ROAD REPAIR AND ACCOUNTABILITY ACT OF 2017
PROJECT BASELINE AGREEMENT

Seventh Street Bridge Replacement

Resolution LPP-P-2526-06B
(to be completed by CTC)

1. FUNDING PROGRAM

- ☐ Active Transportation Program
- ☑ Local Partnership Program (Competitive)
- ☐ Solutions for Congested Corridors Program
- ☐ State Highway Operation and Protection Program
- ☐ Trade Corridor Enhancement Program

2. PARTIES AND DATE

2.1 This Project Baseline Agreement (Agreement) effective on December 4, 2025 (will be completed by CTC), is made by and between the California Transportation Commission (Commission), the California Department of Transportation (Caltrans), the Project Applicant, Stanislaus Council of Governments, and the Implementing Agency, Stanislaus County, sometimes collectively referred to as the "Parties".

3. RECITAL

3.1 Whereas at its 6/27/2025 meeting the Commission approved the Local Partnership Program and included in this program of projects the Seventh Street Bridge Replacement, the parties are entering into this Project Baseline Agreement to document the project cost, schedule, scope and benefits, as detailed on the Project Programming Request Form attached hereto as ***Exhibit A***, the Project Report attached hereto as ***Exhibit B***, the Performance Metrics Form, if applicable, attached hereto as ***Exhibit C***, as the baseline for project monitoring by the Commission.

3.2 The undersigned Project Applicant certifies that the funding sources cited are committed and expected to be available; the estimated costs represent full project funding; and the scope and description of benefits is the best estimate possible.

4. GENERAL PROVISIONS

The Project Applicant, Implementing Agency, and Caltrans agree to abide by the following provisions:

4.1 To meet the requirements of the Road Repair and Accountability Act of 2017 (Senate Bill [SB] 1, Chapter 5, Statutes of 2017) which provides the first significant, stable, and on-going increase in state transportation funding in more than two decades.

4.2 To adhere, as applicable, to the provisions of the Commission:

- ☐ Resolution _____, "Adoption of Program of Projects for the Active Transportation Program", dated _____
- ■ Resolution G-25-43, "Adoption of Program of Projects for the Local Partnership Program", dated 6/27/2025
- ☐ Resolution _____, "Adoption of Program of Projects for the Solutions for Congested Corridors Program", dated _____
- ☐ Resolution _____, "Adoption of Program of Projects for the State Highway Operation and Protection Program", dated _____
- ☐ Resolution _____, "Adoption of Program of Projects for the Trade Corridor Enhancement Program", dated _____

4.3 All signatories agree to adhere to the Commission's Guidelines. Any conflict between the programs will be resolved at the discretion of the Commission.

4.4 All signatories agree to adhere to the Commission's SB 1 Accountability and Transparency Guidelines and policies, and program and project amendment processes.

4.5 Stanislaus Council of Governments agrees to secure funds for any additional costs of the project.

4.6 Stanislaus County agrees to report to Caltrans on a quarterly basis; on the progress made toward the implementation of the project, including scope, cost, schedule, and anticipated benefits/performance metric outcomes.

4.7 Caltrans agrees to prepare program progress reports on a on a semi-annual basis and include information appropriate to assess the current state of the overall program and the current status of each project identified in the program report.

4.8 Stanislaus County agrees to submit a timely Completion Report and Final Delivery Report as specified in the Commission's SB 1 Accountability and Transparency Guidelines.

4.9 Stanislaus County agrees to submit a timely Project Performance Analysis as specified in the Commission's SB 1 Accountability and Transparency Guidelines.

4.10 All signatories agree to maintain and make available to the Commission and/or its designated representative, all work related documents, including without limitation engineering, financial and other data, and methodologies and assumptions used in the determination of project benefits and performance metric outcomes during the course of the project, and retain those records for six years from the date of the final closeout of the project. Financial records will be maintained in accordance with Generally Accepted Accounting Principles.

4.11 The Inspector General of the Independent Office of Audits and Investigations has the right to audit the project records, including technical and financial data, of the Department of Transportation, the Project Applicant, the Implementing Agency, and any consultant or sub-consultants at any time during the course of the project and for six years from the date of the final closeout of the project, therefore all project records shall be maintained and made available at the time of request. Audits will be conducted in accordance with Generally Accepted Government Auditing Standards.

5. SPECIFIC PROVISIONS AND CONDITIONS

5.1 Project Schedule and Cost
See Project Programming Request Form, attached as Exhibit A.

5.2 Project Scope
See Project Report or equivalent, attached as Exhibit B. At a minimum, the attachment shall include the cover page, evidence of approval, executive summary, and a link to or electronic copy of the full document.

5.3 Performance Metrics
See Performance Metrics Form, if applicable, attached as Exhibit C.

5.4 Additional Provisions and Conditions *(Please attach an additional page if additional space is needed.)*

Attachments:

Exhibit A: Project Programming Request Form
Exhibit B: Project Report
Exhibit C: Performance Metrics Form *(if applicable)*

SIGNATURE PAGE
TO
PROJECT BASELINE AGREEMENT

Project Name: Seventh Street Bridge Replacement

Resolution: LPP-P-2526-06B

(to be completed by CTC)

Jean Foletta — Digitally signed by Jean Foletta Date: 2025.09.23 09:15:21 -07'00' — 9/23/2025

Date

Jean Foletta, Interim Executive Director

Stanislaus Council of Governments

Project Applicant

Sep 24, 2025

Date

David A. Leamon

Stanislaus County Public Works Director

Implementing Agency

10/07/2025

Date

Grace Magsayo

District Director

California Department of Transportation

11/20/2025

Date

Dina El-Tawansy

Director

California Department of Transportation

01/09/2026

Date

Tanisha Taylor

Executive Director

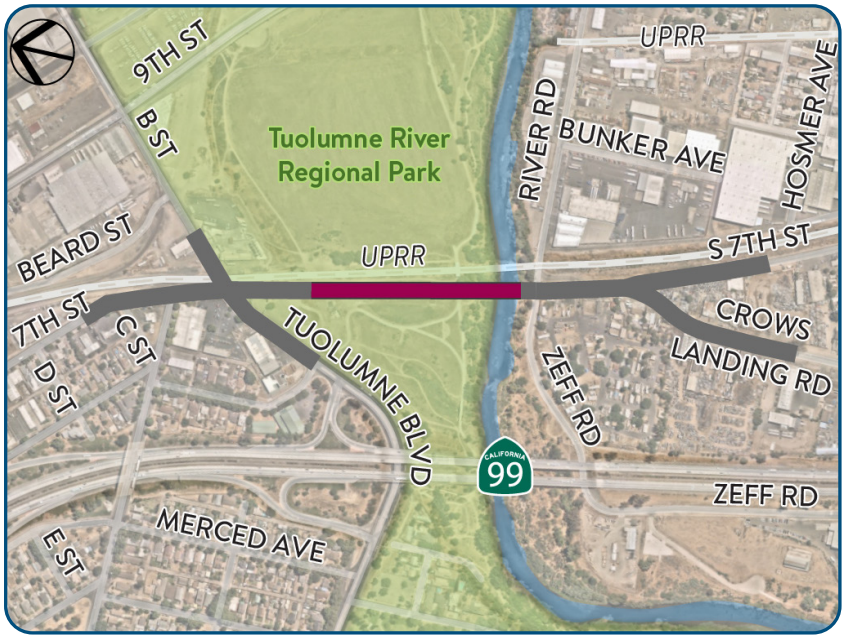
California Transportation Commission

SEVENTH STREET BRIDGE REPLACEMENT PROJECT

Applicant: Stanislaus County

SCOPE

The Seventh Street Bridge Replacement Project (Project) is located in Stanislaus County and carries traffic over the Tuolumne River. The existing bridge, constructed in 1916, is a 1,170-foot long bridge with a series of 14 cantilevered concrete (canticrete) arches consisting of steel trusses encased in concrete. The bridge has significant structural and hydraulic deficiencies, has been restricted to 4 tons gross load since 1979, and has a Sufficiency Rating of 5. The existing bridge also has functional deficiencies due to its inadequate width, lack of bicycle facilities and narrow sidewalks. The Project replaces the current bridge with a 1,238-foot long 8-span arched concrete box girder bridge that is raised to meet current hydraulic design requirements, provides Class II bike lanes in each direction, includes a separated multi-use path on the east side of the bridge and a sidewalk on the west side, pedestrian plaza, improves the existing intersections, and enhances the local circulation system.



COST

Environmental & Design	**$12,735,000**
Right of Way	**$8,277,000**
Construction	**$113,530,000**
Total	**$134,542,000**

SCHEDULE

CEQA/NEPA Clearance	**7/2025**
PS&E Complete	**6/2025**
ROW Complete	**6/2025**
Construction Begin	**1/2026**
Construction Complete	**10/2028**

OUTPUTS

- **97,802 Sq Ft Bridge**
- **1.86 Miles of Class II Bike Lanes**
- **1.03 Miles of Sidewalk**
- **2 Signalized Intersections**

OUTCOMES

- **Improved State of Good Repair**
- **Safety Enhancements**
- **Emissions Reduction**
- **System Resiliency**
- **Multi-Modal Connectivity**

SEVENTH STREET BRIDGE REPLACEMENT PROJECT *(continued)*

BENEFITS

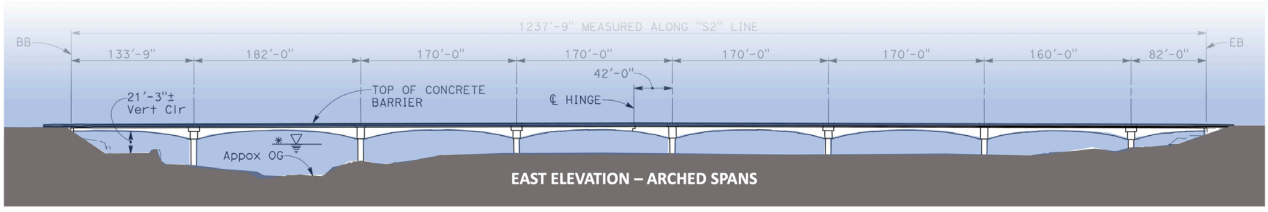
- Annually reduces greenhouse gas emissions by 2%.
- Expands transportation options, enhances safety, and improves congestion.
- Benefits multiple transportation insecure disadvantaged communities in the Project area; including Census Tract 06099002200.
- Design minimizes displacement of residents to one resident.
- Improve state of good repair.
- Enhance transportation resiliency and emergency vehicle access.
- Reduce regional vehicle miles traveled and lower volumes on SR 99.

