with the Caltrans environmental planner assigned to this project to plan the level of study and reporting required for this project.

<u>Alternative I</u>

The analysis for Alternative I is the same as that presented above for Alternative D.

Community Character and Cohesion

<u>Alternative D</u>

Residential development in the project area occurs at relatively low densities, generally in association with farming operations; thus, there are no distinct neighborhoods within the area that would be directly impacted by Alternative D. No community landmarks or social gathering places exist in the immediate project vicinity, and no adverse effects on interaction among persons or groups in the area are anticipated to occur. Implementation of Alternative D would potentially remove barriers to growth in the broader study area, such as in the areas immediately adjacent to the proposed alignment and in the communities of Hilmar, Delhi, Stevinson, and Turlock, but it is unlikely to encourage incompatible or unplanned development in those areas (see Section 8.2, Growth). Consequently, it is not anticipated that community character and cohesion change substantially as a result of implementing Alternative D.

<u>Alternative I</u>

The analysis for Alternative I is the same as that presented above for Alternative D.

Relocations

<u>Alternative D</u>

Implementation of Alternative D would result in full or partial take of up to fifteen (15) residential and agricultural/industrial structures. No businesses, special needs facilities, or affordable housing would be displaced. A Draft Relocation Impact Study/Statement (DRIS) would be prepared to document the displacement of the affected properties. Early coordination with Caltrans Right of Way staff is recommended to ensure proper depth of analysis and scheduling of the DRIS.

Alternative I

Implementation of Alternative I would result in full or partial take of up to nine (9) residential and agricultural/industrial structures. No businesses, special needs facilities, or affordable housing would be displaced. A Draft Relocation Impact Study/Statement (DRIS) would be prepared to document the displacement of the affected properties. Early coordination with Caltrans Right of Way staff is recommended to ensure proper depth of analysis and scheduling of the DRIS.

Environmental Justice

All projects involving a federal action (funding, permit, or land) must comply with Executive Order (EO) 12898, Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations, signed by President Clinton on February 11, 1994. This Executive Order directs federal agencies to take the appropriate and necessary steps to identify and address disproportionately high and adverse effects of federal projects on the health or environment of minority and low-income populations to the greatest extent practicable and permitted by law. Minority and low-income populations living in the study area are defined as follows.

- Low income is defined based on the Department of Health and Human Services poverty guidelines. For 1999, this was $16,700 for a family of four. Because the Council on Environmental Quality (CEQ) guidance does not suggest a threshold to be used in identifying low-income populations, a population with a substantially lower median household income than in the general population is considered to be low-income for the purposes of this analysis.
- Minorities are defined as persons of American Indian or Alaska Native origin; Asian or Pacific Islander; Black, not of Hispanic origin; Hispanic; or persons of two or more races.). Consistent with CEQ's guidance, minority populations are identified where the minority population of the affected area exceeds 50% of the total population, or where the percentage of defined minorities in the affected area is meaningfully greater than the percentage of defined minorities in the general population or other appropriate unit of geographic analysis.

Demographic data from the 2010 U.S. Census were examined for the community impacts study area, including data for the state, the two counties (Merced and Stanislaus), the City of Turlock; and the Hilmar-Irwin, Delhi, and Stevinson Census Designated Places (CDP). In addition, Census Tracts (CT) 2.01, 2.02, 2.03, 3.03, 4.01, and 4.02 in Merced County and CTs 36.03, 36.04, and 37.00 in Stanislaus County were examined because they were determined to encompass the affected rural portions of the study area outside of the City of Turlock and the Hilmar-Irwin, Delhi, and Stevinson CDPs.

Alternatives D & I

Racial and population characteristics from the 2010 Census occurring statewide, regionally, and in the vicinity of the project study area are shown in Table 1. As shown in Table 1, the Latino/Hispanic populations in Merced County CDPs and CTs are similar to or lower than the Latino/Hispanic population in Merced County as a whole, but a substantially higher percentage (6.3% or more) of "Other Races" reside in the following CDP and CTs: Delhi CDP, CT 2.01, CT 2.02, and CT 2.03. In addition, 2.9 % of CT 3.03's population identifies themselves as American Indian/Alaskan Native, compared to 1.4% in Merced County as a whole. In Stanislaus County, when compared with the County as a whole, a lower or similar percentage of races other than white and people of Hispanic/Latino ethnicities reside in Turlock and the CTs in the rural study area with the exception of CT 37.00. "Other Races" in CT 37.00 comprise 29.9% of the total population, compared to 19.3 % in Stanislaus County.

Table 1. Racial and Ethnic Characteristics in the Study Area

Area	2010 Population	White (%)	Black or African-American (%)	American Indian/ Alaskan Native (%)	Asian (%)	Pacific Islander/ Native Hawaiian (%)	Other race (%)	Latino/ Hispanic (of any one race) (%)
California	**37,253,956**	**57.6%**	**6.2%**	**1.0%**	**13.0%**	**0.4%**	**17.0%**	**4.2%**
Merced Co.	**255,793**	**58.0%**	**3.9%**	**1.4%**	**7.4%**	**0.2%**	**24.5%**	**4.1%**
Hilmar-Irwin CDP	5,197	86.1%	0.3%	0.4%	1.7%	0.0%	8.4%	1.9%
Delhi CDP	10,755	52.6%	1.1%	1.5%	3.8%	0.3%	36.5%	5.2%
Stevinson CDP	313	72.8%	1.3%	0.0%	0.0%	0.0%	23.3%	2.8%
CT 2.01	3,626	58.5%	0.5%	1.2%	4.3%	0.1%	30.8%	4.7%
CT 2.02	1,841	58.3%	0.2%	1.0%	3.0%	0.1%	32.4%	2.7%
CT 2.03	9,272	51.9%	1.2%	1.5%	4.2%	0.3%	36.8%	4.6%
CT 3.03	2,158	65.4%	0.4%	2.9%	4.1%	0.0%	24.4%	1.8%
CT 4.01	1,834	71.8%	1.4%	0.4%	0.7%	0.0%	23.0%	2.9%
CT 4.02	8,071	83.7%	0.3%	0.4%	1.4%	0.0%	11.3%	2.1%
Stanislaus Co.	**514,453**	**65.6%**	**2.9%**	**1.1%**	**5.1%**	**0.7%**	**19.3%**	**4.6%**
Turlock	68,549	69.8%	1.7%	0.9%	5.6%	0.5%	16.5%	4.4%
CT 36.03	3,952	77.2%	0.5%	0.8%	0.8%	0.1%	17.0%	2.8%
CT 36.04	8,092	78.7%	0.5%	1.2%	3.0%	0.1%	13.1%	3.0%
CT 37.00	4,796	58.1%	0.8%	1.1%	5.2%	0.5%	29.9%	4.8%
Source: U.S. Census Bureau 2010.								

Median household incomes statewide, regionally, and in the vicinity of the study area (where available), as recorded in the 2010 Census American Community Survey (ACS), are shown in Table 2. The ACS eliminated the need for the a decennial census long form in 2010, but the survey only covers populations of 65,000 or greater (U.S. Census 2010), so the CDPs and CTs summarized in Table 1 are not covered in Table 2 because of their low populations. Median household incomes in Merced and Stanislaus Counties are approximately 26 % and 17% lower than in California, respectively, which is substantial However, median household incomes in Turlock are approximately 10.4% higher than in Stanislaus County as a whole.

Table 2. Median Household Income in the Study Area

Area	2010 Median Household Income ($)
California	57,708 (MOE: +/- 354)
Merced Co.	42,449 (MOE: +/- 2,915)
Stanislaus Co.	48,044 (MOE: +/- 2,608)
Turlock	53,605 (MOE: +/- 4,399)
Notes: MOE = Margin of Error Sources: U.S. Census Bureau 2010.	

Based on a comparative analysis of demographic (i.e. race and ethnicity) and income characteristics of the study area with that of the state and county populations, it is evident that certain populations residing in the study area are characterized by a substantial proportion of minority and low-income groups. The majority of these groups reside within and adjacent to the community of Delhi or are proximate to SR 99 and/or Golden State Boulevard in the northern portion of the study area. Disproportionate impacts to one of more of these groups could result from direct or indirect adverse project effects related to air quality, noise, water pollution, aesthetic values, employment, displacements/relocations, farmlands, accessibility, traffic congestion, safety, and construction impacts.

The CIA and environmental document would include a discussion of environmental justice and the proposed project's fair treatment and meaningful involvement of all people regardless of race, color, national origin, or income. This initial analysis should serve as a preliminary indicator to determine if a higher level of environmental justice analysis will be appropriate for the project during the ED phase. If environmental justice concerns are voiced by the affected groups or can be reasonably anticipated by the project development team, a more detailed environmental justice analysis/discussion would also be appropriate for the environmental document.

Utilities/Emergency Services/Public Facilities

Alternative D

Various existing utilities, including but not limited to, water mains, underground fiber optic cable, and overhead power lines, are located within the proposed project area. Coordination with utility providers to ensure disruptions of utility services are minimized or avoided would be required. Based on utility provider information, specific measures to avoid impacts on utility infrastructure should be developed and incorporated into the final construction plans.

Various schools, libraries, places of worship, and other public facilities serve the communities of Hilmar, Delhi, Stevinson, and Turlock. Emergency fire and police service providers serving these communities and the surrounding unincorporated areas of Merced County and Stanislaus County include the California Department of Forestry, with stations in Hilmar, Delhi, Stevinson, and Turlock; Merced County Sheriff's Department, with offices in Hilmar, Delhi, and Stevinson; Stanislaus County Sheriff's Department, with a station located at 4708 Main Street in Denair, CA; City of Turlock Fire Department, with the closest station located at 791 South Walnut Road; and the City of Turlock Police Department, with a station located at 900 North Palm. The closest medical facilities to the proposed alignment include Emanuel Medical Center in Turlock and the University Medical Center in Livingston.

None of the areas proposed for implementation of Alternative D, including the proposed ROW acquisition areas, contain any emergency service facilities such as fire stations, police facilities, hospitals/medical facilities; or community services such as schools, libraries, places of worship, or post offices; thus, relocation of any such facilities or services would not be required. Further, it is not expected that project implementation would indirectly result in significant adverse impacts on services or facilities within the broader study area. Implementation of a traffic management plan (TMP) would be required to ensure effects on emergency response providers and the public are minimized to the extent possible during the construction period. Operational effects related to Alternative D would likely be beneficial with respect to emergency service response times and access to community services, as the proposed improvements would serve to reduce traffic congestion and improve traffic access and safety along area roadways.

Alternative I

The analysis for Alternative I is the same as that presented above for Alternative D.

8.5 Visual/Aesthetics:

Views from the areas surrounding SR 165, SR 99, and Golden State Boulevard in the project vicinity are of a typical highway corridor surrounded by rural farmlands and low density development. The Merced River is also visible to motorists traveling on SR 165 and River Road in the southern portion of the project area. The river is identified in the Merced County General Plan as the only area left in the County with significant riparian vegetation and among the most valuable areas remaining in the San Joaquin Valley (Merced County 2000). One county park in the project vicinity, Hagaman Park, is located on the river, immediately adjacent to the existing SR 165 alignment. Due to the height and density of trees in the riparian corridor, the existing bridge permitting passage over the river on SR 165 is not visible from the developed portions of the park.

There are no designated State Scenic Highways or locally designated scenic routes in the project vicinity (Merced County 2000 Stanislaus County 1994; California Department of Transportation 2010). Interstate 5 (I-5), is the only designated State Scenic Highway in both counties. The nearest segment passes within approximately 15 miles of the project area.

Alternative D

Alternative D would result in the construction of a new four-lane expressway between Stevinson and Turlock, as well as new secondary road segments, bridges, intersections, a new interchange at SR 99 and T-junction at Golden State Boulevard, and realignments of existing roads. Construction of these components would introduce new highway infrastructure into rural areas of both counties, which are presently characterized by agricultural land uses and large tracts of open space. These modifications would result in changes in the existing visual character of the project area and would potentially contribute significant new sources of light and glare to the area. A Visual Impact Assessment (VIA) would therefore be required and should include potential project effects and any appropriate mitigation.

Alternative I

Alternative I would have similar visual impacts to those described for Alternative D.

8.6 Cultural Resources:

The proposed project alternatives are located in Merced and Stanislaus Counties and travel through a region primarily composed of agricultural properties that include a mixture of residential properties, farmsteads and commercial dairies. The City of Turlock was established in the late nineteenth century and from its beginnings the area surrounding the city was used for agricultural purposes. During the twentieth century, Turlock has continued to experience community and residential growth while the surrounding area has remained primarily agricultural.

Pre-field research conducted to identify cultural resources in the project areas consisted of a records search at the Central California Information Center (CCIC) of the California Historical Resources Inventory System (CHRIS) in Turlock; communication with the Native American Heritage Commission (NAHC) to request a search of their sacred lands file and to obtain a list of Native American contacts for Merced and Stanislaus Counties; a review of the Caltrans State Owned Bridge Inventory and correspondence with historical societies.

Records Search

ICF conducted a records search of the proposed project areas and their vicinity through the CCIC in Turlock on December 17 2010, (Appendix A). The purpose of this records search was to identify whether any previously identified cultural resources were located within and in the vicinity of the project limits. All known archaeological and built environment sites and previous cultural resources surveys within a 1-mile radius of the project limits were researched during the record search.

The records search indicates that only a small portion (less than 5%) of the proposed project areas have been previously surveyed for cultural resources. The record search also indicates that one prehistoric archaeological site has been identified within the proposed project areas. CCIC base maps indicate that prehistoric burials were found during bridge construction at the Alternatives D and I, Option 1 western Merced River crossing (current route of SR 165). No further information regarding this resource is available as it was not formally recorded by an archaeologist. No previously recorded historic-era archaeological sites were found to be located within the project areas.

The records search indicated that one historic district, the Merced Irrigation District, (P-24-1909/ P-22-3197) and its associated lateral, McCoy Lateral (P-24-1911/ CA-MER-471H) were recommended as eligible for the National Register of Historic Places (NRHP). Five other resources located within the project areas, (ditch, P-24-533; farm buildings, P-24-534; chicken house, P-24-535; canal, P-24-536; and dairy farm, P-24-537) were identified and recommended not eligible for listing in the NRHP.

Native American Coordination and Contracting Other Interested Parties

The Native American Heritage Commission (NAHC) was contacted on December 17, 2010 to request a search of their sacred lands files for the project areas and their vicinity (Appendix B) and a list of Native Americans that may know of cultural resources in the project areas. To date, no response from the NAHC has been received by ICF.

ICF sent letters on December 21, 2010, describing the project and requesting any information on potential cultural resources in the APE, to the Atwater Historical Society, Gustine Museum, McHenry Museum and Historical Society, Patterson Township Historical Society and the Genealogical Society of Stanislaus County. Follow up telephone calls were made on the week of December 27, 2010. As of the date of this report no responses have been received.

Windshield Surveys

On December 17, 2010, ICF archaeologist Andrea Nardin conducted a windshield survey of the proposed project alternatives. The proposed project alternatives generally appear to traverse agricultural land with a small percentage that included currently existing roads. The proposed project alternatives have moderate to high sensitivity for the presence of archaeological sites based on known resources and the presence of perennial water courses and sensitive landforms.

On December 20, 2010, ICF architectural historian Maya Beneli conducted a windshield survey of the proposed project areas. During this survey, the presence or lack of resources and the types of resources that make up the general characteristics of the project areas were documented and a special note was made of resources that appeared to be built before 1966. Overall, the proposed project areas appear to feature a moderate probability of containing significant historic (45 years old or older) built environment resources. Parcels along the alignments that contain buildings or structures 45years old or older and where property takes will occur would require formal inventory and evaluation for historical significance under current Caltrans guidelines.

A summary of the types of resources and level of sensitivity for the alternatives are discussed below.

<u>Alternative D</u>

Alternative D is located within Merced and Stanislaus Counties with a southern terminus near the intersection of 1st Avenue and SR 165, approximately 1.25 miles north of the community of Stevinson, and extending north to Golden State Boulevard near the City of Turlock.. This alternative has a high density of historic-era agricultural and residential buildings, as well as some contemporary (post-1966) development in the form of residential and agriculturally related buildings. Orchards and vineyards are also present. Many of the historic-era buildings date to the late nineteenth and early twentieth century and may be associated with the development of the Turlock area, though there are buildings that appear to date to the mid-twentieth century. A bridge located along this alternative, (Bridge # 39 0217) was previously evaluated through the Caltrans historic bridge inventory and found to be not eligible. Should this alternative move forward, an estimated 59 properties containing built environment resources 45 years old or older would need to be evaluated for eligibility for the NRHP. The sensitivity of this alternative for historic built environment resources is considered moderate.

Prehistoric burials were identified within this alternative in the vicinity of the Merced River crossing. Because of this and the project's proximity to the Merced River in general, Alternative D has a high sensitivity for buried prehistoric archaeological resources. Because of historic era agricultural activities in the region that may span back to the late 19th century, there is moderate sensitivity for historic era archaeological resources.

Alternative I

Alternative I is entirely located within Merced County with a southern terminus as described for Alternative D and extending north to the Bradbury Road/SR 99 interchange near Delhi. The project area for this alternative is generally characterized by large expanses of agricultural fields including some vineyards and orchards. Built environment resources consist of historic-era and contemporary residential and agricultural related buildings and structures. This alternative includes built environment resources dating from the late nineteenth to early twentieth century that may be associated with the development of Turlock as well as buildings that appear to date to the mid twentieth century. If this alternative proceeds, an estimated 45 properties containing built environment 45 years old or older will need to be evaluated for eligibility for the NRHP. Because of the age of these buildings, this alternative has moderate sensitivity for historic built environment resources.

Prehistoric burials were identified within less than a mile of this alternative in the vicinity of the SR 165 Merced River crossing. Because of this and the project's proximity to the Merced River in general, Alternative I has a high sensitivity for buried prehistoric archaeological resources. Because of historic era agricultural activities in the region that may span back to the late 19th century, there is moderate sensitivity for historic era archaeological resources.

Summary and Conclusion

Alternatives D & I

Both alternatives follow roadways that cross open land and numerous ephemeral drainages and creeks including the Turlock Irrigation District Lateral No. 8. In 2010, the Merced Irrigation District was recommended as a NRHP historic district (Dice, M. H., and K. J. Lord 2010). Only segments of the McCoy Lateral and the Garibaldi Lateral were specifically called out as district contributors and as of December 2010 the California State Office of Historic Preservation has not determined that the district is eligible for listing in the NRHP. However, because the District has been recommended as NRHP eligible, all related resources located within the district boundaries are historical resources for the purposes of CEQA. Consequently, the Turlock Irrigation District Lateral No. 8 could be a contributor to this district and will need to be evaluated as such in the cultural resources technical study for this project under both alternatives. Both alternatives are highly sensitive for prehistoric archaeological resources and moderately sensitive for historic-era archaeological resources.

Section 106 of the National Historic Preservation Act (NHPA) and its implementing regulations, 36 CFR Part 800, provide the regulatory mechanism for considering the effects to historic properties on projects with federal involvement. For Caltrans purposes, the term "cultural resources" means any tangible or observable evidence of past human activity, regardless of significance, found in direct association with a geographic location, including tangible properties possessing intangible traditional cultural values. This broad definition is meant to ensure that all potential historic properties subject to consideration under Section 106 and the California Environmental Quality Act of 1970 will be recognized and given appropriate consideration. The Section 106 Programmatic Agreement between Caltrans, FHWA, the State Historic Preservation Officer (SHPO), and the Advisory Council on Historic Preservation (ACHP), implemented on January 1, 2004, authorizes Caltrans professionally qualified cultural resources staff to perform certain activities on behalf of FHWA in the identification and evaluation of historic properties and in assessing project effects on those properties.

An archaeological survey report, historic resources evaluation report, and historic properties survey report will likely be needed in order to comply with Section 106. An Extended Phase I (EPI) survey will likely be needed for areas adjacent to the Merced River crossing and any other areas where prehistoric resources may be found during the pedestrian archaeological survey. If an XPI survey indicates the presence of a prehistoric resource, a Phase II archaeological evaluation may be necessary.

8.7 Hydrology and Floodplain:

Alternative D

The Merced River Watershed is the primary water feature that the project crosses. The Federal Emergency Management Agency (FEMA) delineates floodplain throughout the nation and presents the information on Flood Insurance Rate Maps (FIRMs). According to FIRM 06047C0375G, the only portion of the project that is located in the 100-year flood zone is where the project crosses over the Merced River. The rest of the alignment is outside the 100-year floodplain. The project would increase the amount of impervious surface which would result in additional stormwater runoff. However, roadside swales would likely be the primary BMP and the swales would likely be designed to handle the additional runoff created from the increased impervious surface. This information will likely be included in the Storm Water Data Report prepared for the project. In addition, a Location Hydraulic Study will also be prepared for the project and will determine if the new bridge will have hydraulic impacts to the Merced River in the event that the size of the floodplain is decreased from increasing the size of the bridge abutments. This scenario would likely not impact the floodplain, as the size increase would likely be minimal.

Alternative I

The analysis for Alternative I is the same as that presented above for Alternative D.

8.8 Water Quality and Storm Water Runoff:

Alternative D

The proposed project area overlies the San Joaquin Valley Groundwater Basin, Turlock Subbasin. The Turlock Subbasin is approximately 347,000 acres. Groundwater flow is primarily southwest and the groundwater storage capacity is estimated at 15,800,000 acre-feet (DWR 2006). There are localized groundwater quality impairments for nitrate, chloride, and boron (DWR 2006). The Merced River is of good quality water, however, near the proposed project alignments, the Merced also conveys water that typical of irrigation return flows resulting in pesticides and nutrients in the water.

The Clean Water Act (CWA) Section 303(d) List of impaired waters has the Merced River impaired for chlorypyrifos, diazinon, group A pesticides and mercury. The first three impairments are sourced to agriculture and the proposed project would likely not contribute these impairments. However, the proposed project will involve use of heavy equipment which will disturb soil and could also mobilize additional mercury contributing the impairment in the Merced River. As a result, the contractor will need to implement a Storm Water Pollution Prevention Plan (SWPPP) (which is part of the NPDES Construction General Permit) and subsequent BMPs to ensure that sedimentation does not enter into the Merced River from construction.

In general, the project would still have short-term effects on surface water quality associated with project construction, equipment and material sites, staging areas, disposal sites, and potentially drainage retention or detention areas; however, implementation of best management practices (BMPs) during construction would ensure that construction activities would not result in adverse effects on water quality.

Alternative I

The analysis for Alternative I is the same as that presented above for Alternative D.