EXISTING CONDITIONS

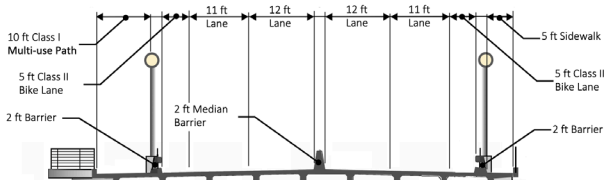
Pier scour damage beneath the bridge is extensive as shown in the photo on the right.

The bridge is also currently supported by “temporary”bracing as shown in the two photos on the right.

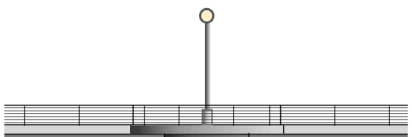
PROPOSED BRIDGE STRUCTURE & ARCHITECTURE



EAST ELEVATION – ARCHED SPANS



CROSS-SECTION – LOOKING NORTH



WEST ELEVATON – VISTA POINT BELVEDERE

STATE OF CALIFORNIA • DEPARTMENT OF TRANSPORTATION

PROJECT PROGRAMMING REQUEST (PPR)

PRG-0010 (REV 08/2020)

PPR ID
ePPR-5938-2024-0002 v1

Amendment (Existing Project) ☒ YES ☐ NO						Date	10/20/2025 14:03:07
Programs ☐ LPP-C	☐ LPP-F	☐ SCCP	☐ TCEP	☐ STIP	☐ Other		
District	EA	Project ID	PPNO	Nominating Agency			
10			3699	Stanislaus Council of Governments			
County	Route	PM Back	PM Ahead	Co-Nominating Agency			
Stanislaus County							
				MPO		Element	
				STANCOG		Local Assistance	
Project Manager/Contact			Phone	Email Address			
Dave Leamon			209-525-4130	leamond@stancounty.com			

Project Title

Seventh Street Bridge Replacement Project

Location (Project Limits), Description (Scope of Work)

In Stanislaus County and Modesto, on Seventh Street, from Tuolumne Boulevard/B Street and Crows Landing Road: Replace structurally deficient and functionally obsolete bridge with a 1,238-foot long 8-span arched concrete box girder bridge that is raised to meet current hydraulic design requirements. Project provides Class II bike lanes in each direction, a separated multi-use path on the west side of the bridge and a standard sidewalk on the east side, and improves the adjacent intersections.

Component	Implementing Agency
PA&ED	Stanislaus County
PS&E	Stanislaus County
Right of Way	Stanislaus County
Construction	Stanislaus County

Legislative Districts

Assembly:	22	Senate:	4	Congressional:	13

Project Milestone	Existing	Proposed
Project Study Report Approved		
Begin Environmental (PA&ED) Phase	10/14/2013	10/14/2013
Circulate Draft Environmental Document Document Type EIR/FONSI	08/23/2016	08/23/2016
Draft Project Report	09/30/2016	09/30/2016
End Environmental Phase (PA&ED Milestone)	07/03/2025	07/03/2025
Begin Design (PS&E) Phase	01/31/2020	01/31/2020
End Design Phase (Ready to List for Advertisement Milestone)	06/30/2025	06/30/2025
Begin Right of Way Phase	03/31/2020	03/31/2020
End Right of Way Phase (Right of Way Certification Milestone)	06/05/2025	06/05/2025
Begin Construction Phase (Contract Award Milestone)	01/15/2026	01/15/2026
End Construction Phase (Construction Contract Acceptance Milestone)	10/31/2028	10/31/2028
Begin Closeout Phase	11/30/2028	11/30/2028
End Closeout Phase (Closeout Report)	10/31/2029	10/31/2029

STATE OF CALIFORNIA • DEPARTMENT OF TRANSPORTATION

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Date 10/20/2025 14:03:07

Purpose and Need

The purpose of the proposed project is to:

• Create a structurally sufficient bridge crossing of the Tuolumne River along the Seventh Street corridor. A “structurally sufficient” bridge would: Improve conditions for vehicular and seismic loads by meeting appropriate design criteria including the American Association of State Highway and Transportation Officials (AASHTO) Load and Resistance Factor (LRFD) Bridge Design Specifications. Protect the bridge from flood damage by meeting hydrologic standards consistent with the AASHTO LRFD Bridge Design Specifications and as determined by the Central Valley Flood Protection Board (CVFPB).

• Create a functionally sufficient bridge crossing of the Tuolumne River along the Seventh Street corridor. A “functionally sufficient” bridge would: Provide adequate vehicular lanes and shoulders, on-street bike lanes, and pedestrian walkways that meet appropriate design criteria including the AASHTO Policy on Geometric Design of Highways and Streets; AASHTO Guide for the Development of Bicycle Facilities; AASHTO Guide for the Planning, Design, and Operation of Pedestrian Facilities; and Caltrans standards. Relieve traffic congestion and provide for anticipated roadway and intersection capacity at an acceptable level of service consistent with the StanCOG 2018 RTP/SCS, Stanislaus County General Plan, and City of Modesto General Plan.

The need for the proposed project is:

• The Seventh Street Bridge has poor structural conditions. Many parts of the structure have significant cracking and concrete spalling with some exposed reinforcement or structural steel. Also, there are vertical offsets at mid-span bridge joints, suggesting that overstressing of the steel truss has occurred. In addition to observed conditions, structural analysis identified vehicular load vulnerabilities to the bridge deck and barriers, floor beams, arch trusses, and substructure, with additional seismic load vulnerabilities to the arch trusses and substructure.

• The Seventh Street Bridge is vulnerable to collapse in a flood event. The Tuolumne River flows have caused scour around the bridge piers and scour depths are well below the bottom of all bridge footings. Due to these conditions, the bridge is severely compromised in both a 100-year and 200-year flood. The existing bridge deck is too low to pass a 100-year flood event without impairment as the deck is the same elevation as the 100-year flood.

• The existing bridge does not comply with design guidelines from Caltrans and AASHTO. The bridge is narrow and lacks shoulders, bike lanes, and has a substandard sidewalks. The roadway approaches to the sidewalks do not meet American's with Disabilities Act (ADA) compliance.

• The Seventh Street Bridge carries high volumes of vehicles, which are projected to increase. The existing bridge lacks the capacity to accommodate traffic which results in long queues at intersections and trips diverting to State Route 99.

NHS Improvements ☒ YES ☐ NO	Roadway Class NA	Reversible Lane Analysis ☐ YES ☒ NO

Inc. Sustainable Communities Strategy Goals ☒ YES ☐ NO Reduce Greenhouse Gas Emissions ☐ YES ☒ NO

Project Outputs

Category	Outputs	Unit	Total
Active Transportation	Bicycle lane-miles	Miles	1.86
Bridge / Tunnel	New bridges/tunnels	SQFT	97,802
Operational Improvement	Intersection / Signal improvements	EA	2
Active Transportation	Sidewalk miles	Miles	1.03

STATE OF CALIFORNIA • DEPARTMENT OF TRANSPORTATION

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Date 10/20/2025 14:03:07

Additional Information

STATE OF CALIFORNIA • DEPARTMENT OF TRANSPORTATION

PROJECT PROGRAMMING REQUEST (PPR)

PRG-0010 (REV 08/2020)

PPR ID
ePPR-5938-2024-0002 v1

Performance Indicators and Measures						
Measure	**Required For**	**Indicator/Measure**	**Unit**	**Build**	**Future No Build**	**Change**
Congestion Reduction	LPPC, SCCP, LPPF	Change in Daily Vehicle Miles Travelled	Miles	30,404	20,861	9,543
			VMT per Capita	1.44	0.99	0.45
	LPPC, SCCP, LPPF	Person Hours of Travel Time Saved (Only 'Change' required)	Person Hours	-23,226,874	0	-23,226,874
			Hours per Capita	-1,097.68	0	-1,097.68
System Reliability (Freight)	LPPC, SCCP, LPPF	Peak Period Travel Time Reliability Index (Only 'No Build' Required)	Index	0	0	0
	LPPC, SCCP, LPPF	Level of Transit Delay (if required)	% "On-time"	0	0	0
Air Quality & GHG (only 'Change' required)	LPPC, SCCP, TCEP, LPPF	Particulate Matter	PM 2.5 Tons	0	0	0
			PM 10 Tons	0	0	0
	LPPC, SCCP, TCEP, LPPF	Carbon Dioxide (CO2)	Tons	13,129	0	13,129
	LPPC, SCCP, TCEP, LPPF	Volatile Organic Compounds (VOC)	Tons	14	0	14
	LPPC, SCCP, TCEP, LPPF	Sulphur Dioxides (SOx)	Tons	0	0	0
	LPPC, SCCP, TCEP, LPPF	Carbon Monoxide (CO)	Tons	210	0	210
	LPPC, SCCP, TCEP, LPPF	Nitrogen Oxides (NOx)	Tons	19	0	19
Safety	LPPC, SCCP, TCEP, LPPF	Number of Fatalities	Number	0.073	0.2	-0.127
	LPPC, SCCP, TCEP, LPPF	Fatalities per 100 Million VMT	Number	0.8	3.1	-2.3
	LPPC, SCCP, TCEP, LPPF	Number of Serious Injuries	Number	5.5	13.2	-7.7
	LPPC, SCCP, TCEP, LPPF	Number of Serious Injuries per 100 Million VMT	Number	51	205	-154
Economic Development	LPPC, SCCP, TCEP, LPPF	Jobs Created (Only 'Build' Required)	Number	1,574	0	1,574
Cost Effectiveness (only 'Change' required)	LPPC, SCCP, TCEP, LPPF	Cost Benefit Ratio	Ratio	2.66	0	2.66
System Preservation Bridges	Optional	Bridge Deck Rating	Rating	Good	Fair	
	Optional	Bridge Superstructure Rating	Rating	Good	Poor	
	Optional	Bridge Substructure Rating	Rating	Good	Poor	
Vehicle Volume	LPPC, LPPF, SCCP	Existing Average Annual Vehicle Volume on Project Segment	Number	6,511,965	0	6,511,965
	LPPC, LPPF, SCCP	Estimated Year 20 Average Annual Vehicle Volume on Project Segment with Project	Number	11,097,460	0	11,097,460