8.9 Geology, Soils, Seismic and Topography:

Alternative D

The project area is located approximately 20 miles from the nearest fault, the Ortigalita fault (Merced County 2000, Bryant and Clutt 2000a), and is not within an area mapped as an Alquist-Priolo Earthquake Fault Zone or Seismic Hazard Zone (California Department of Conservation 2007a, 2007b). Therefore, the chance of fault rupture within the project areas would be highly unlikely.

The proposed project area could be subject to strong seismic groundshaking as a result of earthquakes on a number of active faults located at varying distances from the project alignments, including the Ortigalita, Greenville, Calaveras, Hayward, and San Andreas faults (Bryant and Cluett 1999, Bryant and Cluett 2000a, Bryant and Cluett 2000b, Bryant and Lundberg 2002). Because the project alternatives would be located in a seismically active area, would be sited on low-gradient terrain subject to seasonal high water tables, and would be underlain by unconsolidated valley sediments, there is potential for strong groundshaking, liquefaction, subsidence, and other seismic-related ground disturbances in the project areas.

Ground disturbance caused by project construction activities would expose soil to erosional processes and could result in the loss of topsoil during construction. Project activities occurring on or near the banks of the Merced River also have the potential to compromise slope stability. In general, soils in the project areas have a low shrink-swell potential (NRCS 2008); thus, potential risks to life and property associated with expansive soils are considered low.

Specific project-related impacts and any appropriate mitigation relating to geology, soil stability, and erosion would be evaluated in the project's environmental document.

Alternative I

The analysis for Alternative I is the same as that presented above for Alternative D.

8.10 Paleontology:

Alternative D

The project area is underlain at the surface by the Modesto Formation (Wagner et al. 1991), a Late Pleistocene (Rancholabrean) unit that generally consists of poorly sorted and indurated brown sandstone and siltstone with interbeds of pebble to cobble conglomerate. The Modesto Formation has been interpreted as recording deposition in alluvial fan environments (Blake et al. 1999).

California's Pleistocene sedimentary units—especially those that, like the Modesto Formation, record deposition in continental settings—are typically considered highly sensitive for paleontological resources because of the large number of recorded fossil finds in such units throughout the state. For example, University of California, Berkeley Museum of Paleontology data indicate numerous vertebrate finds in sediments of Rancholabrean age in San Joaquin County, including remains of mammoth, bison, rodents, and reptiles (Jones & Stokes 2006). Given the age and general lithologic descriptions of these finds, it is likely that some of these localities may be in the Modesto Formation and/or correlative units. For this reason, the Modesto Formation meets the criteria for Caltrans' High Potential category (Caltrans 2008) and should be considered highly sensitive for paleontological resources.

The project includes a number of ground-disturbing and excavation activities associated with road construction, interchange improvement, and bridge installation. Earthwork required for this project would involve the Modesto Formation, with the potential to damage and/or disturb vertebrate and other fossil resources. Depending on the degree of loss, disturbance or damage affecting vertebrate fossils could represent a significant impact under CEQA.

Based on the site geology, the likely paleontological sensitivity of the units, and the potential project excavation within these units, a paleontological evaluation report will likely be required.

Alternative I

The analysis for Alternative I is the same as that presented above for Alternative D.

8.11 Hazardous Waste/Materials:

A hazardous material, as defined by the California Department of Toxic Substances Control (DTSC), is a material that poses a significant present or potential hazard to human health and safety or the environment if released because of its quantity, concentration, or physical or chemical characteristics (26 CCR 25501).

Alternative D

Potential sources of hazardous materials in the project area include the following:

- Railroad Property. An existing railroad exists within the project area for Alternative I. Railroad rights-of-way often contain utility easements that can result in undiscovered, localized contamination. Spills or releases of hazardous materials may have occurred along the railroad embankment that could be disturbed by construction of the project. Modifications to the proposed Bradbury Road overcrossing will encroach upon the existing railroad right-of-way; the railroad is currently active.
- Pesticides. Because large portions of the project areas are or have been in agricultural use, historic pesticide use would not be unexpected.
- Transformers. If any older pole-mounted transformers would need to be removed or relocated during construction, they could contain hazardous materials, specifically, polychlorinated biphenyls (PCBs), in the oil.
- Water Quality Contaminants. Because portions of the project areas are landscaped, presence of water quality contaminants such as lawn fertilizers and/or vehicles greases would not be unexpected.
- Aerially Deposited Lead (ADL). ADL is known to exist along the California state highway system, including heavily traveled roadways, such as SR 165 and SR 99. The source of the lead was from vehicle emissions when leaded fuels were used.
- Yellow Traffic Stripes. Yellow traffic stripes are present along many local roadways, including SR 165, Griffith Road, and Bradbury Road. Yellow thermoplastic stripes may contain heavy metals such as lead and chromium at concentrations in excess of the hazardous waste thresholds and may produce toxic fumes when heated.

The project would need to comply with numerous federal and state regulations pertaining to hazardous materials, including:

- Resource Conservation and Recovery Act (RCRA)
- Comprehensive Environmental Response, Compensation, and Liability Act, and Superfund Amendment and Reauthorization Act Title III (Superfund)
- Hazardous Waste Control Act
- Emergency Services Act
- California Occupational Safety and Health Administration Standards
- Safe Drinking Water and Toxic Enforcement Act of 1986 (Proposition 65)
- Provisions in Section 19, "Earthwork," of Caltrans Standard Specifications and of Special Provisions for "Aerially Deposited Lead"

A background document review and initial site assessment (ISA) must be conducted to determine if one or more contaminated properties are present in the project area and to determine the level of risk to the project. Depending on the findings of the ISA, a preliminary site investigation (PSI) and detailed site investigation (DSI), which require more directed sampling, may be required. Information from these reports is summarized in the environmental document so that alternatives can be adequately evaluated. The ED must also consider the potential for encountering contamination and hazards during construction activities and must identify appropriate strategies to minimize health risks for construction workers and the public.

Alternative I

The analysis for Alternative I is the same as that presented above for Alternative D.

8.12 Air Quality:

An air quality study report (AQSR) consistent with Caltrans, Environmental Protection Agency (EPA), and FHWA standards would need to be prepared to assess the environmental impacts associated with the proposed project. Particularly, compliance with the Clean Air Act State Implementation Plan, the 2011 MCAGRTP, and the 2011 StanCOG RTP would be addressed. Potential carbon monoxide (CO), particulate matter less than 10 microns in diameter (PM10), and particulate matter less than 2.5 microns in diameter (PM2.5) emissions, as well as air quality impacts under NEPA and CEQA would also need to be evaluated.

Alternatives D & I

Alternative I is located entirely within Merced County, while Alternative D traverses both Merced and Stanislaus Counties. Both counties are contained within the San Joaquin Valley Air Basin (SJVAB). The San Joaquin Valley Air Pollution Control District (SJVAPCD) has jurisdiction over local air quality within this region. The current federal and state attainment status for Merced and Stanislaus Counties are listed in Table 3.

Table 3. Merced and Stanislaus Air Quality Attainment Status

	Merced County	Stanislaus County
Federal Air Quality Attainment Status as of September 2010 (EPA)		
8-hour Ozone	Extreme Non-Attainment	Extreme Non-Attainment
PM 2.5	Nonattainment	Nonattainment
PM10	Attainment	Nonattainment
CO	Attainment	Attainment
State Air Quality Attainment Status (CARB)		
1-hour Ozone	Severe Non-Attainment	Severe Non-Attainment
8-hour Ozone	Nonattainment	Nonattainment
PM 2.5	Nonattainment	Nonattainment
PM 10	Nonattainment	Nonattainment
CO	Unclassified	Attainment

MCAG's 2011 RTP identifies the Hilmar Bypass project as a Tier II projects, although the project limits are not consistent between the RPT and the proposed project.. Likewise, StanCOG's 2011 RTP identifies one Tier I and one Tier II project. The latest conformity analyses for MCAG's 2011 RTP and StanCOG's 2011 RTP were conducted in July 2010. They are both scheduled to be adopted by FHWA and FTA in December 2010. Because funding has not been allocated past the PSR phase, neither MCAG's nor StanCOG's Federal Transportation Improvement Program (TIP) list the project.[2] Because regional conformity requires the project description listed in the RTP and TIP match that of the projected project, the AQSR must verify that the project satisfies regional conformity requirements by analyzing and documenting whether the finalized project description matches the listing in MCAG's and StanCOG's RTP and TIP.

The proposed project must be shown to not "cause or contribute to any new localized CO, PM10, or PM2.5 violations or increase the frequency or severity of any existing CO, PM10, or PM2.5 violations." The analysis of localized CO impacts would follow the methodology contained within the Caltrans' *Transportation Project-Level Carbon Monoxide Protocol.* The assessment of

[2] Note that the project is listed for informational purposes only in MCAG's 2011 FTIP.

localized PM10 and PM2.5 impacts would be evaluated using the EPA/FHWA's most recent transportation conformity guidance for PM2.5 and PM10 nonattainment and maintenance areas. 3 Project-specific criteria pollutant emissions for the build alternatives will be estimated using Caltrans' CT-EMFAC model.

It is possible that the project would need to be evaluated for its potential emissions of mobile source air toxics (MSATs). The FHWA's 2006 *Interim Guidance on Air Toxic Analysis in NEPA Documents* would be used to evaluate the project's MSAT impacts. The Omni-Means PSR for the proposed project estimates the 2035 average daily traffic (ADT) along the proposed SR-165 bypass between SR-99 and Turner Road for Alternatives D and I (including sub-alternatives) to range between 16,400 and 31,900. Since the ADT is less than the threshold of 140,000–150,000, it is anticipated that the proposed project would be a project with *low potential MSAT effects*, and as such would not require a quantitative MSAT analysis.

Table 4 identifies potential sensitive receptors in the project areas.

Table 4. Summary of Sensitive Receptors in the Project areas

Name/Type of Receptor	Location
Alternative Route D	
Stanislaus Academy	Youngstown Road; approx 0.35mi northwest of bypass.
Dense Residential Area	Turlock; Approx. 1.00mi northwest of bypass.
Golf Course	Approx. 120 feet west of bypass near Bradbury and Golf Links Rd.
Hilmar Covenant Church	American Avenue; approx. 1.30mi west of bypass.
Dense Residential Area	Irwin; Closest homes at 0.76mi west of bypass.
Hilmar Senior High School	Lander Avenue: approx 1.26mi west of bypass.
Hilmar Middle School	Lander Avenue: approx 1.26mi west of bypass.
Calvary First Assembly of God	Dayton Avenue; approx 1.07mi west of bypass.
Hagaman Park	River Road; approx. 0.17mi northeast of bypass alternate 1 and 0.28mi northwest of bypass alternate 2.
Alternative Route I	
Dense Residential Area	Delhi; Approx 1.1mi southeast of bypass.
Scattered Single Family Homes	Letteau Avenue and Griffith Road; Approx 0.35mi southwest of bypass (Homes as close as 230 feet.)
Dense Residential Area	Irwin; approx. 0.65mi northwest of bypass.
Calvary First Assembly of God	Dayton Avenue; approx. 0.84mi northwest of bypass.
Hilmar Senior High School	Lander Avenue: approx 1.12mi west of bypass.
Hilmar Middle School	Lander Avenue: approx 1.12mi west of bypass.
Hagaman Park	River Road; approx. 0.17mi northeast of bypass alternate 1 and 0.28mi northwest of bypass alternate 2.

Impacts from construction and operational emissions would be evaluated against the appropriate thresholds for criteria pollutants. The SJVAPCD has established construction and operational thresholds of significance of 10 tons per year of ROG or NOx, and 15 tons per year of PM10. In addition, the project may be subject to SJVAPCD Rule 9510 (Indirect Source Review), which requires a 20% reduction in construction exhaust NOX emissions relative to the statewide fleet average, and a 45% reduction in construction exhaust PM10 emissions relative to the statewide fleet average. Depending on the level of air quality impacts, project-specific mitigation would be determined at the time of project implementation. However, the following avoidance measures would be required pursuant to Caltrans and SJVAPCD rules and regulations:

[3] The EPA/FHWA's current guidance is the 2006 Transportation Conformity Guidance for Qualitative Hot Spot Analyses in PM2.5 and PM10 Nonattainment and Maintenance Areas. These agencies are in the process of adopting guidance for quantitative analyses. Based on consultation with Caltrans Head Quarters staff, this guidance document is expected to be adopted in December 2010 and include a two-year grace period.

- Implementation of the Caltrans Standard Specification 14, Environmental Stewardship.
- Compliance with SJVAPCD Regulation IIIV.
- Fulfillment of SJVAPCD Rule 9510 (if total construction-related NOX and PM10 exhaust emissions are in excess of 2.0 tons).

The SJVAPCD does not require permits for road construction projects because they are not considered stationary sources. However, the project applicant must file a dust control plan with the district and comply with all applicable district rules and regulations.

In addition to the AQSR, applicable regional and project-level conformity documentation would need to be completed. Specifically, to fulfill particulate matter conformity requirements, appropriate Interagency Consultation (IAC) documentation is required. If the project is prepared in accordance with Safe, Accountable, Flexible, Efficient Transportation Equity Act: A Legacy for Users (SAFETEA-LU) Section 6005 Guidelines, a separate air quality conformity analysis and documentation checklist would also need to be prepared.

8.13 Noise and Vibration:

Regulatory Summary

Title 23, part 772 of the Code of Federal Regulations "Procedures for Abatement of Highway Traffic Noise" (23 CFR 772) specifies noise analysis procedures for Federal-Aid highway projects. The Caltrans Traffic Noise Analysis Protocol (Protocol) specifies Caltrans policies for implementing 23 CFR 772 in California. Because the project involves federal funding, 23 CFR 772 would directly apply and noise impacts would need to be evaluated accordingly. Because the proposed project involves new highway construction, it qualifies as a Type 1 project as defined in 23 CFR 772.

Under the Protocol, a traffic noise impact is considered to occur when the predicted design year traffic noise level approaches or exceeds a noise abatement criterion (NAC), specified in Table 5, or when the predicted design year traffic noise level substantially exceeds the existing measured ambient noise level.

The Protocol defines an increase in existing ambient noise levels as substantial when the predicted design-year noise level with project implementation exceeds the existing noise level by hourly equivalent sound level (Leq[h]) 12 decibels adjusted (dBA) or more. The Protocol also states that a sound level is considered to approach a given NAC level when within 1 dBA of the NAC. For Activity Category B land uses (typically residential areas), this corresponds to Leq(h) 66 dBA. As defined in the Protocol a "severe" traffic noise impact is considered extra when predicted exterior noise levels equal or exceed Leq(h) 75 dBA or are 30 dBA or more above existing noise levels.

Table 5. Activity Categories and Noise Abatement Criteria

Activity Category	NAC (dBA – L_{eq}[h])	Description of Activities
A	57: Exterior	Lands on which serenity and quiet are extraordinarily significant and serve an important public need, and where the preservation of those qualities is essential if the area is to continue to serve its intended purpose.
B	67: Exterior	Picnic areas, recreation areas, playgrounds, active sport areas, parks, residences, motels, hotels, schools, churches, libraries, and hospitals.
C	72: Exterior	Developed lands, properties, or activities not included in categories A and B above.
D	–	Undeveloped lands
E	52: Interior	Residences, motels, hotels, public meeting rooms, schools, churches, libraries, hospitals, and auditoriums.

Traffic noise impacts must be evaluated for all land uses in the project areas. Primary consideration is given to exterior use areas. In situations in which no exterior activities are affected by traffic noise, the interior criterion (activity category E) is used as the basis for noise abatement consideration. Noise abatement is normally only considered where frequent human use occurs and where a lowered noise level would be of benefit. Accordingly, abatement is typically considered at locations with defined outdoor activity areas, such as residential backyards, patios, and parks with defined activity areas (e.g., playgrounds and picnic tables).

Under the requirements of the 23CFR772 and the Protocol, noise abatement measures that are reasonable, feasible, and likely to be incorporated into the project must be identified before adoption of the final environmental document for a given project. Noise impacts for which no apparent solutions are available or feasible must be identified as well.

If noise abatement is not reasonable and feasible at a location with a severe traffic noise impact, the location might be eligible for extraordinary noise abatement as defined by Caltrans. Extraordinary noise abatement might include construction of a barrier that does not meet the normal Caltrans standards for cost reasonableness or implementation of nonstandard noise abatement. Extraordinary noise abatement is considered on a case-by-case basis.

A noise study technical report will be prepared to identify traffic noise impacts, noise abatement considered, noise abatement feasibility, and noise abatement reasonableness allowances. Construction and operational noise impacts must also be evaluated under the requirements of CEQA. Because the project is located in three different jurisdictions (Merced County, and Stanislaus County) City and County noise standards would be used to evaluate construction and operational noise impacts under CEQA.

Project Setting

Most of the land along the project alignments is undeveloped agricultural land. Developed land uses in the project areas include scattered rural residences, agricultural facilities, commercial/industrial facilities, and recreational facilities including Hagaman Park on 19914 River Road in Stevinson and the Turlock Golf and Country Club located at 10532 N. Golf Link Road.

Existing noise level along the project alignments are low (40 to 50 dBA) because the rural location is distance from major roadways. Noise levels are higher (60 to 70 dBA) in areas where the project alignments connect to existing major roadways (existing SR-165 on the south and SR-99 on the north).

Alternative D

Because the project involves construction of a new highway in a rural setting, traffic noise impacts will likely occur at Activity Category B land uses located within several hundred feet of the alignments as a result of substantial increases in noise. Activity Category B land uses in close proximity to the alignment (within about 100 feet) may also be exposed to traffic noise levels that approach or exceed the noise abatement criteria.

Vibration impacts generally occur when highly dynamic equipment such as a pile driver is operated in close proximity to sensitive uses. Use of non-dynamic construction equipment such as graders, excavators, and pavers in association with project construction is not expected to result in vibration impacts. New bridge construction at the Merced River crossings could involve the use of driven piles. Residences located near Options 1 and 2 of the alignments could be exposed to vibration impacts if impact pile driving is implemented.

Noise abatement in the form on noise barriers will likely need to be considered at a number of locations along the project alignment. In general, these are locations where residences are located within several hundred feet of the alignments. Because these barriers would only provide noise reduction for 1 or 2 residences, it is likely that these barriers will not meet cost reasonableness criteria defined in the Protocol.

If pile driving vibration impacts are identified at the Merced River crossing, potential measures to avoid impacts include the use of non-dynamic pile installation methods such as rotational installation or the use case-in-drilled hole piles.

Alternative I

The analysis for Alternative I is the same as that presented above for Alternative D.

8.14 Energy and Climate Change:

Alternatives D & I

Per the FHWA Technical Advisory 6640.8A, a detailed energy study, including computations, is only required for large-scale EIS projects with potentially substantial energy impacts. Balancing energy used during project construction and operation against energy saved by relieving congestion would not have substantial energy impacts. Moreover, the project will reduce congestion through the community of Hilmar by providing a direct access bypass structure. Alternatives D and I are expected to reduce highway travel times through the study corridor between 7.0 to 9.7 minutes, relative to the No Build Alternative (Omni Means, 2010). It is therefore likely that both alternatives will reduce fuel consumption and direct energy impacts.

The purpose of the project is to alleviate congestion and improve safety conditions by constructing a new alternate highway bypass. A quantitative analysis of operational carbon dioxide (CO_2) emissions would be required to estimate long-term climate change impacts or benefits from the proposed project. The analysis would utilize the ARB's CT-EMFAC Model and traffic data provided by the project traffic engineer. A comparison of project verses no-project emissions CO_2 would be performed using the latest federal, state, and local guidance. Depending on if the project results in a net increase in CO_2 emissions relative to the no-project condition, project-specific mitigation would be recommended. Temporary construction emissions of CO_2, methane, and nitrous oxide would be quantified using the Climate Action Registry's General Reporting Protocol and project-specific data (e.g. construction equipment, materials, construction schedule, etc.) provided by the project applicant. These emissions would be considered temporary and have a relatively minor impact on global climate change.

The project is also slated to displace as much as 40 acres of existing farmland for Alternative I. Dependent on the type of vegetation present and the farming practices employed on site, agricultural land can represent either a net source or a net sink of GHGs. For example, emissions associated with agriculture in California were 28 million MT CO_2e in 2008 or 6% of total net emissions. The forestry sector, including working forests, was responsible for the removal of 4 million MT CO_2e in 2008, or ~ 1% of total net GHG emissions (CARB, 2010). If acres of agricultural lands displaced as a result of Alternative I currently act as a net sink of CO_2 and compensatory vegetation is not planted, planned transportation infrastructure would represent permanent removal of carbon sinks, and thus an increase in GHG emissions. However, if agricultural land displaced by Alternative I currently represents a net or even large source of GHG emissions due to fertilizer and agricultural vehicle use, displacement of these lands may represent a net reduction in local emissions. A quantitative comparison of the net carbon impacts between Build and No-Build alternatives using standard methodologies is recommended.

8.15 Biological Environment:

The project study area (study area) for biological resources includes the alignment of each of the proposed project alternatives (Alternative D and I) and a 100-foot-wide buffer area on either side of the alignments. ICF biologists reviewed special-status species information for both project alternative alignments and an approximate 10 mile radius around these alignments. Information reviewed included species lists from California Natural Diversity Database (CNDDB) (2010), the U.S. Fish and Wildlife Service (USFWS) (2010), and the California Native Plant Society (CNPS) (2010). The biologists also conducted a windshield survey on December 13, 2010 to determine, at a broad scale, the habitat types present in the study area. The survey was conducted by driving along public roads, mapping vegetation communities, and assessing the suitability of habitat to support special-status species. Representative photographs of the study area were taken. Areas only accessible from private roads and lands were not surveyed unless they could be observed from public roads. Segments of the proposed project alternatives that were not accessible via public roads were assessed by examining aerial photographs. The biologists were able to access the riparian corridor of the Merced River near the junction of SR 165 and River Road and along River Road approximately 0.25 west of Van Clief Road.

Vegetation communities observed to occur in the study area include agricultural lands, riparian vegetation, grasslands, and ruderal vegetation. Agricultural lands and associated features and structures are the dominant land cover type in the study area. These areas include, but are not limited to, orchards, vineyards, row and field crops, fallow fields, pasturelands, dairies, barns and other farm structures, and irrigation canals. Accordingly, the majority of the vegetation in the study area consists of agricultural cultivars, ornamental species used for landscaping, and ruderal (i.e., weedy) species. The ruderal species are most prevalent along roadsides, in fallow fields, and in vacant lots, some of which contain spoils piles.

Natural communities occurring in the study area include the Merced River and riparian vegetation adjacent to the river and grasslands. Trees and shrubs observed within the riparian corridor of the Merced River included valley oak (*Quercus lobata*), box elder (*Acer negundo var. californicum*), Oregon ash (*Fraxinus latifolia*), willows (*Salix* spp.), and blue elderberry (*Sambucus mexicana*). The grasslands are scattered among the agricultural lands and encompass only a small portion of the study area. The study area also has the potential to contain additional natural communities that could not be viewed during the windshield survey and/or were not discernible on aerial photographs.

Other land cover types in the study area include rural residences, bare/graded areas, spoils piles, the Turlock Golf & Country Club golf course, and Hagaman Park.

Special-Status Plants

Twenty-one special-status plant species were identified as occurring in the project vicinity (Table 6). Fourteen of these species may occur in the grassland, riparian habitat, or irrigation canals that are present in the study area. Therefore, constructing the project alternatives could potentially impact special-status plants. Natural communities (e.g., vernal pools) that could not be identified during the windshield survey or the aerial photograph review but may occur in the study area could also provide habitat for special-status plants.

<u>Alternative D</u>

One or more floristic surveys conducted by qualified botanists at the appropriate time of year (typically during the reported blooming period) would be required to evaluate the effect of Alternative D on special-status plants.

<u>Alternative I</u>

One or more floristic surveys conducted by qualified botanists at the appropriate time of year (typically during the reported blooming period) would be required to evaluate the effect of Alternative I on special-status plants.

Table 6. Special-Status Plants Identified During the Prefield Investigation as Having Potential to Occur in the Study Area

Common and Scientific Name	Legal Status[a] Federal/State/CNPS	Geographic Distribution/Floristic Province	Habitat Requirements	Blooming Period	Potential Habitat in Study Area?
Alkali milk vetch *Astragalus tener* var. *tener*	–/–/1B.2	Southern Sacramento Valley, northern San Joaquin Valley, eastern San Francisco Bay	Playas, on adobe clay in valley and foothill grassland, vernal pools on alkaline soils; below 60 meters	Mar–Jun	Grassland present, suitable microhabitat (i.e., adobe clay) may not be present. Vernal pools potentially present in areas that were inaccessible during windshield survey.
Heartscale *Atriplex cordulata*	–/–/1B.2	Western Central Valley and valleys of adjacent foothills	Saline or alkaline soils in chenopod scrub, meadows and seeps, sandy areas in valley and foothill grassland; below 375 meters	Apr–Oct	Grassland present, suitable microhabitat (i.e., alkaline or sandy soils) may not be present.
Brittlescale *Atriplex depressa*	–/–/1B.2	Western and eastern Central Valley and adjacent foothills on west side of Central Valley	Alkaline clay soils in chenopod scrub, playas, valley and foothill grasslands; below 320 meters	Apr–Oct	Grassland present, suitable microhabitat (i.e., alkaline clay soils) may not be present.
San Joaquin saltscale *Atriplex joaquiniana*	–/–/1B.2	Western edge of the Central Valley from Glenn County to Tulare County	Alkaline soils in chenopod scrub, meadows and seeps, playas, valley and foothill grassland; below 835 meters	Apr–Oct	Grassland present, suitable microhabitat (i.e., alkaline soils) may not be present.
Lesser saltscale *Atriplex minuscula*	–/–/1B.1	Sacramento and San Joaquin Valley, Butte County and from Merced County to Kern County	Sandy alkaline soils in chenopod scrub, playas, valley and foothill grassland; 15–200 meters	May–Oct	Grassland present, suitable microhabitat (i.e., sandy alkaline soils) may not be present.
Vernal pool smallscale *Atriplex persistens*	–/–/1B.2	Central Valley from Glenn County to Tulare County	Dry beds of vernal pools on alkaline soils; 10–115 meters	Jun–Oct	Vernal pools potentially present in areas that were inaccessible during windshield survey.
Hoover's calycadenia *Calycadenia hooveri*	–/–/1B.3	Northern and central Sierra Nevada Foothills in Calaveras, Madera, Merced, Mariposa, and Stanislaus Counties	Barren, rocky, exposed soil in cismontane woodland, valley and foothill grassland; 65–300 meters	Jul–Sep	Grassland present, suitable microhabitat (i.e., barren, rocky soils) may not be present.

Common and Scientific Name	Legal Status[a] Federal/State/CNPS	Geographic Distribution/Floristic Province	Habitat Requirements	Blooming Period	Potential Habitat in Study Area?
Succulent owl's-clover *Castilleja campestris* ssp. *succulenta*	T/E/1B.2	Eastern edge of San Joaquin Valley and adjacent foothills, from Stanislaus County to Fresno County	Vernal pools, often on acidic soils; 50–750 meters	Apr–May	Vernal pools potentially present in areas that were inaccessible during windshield survey.
Hoover's spurge *Chamaesyce hooveri*	T/–/1B.2	Central Valley from Butte County to Tulare County	Below the high-water mark of large northern hardpan and volcanic vernal pools; 25–250 meters	Jul–Sep (uncom-monly Oct)	Vernal pools potentially present in areas that were inaccessible during windshield survey.
Hispid bird's-beak *Cordylanthus mollis* ssp. *hispidus*	–/–/1B.1	Central Valley: Alameda, Fresno, Kern, Merced, Placer, and Solano Counties	Meadow and seeps, valley and foothill grassland, playas, on alkaline soils; 1–155 meters	Jun–Sep	Grassland present, suitable microhabitat (i.e., alkaline soils) may not be present.
Delta button-celery *Eryngium racemosum*	–/E/1B.1	San Joaquin River delta, floodplains, and adjacent Sierra Nevada Foothills: Calaveras, Contra Costa, Merced, San Joaquin*, and Stanislaus Counties	Riparian scrub in seasonally inundated depressions on clay soils; 3–30 meters	Jun–Oct	Riparian habitat present along the Merced River.
Coulter's goldfields *Lasthenia glabrata* ssp. *coulteri*	–/–/1B.1	Scattered locations in southern California from San Luis Obispo County to San Diego County, in the outer South Coast Ranges, south coast, northern Channel Islands, Peninsular Ranges, western Mojave desert	Coastal salt marshes and swamps, valley and foothill grassland, vernal pools, alkali sinks, playas, in alkaline soils; 1–1,220 meters	Feb–Jun	Grassland present, suitable microhabitat (i.e., alkaline soils) may not be present. Vernal pools potentially present in areas that were inaccessible during windshield survey.
Merced monardella *Monardella leucocephala*	–/–/1A	Presumed extirpated, last seen in 1941, historically known from northern San Joaquin Valley in Merced and Stanislaus Counties	Moist, sub-alkaline soils associated with low elevation grassland, in sandy depressions and riverbeds; 35–100 meters	May–Aug	Grassland present, suitable microhabitat (i.e., moist, sub-alkaline soils) may not be present.
Little mousetail *Myosurus minimus* ssp. *apus*	–/–/3.1	Central Valley and South Coast from Butte County south to San Diego County; Baja California, Oregon	Valley and foothill grassland, alkaline vernal pools; 20–640 meters	Mar–Jun	Grassland present. Vernal pools potentially present in areas that were inaccessible during windshield survey.

Common and Scientific Name	Legal Status[a] Federal/State/CNPS	Geographic Distribution/Floristic Province	Habitat Requirements	Blooming Period	Potential Habitat in Study Area?
Prostrate navarretia *Navarretia prostrata*	–/–/1B.1	Western San Joaquin Valley, interior South Coast Ranges, central South Coast, Peninsular Ranges: Alameda, Los Angeles, Merced, Monterey, Orange, Riverside, San Bernardino*?, San Diego, and San Luis Obispo Counties	Vernal pools and mesic areas in coastal scrub and alkali grasslands; 15–700 meters	Apr–Jul	Grassland present, suitable microhabitat (i.e., alkaline soils) may not be present. Vernal pools potentially present in areas that were inaccessible during windshield survey.
Colusa grass *Neostapfia colusana*	T/E/1B.1	Central Valley: Colusa*, Glenn, Merced, Solano, Stanislaus, and Yolo Counties	Adobe soils of vernal pools; 5–200 meters	May–Aug	Vernal pools potentially present in areas that were inaccessible during windshield survey.
San Joaquin Valley Orcutt grass *Orcuttia inaequalis*	T/E/1B.1	Scattered locations along east edge of the San Joaquin Valley and adjacent foothills, from Stanislaus County to Tulare County	Vernal pools; 10–755 meters	Apr–Sep	Vernal pools potentially present in areas that were inaccessible during windshield survey.
Hairy Orcutt grass *Orcuttia pilulosa*	E/E/1B.1	Scattered locations along east edge of the Central Valley and adjacent foothills from Tehama County to Merced County	Vernal pools; 46–200 meters	May–Sep	Vernal pools potentially present in areas that were inaccessible during windshield survey.
Hartweg's golden sunburst *Pseudobahia bahiifolia*	E/E/1B.1	Eastern side of Sacramento-San Joaquin Valleys and adjacent foothills, historically as far north as Yuba County; currently Fresno, Madera, Merced, Stanislaus, and Tuolumne Counties	Predominantly on northern slopes of rocky, bare areas along rolling hills, shady creeks, adjacent to vernal pools and streams, on heavy clay soils in valley and foothill grasslands and cismontane woodland; 15–150 meters	Mar–Apr	Grassland present, suitable microhabitat (i.e., heavy clay soils) may not be present. Potential habitat adjacent to Merced River.
Sanford's arrowhead *Sagittaria sanfordii*	–/–/1B.2	Scattered locations in Central Valley and Coast Ranges	Freshwater marshes, sloughs, canals, and other slow-moving shallow water habitats; below 650 meters	May–Oct	Potential habitat present in irrigation canals.
Greene's tuctoria *Tuctoria greenei*	E/R/1B.1	Scattered distribution along eastern Central Valley and foothills from Shasta County to Tulare County	Dry vernal pools; elevation 30–1,070 meters	May–Sep	Vernal pools potentially present in areas that were inaccessible during windshield survey.

Common and Scientific Name	Legal Status[a] Federal/State/CNPS	Geographic Distribution/Floristic Province	Habitat Requirements	Blooming Period	Potential Habitat in Study Area?

[a] Status explanations:

Federal

E = listed as endangered under the federal Endangered Species Act.

T = listed as threatened under the federal Endangered Species Act.

– = no listing.

State

E = listed as endangered under the California Endangered Species Act.

R = listed as rare under the California Native Plant Protection Act. This category is no longer used for newly listed plants, but some plants previously listed as rare retain this designation.

– = no listing.

California Native Plant Society (CNPS)

1A = presumed extinct in California

1B = List 1B species: rare, threatened, or endangered in California and elsewhere.

2 = List 2 species: rare, threatened, or endangered in California but more common elsewhere.

3 = List 3 species: more information is needed for this plant.

.1 = seriously endangered in California

.2 = fairly endangered in California

* = known populations believed extirpated from that county

? = population location within that county is uncertain

Special-Status Wildlife

Sixteen special-status wildlife species occur or have the potential to occur in the study area (Table 7). These species include Conservancy fairy shrimp (*Branchinecta conservatio*), vernal pool fairy shrimp (*Branchinecta lynchi*), vernal pool tadpole shrimp (*Lepidurus packardi*), valley elderberry longhorn beetle (*Desmocerus californicus dimorphus*), California tiger salamander (*Ambystoma californiense*), western spadefoot (*Spea hammondii*), silvery legless lizard (*Anniella pulchra pulchra*), giant garter snake (*Thamnophis gigas*), western pond turtle (*Actinemys marmorata*), white-tailed kite (*Elanus leucurus*), Swainson's hawk (*Buteo swainsoni*), tricolored blackbird (*Agelaius tricolor*), pallid bat (*Antrozous pallidus*), western red bat (*Lasiurus blossevillii*), American badger (*Taxidea taxus*), and San Joaquin kit fox (*Vulpes macrotus mutica*).

Suitable habitat for the federally listed valley elderberry longhorn beetle (elderberry shrubs with stems that are 1 inch or greater in diameter at ground level), was observed within the study area in the Merced River riparian corridor along River Road approximately 0.25 west of Van Clief Road. Other scattered elderberry shrubs could also occur in portions of the study area that could not be accessed. Complete avoidance of elderberry shrubs and the beetle can be assumed if minimum 100-foot buffers are maintained around the shrubs.

Though not observed during the windshield survey, vernal pools or other seasonal waterbodies capable of supporting federally listed vernal pool branchiopods (Conservancy fairy shrimp, vernal pool fairy shrimp, vernal pool tadpole shrimp), the federally and state listed California tiger salamander, and western spadefoot, a California species or special concern, could occur in portions of the study area that could not be accessed.

Agricultural ditches that provide suitable habitat for the federally and state listed giant garter snake or western pond turtle, a California species or special concern, could be located in portions of the study area that could not be accessed. The Merced River may provide suitable habitat for western pond turtle during portions of the year when the river experiences lower flows.

Potentially suitable habitat for silvery legless lizard occurs within the Merced River riparian corridor.

Mature trees capable of supporting nesting state listed Swainson's hawk, state fully protected white-tailed kite, and other migratory birds are present within the Merced River riparian corridor and other scattered areas within the study area. The study area also contains grasslands, pasturelands, and agricultural fields that provide suitable foraging habitat for these species. Evidence of bridge-nesting migratory birds (inactive swallow nests) was observed on the SR 165 Bridge over the Merced River.

Though not observed during the windshield survey, suitable nesting habitat for tricolored blackbird (*Agelaius tricolor*), a California species or special concern, may be present in portions of the study area that could not be accessed. The study area contains grasslands, pasturelands, and agricultural fields that provide suitable foraging habitat for this species.

Evidence of roosting bats (urine stains and guano) was observed on the SR 165 Bridge over the Merced River. Therefore, it is assumed that special-status bats, such as pallid bat (a California species or special concern) or common bat species may use the bridge for day and/or night bat roosting, breeding or wintering. Tree roosting bats, such as western red bat, a California species or special concern, have potential to be using riparian trees in the study area for roosting. Abandoned barns or other outbuilding structures within the construction area that require demolition may also support bat roosts.

Scattered grassland and ruderal areas within the study area contain suitable denning and foraging habitat for American badger, a California species or special concern, and the federally and state listed San Joaquin kit fox. Additionally the study area, particularly the area along Merced River, may be used for movement between populations or dispersal from known occupied sites to other suitable habitat areas.

Impacts from the proposed project on wildlife and their habitats may include:

- Potential injury or mortality.
- Disturbances from construction noise or activity.
- Disruption of foraging or movement activities.
- Loss of aquatic, upland, breeding and/ or foraging habitat.

Formal consultation with the USFWS for listed vernal pool branchiopods, valley elderberry longhorn beetle, California tiger salamander, giant garter snake and San Joaquin kit fox may be required. An incidental take permit form CDFG may be required for California tiger salamander, Swainson's hawk, or San Joaquin kit fox.

Alternative D

Based on the habitats observed during the windshield survey and aerial photo interpretation of the study area for the Alternative D Alignment, the following species have potential to be affected by this alternative; valley elderberry longhorn beetle, western pond turtle, silvery legless lizard, white-tailed kite, Swainson's hawk, pallid bat, western red bat, American badger, and San Joaquin kit fox.

Though habitat for Conservancy fairy shrimp, vernal pool fairy shrimp, vernal pool tadpole shrimp, California tiger salamander, western spadefoot, giant garter snake, and tricolored blackbird was not observed during the windshield survey or during examination of aerial photographs, portions of the study area that were not accessible may provide suitable habitat for these species.

Alternative I

Based on the habitats observed during the windshield survey and aerial photo interpretation of the study area for the Alternative I Alignment, the following species have potential to be affected by this alternative; white-tailed kite, Swainson's hawk, American badger, and San Joaquin kit fox.

Though habitat for valley elderberry longhorn beetle, pallid bat, western red bat, Conservancy fairy shrimp, vernal pool fairy shrimp, vernal pool tadpole shrimp, California tiger salamander, western spadefoot, giant garter snake, western pond turtle, and tricolored blackbird was not observed during the windshield survey or during examination of aerial photographs, portions of the study area that were not accessible may provide suitable habitat for these species.

Special-Status Fish

Four special-status fish species occur or have the potential to occur in the study area (Table 7). Fish species with the potential to occur in the study area include green sturgeon *(Acipenser medirostris)*, Central Valley steelhead *(Oncorhynchus mykiss)*, Central Valley fall-run Chinook salmon (*Oncorhynchus tshawytscha)* and spring-run Chinook salmon (*Oncorhynchus tshawytscha)*. (Table 7)

Special-status fish habitat was determined through review of photographs taken in the study area. The sections of the Merced River that will be crossed over by the new bridges have pool and run habitat. Pool and run habitat provides migratory and possibly rearing habitat for both juvenile and adult steelhead and Chinook salmon.

Impacts from the proposed project on fish and their habitats may include:

- Potential injury or mortality.
- Disturbances from construction noise or activity.
- Disruption of foraging or movement activities.
- Loss of aquatic, upland, breeding and/ or foraging habitat.

Table 7. Special-Status Wildlife and Fish Species with Potential to Occur in the Study Area

Common and Scientific Name	Legal Status[a] Federal/State/Other	Geographic Distribution	Habitat Requirements	Potential to Occur in Study Area
Invertebrates				
Longhorn fairy shrimp *Branchinecta longiantenna*	E/--	Eastern margin of central Coast Ranges from Contra Costa County to San Luis Obispo County; disjunct population in Madera County	Small, clear pools in sandstone rock outcrops of clear to moderately turbid clay- or grass-bottomed pools	Low. Only one known occurrence in Merced County (Eriksen and Belk 1999).
Conservancy fairy shrimp *Branchinecta conservatio*	E/--	Disjunct occurrences in Solano, Merced, Tehama, Ventura, Butte, and Glenn Counties	Large, deep vernal pools in annual grasslands	Low to Moderate. No suitable habitat observed during windshield survey. Vernal pools may be present in areas that were inaccessible during windshield survey. Species known to occur within 10 miles of the study area (CNDDB 2010).
Vernal pool fairy shrimp *Branchinecta lynchi*	T/--	Central Valley, central and south Coast Ranges from Tehama County to Santa Barbara County. Isolated populations also in Riverside County	Common in vernal pools; also found in sandstone rock outcrop pools	Low to Moderate. No suitable habitat observed during windshield survey. Vernal pools may be present in areas that were inaccessible during windshield survey. Species known to occur within 10 miles of the study area (CNDDB 2010).
Vernal pool tadpole shrimp *Lepidurus packardi*	E/--	Shasta County south to Merced County	Vernal pools and ephemeral stock ponds	Low to Moderate. No suitable habitat observed during windshield survey. Vernal pools may be present in areas that were inaccessible during windshield survey. Species known to occur within 10 miles of the study area (CNDDB 2010).
Valley elderberry longhorn beetle *Desmocerus californicus dimorphus*	T/--	Stream side habitats below 3,000 feet throughout the Central Valley	Riparian and oak savanna habitats with elderberry shrubs; elderberries are the host plant	High. Elderberry shrubs observed within study area and species occurrences present approximately 5 miles from the study area (CNDDB 2010).
Amphibians				
California tiger salamander *Ambystoma californiense*	T/T	Central Valley, including Sierra Nevada foothills, up to approximately 1,000 feet, and coastal region from Butte County south to northeastern San Luis Obispo County.	Small ponds, lakes, or vernal pools in grasslands and oak woodlands for larvae; rodent burrows, rock crevices, or fallen logs for cover for adults and for summer dormancy.	Low to Moderate. No suitable habitat observed during windshield survey. Vernal pools or seasonal ponds may be present in areas that were inaccessible during windshield survey. Species known to occur within 10 miles of the study area (CNDDB 2010).

Common and Scientific Name	Legal Status[a] Federal/State/Other	Geographic Distribution	Habitat Requirements	Potential to Occur in Study Area
California red-legged frog *Rana draytonii*	T/SSC	Found along the coast and coastal mountain ranges of California from Marin County to San Diego County and in the Sierra Nevada from Tehama County to Fresno County.	Permanent and semipermanent aquatic habitats, such as creeks and cold-water ponds, with emergent and submergent vegetation. May estivate in rodent burrows or cracks during dry periods.	None. Project area is outside of species known range; considered extirpated from floor of the Central Valley (USFWS 2002)...
Western spadefoot *Spea hammondii*	--/SSC	Sierra Nevada foothills, Central Valley, Coast Ranges, coastal counties in southern California	Shallow streams with riffles and seasonal wetlands, such as vernal pools in annual grasslands and oak woodlands.	Low to Moderate. No suitable habitat observed during windshield survey. Vernal pools may be present in areas that were inaccessible during windshield survey. Species known to occur within 10 miles of the study area (CNDDB 2010).
Reptiles				
Silvery legless lizard *Anniella pulchra pulchra*	--/SSC	Along the Coast, Transverse, and Peninsular Ranges from Contra Costa County to San Diego County with spotty occurrences in the San Joaquin Valley	Habitats with loose soil for burrowing or thick duff or leaf litter; often forages in leaf litter at plant bases; may be found on beaches, sandy washes, and in woodland, chaparral, and riparian areas.	Moderate to High. Merced River riparian cooridor has potential to support this species. Species known to occur approximately 5 miles from the study area (CNDDB 2010).
Blunt-nosed leopard lizard *Gambelia silus*	E/E	San Joaquin Valley from Stanislaus County through Kern County and along the eastern edges of San Luis Obispo and San Benito Counties	Open habitats with scattered low bushes on alkali flats, and low foothills, canyon floors, plains, washes, and arroyos; substrates may range from sandy or gravelly soils to hardpan.	Low. Limited suitable habitat was observed in the study area but these areas are small and isolated due to the abundance of surrounding agricultural lands. Species not known to occur within 10 miles of the study area (CNDDB 2010).
Coast (California) horned lizard Phrynosoma coronatum (frontale population)	--/SSC	Sacramento Valley, including foothills, south to southern California; Coast Ranges south of Sonoma County; below 4,000 feet in northern California	Grasslands, brushlands, woodlands, and open coniferous forest with sandy or loose soil; requires abundant ant colonies for foraging.	Low. Some grasslands are present in study area but are surrounded by unsuitable habitat (agricultural lands). Species not known to occur within 10 miles of the study area (CNDDB 2010).
Giant garter snake *Thamnophis gigas*	T/T	Central Valley from the vicinity of Burrel in Fresno County north to near Chico in Butte County; has been extirpated from areas south of Fresno	Sloughs, canals, low gradient streams and freshwater marsh habitats where there is a prey base of small fish and amphibians; also found in irrigation ditches and rice fields; requires grassy banks and emergent vegetation for basking and areas of high ground protected from flooding during winter.	Low to Moderate. All canals observed in the study area are cement lined and would not support this species. Suitable agricultural ditches may be present in areas that were inaccessible during the windshield survey. Species known to occur within 10 miles of the study area (CNDDB 2010).