STATE OF CALIFORNIA • DEPARTMENT OF TRANSPORTATION

PROJECT PROGRAMMING REQUEST (PPR)

PRG-0010 (REV 08/2020)

PPR ID
ePPR-5938-2024-0002 v1

District	County	Route	EA	Project ID	PPNO
10	Stanislaus County				3699

Project Title

Seventh Street Bridge Replacement Project

Existing Total Project Cost ($1,000s)									
Component	Prior	23-24	24-25	25-26	26-27	27-28	28-29+	Total	Implementing Agency
E&P (PA&ED)	3,816							3,816	Stanislaus County
PS&E	8,919							8,919	Stanislaus County
R/W SUP (CT)									Stanislaus County
CON SUP (CT)									Stanislaus County
R/W	8,277							8,277	Stanislaus County
CON				113,530				113,530	Stanislaus County
TOTAL	21,012			113,530				134,542	
Proposed Total Project Cost ($1,000s)									Notes
E&P (PA&ED)	3,816							3,816	
PS&E	8,919							8,919	
R/W SUP (CT)									
CON SUP (CT)									
R/W	8,277							8,277	
CON				113,530				113,530	
TOTAL	21,012			113,530				134,542	

Fund #1:	Local HBRR - Highway Bridge Program (Committed)								Program Code
Existing Funding ($1,000s)									LOCAL HBRR
Component	Prior	23-24	24-25	25-26	26-27	27-28	28-29+	Total	Funding Agency
E&P (PA&ED)	3,342							3,342	Caltrans HQ
PS&E	6,471							6,471	Funds administered through Caltrans Local Assistance
R/W SUP (CT)									
CON SUP (CT)									
R/W	5,106							5,106	
CON				75,861				75,861	
TOTAL	14,919			75,861				90,780	
Proposed Funding ($1,000s)									Notes
E&P (PA&ED)	3,342							3,342	
PS&E	6,471							6,471	
R/W SUP (CT)									
CON SUP (CT)									
R/W	5,106							5,106	
CON				75,861				75,861	
TOTAL	14,919			75,861				90,780	

STATE OF CALIFORNIA • DEPARTMENT OF TRANSPORTATION

PROJECT PROGRAMMING REQUEST (PPR)

PRG-0010 (REV 08/2020)

PPR ID
ePPR-5938-2024-0002 v1

Fund #2:	CMAQ - Congestion Mitigation (Committed)								Program Code
Existing Funding ($1,000s)									20.30.010.820
Component	Prior	23-24	24-25	25-26	26-27	27-28	28-29+	Total	Funding Agency
E&P (PA&ED)									Caltrans HQ
PS&E	1,200							1,200	Awarded by StanCOG and administered by Caltrans Local Assistance
R/W SUP (CT)									
CON SUP (CT)									
R/W	400							400	
CON									
TOTAL	1,600							1,600	
Proposed Funding ($1,000s)									Notes
E&P (PA&ED)									
PS&E	1,200							1,200	
R/W SUP (CT)									
CON SUP (CT)									
R/W	400							400	
CON									
TOTAL	1,600							1,600	

Fund #3:	State SB1 LPP - Local Partnership Program - Competitive program (Committed)								Program Code
Existing Funding ($1,000s)									20.30.210.210
Component	Prior	23-24	24-25	25-26	26-27	27-28	28-29+	Total	Funding Agency
E&P (PA&ED)									Stanislaus County
PS&E									Funding recommendation approved at the June 2025 CTC meeting
R/W SUP (CT)									
CON SUP (CT)									
R/W									
CON				15,000				15,000	
TOTAL				15,000				15,000	
Proposed Funding ($1,000s)									Notes
E&P (PA&ED)									
PS&E									
R/W SUP (CT)									
CON SUP (CT)									
R/W									
CON				15,000				15,000	
TOTAL				15,000				15,000	

PPR ID
ePPR-5938-2024-0002 v1

Fund #4:	Local Funds - County Funds (Committed)								Program Code
	Existing Funding ($1,000s)								20.10.400.100
Component	Prior	23-24	24-25	25-26	26-27	27-28	28-29+	Total	Funding Agency
E&P (PA&ED)	237							237	Stanislaus County
PS&E	624							624	
R/W SUP (CT)									
CON SUP (CT)									
R/W	294							294	
CON				10,257				10,257	
TOTAL	1,155			10,257				11,412	
	Proposed Funding ($1,000s)								Notes
E&P (PA&ED)	237							237	
PS&E	624							624	
R/W SUP (CT)									
CON SUP (CT)									
R/W	294							294	
CON				10,257				10,257	
TOTAL	1,155			10,257				11,412	

Fund #5:	Local Funds - City Funds (Committed)								Program Code
	Existing Funding ($1,000s)								20.10.400.100
Component	Prior	23-24	24-25	25-26	26-27	27-28	28-29+	Total	Funding Agency
E&P (PA&ED)	237							237	City of Modesto
PS&E	624							624	City of Modesto Capital Facility Fee
R/W SUP (CT)									
CON SUP (CT)									
R/W	2,477							2,477	
CON				12,412				12,412	
TOTAL	3,338			12,412				15,750	
	Proposed Funding ($1,000s)								Notes
E&P (PA&ED)	237							237	
PS&E	624							624	
R/W SUP (CT)									
CON SUP (CT)									
R/W	2,477							2,477	
CON				12,412				12,412	
TOTAL	3,338			12,412				15,750	

STATE OF CALIFORNIA • DEPARTMENT OF TRANSPORTATION

PROJECT PROGRAMMING REQUEST (PPR)

PRG-0010 (REV 08/2020)

PPR ID
ePPR-5938-2024-0002 v1

Complete this page for amendments only Date 10/20/2025 14:03:07

District	County	Route	EA	Project ID	PPNO
10	Stanislaus County				3699

SECTION 1 - All Projects

Project Background

In Stanislaus County and Modesto, on Seventh Street, from Tuolumne Boulevard/B Street and Crows Landing Road: Replace structurally deficient and functionally obsolete bridge with a 1,238-foot long 8-span arched concrete box girder bridge that is raised to meet current hydraulic design requirements. Project provides Class II bike lanes in each direction, a separated multi-use path on the west side of the bridge and a standard sidewalk on the east side, and improves the adjacent intersections.

Programming Change Requested

Removing District number from the PPNO and updating LPP-C funds to committed.

Reason for Proposed Change

ePPR corrections for the Baseline Agreement.

If proposed change will delay one or more components, clearly explain 1) reason for the delay, 2) cost increase related to the delay, and 3) how cost increase will be funded

Other Significant Information

SECTION 2 - For SB1 Project Only

Project Amendment Request (Please follow the individual SB1 program guidelines for specific criteria)

ePPR corrections for the Baseline Agreement.

Approvals

I hereby certify that the above information is complete and accurate and all approvals have been obtained for the processing of this amendment request.

Name (Print or Type)	Signature	Title	Date

SECTION 3 - All Projects

Attachments
1) Concurrence from Implementing Agency and/or Regional Transportation Planning Agency
2) Project Location Map

DEPARTMENT OF PUBLIC WORKS

David A. Leamon, PE, MPA
PUBLIC WORKS DIRECTOR
ROAD COMMISSIONER

Sambath Chrun, PE
DEPUTY DIRECTOR - ENGINEERING

Chad Johnson, LS
COUNTY SURVEYOR

Tracie Madison
ASSISTANT DIRECTOR - OPERATIONS

Andrew Malizia, PE
DEPUTY DIRECTOR - DEVELOPMENT SERVICES & TRAFFIC

Janelle Kostlivy
SENIOR BUSINESS MANAGER

TO: David Leamon / Stanislaus County Public Works

FROM: Geoff Dizon / Biggs Cardosa Associates

DATE: August 25, 2025

SUBJECT: **Supplemental Project Report to update Scope, Schedule, and Funding for the Seventh Street Bridge Replacement Project (PPNO 10-3699)**

The purpose of this memorandum is to document the change in scope, schedule, and funding since the project report was approved in March 2017.