Common and Scientific Name	Legal Status[a] Federal/State/Other	Geographic Distribution	Habitat Requirements	Potential to Occur in Study Area
Western pond turtle *Actinemys marmorata*	--/SSC	Occurs throughout California west of the Sierra-Cascade crest. Found from sea level to 6,000 feet. Does not occur in desert regions except for along the Mojave River and its tributaries.	Occupies ponds, marshes, rivers, streams, and irrigation canals with muddy or rocky bottoms and with watercress, cattails, water lilies, or other aquatic vegetation in woodlands, grasslands, and open forests.	Moderate. May occur within the Merced River during portions of the year when flows are lower.. Suitable ponds may be present in areas that were inaccessible during windshield survey.
Birds				
Suisun song sparrow *Melospiza melodia maxillaris*	--/SSC	Restricted to the extreme western edge of the Delta, between the cities of Vallejo and Pittsburg near Suisun Bay.	Brackish and tidal marshes supporting cattails, tules, various sedges, and pickleweed.	None. Study area outside of the known range for this species.
Tricolored blackbird *Agelaius tricolor*	--/SSC	Permanent resident in the Central Valley from Butte County to Kern County. Breeds at scattered coastal locations from Marin County south to San Diego County; and at scattered locations in Lake, Sonoma, and Solano Counties. Rare nester in Siskiyou, Modoc, and Lassen Counties	Nests in dense colonies in emergent marsh vegetation, such as tules and cattails, or upland sites with blackberries, nettles, thistles, and grainfields. Habitat must be large enough to support 50 pairs. Probably requires water at or near the nesting colony	Low to Moderate. Suitable nesting habitat was not observed during the windshield survey but may be present in unsurveyed areas. Species known to occur within 10 miles of the study area (CNDDB 2010).
Swainson's hawk *Buteo swainsoni*	--/T	Lower Sacramento and San Joaquin Valleys, the Klamath Basin, and Butte Valley. Highest nesting densities occur near Davis and Woodland, Yolo County	Nests in oaks or cottonwoods in or near riparian habitats. Forages in grasslands, irrigated pastures, and grain fields	High. Trees within the study area, particularly those along the Merced River, are suitable for nesting. Agricultural lands, pasturelands, and grasslands provide suitable foraging areas. Species known to nest within 1 mile of the study area (CNDDB 2010).
White-tailed kite *Elanus leucurus*	--/FP	Lowland areas west of Sierra Nevada from the head of the Sacramento Valley south, including coastal valleys and foothills to western San Diego County at the Mexico border	Low foothills or valley areas with valley or live oaks, riparian areas, and marshes near open grasslands for foraging	Low to Moderate. Trees within study area, particularly those along the Merced River, are suitable for nesting. Agricultural lands, pasturelands, and grasslands provide suitable foraging areas. Species not reported to nest within 10 miles of the study area but nest site records may be absent due to lack of surveys in the study area.
Mammals				

Common and Scientific Name	Legal Status[a] Federal/State/Other	Geographic Distribution	Habitat Requirements	Potential to Occur in Study Area
Pallid bat *Antrozous pallidus*	--/SSC/ WBWG: High Priority	Occurs throughout California except the high Sierra from Shasta to Kern County and the northwest coast, primarily at lower and mid elevations.	Occurs in a variety of habitats from desert to coniferous forest. Most closely associated with oak, mixed conifer, redwood, and giant sequoia habitats in northern California and oak woodland, grassland, and desert scrub in southern California. Relies heavily on trees for roosts but also uses caves, mines, bridges, and buildings.	Moderate to High. The SR 165 Bridge over the Merced River was observed to contain bat sign (urine stains and guano) though no bats appeared to be present at the time of the survey. Species is known to occur within 10 miles of the study area (CNDDB 2010).
Western red bat *Lasiurus blossevillii*	--/SSC/ WBWG: High Priority	Scattered throughout much of California at lower elevations.	Found primarily in riparian and wooded habitats. Occurs at least seasonally in urban areas. Day roosts in trees within the foliage. Found in fruit orchards and sycamore riparian habitats in the Central Valley.	Moderate to High. Trees within the Merced River riparian corridor provide suitable roosting habitat. Species is known to occur within 10 miles of the study area (CNDDB 2010).
Fresno kangaroo rat *Dipodomys nitratoides exilis*	E/E	Historically found from Merced County south to Central Fresno County.	Found at elevations from 200 to 300 feet in alkali sink habitats.	None. Study area is outside of the species known range.
American badger *Taxidea taxus*	--/SSC	Throughout California, except for the humid coastal forests of northwestern California in Del Norte and the northwestern Humboldt Counties.	Occur in a wide variety of open, arid habitats but are most commonly associated with grasslands, savannas, and mountain meadows near timberline; they require sufficient food (burrowing rodents), friable soils, and relatively open, uncultivated ground.	Moderate. Study area is dominated by rural residential and agricultural lands but does contain grassland, pasturelands, and ruderal areas that may support denning and foraging. Species known to occur approximately 5 miles from the study area (CNDDB 2010).
San Joaquin kit fox *Vulpes macrotis mutica*	E/T	Principally occurs in the San Joaquin Valley and adjacent open foothills to the west; recent records from 17 counties extending from Kern County north to Contra Costa County.	Saltbush scrub, grassland, oak, savanna, and freshwater scrub.	Moderate. Study area contains grassland, pasturelands, and ruderal areas that provide suitable denning and foraging habitat, and opportunities for movement. Species known to occur within 10 miles of the study area (CNDDB 2010).
Fish				

Common and Scientific Name	Legal Status[a] Federal/State/Other	Geographic Distribution	Habitat Requirements	Potential to Occur in Study Area
Delta smelt *Hypomesus transpacificus*	T/T	Primarily in the Sacramento–San Joaquin Estuary, but has been found as far upstream as the mouth of the American River on the Sacramento River and Mossdale on the San Joaquin River; range extends downstream to San Pablo Bay	Occurs in estuary habitat in the Delta where fresh and brackish water mix in the salinity range of 2–7 parts per thousand. (Moyle 2002.)	None. Study area is outside of the species known range.
Green sturgeon (southern DPS) *Acipenser medirostris*	T/SSC	Sacramento, Klamath and Trinity Rivers (Moyle 2002)	Spawn in large river systems with well-oxygenated water, with temperatures from 8.0 to 14°C (Moyle 2002).	Low. Study area is currently outside known range. Increased flows in the San Joaquin River due to restoration efforts could provide green sturgeon habitat in the future.
Central Valley steelhead *Oncorhynchus mykiss*	T/--	Sacramento and San Joaquin rivers and tributary Central Valley rivers	Occurs in well-oxygenated, cool, riverine habitat with water temperatures from 7.8 to 18°C (Moyle 2002). Habitat types are riffles, runs, and pools.	High. Steelhead documented in study area.
Central Valley fall-run Chinook salmon *Oncorhynchus tshawytscha*	SC/--	Sacramento and San Joaquin rivers and tributary Central Valley rivers	Occurs in well-oxygenated, cool, riverine habitat with water temperatures from 8.0 to 12.5°C. Habitat types are riffles, runs, and pools. (Moyle 2002).	High. Chinook salmon have been documented in the study area.
Central Valley spring-run Chinook salmon *Oncorhynchus tshawytscha*	T/T	Upper Sacramento River and Feather River	Occurs in well-oxygenated, cool, riverine habitat with water temperatures from 8.0 to 12.5°C. Habitat types are riffles, runs, and pools. Coldwater pools are needed for holding adults. (Moyle 2002).	High. Future plans for the San Joaquin River restoration includes introducing spring-run Chinook salmon into the San Joaquin River.
Sacramento River winter-run Chinook salmon *Oncorhynchus tshawytscha*	E/E	Mainstem Sacramento River below Keswick Dam (Moyle 2002)	Occurs in well-oxygenated, cool, riverine habitat with water temperatures from 8.0 to 12.5°C. Habitat types are riffles, runs, and pools. (Moyle 2002.)	None. Study area is outside of the species known range.

Common and Scientific Name	Legal Status[a] Federal/State/Other	Geographic Distribution	Habitat Requirements	Potential to Occur in Study Area

[a] **Status explanations:**

Federal
E = listed as endangered under the federal Endangered Species Act.
T = listed as threatened under the federal Endangered Species Act.
C = species for which USFWS has on file sufficient information on biological vulnerability and threat(s) to support issuance of a proposed rule to list, but issuance of the proposed rule is precluded.
SC = species of concern
– = no listing.

State
E = listed as endangered under the California Endangered Species Act.
T = listed as threatened under the California Endangered Species Act.
FP = fully protected under the California Fish and Game Code.
SSC = species of special concern in California.
– = no listing.

Western Bat Working Group (WBWG) Available: http://www.wbwg.org/spp_matrix.html)
High priority = Species are imperiled or at high risk of imperilment
Moderate priority = Designation indicates a level of concern that warrants closer evaluation, more research, and conservation actions of species and possible threats.
Low priority = While there may be localized concerns, the overall status of the species is believed to be secure

A Biological Assessment submitted to NMFS for Central Valley steelhead and its critical habitat, Central Valley spring-run Chinook salmon, and possibly green sturgeon may be required.

Alternatives D & I

Migratory and rearing habitat is present at both of the alternative sites. Construction effects on special-status fish species include noise disturbance and possible injury or mortality from construction activities (pile driving and construction along banks), increase in sedimentation and turbidity, stranding in cofferdams or other dewatered areas (if isolating pile driving areas), and change in fish habitat.

If construction of the new bridges occurs within the river channel and along the banks, there would be a permanent change to existing habitat. Permanent bridge piers in the channel and removal of riparian vegetation would result in a reduced area of fish habitat. An increase in shade could attract predatory fish under the new bridges which could prey on juvenile salmonids. A decrease in water quality due to the increase in runoff from new roads and bridges could occur.

All of these effects could be minimized with implementation of various avoidance and minimization measures. Compensation for the removal of riparian vegetation may also be required.

Wetlands and Other Waters

The water features observed during the windshield survey were the Merced River and the irrigation canals. These features are considered "other waters" (i.e., non-wetlands). The Merced River is subject to regulation under the federal Clean Water Act (CWA) and the state Porter-Cologne Water Quality Control Act. The irrigation canals are potentially subject to regulation under the CWA, particularly if they have a hydrological connection to the Merced River; however, only the U.S. Army Corps of Engineers (USACE) Sacramento District has the authority to determine if the irrigation canals fall within its jurisdiction. The irrigation canals may also be regulated as waters of the state by the Central Valley Regional Water Quality Control Board (RWQCB).

No wetlands were observed in the study area during the windshield survey; however, wetland areas and other waters have the potential to be present in segments of the study area that were not accessible during the windshield survey, particularly those that contain natural communities (e.g., grasslands).

Alternative D

A delineation of wetlands and other waters is required to identify the extent and location of features within the Alternative D alignment that may be affected by implementation of the project alternatives. If wetlands are determined to be present in the study area, Executive Order 11990 requires an avoidance alternative analysis for wetland impacts unless there is no practicable alternative available. Any additional other waters identified in the study area are also potentially subject to regulation by the USACE and the RWQCB.

Alternative I

A delineation of wetlands and other waters is required to identify the extent and location of features within the Alternative I alignment that may be affected by implementation of the project alternatives. If wetlands or additional other waters are identified during the delineation, the same regulations would apply.

Riparian Vegetation

As discussed above, the Merced River crosses the study area for the Alternative D alignment at the junction of SR 165 and River Road and along River Road approximately 0.25 west of Van Clief Road. Riparian vegetation within the Merced River riparian corridor would be subject to regulation by the California Department of Fish and Game under Section 1602 et al. of the California Fish and Game Code.

Invasive Plants

Plant species observed during the windshield survey include plant species designated as invasive by the California Department of Food and Agriculture and the California Invasive Plant Council. Executive Order 13112 requires that any federal action may not cause or promote the spread or introduction of invasive species. Construction of the project alternatives may contribute to the introduction or spread of invasive plant species if appropriate avoidance and minimization measures are not implemented during the construction period.

<u>Alternatives D & I</u>

The abundance of invasive plants along the proposed Alternative D and Alternative I alignments is approximately the same. Therefore, measures to avoid and minimize the introduction of new invasive plant species into the proposed project area and the spread of invasive plant species to uninfested areas would need to be implemented during construction of either project alternative.

8.16 Cumulative Impacts:

<u>Alternative D</u>

The proposed project has the potential to cumulatively contribute to related past, present, and reasonably foreseeable probable future projects effects on the environment. The Supplemental Environmental Impact Report (SEIR) for the MCAG's 2011 RTP, which supplements MCAG's certified 2004 RTP EIR, and StanCOG's 2011 RTP EIR, both identified effects relating to implementation of the RTP that would have cumulatively considerable effects on the environment. Based on a review of MCAG's 2011 RTP EIR and 2004 RTP EIR, and StanCOG's 2011 RTP EIR, and taking into account the nature and extent of project impacts, the proposed project has the potential to contribute cumulatively considerable effects in the region. Specifically, these effects may include:

- conversion of open space to more intensive uses;
- conversion of farmland to non-agricultural use;
- conflicts with existing Williamson Act contracts;
- conflicts with agricultural land use policies;
- impairment of farmland productivity;
- potential for growth inducement or acceleration of development;
- displacement of historic resources;
- damage to or disturbance of paleontological resources;
- substantial visual contrasts with area character; and
- adverse effects on biological resources, including effects on sensitive habitats and threatened and endangered species.

An assessment of cumulative impacts should be prepared during the ED phase and developed concurrently with direct and indirect impact analyses associated with the proposed project.

Alternative I

Alternative I would have similar cumulative impacts to those described for Alternative D.

8.17 Context Sensitive Solutions:

Alternatives D & I

In order to inform stakeholders about the project and gain their input, early public outreach with the community was conducted for the proposed project PSR. Additional coordination with resource agencies is necessary to provide for the needs of all highway users in balance with community, aesthetic, historic, and environmental values and the context of the project. To maximize project benefits, agency coordination should be conducted during the PA&ED phase, as more information will be known at that time about the nature and extent of environmental impacts and the design of the proposed project alternatives.

9. Summary Statement for PSR or PSR-PDS

Alternative D

The potential effects would be assessed to properties that qualify for protection under Section 4(f) during the PA&ED phase. If there is a "use" of the Section 4(f) properties then the environmental document would assess the feasibility for avoiding these properties. If a "use" of these properties cannot be avoided then minimization measures within the environmental document would be required to ensure work under Alternative D would not adversely affect the activities, features, or attributes that make the properties noted in section 8.1 above eligible for Section 4(f) protection. Concurrence from the official of jurisdictions on these findings would also be required.

The project would permanently convert farmland in the immediate project area to non-agricultural use. Coordination with the Natural Resources Conservation Service, preparation of the Farmland Conversion Impact Rating, and notification of the Department of Conservation will be required. Additionally, inconsistencies between the project and the local adopted plans or policies must be identified and discussed within the body of the environmental document, and if appropriate, documented in a Community Impact Assessment (CIA) or background study.

Implementation of Alternative D would result in full or partial take of up to fifteen (15) residential and agricultural/industrial structures. A Draft Relocation Impact Study/Statement (DRIS) would be prepared to document the displacement of the affected properties.

Populations residing in the project study area are characterized by a substantial proportion of minority and low-income groups. The CIA and environmental document should evaluate whether disproportionate impacts to one of more of these groups could result from direct or indirect adverse project effects related to air quality, noise, water pollution, aesthetic values, employment, displacements/relocations, farmlands, accessibility, traffic congestion, safety, and construction impacts.

The proposed project would cross Turlock Irrigation District Lateral No. 8, which may be potentially eligible for inclusion in a NRHP historic district, as well as the Merced River, considered potential sensitive for archaeological resources. (Dice, M. H., and K. J. Lord 2010). All potential historic properties are subject to consideration under Section 106 and the California

Environmental Quality Act of 1970 will be recognized and given appropriate consideration. An archaeological survey report, historic resources evaluation report, and historic properties survey report will likely be needed to document compliance under Section 106, and an Extended Phase I survey will likely be needed for areas adjacent to the Merced River crossing.

Because the construction of Alternative D would result in new impervious surfaces that would increase the amount of surface water runoff during storm events, a water quality study and SWPPP should be developed. No floodplain impacts are expected.

Various existing utilities, including but not limited to, water mains, underground fiber optic cable, and overhead power lines, are located within the proposed project area. Coordination with utility providers to ensure disruptions of utility services are minimized or avoided would be required, and specific measures to avoid impacts on utility infrastructure should be developed and incorporated into the final construction plans.

During construction, the project could potentially affect through access for emergency vehicles and members of the public. Implementation of a traffic management plan (TMP) would be required to ensure effects on emergency response providers and the public are minimized to the extent possible during the construction period.

The proposed project would introduce new highway infrastructure into rural areas of both counties, which are presently characterized by agricultural land uses and large tracts of open space. These modifications would result in changes in the existing visual character of the project area and would potentially contribute significant new sources of light and glare to the area. A Visual Impact Assessment (VIA) would therefore be required and should include potential project effects and any appropriate mitigation.

The proposed project area could be subject to strong groundshaking, liquefaction, subsidence, and other seismic-related ground disturbances in the project areas, and ground disturbance caused by project construction activities would expose soil to erosional processes and could result in the loss of topsoil during construction. Project activities occurring on or near the banks of the Merced River also have the potential to compromise slope stability. Specific project-related impacts and any appropriate mitigation relating to geology, soil stability, and erosion would be evaluated in the project's environmental document.

Earthwork required for this project would involve the Modesto Formation, with the potential to damage and/or disturb vertebrate and other fossil resources. Based on the site geology, the likely paleontological sensitivity of the units, and the potential project excavation within these units, a paleontological evaluation report will likely be required.

Hazardous materials and/or wastes are potentially present within and adjacent to the project area. An ISA, PSI, and DSI may be required, and information from these reports is summarized in the environmental document so that alternatives can be adequately evaluated. The ED must also consider the potential for encountering contamination and hazards during construction activities and must identify appropriate strategies to minimize health risks for construction workers and the public.

A noise study technical report will be prepared to identify traffic noise impacts, noise abatement considered, noise abatement feasibility, and noise abatement reasonableness allowances. Construction and operational noise impacts must also be evaluated under the requirements of CEQA.

An air quality study report consistent with Caltrans requirements must be prepared to assess the air quality and climate change-related impacts associated with the proposed alternative. A noise study must also be developed to document impacts related to noise.

A quantitative analysis of operational carbon dioxide (CO2) emissions would be required to estimate long-term climate change impacts or benefits from the proposed project. Depending on if the project results in a net increase in CO2 emissions relative to the no-project condition, project-specific mitigation would be recommended.

Reconnaissance-level, habitat-based assessment for special status plant species are required and would need to occur during the appropriate blooming season. Breeding season surveys for sensitive and nonsensitive migratory bird nests are required. Conducting such surveys, which must occur prior to project construction, could delay the project construction schedule coincidental with the avian breeding season (February 15 - August 31). There could also be the potential requirement to avoid impacts on habitat for bridge-nesting swallows, if present, which could include the need to limit construction to the avian nonbreeding season (February 15 - August 31) or implement nest removal/nesting habitat modification measures prior to the breeding season to discourage birds from using the bridge for nesting. There could also be the potential requirement to conduct surveys for tree-roosting bats and to avoid destruction of active bat roosts. Conducting such surveys could delay the project construction schedule coincidental with the bat breeding season (April – June). Avoidance measures recommended as a result of the surveys may include the requirement of construction buffer zones, which could range from 50 to 1,000 feet depending on the species observed during surveys. Depending on the results of these surveys, construction mitigation and/or avoidance measures may be recommended. If required, formal consultation with the USFWS on the federally listed vernal pool branchiopods, valley elderberry longhorn beetle, California tiger salamander, giant garter snake and San Joaquin kit fox, and with the National Marine Fisheries Service (NMFS) for Central Valley steelhead and its critical habitat, Central Valley spring-run Chinook salmon, and possibly green sturgeon, may also be required.

In addition to the identified technical reports and surveys, there exists the potential need to obtain a CWA Section 404 permit (for features that are considered to be waters of the U.S.), CWA Section 401 water quality certification (if a Section 404 permit is required), and National Pollutant Discharge Elimination System Construction General Permit, and a Caltrans Encroachment Permit.

Alternative I

The impacts, permits, surveys, and technical studies for Alternative I would be the same as those impacts associated with Alternative D, discussed above.

10. Disclaimer

This Preliminary Environmental Analysis Report (PEAR)_provides information to support programming of the proposed project. It is not an environmental determination or document. Preliminary analysis, determinations, and estimates of mitigation costs are based on the project description provided in the Project Study Report (PSR). The estimates and conclusions in the PEAR are approximate and are based on cursory analyses of probable effects. A reevaluation of the PEAR will be needed for changes in project scope or alternatives, or in environmental laws, regulations, or guidelines.

11. List of Preparers

Cultural Resources specialist Christiaan Havelaar, Katie Haley	Date: 1/6/2010
Biologist Erin Hitchcock, Jessica Hughes	Date: 1/6/2010
Community Impacts specialist Andrew Martin	Date: 1/6/2010
Noise and Vibration specialist Lindsay Christensen	Date: 1/6/2010
Air Quality specialist Brenda Chang, Laura Yoon	Date: 1/6/2010
Paleontology specialist/liaison Heather White	Date: 1/6/2010
Water Quality specialist Nate Martin	Date: 1/6/2010
Hydrology and Floodplain specialist Nate Martin	Date: 1/6/2010
Hazardous Waste/Materials specialist Andrew Martin	Date: 1/6/2010
Visual/Aesthetics specialist Andrew Martin	Date: 1/6/2010
Energy and Climate Change specialist Brenda Chang, Laura Yoon	Date: 1/6/2010
Other: N/A	Date: N/A
PEAR Preparer (Name and Title) Andrew Martin, Project Manager	Date: 1/6/2010

12. Review and Approval

I confirm that environmental cost, scope, and schedule have been satisfactorily completed and that the PEAR meets all Caltrans requirements. Also, if the project is scoped as a routine EA, complex EA, or EIS, I verify that the HQ DEA Coordinator has concurred in the Class of Action.

______________________________ Date: ____________

Environmental Branch Chief

______________________________ Date: ____________

Project Manager

13. References

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REQUIRED ATTACHMENTS:

Attachment A: PEAR Environmental Studies Checklist
Attachment B: Estimated Resources by WBS Code (Not Provided)
Attachment C: Schedule (Gantt Chart)
Attachment D: Environmental Commitments Cost Estimate (Standard PSR)
Attachment E: PEAR Project Area Exhibits

Attachment A: PEAR Environmental Studies Checklist

Rev. 11/08

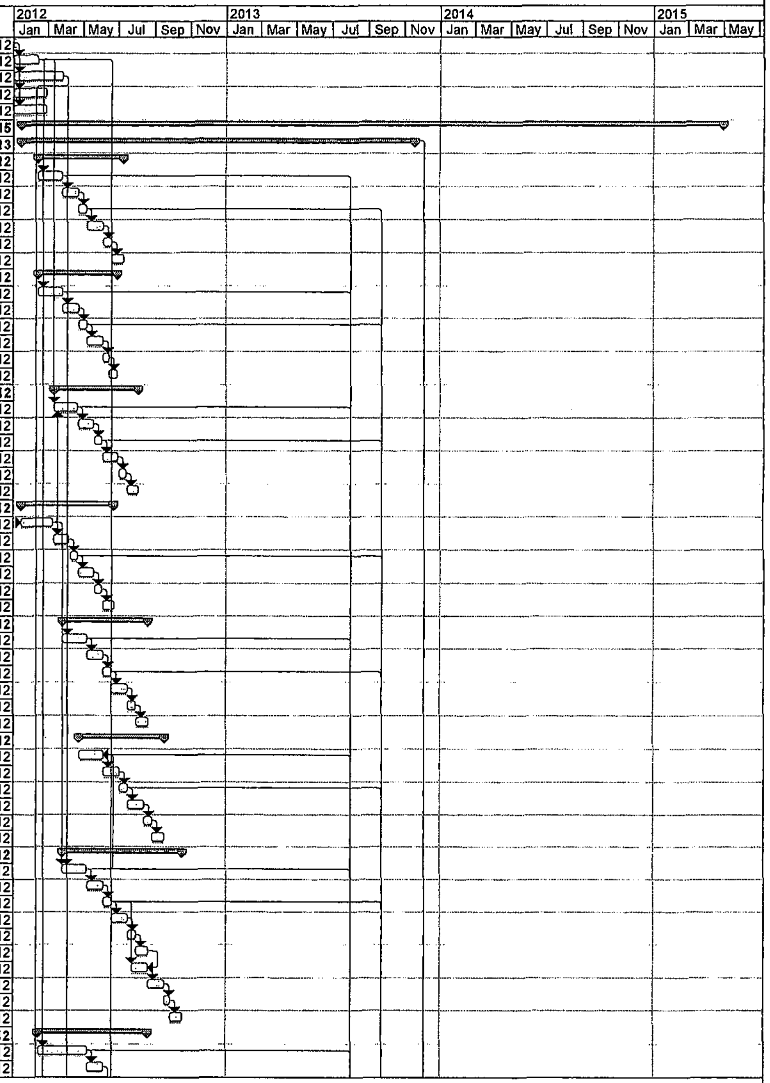
Environmental Studies for PA&ED Checklist

	Not anticipated	Memo to file	Report required	Risk* L M H	Comments
Land Use	☐	☐	☒	H	
Growth	☐	☐	☒	L	
Farmlands/Timberlands	☐	☐	☒	H	
Community Impacts	☐	☐	☒	H	
Community Character and Cohesion	☐	☐	☒	L	
Relocations	☐	☐	☒	M	
Environmental Justice	☐	☐	☒	H	
Utilities/Emergency Services	☐	☒	☐	M	
Visual/Aesthetics	☐	☐	☒	M	
Cultural Resources:	☐	☐	☒	M	
Archaeological Survey Report	☐	☐	☒	M	
Historic Resources Evaluation Report	☐	☐	☒	M	
Historic Property Survey Report	☐	☐	☒	M	
Historic Resource Compliance Report	☐	☐	☒	M	
Section 106 / PRC 5024 & 5024.5	☐	☐	☒	M	
Native American Coordination	☐	☒	☐	M	
Finding of Effect	☐	☒	☐	M	
Data Recovery Plan	☐	☒	☐	M	
Memorandum of Agreement	☒	☐	☐	L	
Other:	☐	☐	☐	L	
Hydrology and Floodplain	☐	☐	☒	M	
Water Quality and Stormwater Runoff	☐	☐	☒	M	
Geology, Soils, Seismic and Topography	☐	☒	☐	M	
Paleontology	☐	☒	☐	M	
PER	☐	☒	☐	M	
PMP	☐	☒	☐	M	
Hazardous Waste/Materials:	☐	☐	☒	M	
ISA (Additional)	☐	☐	☒	M	
PSI	☐	☐	☒	M	
Other:	☐	☐	☐	L	
Air Quality	☐	☐	☒	M	
Noise and Vibration	☐	☐	☒	M	
Energy and Climate Change	☐	☒	☐	L	
Biological Environment	☐	☐	☒	H	
Natural Environment Study	☐	☐	☒	H	
Section 7:	☐	☐	☒	H	
Formal	☐	☐	☒	H	
Informal	☒	☐	☐	L	
No effect	☒	☐	☐	L	
Section 10	☐	☐	☒	M	
USFWS Consultation	☐	☐	☒	H	
NMFS Consultation	☐	☐	☒	H	
Species of Concern (CNPS, USFS, BLM, S, F)	☐	☐	☒	M	

Environmental Studies for PA&ED Checklist					
	Not anticipated	Memo to file	Report required	Risk* L M H	Comments
Wetlands & Other Waters/Delineation	☐	☐	☒	M	
404(b)(1) Alternatives Analysis	☒	☐	☐	L	
Invasive Species	☐	☐	☒	M	
Wild & Scenic River Consistency	☒	☐	☐	L	
Coastal Management Plan	☒	☐	☐	L	
HMMP	☐	☒	☐	L	
DFG Consistency Determination	☒	☐	☐	L	
2081	☐	☒	☐	L	
Other:	☒	☐	☐	L	
Cumulative Impacts	☐	☐	☒	H	
Context Sensitive Solutions	☐	☒	☐	L	
Section 4(f) Evaluation	☐	☐	☒	L	
Permits:					
401 Certification Coordination	☐	☐	☒	M	
404 Permit Coordination, IP, NWP, or LOP	☐	☐	☒	M	
1602 Agreement Coordination	☒	☐	☐	L	
Local Coastal Development Permit Coordination	☒	☐	☐	L	
State Coastal Development Permit Coordination	☒	☐	☐	L	
NPDES Coordination	☐	☐	☒	L	
US Coast Guard (Section 10)	☒	☐	☐	L	
TRPA	☒	☐	☐	L	
BCDC	☒	☐	☐	L	

Attachment C - Environmental Schedule

ID	Task Name	Duration	Start	Finish
1	Notice To Proceed	1 day	Mon 1/2/12	Mon 1/2/12
2	Engineering: Preliminary Design & Limits of Distrubance	30 days	Tue 1/3/12	Mon 2/13/12
3	Right of Way: Obtain Access Agreements	60 days	Tue 1/3/12	Mon 3/26/12
4	Confirm Project is on RTP List of "Financially Constrained"	40 days	Tue 1/3/12	Mon 2/27/12
5	Confirm Funding is Arranged	40 days	Tue 1/3/12	Mon 2/27/12
6	**Environmental**	**859 days**	**Mon 1/16/12**	**Thu 4/30/15**
7	**Conduct Environmental Evaluations**	**481 days**	**Mon 1/16/12**	**Mon 11/18/13**
8	**Location Hydraulic Study/Floodplain Evaluation Report**	**105 days**	**Tue 2/14/12**	**Mon 7/9/12**
9	Prepare Location Hydraulic Study/Floodplain Evaluation Report	30 days	Tue 2/14/12	Mon 3/26/12
10	City/Caltrans Review Location Hydraulic Study/Floodplain Evaluation Report	20 days	Tue 3/27/12	Mon 4/23/12
11	Revise Location Hydraulic Study/Floodplain Evaluation Report and Resubmit	10 days	Tue 4/24/12	Mon 5/7/12
12	City/Caltrans review revised Location Hydraulic Study/Floodplain Evaluation Report	20 days	Tue 5/8/12	Mon 6/4/12
13	Revise Location Hydraulic Study/Floodplain Evaluation Report and Resubmit	10 days	Tue 6/5/12	Mon 6/18/12
14	Caltrans concur with Location Hydraulic Study/Floodplain Evaluation Report (assumes no additional comments)	15 days	Tue 6/19/12	Mon 7/9/12
15	**Water Quality Study**	**98 days**	**Tue 2/14/12**	**Thu 6/28/12**
16	Prepare Water Quality Study	30 days	Tue 2/14/12	Mon 3/26/12
17	City/Caltrans Review Water Quality Study	20 days	Tue 3/27/12	Mon 4/23/12
18	Revise Water Quality Study and Resubmit	10 days	Tue 4/24/12	Mon 5/7/12
19	City/Caltrans review revised Water Quality Study Report	20 days	Tue 5/8/12	Mon 6/4/12
20	Revise Water Quality Study and Resubmit	8 days	Tue 6/5/12	Thu 6/14/12
21	Caltrans concur with Water Quality Study (assumes no additional comments)	10 days	Fri 6/15/12	Thu 6/28/12
22	**Air Quality Report**	**105 days**	**Mon 3/12/12**	**Fri 8/3/12**
23	Prepare Air Quality Report	30 days	Mon 3/12/12	Fri 4/20/12
24	City/Caltrans Review Air Quality Report	20 days	Mon 4/23/12	Fri 5/18/12
25	Revise Air Quality Study and Resubmit (including incorporation of TCWG POAQC determination)	10 days	Mon 5/21/12	Fri 6/1/12
26	City/Caltrans review revised Air Quality Report	20 days	Mon 6/4/12	Fri 6/29/12
27	Revise Air Quality Study and Resubmit (including incorporation of TCWG POAQC determination)	10 days	Mon 7/2/12	Fri 7/13/12
28	Caltrans concur with Air Quality Report (assumes no additional comments)	15 days	Mon 7/16/12	Fri 8/3/12
29	**Traffic/Circulation Impact Report**	**115 days**	**Mon 1/16/12**	**Fri 6/22/12**
30	Prepare Traffic/Circulation Impact Report	40 days	Mon 1/16/12	Fri 3/9/12
31	City/Caltrans Review Traffic/Circulation Impact Report	20 days	Mon 3/12/12	Fri 4/6/12
32	Revise Traffic/Circulation Impact Report and Resubmit	10 days	Mon 4/9/12	Fri 4/20/12
33	City/Caltrans review revised Traffic/Circulation Impact Report	20 days	Mon 4/23/12	Fri 5/18/12
34	Revise Traffic/Circulation Impact Report and Resubmit	10 days	Mon 5/21/12	Fri 6/1/12
35	Caltrans concur with Traffic/Circulation Impact Report (assumes no additional comments)	15 days	Mon 6/4/12	Fri 6/22/12
36	**Initial Site Assessment**	**105 days**	**Tue 3/27/12**	**Mon 8/20/12**
37	Prepare Initial Site Assessment	30 days	Tue 3/27/12	Mon 5/7/12
38	City/Caltrans Review Initial Site Assessment	20 days	Tue 5/8/12	Mon 6/4/12
39	Revise Initial Site Assessment and Resubmit	10 days	Tue 6/5/12	Mon 6/18/12
40	City/Caltrans review revised Initial Site Assessment	20 days	Tue 6/19/12	Mon 7/16/12
41	Revise Initial Site Assessment and Resubmit	10 days	Tue 7/17/12	Mon 7/30/12
42	Caltrans concur with Initial Site Assessment (assumes no additional comments)	15 days	Tue 7/31/12	Mon 8/20/12
43	**Visual Impact Assessment**	**105 days**	**Tue 4/24/12**	**Mon 9/17/12**
44	Prepare Visual Impact Assessment	30 days	Tue 4/24/12	Mon 6/4/12
45	City/Caltrans Review Visual Impact Assessment	20 days	Tue 6/5/12	Mon 7/2/12
46	Revise Visual Impact Assessment and Resubmit	10 days	Tue 7/3/12	Mon 7/16/12
47	City/Caltrans review revised Visual Impact Assessment	20 days	Tue 7/17/12	Mon 8/13/12
48	Revise Visual Impact Assessment and Resubmit	10 days	Tue 8/14/12	Mon 8/27/12
49	Caltrans concur with Visual Impact Assessment (assumes no additional comments)	15 days	Tue 8/28/12	Mon 9/17/12
50	**Noise Study/Noise Abatement Decision Report**	**148 days**	**Tue 3/27/12**	**Thu 10/18/12**
51	Prepare Noise Study	30 days	Tue 3/27/12	Mon 5/7/12
52	City/Caltrans Review Noise Study	20 days	Tue 5/8/12	Mon 6/4/12
53	Revise Noise Study and Resubmit	10 days	Tue 6/5/12	Mon 6/18/12
54	City/Caltrans review revised Noise Study	20 days	Tue 6/19/12	Mon 7/16/12
55	Revise Noise Study and Resubmit	10 days	Tue 7/17/12	Mon 7/30/12
56	Caltrans concur with Noise Study (assumes no additional comments)	15 days	Tue 7/31/12	Mon 8/20/12
57	Prepare Noise Abatement Decision Report	20 days	Tue 7/24/12	Mon 8/20/12
58	City/Caltrans review Noise Abatement Decision Report	20 days	Tue 8/21/12	Mon 9/17/12
59	Revise Noise Abatement Decision Report	8 days	Tue 9/18/12	Thu 9/27/12
60	Caltrans concur with Noise Abetment Decision Report (assumes no additional comments)	15 days	Fri 9/28/12	Thu 10/18/12
61	**Historic Property Survey Report**	**135 days**	**Tue 2/14/12**	**Mon 8/20/12**
62	Prepare HPSR (including APE, ASR, and HRER)	60 days	Tue 2/14/12	Mon 5/7/12
63	City/Caltrans Review Historic Property Survey Report	20 days	Tue 5/8/12	Mon 6/4/12

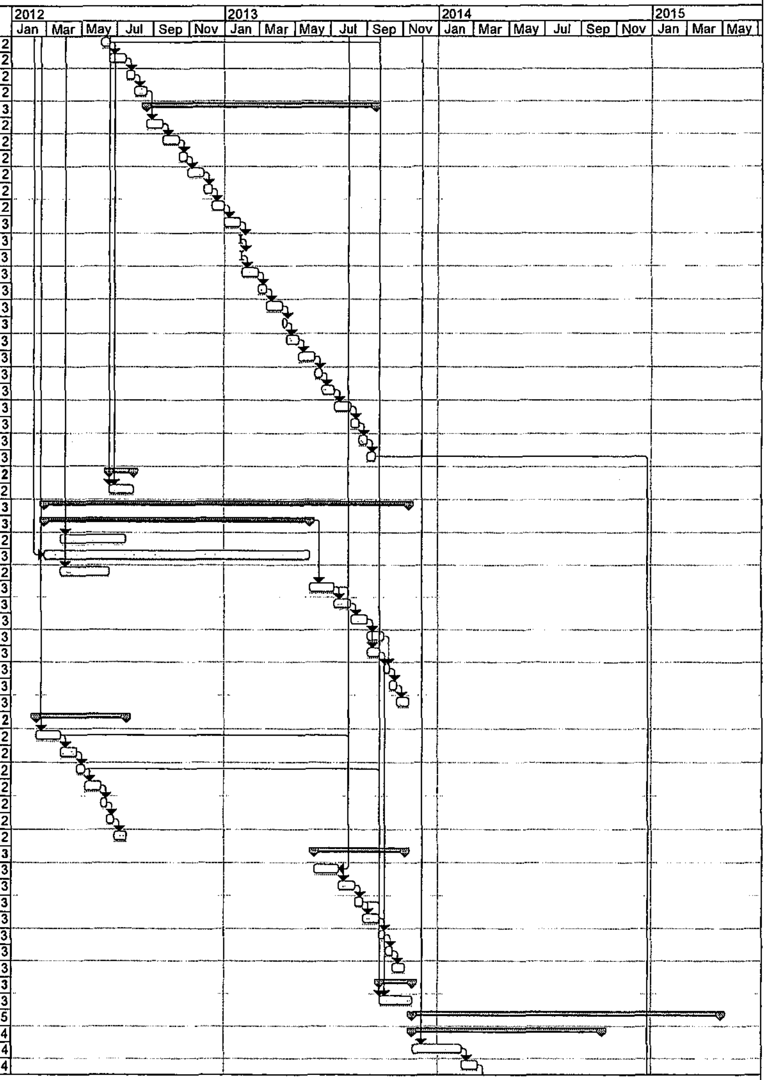


Date: Fri 10/21/11

Task | Milestone | Rolled Up Task | Rolled Up Progress | External Tasks | Group By Summary
Progress | Summary | Rolled Up Milestone | Split | Project Summary | Deadline

Attachment C - Environmental Schedule

ID	Task Name	Duration	Start	Finish
64	Revise Historic Property Survey Report and Resubmit	10 days	Tue 6/5/12	Mon 6/18/12
65	City/Caltrans review revised Historic Property Survey Report	20 days	Tue 6/19/12	Mon 7/16/12
66	Revise Historic Property Survey Report and Resubmit	10 days	Tue 7/17/12	Mon 7/30/12
67	Caltrans concur with Historic Property Survey Report (assumes no additional comments)	15 days	Tue 7/31/12	Mon 8/20/12
68	**Finding of Effect**	**280 days**	**Tue 8/21/12**	**Mon 9/16/13**
69	Prepared Draft Finding of Effect	20 days	Tue 8/21/12	Mon 9/17/12
70	City/Caltrans review Finding of Effect	20 days	Tue 9/18/12	Mon 10/15/12
71	Revise Finding of Effect	10 days	Tue 10/16/12	Mon 10/29/12
72	City/Caltrans review Finding of Effect	20 days	Tue 10/30/12	Mon 11/26/12
73	Revise Finding of Effect	10 days	Tue 11/27/12	Mon 12/10/12
74	Caltrans reviews/concurs and consult with SHPO	15 days	Tue 12/11/12	Mon 12/31/12
75	SHPO concur with HPSR	20 days	Tue 1/1/13	Mon 1/28/13
76	SHPO review and concur with Final FOE	1 day	Tue 1/29/13	Tue 1/29/13
77	Draft Memorandum of Agreement (MOA) to Caltrans	1 day	Wed 1/30/13	Wed 1/30/13
78	Caltrans review Draft MOA	20 days	Thu 1/31/13	Wed 2/27/13
79	Revised MOA to Caltrans	10 days	Thu 2/28/13	Wed 3/13/13
80	Caltrans review MOA	20 days	Thu 3/14/13	Wed 4/10/13
81	Revised MOA to Caltrans	5 days	Thu 4/11/13	Wed 4/17/13
82	Caltrans concur with Final Draft MOA and forwards to SHPO	15 days	Thu 4/18/13	Wed 5/8/13
83	SHPO review and comment on draft MOA	20 days	Thu 5/9/13	Wed 6/5/13
84	Revise Draft MOA	8 days	Thu 6/6/13	Mon 6/17/13
85	Caltrans review and forward to SHPO	15 days	Tue 6/18/13	Mon 7/8/13
86	SHPO concur with MOA	20 days	Tue 7/9/13	Mon 8/5/13
87	Caltrans forward MOA to ACHP	10 days	Tue 8/6/13	Mon 8/19/13
88	ACHP review and concur with Draft MOA and Forward to SHPO	10 days	Tue 8/20/13	Mon 9/2/13
89	Caltrans SHPO ACHP City sign final MOA	10 days	Tue 9/3/13	Mon 9/16/13
90	**Section 4(f) Evaluation**	**30 days**	**Tue 6/19/12**	**Mon 7/30/12**
91	Assumed to be prepared and included as part of the Draft ED	30 days	Tue 6/19/12	Mon 7/30/12
92	**Natural Environment Study (Minimal Impacts)**	**446 days**	**Tue 2/28/12**	**Tue 11/12/13**
93	**Perform field surveys**	**325 days**	**Tue 2/28/12**	**Mon 5/27/13**
94	General Biological Surveys	80 days	Tue 3/27/12	Mon 7/16/12
95	Vernal Pool Branchiopod and California Tiger Salamander Surveys (Protocol Level)	325 days	Tue 2/28/12	Mon 5/27/13
96	Wetland Delineation	60 days	Tue 3/27/12	Mon 6/18/12
97	Prepare Natural Environment Study (including the Jurisdictional Delineation)	30 days	Tue 5/28/13	Mon 7/8/13
98	City/Caltrans Review Natural Environment Study	20 days	Tue 7/9/13	Mon 8/5/13
99	Revise Natural Environment Study and Resubmit	20 days	Tue 8/6/13	Mon 9/2/13
100	City/Caltrans review revised Natural Environment Study	20 days	Tue 9/3/13	Mon 9/30/13
101	Conduct Burrowing Owl surveys and incorporate results into NES	15 days	Tue 9/3/13	Mon 9/23/13
102	Natural Environment Study workshop	8 days	Tue 10/1/13	Thu 10/10/13
103	Submit Final Natural Environment Study	8 days	Fri 10/11/13	Tue 10/22/13
104	Caltrans concur with Natural Environment Study (assumes no additional comments)	15 days	Wed 10/23/13	Tue 11/12/13
105	**Draft Relocation Impact Report**	**111 days**	**Tue 2/14/12**	**Tue 7/17/12**
106	Prepare Draft Relocation Impact Report	30 days	Tue 2/14/12	Mon 3/26/12
107	City/Caltrans Review Draft Relocation Impact Report	20 days	Tue 3/27/12	Mon 4/23/12
108	Revise Draft Relocation Impact Report	10 days	Tue 4/24/12	Mon 5/7/12
109	City/Caltrans review revised Draft Relocation Impact Report	20 days	Tue 5/8/12	Mon 6/4/12
110	Draft Relocation Impact Report workshop	8 days	Tue 6/5/12	Thu 6/14/12
111	Submit Final Draft Relocation Impact Report	8 days	Fri 6/15/12	Tue 6/26/12
112	Caltrans concur with Draft Relocation Impact Report (assumes no additional comments)	15 days	Wed 6/27/12	Tue 7/17/12
113	**Community Impact Assessment**	**111 days**	**Tue 6/4/13**	**Tue 11/5/13**
114	Prepare Community Impact Assessment	30 days	Tue 6/4/13	Mon 7/15/13
115	City/Caltrans Review Community Impact Assessment	20 days	Tue 7/16/13	Mon 8/12/13
116	Revise Community Impact Assessment and Resubmit	10 days	Tue 8/13/13	Mon 8/26/13
117	City/Caltrans review revised Community Impact Assessment	20 days	Tue 8/27/13	Mon 9/23/13
118	Community Impact Assessment workshop	8 days	Tue 9/24/13	Thu 10/3/13
119	Submit Final Community Impact Assessment	8 days	Fri 10/4/13	Tue 10/15/13
120	Caltrans concur with Community Impact Assessment (assumes no additional comments)	15 days	Wed 10/16/13	Tue 11/5/13
121	**Growth Inducement and Cumulative Impact Analysis**	**40 days**	**Tue 9/24/13**	**Mon 11/18/13**
122	Included in environmental document	40 days	Tue 9/24/13	Mon 11/18/13
123	ENVIRONMENTAL DOCUMENT (EIR/EIS)	378 days	Tue 11/19/13	Thu 4/30/15
124	**Draft Environmental Document**	**233 days**	**Tue 11/19/13**	**Thu 10/9/14**
125	Prepare Administrative Draft EIR/EIS	60 days	Tue 11/19/13	Mon 2/10/14
126	City/Caltrans review Administrative Draft EIR/EIS	20 days	Tue 2/11/14	Mon 3/10/14