The Stanislaus County Department of Public Works, in cooperation with the City of Modesto, the California Department of Transportation, and the Federal Highway Administration will replace the structurally deficient and functionally obsolete historic Seventh Street Bridge over the Tuolumne River with a 1,238-foot long 8-span arched concrete box girder bridge that is raised to meet current hydraulic design requirements. The project provides two lanes of traffic and Class II bike lanes in each direction, a separated multi-use path on the west side of the bridge and a standard sidewalk on the east side. The project also includes improvements to the adjacent intersections including a new traffic signal at Crows Landing/7th Street.

Scope Update

The following paragraphs summarize the major changes to the scope of work that was originally described in the approved project report and environmental documents. In general, Alternative 2B remains the preferred alternative but has been refined during the PS&E design phase.

- Various refinements were made to the overall roadway layout including adding a signalized intersection at Crows Landing / 7th Street to improve safety and circulation. The roadway and bridge alignment were also shifted to the east to minimize residential right of way impacts.
- Based on the site diagnostic meeting with UPRR and California Public Utilities Commission, more robust improvements along B Street were implemented to address the safety issues at this critical intersection. The loading dock (currently within the City right of way) on the north side of B St will be removed to improve overall safety.
- The structure type was revised from precast girders to cast-in-place/prestressed (CIP/PS) concrete box girder superstructure as documented in the Type Selection Report Addendum. The CIP alternative allowed for the incorporation of various

aesthetic features needed to comply with the environmental mitigation requirements including an arched bridge.

- Changes to right of way impact have occurred, including reducing the impacts to the Sunrise Village Mobile Home Park due to the easterly shift of the roadway alignment. The County identified additional parcels that required full ROW acquisition or Temporary Construction Easements to complete the project.
- As a result of the Value Analysis Study, the County secured additional temporary construction area within the Union Pacific Railroad (UPRR) right of way to provide more room during construction and to allow for grading between the project improvements and the UPRR tracks.
- The project will now include the addition of a park maintenance access driveway off Tuolumne Blvd located north of the Tuolumne River.

Schedule Update

The delivery schedule was delayed due to extended railroad coordination and availability of construction funding. The revised project delivery schedule is as follows:

Project Milestone	Delivery Date
Begin Environmental (PA&ED) Phase	10/14/2013
Circulate Draft Environmental Document (EIR/FONSI)	8/23/2016
Draft Project Report	9/30/2016
End Environmental Phase (PA&ED Milestone)	7/3/2025
Begin Design (PS&E) Phase	1/31/2020
End Design Phase (Ready to List for Advertisement Milestone)	6/30/2025
Begin Right of Way Phase	3/31/2020
End Right of Way Phase (Right of Way Certification Milestone)	6/5/2025
Begin Construction Phase (Construction Award Milestone)	1/15/2026
End Construction Phase (Construction Contract Acceptance Milestone)	10/31/2028
Begin Closeout Phase	11/30/2028
End Closeout Phase (Closeout Report)	10/31/2029

Cost Estimate and Funding Update

The project cost estimates for construction, construction support, and right of way have increased from the amounts in the project report. The original estimate from the project report was escalated to an assumed construction year of 2019. However, the PS&E and Right of Way phases were not completed until 2025 due to various unexpected project delays. In addition, construction funding was not secured until FY 25/26. Construction costs have drastically increased since 2019 as evident in the high annual escalation rates. The increase in project scope discussed above also contributed to the overall cost estimate increase.

The revised expenditures and cost estimate are reflected in the updated funding plan below:

	Fiscal Year Estimates				
	Prior	24-25	25-26	26-27	Total
Component	Proposed Total Project Costs ($1,000s)				
PA&ED	3,816				3,816
PS&E	8,919				8,919
R/W	8,277				8,277
CON			113,530		113,530
TOTAL	21,012		113,530		134,542

PREPARED BY:

Geoffrey Dizon, PE
Engineering Manager
Biggs Cardosa Associates

8/25/2025
Date

COUNTY APPROVAL:

David Leamon, PE
Director of Public Works
County of Stanislaus

9/3/25
Date

Project Report
For Project Approval

On 7th Street in Stanislaus County
Between 0.2 Miles North of State Route 99
And 0.1 Miles North of Tuolumne Boulevard

Prepared For:

County of Stanislaus

Department of Public Works

Stanislaus County
Striving to be the Best

This draft project report has been prepared under the direction of the following registered civil engineer. The registered civil engineer attests to the technical information contained herein and the engineering data upon which recommendations, conclusions, and decisions are based.

REGISTERED CIVIL ENGINEER *DATE*

The project manager has reviewed this draft project report and concurs with the recommendations, conclusions, and decisions as made by the registered civil engineer and described in this report based on the information available at this time.

Jennifer Elwood, P.E. - PROJECT MANAGER *DATE*

County Approval:

9/4/2025

Dave Leamon – *DATE*
DEPUTY DIRECTOR, STANISLAUS COUNTY DEPARTMENT OF PUBLIC WORKS

Project Report has been accepted by Stanislaus County

9/4/25

David A. Leamon *DATE*
DIRECTOR OF PUBLIC WORKS, STANISLAUS COUNTY

Table of Contents

1. EXECUTIVE SUMMARY

The County of Stanislaus is proposing to replace the 7th Street Bridge (Br. No. 38C-0023) at the Tuolumne River. This project will improve traffic operations and public safety by replacing the existing functionally obsolete and structurally deficient bridge.

The bridge is an important regional connection between the southern portion of the County and downtown Modesto. As a result, this project is a joint venture between both agencies with the County serving as the lead agency.

Project development will include preliminary engineering, environmental studies, and final design leading to the Plans, Specifications, and Estimate (PS&E) needed for construction. Utility relocation and right-of-way acquisition (R/W) are required for the project. Funding will be provided via the Highway Bridge Program (HBP) with local matching funds from the County (88.53% and 11.47% respectively).

Four bridge replacement alternatives and one bridge retrofit alternative were considered. One of the replacement alternatives (Alternative 1) was removed from consideration due to its significant right of way impacts.

After comparing the alternatives, Alternative 2B has been identified by County and City staff as the preferred alternative, subject to public review. Final identification of the preferred alternative will occur after the public review and comment period.

The project development schedule is summarized as follows:

PROJECT MILESTONES	SCHEDULED DELIVERY DATE
Project Report Approval	March 2017
Environmental Document Approval	August 2017
Plans, Specifications, & Estimate	August 2018
Utility Coordination and R/W	June 2019
Advertise Project	August 2019
Award Contract	September 2019
Begin Construction	October 2019
End Construction	January 2022

The project costs have been approved by California Department of Transportation (Caltrans) and are summarized as follows:

COMPONENT	HBP FUNDING (88.53%)	LOCAL MATCH (11.47%)	TOTAL
Preliminary Engineering	$3,383,882	$438,418	$3,822,300
Right-of-Way	$4,236,874	$548,932	$4,785,806
Construction (w/Contingency)	$33,838,822	$4,384,178	$38,223,000

The project team recommends approval of the preferred alternative and continuation of the project development process to develop the PS&E leading to construction of the replacement bridge.

2. INTRODUCTION

The project site is located just south of City of Modesto on 7th Street between State Route 99 (SR-99) and D Street. The existing 7th Street Bridge, Bridge No. 38C-0023, was built in 1916 and carries an important two-lane urban road over the Tuolumne River and surrounding flood plain. The existing bridge is approximately 34'-8" wide and 1,165-feet long, and consists of 14 spans.

The bridge and roadway will be widened to accommodate 4 vehicular travel lanes, Class 2 bicycle lanes, raised median, curb & gutter, and sidewalks. The new roadway horizontal and vertical alignments will satisfy AASHTO and applicable local standards.

See the Cost Estimate for specific work items included in this project.

Project Limits: Dist., Co., Rte., PM	10-STA-7th Street
Capital Costs:	$38,223,000
Right of Way Costs:	$4,785,806
Funding Source:	Federal and Local Funds
Number of Alternatives:	Four alternatives and the no-build alternative.
Recommended Alternative:	Alternative 2B
Type of Facility:	Urban Minor Arterial
Number of Structures:	One
Environmental Determination/Document:	NEPA: EA CEQA: EIR
Legal Description:	In Stanislaus County on 7th Street at Tuolumne River.

3. RECOMMENDATION

It is recommended that the project be authorized for public release of the Draft EA.

4. BACKGROUND

Prior Studies

A Project Study report for this project was completed in 2011 by the County. The scope of work has remained unchanged.

Vehicular Capacity

Seventh Street is an important two-lane arterial roadway that carries traffic to and from downtown Modesto, linking the surrounding neighborhoods and communities. Currently, traffic estimates for the 7th Street Bridge are 15,900 average trips per day. The intersection of 7th Street and B Street / Tuolumne Blvd operates at a Level of Service (LOS) C during peak AM traffic and LOS D during peak evening traffic.

Bicycle & Pedestrian Safety

Currently, the 7th Street Bridge has a narrow, substandard pedestrian walkway along each side of the bridge that places pedestrians very close to vehicular traffic and in several places is not navigable by handicapped users because of the bridge's deterioration. The bridge does not provide dedicated bicycle facilities so vehicles and bicycles have to share a single narrow travel lane with no shoulder and this increases vehicle/bicycle conflicts. The nonstandard pedestrian walkways and lack of bicycle facilities is inconsistent with the City of Modesto Non-Motorized Transportation Master Plan, which calls for a complete network of bikeways, walkways, trails, and paths that serve all non-motorized groups. The Modesto Non-Motorized Transportation Master Plan designates a Class II Bike Lane along the 7th Street Bridge corridor.

Existing Bridge

Constructed in 1916, the existing 7th Street Bridge (Bridge No. 38C-0023) is a unique combination of steel trusses encased in concrete, known as a Canticrete Arch Bridge. It consists of 14 spans with mid- span joints typically located in every other span. The structures carries two lanes of traffic over the Tuolumne River and surrounding flood plain. The structure is approximately 1,165-feet long and is supported by concrete abutments and piers on pile foundations. The bridge is eligible for inclusion in the National Register of Historic Places.