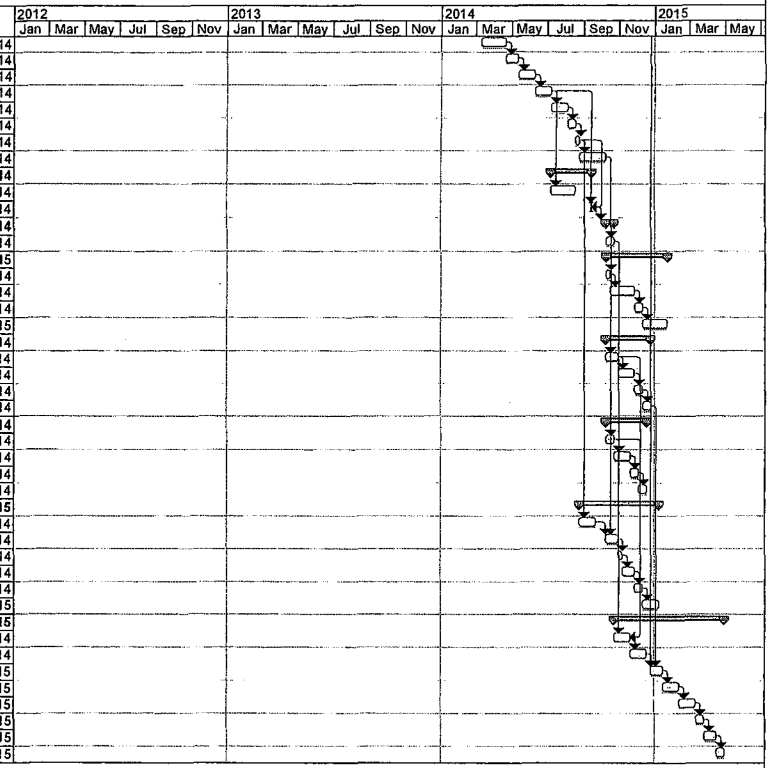


Date: Fri 10/21/11

Task | Milestone | Rolled Up Task | Rolled Up Progress | External Tasks | Group By Summary
Progress | Summary | Rolled Up Milestone | Split | Project Summary | Deadline

Attachment C - Environmental Schedule

ID	Task Name	Duration	Start	Finish
127	Submit revised draft Draft EIR/EIS	30 days	Tue 3/11/14	Mon 4/21/14
128	City/Caltrans concur with revisions	15 days	Tue 4/22/14	Mon 5/12/14
129	Caltrans perform NEPA Quality Control review	20 days	Tue 5/13/14	Mon 6/9/14
130	Prepare final Draft EIR/EIS	20 days	Tue 6/10/14	Mon 7/7/14
131	Caltrans review and concur with revisions	20 days	Tue 7/8/14	Mon 8/4/14
132	District Approval of final Draft EIR/EIS	10 days	Tue 8/5/14	Mon 8/18/14
133	Circulation (Print, Advertise, Submit to State Clearinghouse, Advertise for public hearing)	5 days	Tue 8/19/14	Mon 8/25/14
134	Public availability period	45 edays	Mon 8/25/14	Thu 10/9/14
135	**Public Hearing**	50 days	Tue 7/8/14	**Mon 9/15/14**
136	Prepare materials for public information meeting and obtain City and Caltrans concurrence	30 days	Tue 7/8/14	Mon 8/18/14
137	Conduct public information meeting	1 day	Mon 9/15/14	Mon 9/15/14
138	**Prepare Responses to Comments**	**10 days**	**Fri 10/10/14**	**Thu 10/23/14**
139	Prepare responses to public comments	10 days	Fri 10/10/14	Thu 10/23/14
140	**Conduct Extended Phase I and/or Phase II Archaeilogical Survey**	**75 days**	**Fri 10/10/14**	**Thu 1/22/15**
141	Prepare APE	5 days	Fri 10/10/14	Thu 10/16/14
142	Conduct Site Excavation	30 days	Fri 10/17/14	Thu 11/27/14
143	Prepare Analysis and Report	10 days	Fri 11/28/14	Thu 12/11/14
144	Consultation With SHPO	30 days	Fri 12/12/14	Thu 1/22/15
145	**Final Relocation Impact Study**	**55 days**	**Fri 10/10/14**	**Thu 12/25/14**
146	Prepare Final Relocation Impact Statement	15 days	Fri 10/10/14	Thu 10/30/14
147	City/Caltrans Review Final Relocation Impact Statement	20 days	Fri 10/31/14	Thu 11/27/14
148	Revise Final Relocation Impact Statement and Resubmit	10 days	Fri 11/28/14	Thu 12/11/14
149	Caltrans concur with Final Relocation Impact Report (assumes no additional comments)	10 days	Fri 12/12/14	Thu 12/25/14
150	**Final Noise Abatement Decision Report**	**50 days**	**Fri 10/10/14**	**Thu 12/18/14**
151	Prepare Final Noise Abatement Decision Report	10 days	Fri 10/10/14	Thu 10/23/14
152	City/Caltrans Review Final Noise Abatement Decision Report	20 days	Fri 10/24/14	Thu 11/20/14
153	Revise Final Noise Abatement Decision Report and Resubmit	10 days	Fri 11/21/14	Thu 12/4/14
154	Caltrans concur with Final Noise Abatement Decision Report (assumes no additional comments)	10 days	Fri 12/5/14	Thu 12/18/14
155	**Air Quality Conformity Report and Checklist**	**98 days**	**Tue 8/26/14**	**Thu 1/8/15**
156	Prepare Air Quality Conformity Determination Report and Checklist	20 days	Tue 8/26/14	Mon 9/22/14
157	City/Caltrans Air Quality Conformity Determination Report and Checklist	15 days	Fri 10/10/14	Thu 10/30/14
158	Revise Air Quality Conformity Determination Report and Checklist and Resubmit	5 days	Fri 10/31/14	Thu 11/6/14
159	City/Caltrans review revised Air Quality Conformity Determination Report and Checklist	15 days	Fri 11/7/14	Thu 11/27/14
160	Caltrans concur with Air Quality Conformity Determination Report and Checklist and send to FHWA	10 days	Fri 11/28/14	Thu 12/11/14
161	FHWA issues Conformity Determination	20 days	Fri 12/12/14	Thu 1/8/15
162	**Final Environmental Document**	**135 days**	**Fri 10/24/14**	**Thu 4/30/15**
163	Prepare draft Final EIR/EIS to Caltrans (including External QC Cert and ED Review Checklist)	20 days	Fri 10/24/14	Thu 11/20/14
164	City/Caltrans review draft Final EIR/EIS	20 days	Fri 11/21/14	Thu 12/18/14
165	Submit revised draft Final EIR/EIS to Caltrans	15 days	Fri 12/26/14	Thu 1/15/15
166	City/Caltrans concur with revisions	20 days	Fri 1/16/15	Thu 2/12/15
167	Caltrans perform NEPA Quality Control review (w/ External QC Cert Form and ED Review Checklist)	20 days	Fri 2/13/15	Thu 3/12/15
168	Prepare Final ED (including External QC Cert and ED Review Checklist)	10 days	Fri 3/13/15	Thu 3/26/15
169	Caltrans review and concur with revisions	15 days	Fri 3/27/15	Thu 4/16/15
170	District Approval of Final EIR/EIS	10 days	Fri 4/17/15	Thu 4/30/15



Date: Fri 10/21/11

Task | Milestone | Rolled Up Task | Rolled Up Progress | External Tasks | Group By Summary
Progress | Summary | Rolled Up Milestone | Split | Project Summary | Deadline

Attachment D: PEAR Environmental Commitments Cost Estimate

Standard PSR Only

(Prepare a separate form for each viable alternative described in the Project Study Report)

PART 1. PROJECT INFORMATION

rev. 11/08

District-County-Route-Post Mile: 10-Mer-165, PM 26.87/36.72 10-Sta-165, PM 0.00/1.45 10-Mer-99, PM R35.54/R37.30 10-Sta-99, PM R0.00/R1.00	***EA: 10-0P810K***
Project Description: The **Alternative D** alignment is located within Merced and Stanislaus Counties with a southern terminus near the intersection of 1st Avenue and SR 165, approximately 1.25 miles north of the community of Stevinson, and extending north to Golden State Boulevard near the City of Turlock. Two design options are proposed for the Alternative D alignment from the southern projects limits to just north of the Merced River channel and floodplain. The first option, (Option 1) crosses the Merced River via the existing SR 165 bridge alignment, while the second option (Option 2) crosses the river east of the existing SR 165 alignment.	
From completed by (Name/District/Office): *ICF International*	
Project Manager: Tony Singh	***Phone Number:*** (209) 948-7058
Date: February 25, 2011	

PART 2. PERMITS AND AGREEMENTS

	Permits and Agreements	Estimated Cost (in $1,000's)
X	Fish and Game 1602 Agreement	$3
	Coastal Development Permit	
	State Lands Agreement	
X	Section 401 Water Quality Certification (Porter-Cologne WDR)	$15-$20
X	Section 404 Permit-Nationwide (U.S. Army Corps)	$15-$20
	Section 404 Permit-Individual (U.S. Army Corps)	
	Section 10 Navigable Waters Permit (U.S. Army Corps)	
	Section 9 Permit (U.S. Coast Guard)	
X	Other: DFG Document Filing Fee	$3
Total (enter zeros if no cost)		**$36-$46**

PART 3. ENVIRONMENTAL COMMITMENTS FOR PERMANENT IMPACTS

To complete the following information:

- Report costs in $1,000's.
- Include all costs to complete the commitment
  - Capital outlay and staff support. Refer to Estimated Resources by WBS Code. For example, if you estimated 80 hours for biological monitoring (WBS 235.35 Long Term Mitigation Monitoring), convert those hours to a dollar amount for this entry. For current conversion rates from PY to dollars, see the Project Manager.
  - Cost of right of way or easements.
  - If compensatory mitigation is anticipated (for wetlands, for example), insert a range for purchasing credits in a mitigation bank.
  - Long-term monitoring and reporting
  - Any follow-up maintenance
  - Use current costs; the Project Manager will add and appropriate escalation factor.
  - This is an estimating tool, so a range is not only acceptable, but advisable.

Environmental Commitments Alternative D		
	Estimated Cost (in $1,000's)	**Notes**
Noise abatement or mitigation		Noise abatement is expected to be found to be cost prohibitive and thus not implemented.
Special landscaping		
Archaeological resources	$3	Curation
Biological resources	$1,000 to $1,500	Kit Fox and other mitigation: 100 acres @ $10K to $25K per acre
Historical resources		
Scenic resources		
Wetland/riparian resources	$400 to $550	Vernal Pool Wetlands: 2 acres @ $150K to $200K per acre = $300 to $400K. Plus Seasonal Wetlands: 1 acre @ $100K to $150K per acre = $100K to $150K.
Res./bus. Relocations	$1,200-$1,800	15 residential/agricultural/commercial buildings @ $80 to $120K each.
Other:		
Total (enter zero's if no cost)	**$2,603-$3,853**	

Attachment D: PEAR Environmental Commitments Cost Estimate

Standard PSR Only

(Prepare a separate form for each viable alternative described in the Project Study Report)

PART 1. PROJECT INFORMATION

rev. 11/08

District-County-Route-Post Mile: 10-Mer-165, PM 26.87/36.72 10-Sta-165, PM 0.00/1.45 10-Mer-99, PM R35.54/R37.30 10-Sta-99, PM R0.00/R1.00	***EA: 10-0P810K***
Project Description: The **Alternative I** alignment is located entirely within Merced County with a southern terminus near the intersection of 1st Avenue and SR 165, approximately 1.25 miles north of the community of Stevinson, and extending north to the existing SR 99/ Bradbury Road interchange. Two design options are proposed for the Alternative I alignment from the southern projects limits to just north of the Merced River channel and floodplain. The first option, (Option 1) crosses the Merced River via the existing SR 165 bridge alignment, while the second option (Option 2) crosses the river east of the existing SR 165 alignment.	
From completed by (Name/District/Office): *ICF International*	
Project Manager: Tony Singh	***Phone Number:*** (209) 948-7058
Date: February 25, 2011	

PART 2. PERMITS AND AGREEMENTS

	Permits and Agreements	**Estimated Cost (in $1,000's)**
X	Fish and Game 1602 Agreement	$3
	Coastal Development Permit	
	State Lands Agreement	
X	Section 401 Water Quality Certification (Porter-Cologne WDR)	$15-$20
X	Section 404 Permit-Nationwide (U.S. Army Corps)	$15-$20
	Section 404 Permit-Individual (U.S. Army Corps)	
	Section 10 Navigable Waters Permit (U.S. Army Corps)	
	Section 9 Permit (U.S. Coast Guard)	
X	Other: DFG Document Filing Fee	$3
Total (enter zeros if no cost)		**$36-$46**

PART 3. ENVIRONMENTAL COMMITMENTS FOR PERMANENT IMPACTS

To complete the following information:

- Report costs in $1,000's.
- Include all costs to complete the commitment
  - Capital outlay and staff support. Refer to Estimated Resources by WBS Code. For example, if you estimated 80 hours for biological monitoring (WBS 235.35 Long Term Mitigation Monitoring), convert those hours to a dollar amount for this entry. For current conversion rates from PY to dollars, see the Project Manager.
  - Cost of right of way or easements.
  - If compensatory mitigation is anticipated (for wetlands, for example), insert a range for purchasing credits in a mitigation bank.
  - Long-term monitoring and reporting
  - Any follow-up maintenance
  - Use current costs; the Project Manager will add and appropriate escalation factor.
  - This is an estimating tool, so a range is not only acceptable, but advisable.

Environmental Commitments Alternative I		
	Estimated Cost (in $1,000's)	**Notes**
Noise abatement or mitigation		Noise abatement is expected to be found to be cost prohibitive and thus not implemented.
Special landscaping		
Archaeological resources	$4	Curation
Biological resources	$1,000 to $1,500	Kit Fox and other mitigation: 100 acres @ $10K to $25K per acre
Historical resources		
Scenic resources		
Wetland/riparian resources	$400 to $550	Vernal Pool Wetlands: 2 acres @ $150K to $200K per acre = $300 to $400K. Plus Seasonal Wetlands: 1 acre @ $100K to $150K per acre = $100K to $150K.
Res./bus. Relocations	$720-$1,080	9 residential/agricultural/commercial buildings @ $80 to $120K each.
Other:		
Total (enter zero's if no cost)	**$2,124-$3,134**	

Attachment E: PEAR Project Area Exhibits

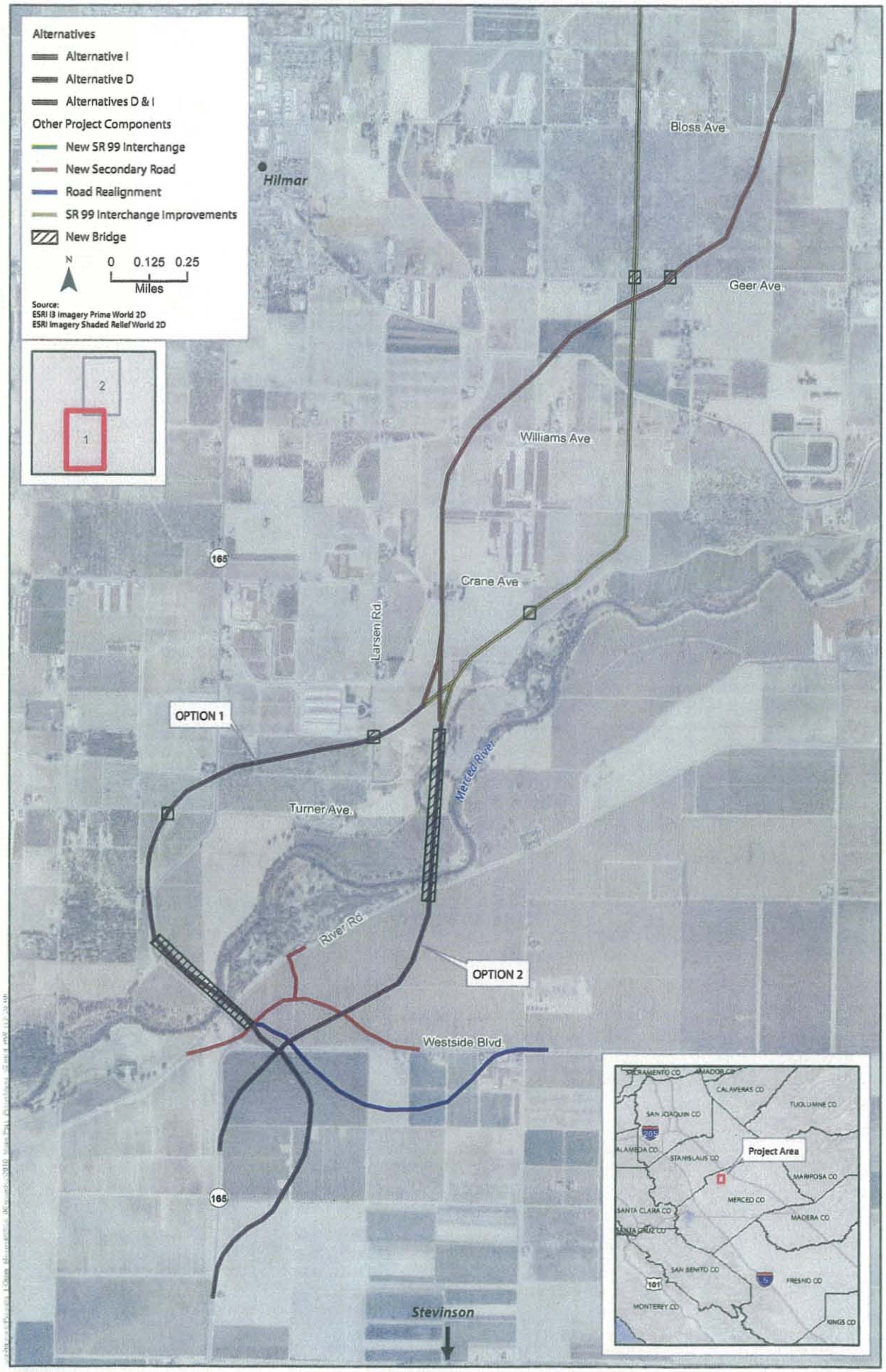
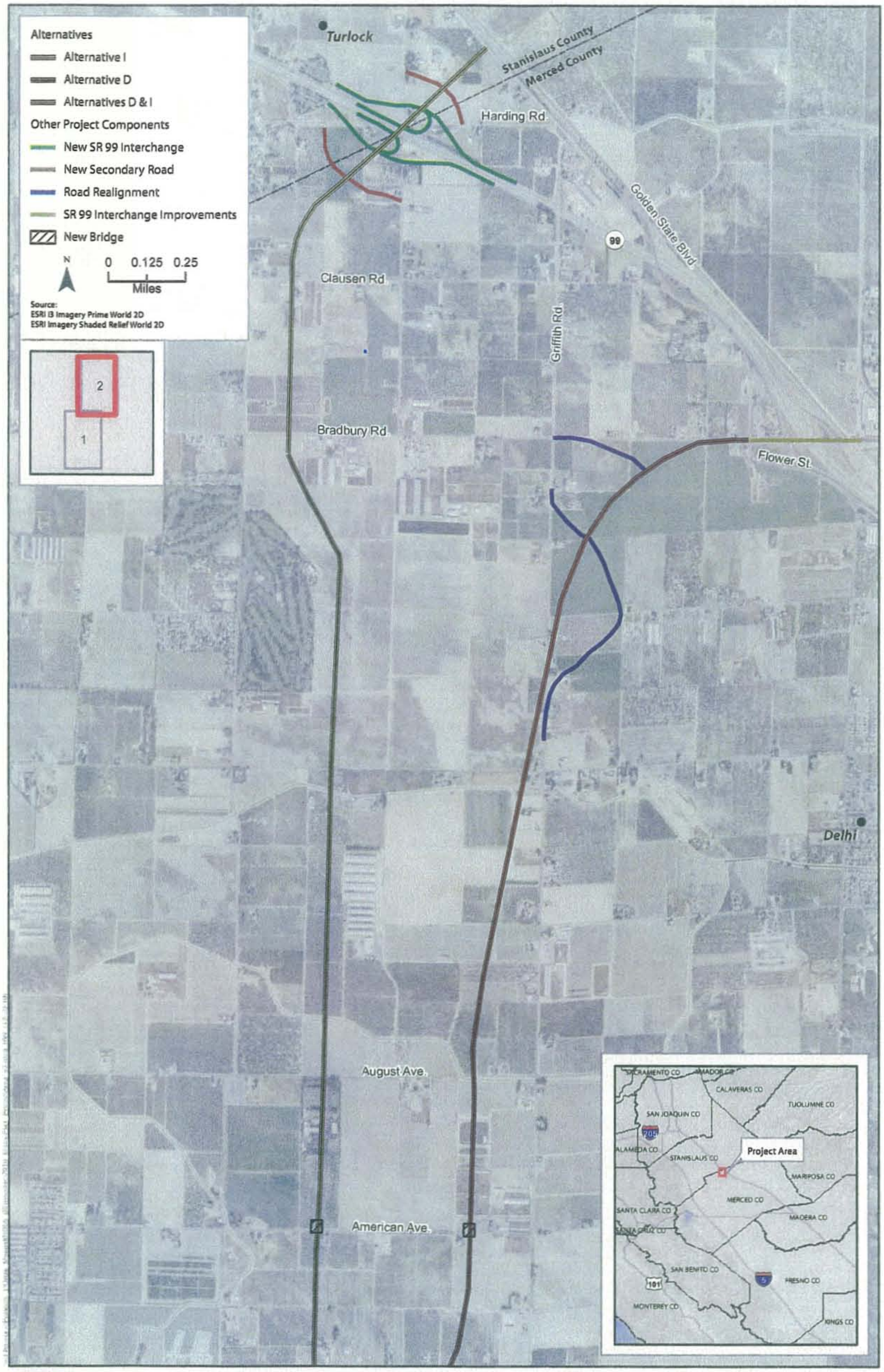


Figure 1
SR-165 PEAR Project Area
Sheet 1



ICF INTERNATIONAL

Figure 1
SR-165 PEAR Project Area
Sheet 2

ATTACHMENT 9

STORM WATER DATA REPORT COVER SHEET AND RISK LEVEL CALCULATIONS

Caltrans®

Dist-County-Route: 10-Mer/Sta-165 & 10-Mer/Sta-99
Post Mile Limits: 26.87-36.72 (Mer-165) & 0.00-1.45 (Sta-165)
R35.54-R37.30 (Mer-99) & R0.00-R1.00 (Sta-99)
Project Type: Roadway Realignment/New IC/Modified IC
Project ID (or EA): 10 0000 0197 (10-0P810K)
Program Identification: ______

Phase:
☒ PID
☐ PA/ED
☐ PS&E

Regional Water Quality Control Board(s): ______

Is the Project required to consider Treatment BMPs? Yes ☒ No ☐
If yes, can Treatment BMPs be incorporated into the project? Yes ☒ No ☐
If No, a Technical Data Report must be submitted to the RWQCB at least 30 days prior to the projects RTL date. List RTL Date: ______

Total Disturbed Soil Area: Alternative D- Varies 246 to 265 acres
Alternative I- Varies 202 to 220 acres Risk Level: 2

Estimated: Construction Start Date: October 2017 Construction Completion Date: September 2019
Notification of Construction (NOC) Date to be submitted: September 2017

Erosivity Waiver	Yes ☐	Date: ______	No ☒
Notification of ADL reuse (if Yes, provide date)	Yes ☐	Date: TBD in PS&E Phase	No ☐
Separate Dewatering Permit (if yes, permit number)	Yes ☐	Permit # TBD	No ☐

This Report has been prepared under the direction of the following Licensed Person. The Licensed Person attests to the technical information contained herein and the date upon which recommendations, conclusions, and decisions are based. Professional Engineer or Landscape Architect stamp required at PS&E.

______
Joseph W. Weiland, Registered Project Engineer Date

I have reviewed the stormwater quality design issues and find this report to be complete, current and accurate:

______
Tony Singh, Project Manager Date

______
Scott Waller, Designated Maintenance Representative Date

______
Brad Cole, Designated Landscape Architect Representative Date

[Stamp Required for PS&E only)

______
Marrissa L. Nishikawa, District/Regional Design SW Coordinator or Designee Date

Cartmill Ave / SR 99
Interchange Project

SEDIMENT RISK FACTOR	Value	Source
R Factor Value	36	SWRCB Google Earth .kml file
K Factor Value	0.43	SWRCB Google Earth .kml file
LS Factor Value	1.28	SWRCB Google Earth .kml file
Watershed Erosion Estimate = R * K * LS (tons/ac)	**19.81**	
Sediment Risk Factor	**MEDIUM**	

RECEIVING WATER RISK FACTOR		
High Risk Waterbody Area No.	180400020202	State Water Resources Control Board
High Risk Waterbody Name	San Joaquin River	Google Earth .kml file
Does Project discharge to 303(d) Waterbody?	Yes	
Receiving Water Risk Factor	**HIGH**	
COMBINED RISK LEVEL	**LEVEL 2**	


Combined Risk Level Matrix
Sediment Risk
Low
Medium
High
Receiving Water Risk
Low
High
Level 1
Level 2
Level 2
Level 3

U.S. ENVIRONMENTAL PROTECTION AGENCY

National Pollutant Discharge Elimination System (NPDES)

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Municipal MS4s
Construction Activities
Industrial Activities
Road Related MS4s
Menu of BMPs
Green Infrastructure
Urban BMP Tool

Stormwater Home

Rainfall Erosivity Factor Calculator for Small Construction Sites

Facility Information

Facility Name: SR 99/165 PSR
Start Date: 07/01/2015
End Date: 07/01/2018
Latitude: 37.4627
Longitutde: -120.8213

North End of Project

Erosivity Index Calculator Results

AN EROSIVITY INDEX VALUE OF 36 HAS BEEN DETERMINED FOR THE CONSTRUCTION PERIOD OF **07/01/2015 - 07/01/2018**.

A rainfall erosivity factor of 5.0 or greater has been calculated for your site and period of construction. **You do not qualify for a waiver from NPDES permitting requirements.**

Start Over

Stormwater Information

Recent Additions
FAQs
Publications
Regulations
Training & Meetings
Links
Contacts

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Last updated on August 07, 2009 3:37 PM
URL:http://cfpub.epa.gov/npdes/stormwater/LEW/erosivity_index_result.cfm

Rainfall Erosivity Factor Calculator for Small Construction Sites

Facility Information

Facility Name: SR 99/165 PSR
Start Date: 07/01/2015
End Date: 07/01/2018
Latitude: 37.3516
Longitutde: -120.8502

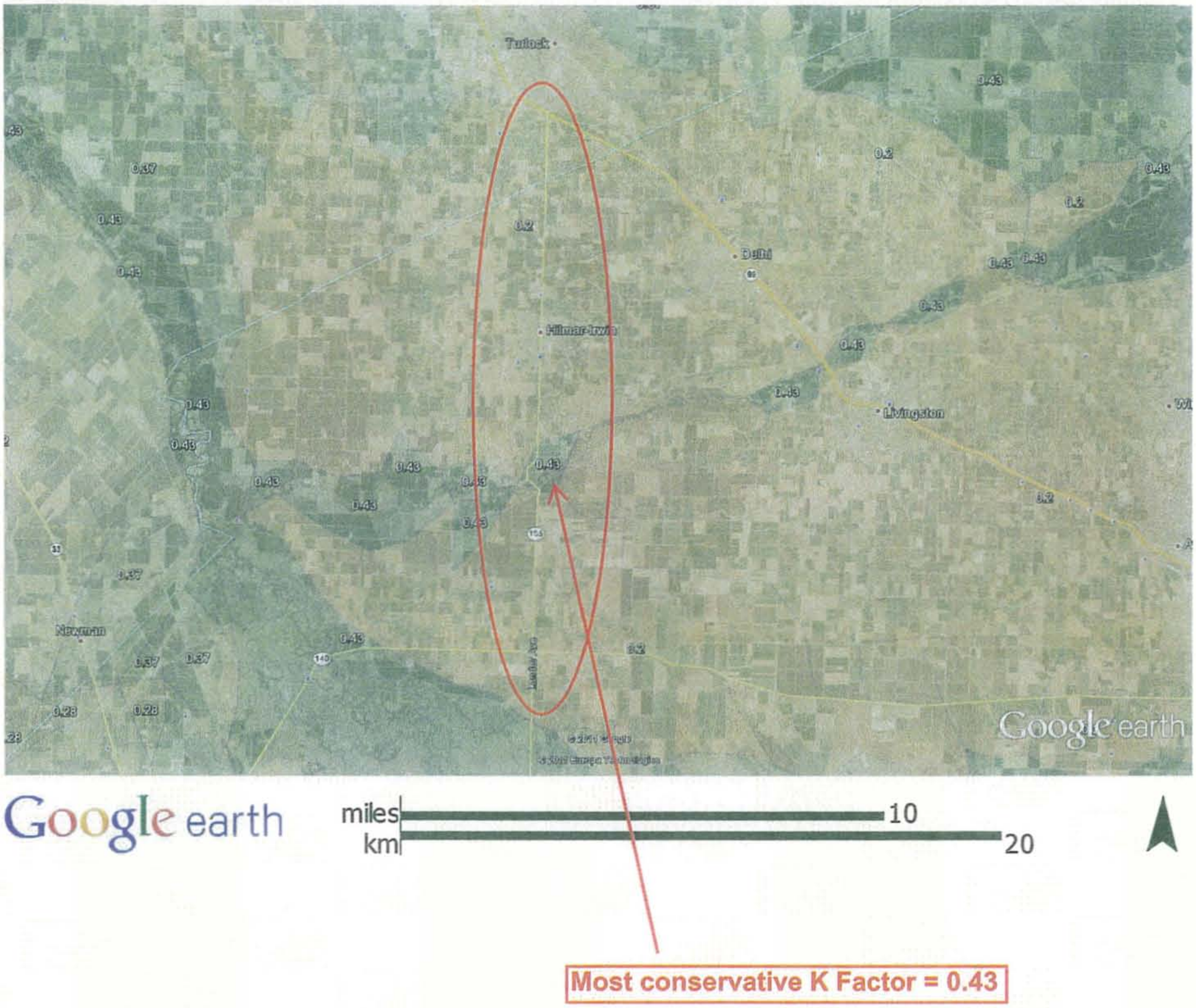
South End of Project

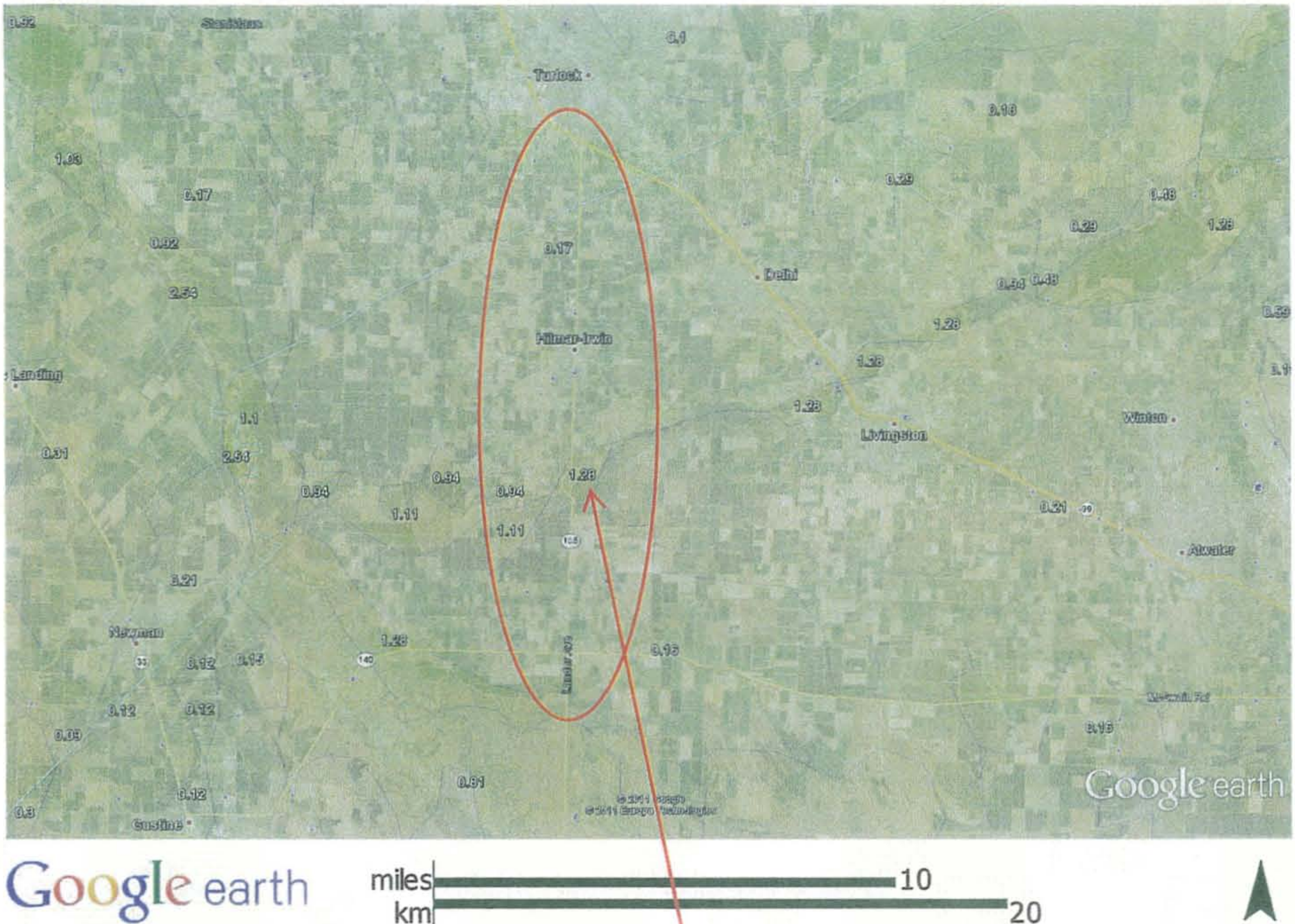
Erosivity Index Calculator Results

AN EROSIVITY INDEX VALUE OF 30 HAS BEEN DETERMINED FOR THE CONSTRUCTION PERIOD OF 07/01/2015 - 07/01/2018.

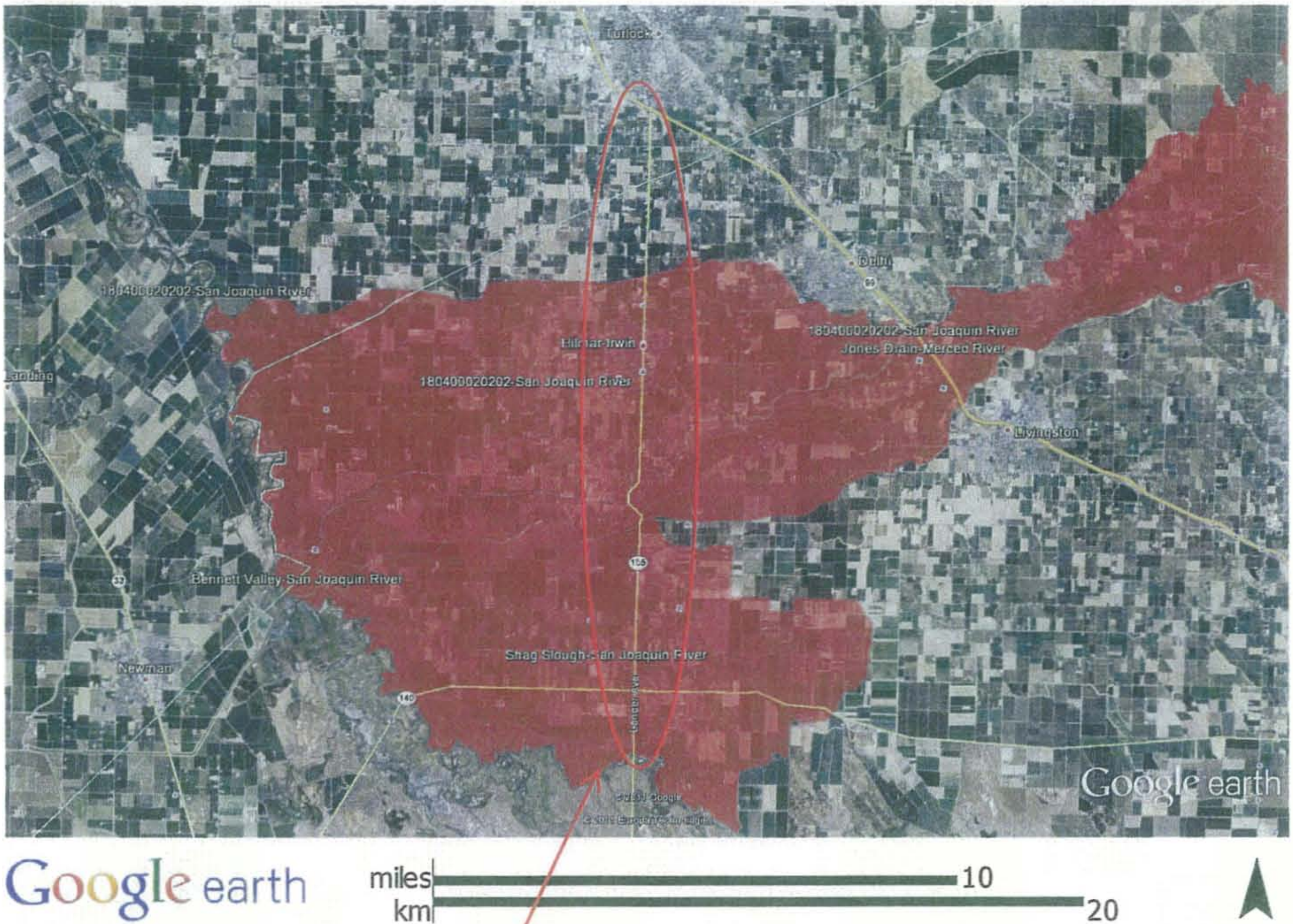
A rainfall erosivity factor of 5.0 or greater has been calculated for your site and period of construction. **You do not qualify for a waiver from NPDES permitting requirements.**

Start Over


Turlock
Delhi
Hilmar-Irwin
Livingston
Newman
0.43
0.37
0.2
0.28
Google earth
miles 10
km 20
Most conservative K Factor = 0.43



Most Conservative LS Factor = 1.28



High Risk Receiving Water Body:
San Joaquin River 180400020202

ATTACHMENT 10

RIGHT OF WAY DATA SHEETS

BENDER ROSENTHAL, INC.
COMMERCIAL VALUATION AND RIGHT OF WAY SERVICES

10-MER-165, PM 26.87/36.72
10-STA-165, PM 0.00/1.45
10-MER-99, PM R35.54/R37.30
10-STA-99, PM R0.00/R1.00
EA: 10- 0P810K
Hilmar Bypass
Alternate D – Option 1

June 13, 2011

DRAFT RIGHT OF WAY DATA SHEET

Right of Way Cost Estimate

1. Right of Way Cost Estimate	Current Value	Escalation Rate	Escalated Value
Acquisition, including Excess Lands, Damages and Goodwill	$ 16,543,000	3%	$
Project Permit Fees	$ 1,000		
Utility Relocation (Project Share)	$ 1,000,000	5%	$
Relocation Assistance	$ 2,148,000	3%	$
Clearance/Demolition	$ 456,000	3%	$
Title and Escrow	$ 138000		$
SB 1210 Costs	$ 465,000		$
Total Estimated Cost	**$ 20,751,000**		**$**
Construction Contract Work	$ 0		

2. Current Date of Right of Way Certification: Undetermined

3. Parcel Data:

Type	Number	Dual/Appr	Utilities	RR involvement		Misc. R/W Work	
X			U4-1	None	x	RAP Displ	13
A			-2	C&M Agmt		Clear/Demo	13
B	20		-3	Svc Contract		Const Permits	10
C	63		-4	Design		Condemnation	10
D	10		U5-7	Const.			
E			-8	Lic/RE/Clauses			
Total	93		-9				

Area: In R/W 11,529,713 SF

No. of Excess Parcels 0

BENDER ROSENTHAL, INC.
COMMERCIAL VALUATION AND RIGHT OF WAY SERVICES

10-MER-165, PM 26.87/36.72
10-STA-165, PM 0.00/1.45
10-MER-99, PM R35.54/R37.30
10-STA-99, PM R0.00/R1.00
EA: 10- 0P810K
Hilmar Bypass
Alternate D – Option 1

4. **Are there any major items of construction contract work?**
   None

5. **Provide a general description of the right of way and excess lands required (zoning, use, major improvements, critical or sensitive parcels, etc.).**
   The project provides for the construction of a route around the local communities of Hilmar-Irwin located on existing Route 165. The project is in an area of generally agricultural uses. The area required for acquisition is generally in permanent plantings. The right of way requirements consist of fee at this time. As design progresses additional rights may be identified. The alignment has some impact on agricultural and residential improvements. Abutters' rights will not be acquired.

6. **Is there an effect on assessed valuation?**
   No.

7. **Are utility facilities or rights of way affected?**
   Yes, but affected companies, conflicts and liability have not been identified. Public Utility relocation will most likely impact power, communications, and irrigation district facilities.

8. **Are Railroad facilities or rights of way affected?**
   No

9. **Were any previously unidentified sites with hazardous waste and /or material found?**
   No sites were observed. Potential sites will be identified in the Initial Site Assessment.

10. **Are RAP displacements required?**
    Yes
    Residential 11
    Farm 4

11. **Are material borrow and/or disposal sites required?**
    Commercial sites will be utilized.

12. **Are there any potential relinquishments and/or abandonments?**
    Existing State Route 165

13. **Are there any existing and/or potential airspace sites?**
    No

14. **Indicate the anticipated Right of Way schedule and lead time requirements.**
    Right of way lead time should be approximately twenty four to thirty months.

15. **Is it anticipated that Caltrans staff will perform all Right of Way Work.**
    The right of way will be performed by local agency using consultants. Caltrans will provide oversight and assistance.

BENDER ROSENTHAL, INC.
COMMERCIAL VALUATION AND RIGHT OF WAY SERVICES

10-MER-165, PM 26.87/36.72
10-STA-165, PM 0.00/1.45
10-MER-99, PM R35.54/R37.30
10-STA-99, PM R0.00/R1.00
EA: 10- 0P810K
Hilmar Bypass
Alternate D – Option 1

Data for evaluation prepared on and by:

Right of Way: Michael Lahodny — Date: March 14, 2011 & June 6,2011

Utilities: Omni Means & M. Lahodny — Date: March 14, 2011

Recommended for Approval:

____

Michael E. Lahodny
Bender Rosenthal, Inc.
California Certified General Appraiser
#044258

Date: ____________________

______________________________ Date: ____________________

Assistant District Division Chief
District 10 Central Region
Department of Transportation

BENDER ROSENTHAL, INC.
COMMERCIAL VALUATION AND RIGHT OF WAY SERVICES

10-MER-165, PM 26.87/36.72
10-STA-165, PM 0.00/1.45
10-MER-99, PM R35.54/R37.30
10-STA-99, PM R0.00/R1.00
EA: 10- 0P810K
Hilmar Bypass
Alternate D – Option 1

UTILITY INFORMATION SHEET

1. **Name of utility companies involved in Project Area:**
   None identified at this time.

2. **Types of facilities and agreements required:**
   To be determined.

3. **Is any facility a longitudinal encroachment in existing or proposed access controlled right of way?** No.

4. **Additional Information concerning utility involvements on this project, i.e., long lead time materials, growing or species seasons, customer service seasons:** N/A

5. **Total estimated cost of the project's obligation for utility relocation on this project:**
   Current Estimate Range of Project Expense: $ 500,000- $1,500,000

Prepared By: Omni Means & Michael E. Lahodny, Bender Rosenthal, Inc.

BENDER ROSENTHAL, INC.
COMMERCIAL VALUATION AND RIGHT OF WAY SERVICES

10-MER-165, PM 26.87/36.72
10-STA-165, PM 0.00/1.45
10-MER-99, PM R35.54/R37.30
10-STA-99, PM R0.00/R1.00
EA: 10- 0P810K
Hilmar Bypass
Alternate D – Option 1

Right of Way Data Sheet Premise, Assumptions, Limiting Conditions and Extra Ordinary Assumptions

Estimate Premise

1. Estimates are forecasts of anticipated costs for properties that will be acquired at a future date. No Certification date is available and utility impacts have not been identified.
2. Estimate requires looking into the future and projecting the anticipated highest and best use of the properties at the time they are required for the project.
3. The estimate will be developed using appraisal principles without the depth of investigation and verification. The estimate may consider indicators of value which may not be acceptable in appraising.
4. The estimate will consider costs known as Construction Contract Work (CCW) as severance damages and included as compensation to the owner.
5. The estimator has based the estimate on the highest supported anticipated costs and a "worst case" scenario.
6. When in doubt because of inadequate or marginal requirement information, a full acquisition will be assumed.