Project Area Description (See Attachment A)

Immediately adjacent to 7th Street, south of the Tuolumne River, are dozens of small industrial businesses – mainly associated with automotive repair or recycling. The most notable exception is the Sunrise Village Mobile Home Community (SVMHC) which occupies 7.5 acres on the west side of 7th Street just south of the river. Zeff Road, which serves as an access Road to Tuolumne River, passes under the main span of the existing bridge, but is linked to 7th Street via a short access road which has poor sight distance and cannot accommodate truck turning movements. It provides access to several other industrial businesses east of 7th Street including the Pepsi Bottling Group. The design speed of 7th Street, south of the river, is approximately 25 mph – mainly due to the "S-curve" alignment at the intersection with Crows Landing Road. This intersection is a stop-controlled T-intersection which directs 7th Street traffic onto Crows Landing Road towards its interchange with State Route 99.

The B Street/7th Street intersection is located approximately 400' north of the bridge. An office complex consisting of two electrical supply businesses and a parking lot is located in the northwest quadrant of this intersection. One of these businesses, Wille Electrical Supply, operates a building whose northeast corner is located only 1' from the existing back of sidewalk.

Union Pacific Railroad (UPRR) operates railroad tracks that closely parallel 7th Street to the east. Operations for the at-grade crossing on the east leg of the intersection are coordinated with the intersection traffic signal. Due to the configuration of the at-grade crossing, STAA trucks cannot safely turn to or from the east intersection leg. The UPRR tracks traverse the Tuolumne River on a bridge which has been reconstructed within the last 10 years. As a result, its elevation is approximately 5' higher than the existing 7th Street Bridge.

Underground utilities within 7th Street include storm drain, including a large storm drain outfall to the Tuolumne River, water lines, and overhead electric.

Adjacent Tuolumne River crossings include 9th Street (0.34 miles upstream) and SR-99 (0.16 miles downstream) - both of which serve as alternate paths of travel to 7th Street.

Community Interaction

To date, 3 stakeholder meetings have been held (6/5/13, 9/7/13, & 6/13/14). Stakeholders have included, but are not limited to, Wille Electric, SVMHC, and several businesses along Crows Landing Road. In addition, to date, 5 public meetings have been held (10/3/13, 1/7/14, 7/30/14,1/14/15, & 2/25/15). A public hearing for on the Draft EIR was also held on 8/29/16.

Future Conditions

If no improvements are made, the 7th Street Bridge and its intersections at Tuolumne Boulevard/B Street and Crows Landing Road would operate at LOS F under design year conditions. Construction of the proposed project would improve operations to LOS E or better. The Build Alternatives are able to accommodate 13 percent more travel demand during the PM peak hour, while incurring 35 percent less vehicle hours of delay. Thus, overall system operations are much improved with the four-lane bridge widening.

Coordination with Other Projects

This project is being developed in cooperation with several other adjacent projects including the following:

1) Tuolumne River Regional Park – This project proposes to construct improvements to the floodplain of the Tuolumne River north of the low flow channel including landscaping, trails, fishing decks, and amphitheatre. The development teams for the 7th Street Bridge Project and Park have worked closely together to coordinate both projects to complement each other and remain consistent with the City and County's vision of the area.

2) Crows Landing Road Corridor Study – This corridor study establishes a plan for a safe, efficient, and vibrant multi-modal transportation facility serving south

Modesto and nearby unincorporated portions of Stanislaus County. The project development teams for both projects coordinated with each other from the early stages of development. As a result, all alternatives for the 7th Street Bridge Project are consistent with the recommendations of this corridor study.

3) 7th Street/B-Street Intersection ADA Improvements – During the development of this project, ADA improvements were constructed at the northern project intersection by the City. These improvements have been integrated into the development of this project.

5. PURPOSE AND NEED

Purpose

The purpose of the 7th Street Bridge project is to: (1) correct structural and hydraulic deficiencies, including removal of load restrictions on the bridge; (2) expand vehicular capacity of the 7th Street corridor; and (3) improve safety for vehicles, bicyclists, and pedestrians.

Need

The purpose of the proposed project is to improve movement and safety for vehicles, pedestrians, and bicyclists across the Tuolumne River along the 7th Street corridor. The proposed project would correct structural and hydraulic deficiencies, including restoring full truck carrying capacity, expand vehicular capacity of the 7th Street corridor, and improve safety for vehicles, bicyclists, and pedestrians.

5A. PROBLEM, DEFICIENCIES, JUSTIFICATION

The 7th Street Bridge is listed on the Caltrans local bridge list with a sufficiency rating of 2.0. The low sufficiency rating is due to structural deficiencies due to excessive deflections in the structure, functional deficiencies due to its inadequate width, and load restrictions of 4 tons. The structure is also vulnerable to collapse during an earthquake or flood event. The 7th Street Bridge's sufficiency rating is one of the worst in California, and the structural and functional deficiencies must be corrected and load carrying capacity restored.

5B. REGIONAL AND SYSTEM PLANNING

Complete Streets

This project have been developed to accommodate aspects of the "Complete Streets" Concept including bike boxes, landscaping, separate bicycle & pedestrian facilities.

Regional Planning

The alternatives of this project have been developed to accommodate and be consistent with the General Plans of both Stanislaus County and the City of Modesto.

Transit Operator Planning

Transit operations currently do not use 7th Street due to its loading restrictions and narrow curb-to-curb width. This project will enable transit operations to use 7th Street without restriction.

5C. Traffic

Current and Forecasted Traffic

Traffic forecasts were developed for two future year scenarios (Opening 2020 Day, and Design 2040 Year) conditions using the StanCOG travel demand model. The traffic forecasts assume that neither the future SR 132 Connectivity Project nor the future SR 99 Widening project will be constructed. However, they do assume the planned widening of Crows Landing Road to four or six lanes from south of 7th Street to south of SR 99 as well as various other planned roadway improvements. The project is consistent with StanCOG's FTIP in terms of project limits and number of lanes.

7th Street within Project Limits

AADT (2020) =	20,100 (Build Alternatives)
AADT (2040) =	29,000 (Build Alternatives)
DHV =	3,030 (both directions)
D =	53% (directional percentage)
T =	10.4% (ratio of DHV to AADT 2040)

6. ALTERNATIVES

6A. Alternative Development

Alternatives were developed based on the ability to satisfy purpose & need, applicable design standards, site constraints, efficiency of construction, and right of way impacts. A Design Criteria Memorandum (See Attachment B) was developed by the Project Development Team which documents to geometric parameters of the project. Unless otherwise indicated, the below parameters are applicable to all alternatives.

Replacement Bridge

As part of the environmental process, several alternatives have been developed for a replacement bridge (See Attachment C). To satisfy Central Valley Flood Protection (CVFPB) freeboard requirements, the proposed replacement bridge will be 8' higher in elevation than the existing facility. To accommodate the required 4 lanes of travel, all alternatives which carry all 4 lanes of traffic on the new bridge will require a bridge structure 50' wider than the existing for a total structure width of 77'-4" & varies.

Geometric Considerations – Bridge Area

To meet the required design speed, the geometric alignment will be improved to provide comfortable design speed which meets all applicable standards and is consistent with the alignment on both ends of the bridge. Due to the close proximity of the UPRR tracks to the east, the proposed bridge and approach roadway alignment is proposed to be shifted westward just enough to either allow a staged construction to occur or remain within existing right of way – depending on the alternative.

Geometric Considerations – South of Tuolumne River

Due to the higher elevation of the proposed bridge as well as the requirement to accommodate truck turning movements, the short access connector to Zeff Road will be removed. Except for Alternatives 2A & 2B, the S-curve is proposed to be removed to accommodate a 35 mph design speed (although a 40 mph design speed is

incorporated where feasible). Due to the revised alignment of 7th Street as well as the vertical conform location, the intersection at Crows Landing Road will require reconstruction. A traffic signal will also be required at this location to accommodate the anticipated traffic movements. A roundabout was considered to replace this intersection, but was rejected because it required an additional northbound lane on Crows Landing Road to provide acceptable operations which leads to significant additional right of way impacts. Access to SVMHC will be provided by a new driveway along its south property line. Except for Alternatives 2A & 2B, this access will be at the fourth leg of the proposed intersection with Crows Landing.

Geometric Considerations – North of Tuolumne River

Due to the revised alignment of 7th Street as well as the vertical conform location, the intersection and traffic signal at B Street will require reconstruction. The proposed alignment of 7th Street requires a westward shift to avoid the railroad right of way as well as impacts to the shopping center at the northwest corner. A roundabout was considered to replace this intersection, but was rejected due to excessive right of way and railroad impacts.

Alternative 1 directly impacts the Wille Electric Supply Building requiring its removal and thus this alternative was rejected. For all alternatives except Alternative 1, it is anticipated that though 7th Street will be widened towards the Wille Electric Supply Building, there will be no building impacts as the proposed sidewalk can be constructed under the building's roof overhang.

Preliminary coordination with UPRR was completed to determine the feasibility of impacts to the UPRR tracks. To accommodate truck turns at the intersection, the at-grade crossing of the UPRR tracks will require panel widening, new gate crossing arms, cantilever lighting structures, and train detection equipment.

Lastly, the intersection of Sierra Drive with 7th Street is in close proximity to the proposed B Street intersection. As a result, this intersection is proposed to be closed (pending City approval) and Sierra Drive traffic will be re-routed along C Street to provide more optimal turning opportunities.

Traffic Handling during Construction

One sensitive component of project acceptance is the impact to traffic during construction. Many times considerations of short term significant impacts are weighed against longer term minor impacts. Frequently, the public is willing to accept short term significant impacts in exchange for completing the entire project more quickly. This project will likely require at least two seasons of construction to complete. This can be accomplished by utilizing staged construction (half and half bridge construction) or with long term detours to the 9th Street Bridge for vehicles, pedestrians, and transit.

A Transportation Management Plan will be developed during the design phase of this project.

Utilities

Overhead electric (Modesto Irrigation District north of the river and Turlock Irrigation District south of the river) as well as telephone facilities (approximately 20 poles) on both side of 7th Street will require relocation. The storm drain outfall will also be relocated in all alternatives except Alternative 2.

6B. Alternative 1 – Downstream Bridge

This alternative proposes to construct an entire replacement bridge upstream of the existing bridge. Traffic would use the existing bridge throughout the entire construction period. Impacts to the Wille Electric Building would be significant – possibly requiring a total take. Also, several business including Lion's Market, Extreme Auto Repair, Southwest Tires, and 8 units of the SVMHC would require acquisition south of the Tuolumne River.

Due to excessive right of way impacts (including to SVHMC and the Wille Electric Building), this alternative was removed from consideration due to cost considerations.

6C. Alternatives 2A & 2B – Existing Alignment

This alternative proposes to construct a bridge coincident with the existing bridge right of way. Traffic would be detoured to 9th Street during construction, but it is anticipated that some of this traffic would utilize SR-99 as well. Pedestrian traffic would be accommodated by a special bus transit service utilizing 9th Street until construction is complete. Retaining walls are required both north and south of the proposed bridge to avoid right of way acquisition from the adjacent parcels to the east.

This Alternative has 2 options – both of which use continuous, post-tensioned, wide flange precast girders. While Alternative 2B used this for the entirety of the structure, Alternative 2A uses a tied arch for the portion over the Tuolumne River low flow channel.

Cost Estimates (2A)

Roadway Items	$ 9,184,618
Structure Items	$43,531,343
Subtotal Construction Costs	$52,715,962
Right of Way/Utility Items	$ 4,785,806
Total Capital Outlay Costs	**$57,502,000**

Cost Estimates (2B)

Roadway Items	$ 9,184,618
Structure Items	$24,252,351
Subtotal Construction Costs	$33,436,969
Right of Way/Utility Items	$ 4,785,806
Total Capital Outlay Costs	**$38,223,000**

6D. Alternative 3 – Staged Bridge Construction

Alternative 3 replaces the existing bridge with a bridge built on a parallel alignment in 2 stages. In the first stage, the western half of the bridge would be built while traffic remains on the existing bridge. In the next stage, traffic would be shifted to the newly constructed "half-bridge", while the existing bridge is removed and the eastern half of the new bridge is built in its place. This scheme would allow 2-lane traffic (1 lane in each direction) to be served at all times during construction and eliminate the need to temporarily detour traffic to the 9th Street Bridge. A staged construction approach has increased costs and construction duration due to its associated inefficiencies in construction methods.

Several business including Lion's Market, Extreme Auto Repair, Southwest Tires, and 8 units of the SVMHC would require acquisition south of the Tuolumne River.

This alternative realigns 7th Street to Crows landing Road to accommodate a 40mph design speed – thus providing continuity for the major movement.

Cost Estimates

Roadway Items	$ 9,330,097
Structure Items	$26,864,068
Subtotal Construction Costs	$36,194,165
Right of Way/Utility Items	$ 7,920,599
Total Capital Outlay Costs	**$44,115,000**

6E. Alternative 4 – Retrofit Existing Bridge

Alternative 4 proposes to remove the existing sidewalks and retrofit the existing bridge to accommodate 2 lanes of northbound traffic. In addition, a separate new 2-lane bridge would be constructed downstream to accommodate southbound traffic and pedestrians. During construction, traffic would use either bridge, so no long term detours would be necessary.

Several business including Lion's Market, Extreme Auto Repair, Southwest Tires, and 8 units of the SVMHC would require acquisition south of the Tuolumne River.

The retrofit of the existing bridge is covered in a separate report titled "Final Rehabilitation and Retrofit Strategy Report" dated June 6, 2013. While the rehabilitation and retrofit measures presented in the report address repair of vulnerabilities related to seismic and modern vehicular loadings, many deficiencies remain including:

- Functional obsolescence of the existing structure: The existing structure has no shoulders, creating an unsafe condition for drivers and cyclists. The existing sidewalks could be removed to provide partial shoulders, but they would be substandard in width and result in a loss of pedestrian access. There is no feasible way to widen the structure to provide room for shoulders as the truss embedded in the concrete arch extends above the roadway surface. The width of the existing bridge does not provide for future traffic volumes, so a parallel bridge would be required.

- Inadequate freeboard for the 100, 200, and 500 year flood events: The structure has zero freeboard for the 100 year event and partly impounds the 200 year event. There is no practical way to raise the bridge to provide the minimum required freeboard of 3' for the 100 year event.
- Remaining life of the existing steel truss and questionable durability of the concrete arches and abutments: The concrete that encases the embedded steel trusses prevents inspection and monitoring of the condition of the steel members. The presence and propagation of fatigue cracks and corrosion in the members cannot be observed or repaired. Because of the inability to closely inspect and monitor the aged steel members and the fact that the bridge is non-redundant, structural deterioration cannot be assessed and failure of any one of the embedded steel members will result in likely collapse. Additionally, regions of the concrete exhibit significant cracking and spalling that appears to be due to alkali-silica reaction (ASR). There are no practical mitigations for ASR. The ASR will continue to cause cracking in the concrete and will be an on-going inspection and maintenance need. An extensive and expensive test program would be required to determine the exact condition of the existing concrete and embedded steel.
- Collision performance of the existing barriers: The existing barriers are not capable of resisting design crash loads and since the barriers are a component of the bridge's primary structural system, damage to them can lead to bridge collapse. The only way to protect the bridge from this vulnerability would be the installation of supplemental barriers in front of the existing barriers. This would require removal of the existing sidewalks and loss of pedestrian access on the bridge. It would also reduce the potential shoulder width improvement provided by removing the sidewalks.
- Continuing deterioration of bridge architectural features, such as the barrier railing and recumbent lion statues: Maintenance of the architectural features will require an on-going inspection and repair program to minimize their continued deterioration.
- ADA requirements for the existing sidewalks (if sidewalks remain on bridge): If the existing sidewalks remain they will require significant improvements to provide adequate disabled access across the bridge.

Mitigation of the above deficiencies either requires additional maintenance efforts that will likely increase over time or generally cannot be accomplished by implementing rehabilitation strategies suggested in the report. Additional project costs could be expected and a large contingency would be necessary to insure against unanticipated work that might be discovered necessary during the retrofit and rehabilitation work.

Cost Estimates

Roadway Items	$ 9,509,472
Structure Items	$27,839,763
Subtotal Construction Costs	$37,349,235
Right of Way/Utility Items	$ 8,228,033
Total Capital Outlay Costs	**$45,578,000**

6F. Alternative Comparison

An alternative cost comparison is as follows:

Alternative	Construction	Right of Way	Total
2A	$52,715,962	$4,785,806	$57,502,000
2B	$33,436,969	$4,785,806	$38,223,000
3	$36,194,165	$7,920,599	$44,115,000
4	$37,349,235	$8,228,033	$45,578,000

An alternative advantage/disadvantage comparison is as follows:

Alternative	Pros	Cons
2A	• Minimizes Right of Way Impacts • Tied Arch Provides enhanced aesthetics • Greatest Environmentally Sensitivity • Greatest Hydraulic Capacity	• Requires detour throughout construction • Greatest Cost • Does not provide major movement continuity
2B	• Minimizes Right of Way Impacts • Least Cost • Shortest Construction Duration	• Requires detour throughout construction • Does not provide major movement continuity
3	• Does not require detour during construction • Provides major movement continuity	• More Right of Way impacts on south side than Alternative 2
4	• Does not require detour throughout construction	• Longer construction duration than Alternative 2 • More Right of Way impacts on south side than Alternative 2 • Does not provide major movement continuity

7. ENVIRONMENTAL DOCUMENT

A substantial portion of project funding would be provided by HBP funds, using various funding mechanisms such as federal gas tax revenue. Because of its role in administering federal funds, Caltrans is responsible for preparing an environmental impact assessment under the National Environmental Policy Act (NEPA). Caltrans is preparing a separate NEPA environmental document, which will be circulated for public review at a later date.

All project Alternatives would meet the project objectives. Impacts of all Alternatives would be similar, as all Alternatives would cause a similar disruption during construction and similar long-term beneficial and adverse impacts.

The Draft EIR was released for review in August 2016 which initiated a 45-day comment period in which affected agencies, organizations, and individuals can comment on the document. A public meeting was held during this comment period, where information was shared and comments from interested parties were solicited. All received comments have been addressed, and the EIR has been updated as needed in response to comments. A Final EIR will be published before final action by Stanislaus County.

8. ALTERNATIVE COMPARISON

The alternatives were compared to each other based on a weighted criterion. A value score was developed for each based on performance and cost where:

$$\text{Value} = \frac{\text{Project Performance}}{\text{Project Cost}}$$

The methodology followed the following steps:

- Define the major performance criteria and determine the relative importance of the criteria

	Criterion	Share	Comment
1	Right of Way Impacts	35%	Minimize Impacts to Right of Way
2	Environmental Impacts	25%	Minimize Impacts to Environmentally Sensitive Areas
3	Construction Duration	10%	Minimize Duration of Construction
4	Traffic Handling	20%	Maintain Traffic over 7th Street Crossing During Construction
5	Aesthetics	10%	Provide Aesthetics for Visibility from River and Park

Further explanation of each of the above criteria is as follows:

Right of Way Impacts – While impacts to properties on the north side of the river are equivalent in all alternatives, impacts to properties on the south side vary significantly between the alternatives. Lesser right of way impacts will translate into an improved value for this criterion.