Assumptions

1. Estimate mapping is assumed to adequately provided information on which partial acquisition and damages are based.
2. The right of way area calculations are assumed to reflect the needs for the project or alternative. Changes in the areas may dramatically impact the estimated right of way costs.

Limiting Conditions

1. Utility locations and information of property rights have not been fully researched and utility costs are based on field observations and cost information provided by others. More accurate costs will be developed as the project approaches selection of final alignment and design. Rights and obligations of parties will be verified and a liability determination will be established. Master agreements with Utility Companies may establish the costs to the owners and project.

Extraordinary Assumptions

1. A contingency factor will be applied at the suggested rate of 20%. This additional estimated cost provides for possible business goodwill claims, outdoor advertising signs, administrative settlements, condemnation awards, utility overruns and interest payments.
2. Environmental permitting fees will also be estimated as they are generally paid at the right of way acquisition phase.

BENDER
ROSENTHAL, INC.
COMMERCIAL VALUATION AND RIGHT OF WAY SERVICES

10-MER-165, PM 26.87/36.72
10-STA-165, PM 0.00/1.45
10-MER-99, PM R35.54/R37.30
10-STA-99, PM R0.00/R1.00
EA: 10- 0P810K
Hilmar Bypass
Alternate D – Option 2

June 13, 2011

DRAFT RIGHT OF WAY DATA SHEET

Right of Way Cost Estimate

1. Right of Way Cost Estimate	Current Value	Escalation Rate	Escalated Value
Acquisition, including Excess Lands, Damages and Goodwill	$ 12,972,000	3%	$
Project Permit Fees	$ 1,000		
Utility Relocation (Project Share)	$ 1,000,000	5%	$
Relocation Assistance	$ 1,590,000	3%	$
Clearance/Demolition	$ 342,000	3%	$
Title and Escrow	$ 115,000		$
SB 1210 Costs	$ 390,000		$
Total Estimated Cost	**$ 16,410,000**		**$**
Construction Contract Work	$ 0		

2. Current Date of Right of Way Certification: Undetermined

3. Parcel Data:

Type	Number	Dual/Appr	Utilities	RR involvement		Misc. R/W Work	
X			U4-1	None	X	RAP Displ	11
A			-2	C&M Agmt		Clear/Demo	11
B	20		-3	Svc Contract		Const Permits	10
C	48		-4	Design		Condemnation	10
D	10		U5-7	Const.			
E			-8	Lic/RE/Clauses			
Total	78		-9				

Area: In R/W 10,472,784 SF

No. of Excess Parcels 0

BENDER ROSENTHAL, INC.
COMMERCIAL VALUATION AND RIGHT OF WAY SERVICES

4. **Are there any major items of construction contract work?**
   None

5. **Provide a general description of the right of way and excess lands required (zoning, use, major improvements, critical or sensitive parcels, etc.).**
   The project provides for the construction of a route around the local communities of Hilmar-Irwin located on existing Route 165. The project is in an area of generally agricultural uses. The area required for acquisition is generally in permanent plantings. The right of way requirements consist of fee at this time. As design progresses additional rights may be identified. The alignment has some impact on agricultural and residential improvements. Abutters' rights will not be acquired.

6. **Is there an effect on assessed valuation?**
   No.

7. **Are utility facilities or rights of way affected?**
   Yes, but affected companies, conflicts and liability have not been identified. Public Utility relocation will most likely impact power, communications, and irrigation district facilities.

8. **Are Railroad facilities or rights of way affected?**
   No

9. **Were any previously unidentified sites with hazardous waste and /or material found?**
   No sites were observed. Potential sites will be identified in the Initial Site Assessment.

10. **Are RAP displacements required?**
    Yes
    Residential 9
    Farm 2

11. **Are material borrow and/or disposal sites required?**
    Commercial sites will be utilized.

12. **Are there any potential relinquishments and/or abandonments?**
    Existing State Route 165

13. **Are there any existing and/or potential airspace sites?**
    No

14. **Indicate the anticipated Right of Way schedule and lead time requirements.**
    Right of way lead time should be approximately twenty four to thirty months.

15. **Is it anticipated that Caltrans staff will perform all Right of Way Work.**
    The right of way will be performed by local agency using consultants. Caltrans will provide oversight and assistance.

BENDER ROSENTHAL, INC.
COMMERCIAL VALUATION AND RIGHT OF WAY SERVICES

10-MER-165, PM 26.87/36.72
10-STA-165, PM 0.00/1.45
10-MER-99, PM R35.54/R37.30
10-STA-99, PM R0.00/R1.00
EA: 10- 0P810K
Hilmar Bypass
Alternate D – Option 2

Data for evaluation prepared on and by:

Right of Way: Michael Lahodny — Date: March 14, 2011 & June 6, 2011

Utilities: Omni Means & M. Lahodny — Date: March 14, 2011

Recommended for Approval:

____

Michael E. Lahodny
Bender Rosenthal, Inc.
California Certified General Appraiser
#044258

Date: ____________________

____

Date: ____________________

Assistant District Division Chief
District 10 Central Region
Department of Transportation

BENDER ROSENTHAL, INC.
COMMERCIAL VALUATION AND RIGHT OF WAY SERVICES

10-MER-165, PM 26.87/36.72
10-STA-165, PM 0.00/1.45
10-MER-99, PM R35.54/R37.30
10-STA-99, PM R0.00/R1.00
EA: 10- 0P810K
Hilmar Bypass
Alternate D – Option 2

UTILITY INFORMATION SHEET

1. **Name of utility companies involved in Project Area:**
   None identified at this time.

2. **Types of facilities and agreements required:**
   To be determined.

3. **Is any facility a longitudinal encroachment in existing or proposed access controlled right of way?** No.

4. **Additional Information concerning utility involvements on this project, i.e., long lead time materials, growing or species seasons, customer service seasons:** N/A

5. **Total estimated cost of the project's obligation for utility relocation on this project:**
   Current Estimate Range of Project Expense: $ 500,000- $1,500,000

Prepared By: Omni Means & Michael E. Lahodny, Bender Rosenthal, Inc.

BENDER ROSENTHAL, INC.
COMMERCIAL VALUATION AND RIGHT OF WAY SERVICES

10-MER-165, PM 26.87/36.72
10-STA-165, PM 0.00/1.45
10-MER-99, PM R35.54/R37.30
10-STA-99, PM R0.00/R1.00
EA: 10- 0P810K
Hilmar Bypass
Alternate D – Option 2

Right of Way Data Sheet Premise, Assumptions, Limiting Conditions and Extra Ordinary Assumptions

Estimate Premise

1. Estimates are forecasts of anticipated costs for properties that will be acquired at a future date. No Certification date is available and utility impacts have not been identified.
2. Estimate requires looking into the future and projecting the anticipated highest and best use of the properties at the time they are required for the project.
3. The estimate will be developed using appraisal principles without the depth of investigation and verification. The estimate may consider indicators of value which may not be acceptable in appraising.
4. The estimate will consider costs known as Construction Contract Work (CCW) as severance damages and included as compensation to the owner.
5. The estimator has based the estimate on the highest supported anticipated costs and a "worst case" scenario.
6. When in doubt because of inadequate or marginal requirement information, a full acquisition will be assumed.

Assumptions

1. Estimate mapping is assumed to adequately provided information on which partial acquisition and damages are based.
2. The right of way area calculations are assumed to reflect the needs for the project or alternative. Changes in the areas may dramatically impact the estimated right of way costs.

Limiting Conditions

1. Utility locations and information of property rights have not been fully researched and utility costs are based on field observations and cost information provided by others. More accurate costs will be developed as the project approaches selection of final alignment and design. Rights and obligations of parties will be verified and a liability determination will be established. Master agreements with Utility Companies may establish the costs to the owners and project.

Extraordinary Assumptions

1. A contingency factor will be applied at the suggested rate of 20%. This additional estimated cost provides for possible business goodwill claims, outdoor advertising signs, administrative settlements, condemnation awards, utility overruns and interest payments.
2. Environmental permitting fees will also be estimated as they are generally paid at the right of way acquisition phase.

BENDER ROSENTHAL, INC.
COMMERCIAL VALUATION AND RIGHT OF WAY SERVICES

10-MER-165, PM 26.87/36.72
10-STA-165, PM 0.00/1.45
10-MER-99, PM R35.54/R37.30
10-STA-99, PM R0.00/R1.00
EA: 10- 0P810K
Hilmar Bypass
Alternate I – Option 1

March 16, 2011

DRAFT RIGHT OF WAY DATA SHEET

Right of Way Cost Estimate

	Current Value	Escalation Rate	Escalated Value
1. Right of Way Cost Estimate			
Acquisition, including Excess Lands, Damages and Goodwill	$ 12,099,000	3%	$
Project Permit Fees	$ 1,000		
Utility Relocation (Project Share)	$ 1,000,000	5%	$
Relocation Assistance	$ 1,398,000	3%	$
Clearance/Demolition	$ 312,000	3%	$
Title and Escrow	$ 129,000		$
SB 1210 Costs	$ 430,000		$
Total Estimated Cost	**$ 15,369,000**		**$**
Construction Contract Work	$ 0		

2. Current Date of Right of Way Certification: Undetermined

3. Parcel Data:

Type	Number	Dual/Appr	Utilities	RR involvement		Misc. R/W Work	
X			U4-1	None	x	RAP Displ	9
A			-2	C&M Agmt		Clear/Demo	9
B	20		-3	Svc Contract		Const Permits	10
C	56		-4	Design		Condemnation	10
D	10		U5-7	Const.			
E			-8	Lic/RE/Clauses			
Total	86		-9				

Area: In R/W 9,606,774 SF

No. of Excess Parcels 0

Bender Rosenthal, Inc.
COMMERCIAL VALUATION AND RIGHT OF WAY SERVICES

10-MER-165, PM 26.87/36.72
10-STA-165, PM 0.00/1.45
10-MER-99, PM R35.54/R37.30
10-STA-99, PM R0.00/R1.00
EA: 10- 0P810K
Hilmar Bypass
Alternate I – Option 1

4. **Are there any major items of construction contract work?**
   None

5. **Provide a general description of the right of way and excess lands required (zoning, use, major improvements, critical or sensitive parcels, etc.).**
   The project provides for the construction of a route around the local communities of Hilmar-Irwin located on existing Route 165. The project is in an area of generally agricultural uses. The area required for acquisition is generally in permanent plantings. The right of way requirements consist of fee at this time. As design progresses additional rights may be identified. The alignment has some impact on agricultural and residential improvements. Abutters' rights will not be acquired.

6. **Is there an effect on assessed valuation?**
   No.

7. **Are utility facilities or rights of way affected?**
   Yes, but affected companies, conflicts and liability have not been identified. Public Utility relocation will most likely impact power, communications, and irrigation district facilities.

8. **Are Railroad facilities or rights of way affected?**
   No

9. **Were any previously unidentified sites with hazardous waste and /or material found?**
   No sites were observed. Potential sites will be identified in the Initial Site Assessment.

10. **Are RAP displacements required?**
    Yes
    Residential 8
    Farm 1

11. **Are material borrow and/or disposal sites required?**
    Commercial sites will be utilized.

12. **Are there any potential relinquishments and/or abandonments?**
    Existing State Route 165

13. **Are there any existing and/or potential airspace sites?**
    No

14. **Indicate the anticipated Right of Way schedule and lead time requirements.**
    Right of way lead time should be approximately twenty four to thirty months.

15. **Is it anticipated that Caltrans staff will perform all Right of Way Work.**
    The right of way will be performed by local agency using consultants. Caltrans will provide oversight and assistance.

BENDER ROSENTHAL, INC.
COMMERCIAL VALUATION AND RIGHT OF WAY SERVICES

10-MER-165, PM 26.87/36.72
10-STA-165, PM 0.00/1.45
10-MER-99, PM R35.54/R37.30
10-STA-99, PM R0.00/R1.00
EA: 10- 0P810K
Hilmar Bypass
Alternate I – Option 1

Data for evaluation prepared on and by:
Right of Way: Michael Lahodny — Date: March 14, 2011
Utilities: Omni Means & M. Lahodny — Date: March 14, 2011

Recommended for Approval:

____

Michael E. Lahodny — Date: __________________
Bender Rosenthal, Inc.
California Certified General Appraiser
#044258

______________________________ Date: __________________

Assistant District Division Chief
District 10 Central Region
Department of Transportation

**BENDER
ROSENTHAL, INC.**
COMMERCIAL VALUATION AND RIGHT OF WAY SERVICES

10-MER-165, PM 26.87/36.72
10-STA-165, PM 0.00/1.45
10-MER-99, PM R35.54/R37.30
10-STA-99, PM R0.00/R1.00
EA: 10- 0P810K
Hilmar Bypass
Alternate I – Option 1

UTILITY INFORMATION SHEET

1. **Name of utility companies involved in Project Area:**
   None identified at this time.

2. **Types of facilities and agreements required:**
   To be determined.

3. **Is any facility a longitudinal encroachment in existing or proposed access controlled right of way?** No.

4. **Additional Information concerning utility involvements on this project, i.e., long lead time materials, growing or species seasons, customer service seasons:** N/A

5. **Total estimated cost of the project's obligation for utility relocation on this project:**
   Current Estimate Range of Project Expense: $ 500,000- $1,500,000

Prepared By: Omni Means & Michael E. Lahodny, Bender Rosenthal, Inc.

BENDER
ROSENTHAL, INC.
COMMERCIAL VALUATION AND RIGHT OF WAY SERVICES

10-MER-165, PM 26.87/36.72
10-STA-165, PM 0.00/1.45
10-MER-99, PM R35.54/R37.30
10-STA-99, PM R0.00/R1.00
EA: 10- 0P810K
Hilmar Bypass
Alternate I – Option 1

Right of Way Data Sheet Premise, Assumptions, Limiting Conditions and Extra Ordinary Assumptions

Estimate Premise

1. Estimates are forecasts of anticipated costs for properties that will be acquired at a future date. No Certification date is available and utility impacts have not been identified.
2. Estimate requires looking into the future and projecting the anticipated highest and best use of the properties at the time they are required for the project.
3. The estimate will be developed using appraisal principles without the depth of investigation and verification. The estimate may consider indicators of value which may not be acceptable in appraising.
4. The estimate will consider costs known as Construction Contract Work (CCW) as severance damages and included as compensation to the owner.
5. The estimator has based the estimate on the highest supported anticipated costs and a "worst case" scenario.
6. When in doubt because of inadequate or marginal requirement information, a full acquisition will be assumed.

Assumptions

1. Estimate mapping is assumed to adequately provided information on which partial acquisition and damages are based.
2. The right of way area calculations are assumed to reflect the needs for the project or alternative. Changes in the areas may dramatically impact the estimated right of way costs.

Limiting Conditions

1. Utility locations and information of property rights have not been fully researched and utility costs are based on field observations and cost information provided by others. More accurate costs will be developed as the project approaches selection of final alignment and design. Rights and obligations of parties will be verified and a liability determination will be established. Master agreements with Utility Companies may establish the costs to the owners and project.

Extraordinary Assumptions

1. A contingency factor will be applied at the suggested rate of 20%. This additional estimated cost provides for possible business goodwill claims, outdoor advertising signs, administrative settlements, condemnation awards, utility overruns and interest payments.
2. Environmental permitting fees will also be estimated as they are generally paid at the right of way acquisition phase.

BENDER
ROSENTHAL, INC.
COMMERCIAL VALUATION AND RIGHT OF WAY SERVICES

10-MER-165, PM 26.87/36.72
10-STA-165, PM 0.00/1.45
10-MER-99, PM R35.54/R37.30
10-STA-99, PM R0.00/R1.00
EA: 10- 0P810K
Hilmar Bypass
Alternate I – Option 2

March 16, 2011

DRAFT RIGHT OF WAY DATA SHEET

Right of Way Cost Estimate

1. Right of Way Cost Estimate	Current Value	Escalation Rate	Escalated Value
Acquisition, including Excess Lands, Damages and Goodwill	$ 7,507,000	3%	$
Project Permit Fees	$ 1,000		
Utility Relocation (Project Share)	$ 1,000,000	5%	$
Relocation Assistance	$ 600,000	3%	$
Clearance/Demolition	$ 138,000	3%	$
Title and Escrow	$ 103,000		$
SB 1210 Costs	$ 345,000		$
Total Estimated Cost	**$ 9,694,000**		**$**
Construction Contract Work	$ 0		

2. Current Date of Right of Way Certification: Undetermined

3. Parcel Data:

Type	Number	Dual/Appr	Utilities	RR involvement		Misc. R/W Work	
X			U4-1	None	x	RAP Displ	4
A			-2	C&M Agmt		Clear/Demo	4
B	20		-3	Svc Contract		Const Permits	10
C	39		-4	Design		Condemnation	10
D	10		U5-7	Const.			
E			-8	Lic/RE/Clauses			
Total	69		-9				

Area: In R/W 8,798,844 SF

No. of Excess Parcels 0

BENDER ROSENTHAL, INC.
COMMERCIAL VALUATION AND RIGHT OF WAY SERVICES

4. **Are there any major items of construction contract work?**
   None

5. **Provide a general description of the right of way and excess lands required (zoning, use, major improvements, critical or sensitive parcels, etc.).**
   The project provides for the construction of a route around the local communities of Hilmar-Irwin located on existing Route 165. The project is in an area of generally agricultural uses. The area required for acquisition is generally in permanent plantings. The right of way requirements consist of fee at this time. As design progresses additional rights may be identified. The alignment has some impact on agricultural and residential improvements. Abutters' rights will not be acquired.

6. **Is there an effect on assessed valuation?**
   No.

7. **Are utility facilities or rights of way affected?**
   Yes, but affected companies, conflicts and liability have not been identified. Public Utility relocation will most likely impact power, communications, and irrigation district facilities.

8. **Are Railroad facilities or rights of way affected?**
   No

9. **Were any previously unidentified sites with hazardous waste and /or material found?**
   No sites were observed. Potential sites will be identified in the Initial Site Assessment.

10. **Are RAP displacements required?**
    Yes
    Residential 4
    Farm 0

11. **Are material borrow and/or disposal sites required?**
    Commercial sites will be utilized.

12. **Are there any potential relinquishments and/or abandonments?**
    Existing State Route 165

13. **Are there any existing and/or potential airspace sites?**
    No

14. **Indicate the anticipated Right of Way schedule and lead time requirements.**
    Right of way lead time should be approximately twenty four to thirty months.

15. **Is it anticipated that Caltrans staff will perform all Right of Way Work.**
    The right of way will be performed by local agency using consultants. Caltrans will provide oversight and assistance.

BENDER ROSENTHAL, INC.
COMMERCIAL VALUATION AND RIGHT OF WAY SERVICES

10-MER-165, PM 26.87/36.72
10-STA-165, PM 0.00/1.45
10-MER-99, PM R35.54/R37.30
10-STA-99, PM R0.00/R1.00
EA: 10- 0P810K
Hilmar Bypass
Alternate I – Option 2

Data for evaluation prepared on and by:

Right of Way: Michael Lahodny — Date: March 14, 2011
Utilities: Omni Means & M. Lahodny — Date: March 14, 2011

Recommended for Approval:

____

Michael E. Lahodny
Bender Rosenthal, Inc.
California Certified General Appraiser
#044258

Date: ____________________

______________________________ Date: ____________________

Assistant District Division Chief
District 10 Central Region
Department of Transportation

BENDER ROSENTHAL, INC.
COMMERCIAL VALUATION AND RIGHT OF WAY SERVICES

10-MER-165, PM 26.87/36.72
10-STA-165, PM 0.00/1.45
10-MER-99, PM R35.54/R37.30
10-STA-99, PM R0.00/R1.00
EA: 10- 0P810K
Hilmar Bypass
Alternate I – Option 2

UTILITY INFORMATION SHEET

1. **Name of utility companies involved in Project Area:**
   None identified at this time.

2. **Types of facilities and agreements required:**
   To be determined.

3. **Is any facility a longitudinal encroachment in existing or proposed access controlled right of way?** No.

4. **Additional Information concerning utility involvements on this project, i.e., long lead time materials, growing or species seasons, customer service seasons:** N/A

5. **Total estimated cost of the project's obligation for utility relocation on this project:**
   Current Estimate Range of Project Expense: $ 500,000- $1,500,000

Prepared By: Omni Means & Michael E. Lahodny, Bender Rosenthal, Inc.

BENDER ROSENTHAL, INC.
COMMERCIAL VALUATION AND RIGHT OF WAY SERVICES

10-MER-165, PM 26.87/36.72
10-STA-165, PM 0.00/1.45
10-MER-99, PM R35.54/R37.30
10-STA-99, PM R0.00/R1.00
EA: 10- 0P810K
Hilmar Bypass
Alternate I – Option 2

Right of Way Data Sheet Premise, Assumptions, Limiting Conditions and Extra Ordinary Assumptions

Estimate Premise

1. Estimates are forecasts of anticipated costs for properties that will be acquired at a future date. No Certification date is available and utility impacts have not been identified.
2. Estimate requires looking into the future and projecting the anticipated highest and best use of the properties at the time they are required for the project.
3. The estimate will be developed using appraisal principles without the depth of investigation and verification. The estimate may consider indicators of value which may not be acceptable in appraising.
4. The estimate will consider costs known as Construction Contract Work (CCW) as severance damages and included as compensation to the owner.
5. The estimator has based the estimate on the highest supported anticipated costs and a "worst case" scenario.
6. When in doubt because of inadequate or marginal requirement information, a full acquisition will be assumed.

Assumptions

1. Estimate mapping is assumed to adequately provided information on which partial acquisition and damages are based.
2. The right of way area calculations are assumed to reflect the needs for the project or alternative. Changes in the areas may dramatically impact the estimated right of way costs.

Limiting Conditions

1. Utility locations and information of property rights have not been fully researched and utility costs are based on field observations and cost information provided by others. More accurate costs will be developed as the project approaches selection of final alignment and design. Rights and obligations of parties will be verified and a liability determination will be established. Master agreements with Utility Companies may establish the costs to the owners and project.

Extraordinary Assumptions

1. A contingency factor will be applied at the suggested rate of 20%. This additional estimated cost provides for possible business goodwill claims, outdoor advertising signs, administrative settlements, condemnation awards, utility overruns and interest payments.
2. Environmental permitting fees will also be estimated as they are generally paid at the right of way acquisition phase.