Environmental Impacts – Impacts to environmentally sensitive areas such as the river, existing bridge, and possibly hazardous industrial areas to the south, are qualitatively evaluated for this criterion. Lesser impacts to these facilities will translate into an improved value for this criterion.

Construction Duration – Traffic will be impacted during construction (whether by detour or adjacent construction). In addition, construction activities will have undesirable impacts on adjacent businesses and residences. As a result, the duration of

construction is an important evaluation factor. Shorter construction durations will translate into an improved value for this criterion.

Traffic Handling – During construction, traffic will be either maintained or detoured during construction. Detoured traffic will add congestion to adjacent river crossings such as SR-99 and 9th Street. Effectively maintaining traffic over the 7th Street Bridge will translate into an improved value for this criterion.

Aesthetics – Evaluation of the aesthetics of the resulting bridge design which will be highly visible from the river and proposed adjacent park.

- Determine the Performance of each Alternative

The performance of each alternative in each performance category was evaluated in this analysis and provided a relative qualitative score. A high score meets the performance goals well and a low score does not.

Criterion Weighting (Score 0 - 10)

	Alternative			
Performance Criteria	**2a**	**2b**	**3**	**4**
Right of Way Impacts (35%)	8	8	5	5
Environmental Impacts (25%)	8	6	4	5
Construction Duration (10%)	7	8	6	5
Traffic Handling (20%)	2	2	8	8
Aesthetics (10%)	8	6	6	5
Performance Score	6.7	6.1	5.55	5.6

- Determine and Compare the overall value of each alternative

The value of each alternative was calculated into a qualitative score. A high score meets the performance goals well and a low score does not. Details of each alternative are shown in Attachment E.

Alternative	Performance Score	Cost	Value Score
2a	6.70	$57.5 Million	117
2b	**6.10**	**$38.2 Million**	**160**
3	5.55	$44.1 Million	126
4	5.60	$45.6 Million	123

9. RECOMMENDATION

Alternative 2B has a significantly higher value score than all of the other alternatives. It is most environmentally sensitive alternative (except for Alternative 2A) and has the lowest cost as well.

As a result, Alternative 2B is the recommended alternative.

10. ATTACHMENTS

A. Existing Conditions and Constraints
B. Design Criteria memorandum
C. Geometric Drawings for Alternatives
D. Advanced Planning Studies
E. Cost Estimates

Attachment A

Existing Conditions and Constraints


Caltrans
MODESTO
CALIFORNIA
Stanislaus County
SUNRISE MOBILE HOME, COTTAGE & RV PARK
FARRIESTER AUTO WRECKERS
D&W AUTO WRECKERS
CROWS LANDING RD
SOUTHWEST TIRE
LIONS MARKET
EXTREME AUTO REPAIR
BONANZA ALL FOREIGN AUTO
MODESTO AUTO WRECKERS
7th STREET
ZEFF RD
RIVER RD
JANOPAUL AVE
PEPSI BOTTLING GROUP
TUOLUMNE RIVER
STORM DRAIN OUTFALL
48" STORM DRAIN
RR TRACKS
PG&E OVERHEAD
CALAVERAS AVE.
TUOLUMNE CHRISTIAN DAYCARE
COLLINS ELECTRICAL CO. INC.
TUOLUMNE BLVD
WILLIE ELECTRIC SUPPLY INC.
SIERRA DRIVE
6th STREET
PARADISE TIRE OF MODESTO, INC.
BIG BEAR CAR WASH
C STREET
24 HOUR TOWING
N 7th St
AMERI GAS
W.H BRESHEARS, INC.
B St
LEGEND:
EX. RIGHT OF WAY
EX. UTILITIES
SCALE: 1" = 100'
QUINCY ENGINEERING

Attachment B

Design Criteria Memorandum

QUINCY ENGINEERING

Memo

Date: June 14, 2016

To: Dave Leamon, P.E. - Stanislaus County Department of Public Works

From: Carl H. Gibson III, P.E.

RE: 7th Street Bridge Replacement – Draft Project Geometric Design Criteria

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INTRODUCTION

The Stanislaus County, Department of Public Works, operating as the lead agency between Stanislaus County and City of Modesto Public Works in cooperation with the California Department of Transportation (Caltrans), is proposing to replace the existing bridge on 7th Street crossing over the Tuolumne River (Br. No. 38C-0023) and to construct the minimum necessary approach roadway improvements to accommodate the bridge replacement. The proposed project will address structural deficiencies of the existing bridge and satisfy current standards.

The purpose of this memorandum is to document the review and evaluation of relevant roadway design standards from various sources and to determine the appropriate design criteria for the development of roadway geometrics used in the replacement project alternative. It is anticipated that Stanislaus and the City of Modesto will review the information presented in this memorandum. Approval of the memorandum by both agencies will signify the approval of the design standards set forth in the criteria for use on this project.

DESIGN STANDARDS

The primary intent of the Highway Bridge Program is to replace or rehabilitate public highway bridges over waterways, other topographical barriers, other highways, or railroads when the State and the Federal Highway Administration determine that a bridge is significantly important and is unsafe because of structural deficiencies, physical deterioration, or functional obsolescence. Caltrans Local Assistance Procedures Manual (LAPM) Chapter 11-Design Standards states that all local federal-aid projects shall be designed in accordance with American Association of State Highway and Transportation Officials standards as defined in the current edition of A Policy on Geometric Design of Highways and Streets (AASHTO). Projects that utilize standards that exceed AASHTO guidelines and standards have the potential to include additional project costs that may not be considered as participating costs under the HBP funding requirements.

The following design standards were reviewed in preparing the project geometric design criteria memorandum:

- A Policy on Geometric Design of Highways and Streets, 2011, 6th edition; American Association of State Highway and Transportation Officials (AASHTO)
- Stanislaus County 2007 Improvement Standards (STAN2007)
- City of Modesto 2006 Standard Specifications (MOD2006)
- Caltrans Highway Design Manual, 6th Edition, 2012 (HDM)

FUNCTIONAL CHARACTERISTICS

The selection of appropriate design criteria requires that the functional characteristics of the roadway are defined. 7th Street within the proposed project area is classified as an Urban Minor Arterial (See Appendix A).

SUFFICENICY RATING CONSIDERATIONS

Caltrans LAPM, Chapter 11 contain specific requirements that address design exceptions. Local agencies take full responsibility and liability for meeting design standards and approving design exceptions. Design exceptions that would result in the construction of a federally funded new bridge with a Sufficiency Rating (SR) of less than 80 are not allowed. In order to ensure the project improvements will not result in an SR of less than 80, specific attention is directed to nonstandard shoulder widths and any associated design exceptions. See later discussion on shoulder width and bridge width.

DESIGN CRITERIA

The FHWA has designated twelve (12) geometric controlling criteria with a primary importance for safety in the selection of design standards.

Additional information is available in the Caltrans LAPM Chapter 11. The following criteria will be utilized in the development of the project's design criteria:

A. Design Speed
B. Lane Width
C. Approach Roadway Shoulder Width
D. Bridge Width
E. Horizontal Alignment
F. Vertical Alignment
G. Grades
H. Stopping Sight Distance (SSD)
I. Cross Slopes
J. Superelevation
K. Horizontal Clearance
L. Vertical Clearance

The comparison table in Appendix A lists the requirements for the twelve geometric criteria as specified by the AASHTO standards, Stanislaus County, City of Modesto, and Caltrans. In addition, the table includes the recommended design standard to be adopted for this project. It should be noted that some minimum requirements are exceeded as a result of other design considerations. A discussion of each criterion is provided in the following sections.

DESIGN CRITERIA DISCUSSION AND JUSTIFICATION

A discussion of the various standards and a justification of the proposed standard for each geometric design criterion are presented in the following section.

1. Design Speed

A proposed design speed of 40 mph for the project is consistent with the design speed standard for an Urban Minor Arterial in the AASHTO standards (See Appendix A & D). However, STAN2007 and MOD2006 standards specify 50mph and 40mph, respectively for a facility of this type. HDM does not have an applicable design speed requirement.

The northern and southern ends of 7th Street within the project area are currently signed at 25mph and 35mph, respectively. Furthermore, maintaining a 40 mph design speed requirement would avoid right of way impacts to the development on the northwest quadrant of the 7th Street/Tuolumne Blvd intersection as well as the railroad tracks to the east.

2. Lane Width

Minimum proposed lane widths of 12’ are consistent with AASHTO design standards.

3. Approach Roadway Shoulder Width

The proposed shoulder width of 8’ for the project is consistent with Caltrans and AASHTO standards.

4. Bridge Clear Width

AASHTO Exhibit 6-6 “Minimum Roadway Widths and Design Loadings for New and Reconstructed Bridges” specifies that the minimum clear width for a bridge with an ADT>2,000 shall match the approach roadway width. As a result, the proposed minimum bridge clear width between barriers shall accommodate the approach roadway width.

Several factors were reviewed to determine if the AASHTO minimum bridge clear width was sufficient for the project. These factors were the Highway Bridge Program (HBP) Requirements, System Coordination and Planning, & Site Specific Constraints.

Multi Modal consideration for the bridge’s use for both pedestrians and bicyclists must also be considered in order to accommodate both current and future demands. The proposed bridge clear width provides 10’ sidewalks and 8’ Class II bicycle lanes on both sides.

5. Horizontal Alignment

The proposed horizontal alignment will utilize the AASHTO standards.

6. Vertical Alignment

The proposed vertical alignment will utilize the AASHTO standards.

7. Grades

The proposed minimum grade of 0.5% for the project will provide sufficient grades for runoff and adjacent curb and gutter profiles.

The proposed maximum grade of 4.9% for the project is consistent with the AASHTO standards and satisfies ADA Compliance requirements.

8. Stopping Sight Distance (SSD)

The proposed SSD of 271' for the project is consistent with the AASHTO standards for 35 mph assuming a 6% downgrade.

9. Cross Slopes

The proposed normal cross slope of 2% for the project is consistent with all design standards.

10. Superelevation

The proposed maximum superelevation rate (or e-max) is 6% per AASHTO standards.

The proposed superelevation distribution is based on Method 2, as recommended by the AASHTO standards for low-speed urban streets. Per Table 3.13b, a 510' radius or above can be used with adverse superelevation.

11. Horizontal Clearance

The proposed minimum horizontal clearances or clear zone for the project will be determined from AASHTO's Roadside Design Guide.

12. Vertical Clearance

This project shall follow AASHTO standards and provide a minimum 14' vertical clearance. The only existing grade separation exists between 7th Street and Zeff Road just south of the Tuolumne River and is signed at 11'-2".

13. Railroad At-Grade Crossing

It is anticipated that the existing at-grade railroad crossing of "B" Street may require widening or reconstruction. In that event, the controlling standards shall be governed by the FHWA Railroad-Highway Grade Crossing Handbook. The signing and striping of the crossing shall comply with the FHWA Manual on Uniform Traffic Control Devices. When there is a conflict, the former shall supersede.

14. Lane Drop Signage

All agencies defer to MUTCD for this issue which per Figure 3B-14 specifies a sign spacing of 565' for 35mph. For intersection departures, Condition B – Column 0 of Table 2C-4 is applicable, so a sign spacing of 100' is appropriate.

15. Freeboard

Central Valley Flood Protection Board (CVFPB) current regulations call for "Q-100 + 3". Pending regulations call for "Q-200+3". The former can be used as long as appropriate justification accompanies it.

CONCLUSION

The application of a Project Geometric Design Criteria that complies with the AASHTO standards will allow the County to satisfy the requirements set forth in LAPM Chapter 11 Design Standards.

It is anticipated that the strict application of this design criteria will result in Local Agency Design Exceptions based on Design Speed which is required to avoid significant right of way impacts. This is mitigated by the current low-speed nature of the existing facility as well as the need to be consistent with the adjacent roadway segments.

List of Attachments

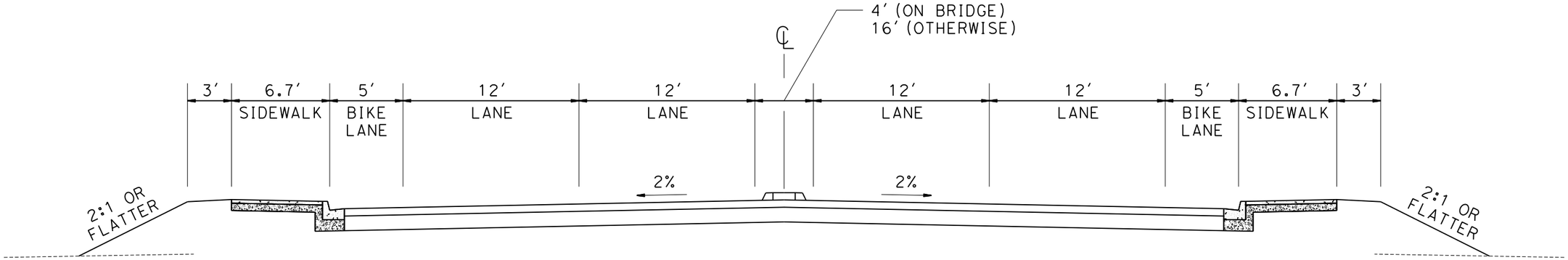
Attachment A- Design Criteria Summary Table
Attachment B- Proposed Project Typical Section
Attachment C- Caltrans CRS Maps
Attachment D- AASHTO Design Standards Applicable to this Project
Attachment E- STAN2007 Design Standards Applicable to this Project
Attachment F- MOD2006 Design Standards Applicable to this Project
Attachment G- HDM Design Standards Applicable to this Project

Criteria	Local Standards City of Modesto (2006) & Stanislaus County (2007)	Caltrans Standards (HDM 6th Edition) (5/7/12)	AASHTO Guidelines (2011)	Proposed Standard	Action to be Taken/Comments
Street Type/Functional Classification	City: Minor Arterial (per CRS maps) County : Major Road	Minor Arterial (per CRS maps)	Urban Minor Arterial	Urban Minor Arterial	
Structural Sections	City : Per Phillip Soares comments, TI = 11 on Streets, TI=12 within intersections & 50' past curb return (Min. 0.55' HMA over AB determined from geotechnical report). County : TI = 10 (streets) & 11 (intersections & 50' beyond curb flowline) – Min. section of 0.50' HMA over 0.50' AB	Based on R value and TI (Section 600)	Based on R value and TI	TI = 11 on streets and 12 within intersections & 50' beyond curb flowline. (Min. 0.55' HMA over AB determined from geotechnical report)	Note: Cost comparison between HMA/AB vs. full depth HMA may be required if R values are extremely low.
Design Speed	City: 40 mph (Table 3.1). Currently signed at 25mph County : 50 mph (Table 3.4). Currently signed at 35mph	For Local roads HDM defers to AASHTO	Based on Section 7.3.2, this can be 30-60mph range. Lower end of this range is appropriate for Central Business Districts.	40 mph – 7th Street Bridge 25 mph – 7th Street (South of Crows Landing)	Currently signed for 25mph on City side and 35mph on County side.
Lane Width	City: Per Phillip Soares comments, 12.5' per 3-10, Section J, Bullet #1, 11' for Lane #2 County : Per Pg. 3.15, 12.5' (adjacent to median)	For Local roads HDM defers to AASHTO. Per coordination with Caltrans for this project, 12' are acceptable.	12' (Section 4.3 & Pg. 7-13 & 7-29) 11' in urban areas (Section 4.3 at bottom of page)	4-Lane Facility – 12' 2-Lane facility - use 11.5' lane width.	
Outside Shoulder Width	City: None. See Bike Lane County : None. See Bike Lane.	For Local roads HDM defers to AASHTO. Per coordination with Caltrans for this project, 8' are acceptable.	8' (Pg. 7-13), 4' on Long Bridges	8'	

Class II Bicycle Lane Width	City: Per Phillip Soares comments, Defer to NACTO =>6' to curb flowline per "Design Guidance" County : Caltrans & AASHTO	5' to Curb Flowline (Pg. 300-20)	5' to Curb Flowline (Pg. 4.6.13)	5' to Curb Flowline	
Class I Bicycle Lane Width	City: None County : Defers to AASHTO	8' per HDM 1000-4 Min, 10' Preferred	10' (2012 AASHTO Bike Manual – Section 5.2.1)	10'	
Bridge Clear Width	City: None County : None	None	For ADT > 2000, match approach roadway width (Section 7.2.5)	Match Approach Roadway Width	
Median Width	City: 4' – 16' (No Landscaping, Use Stamped Colored Concrete) County : 4' Min. (Non-Landscaped), 8' – 16.5' (Landscaped)	For Local roads HDM defers to AASHTO	Min. 4' or Concrete Barrier with shy-away	4' if Non-Landscaped 8' if Landscaped 16' if left turn lane needed No Landscaping on City Side	
Median cross slope	N/A – Median will be raised	N/A – Median will be raised	N/A – Median will be raised	N/A – Median will be raised	
Minimum Right of Way Width	City: 100' (Table 3.1) County : 110' (Pg. 59)	10' from catch point (15 feet when feasible) (304.2)	N/A	100'	Right of way to be narrower due to avoidance of acquiring adjacent railroad R/W.
Normal Cross Slope	City: 2% (Pg. 3-5) County : 2% (Pg. 3.4)	2% (301.2)	1.5%-2% (p. 5-13)	2%	
Side Slopes	City: None County : None for Urban Streets	4:1 or flatter (304.1)	2:1 or flatter (p. 4-26)	2:1	Side Slope lies behind Vertical Curb & Sidewalk
Maximum Superelevation Rate	City: None County : None	6% Per Table 202.2	6%. Method 2.	6%. Method 2.	
Minimum Horizontal Curve Radius	City: 750' (Table 3.1) County : 1500' (Table 3.4)	550 feet (Table 203.2)	340' (Table 3-7) with superelevation. 510' without (Table 3.13b)	340' with superelevation. 510' without	
Pavement Corner	City: 30' (Plate 380)	Refer to Local Agency	25' (Figure 5-3 on 5-21)	TBD by Truck Analysis. 30'	

Radii	County : Determined by CA Vehicle (Pg. 3.21)	standards (405.8)		Min	
Maximum Grade	City: 6% (Pg. 3-5) County : Defers to Caltrans (Pg. 3.4)	6% (Table 204.3)	7% to 12% (Pg. 3-119)	4.9% for ADA Compliance	
Vertical Clearance	City: 13.5' (Section 1.05) County : 16.5' (Pg. 6.4)	15' (309.2)	14' for Local Urban	14'	
Min. Corner Sight Dist. at I/S	City: Not Specified County : Not Specified	385' feet (Table 405.1A)	Not Specified	385'	
Minimum Stopping Sight Distance	City: Defers to Caltrans County : Defers to Caltrans (Pg. 3.4)	250' (Table 201.1)	271' (Table 3-2 assuming a downgrade of 6%)	271'	
Clear Zone Width	City: None County : None	No direction for curbed urban streets. Refers to AASHTO	1.5' from curb face (Pg. 7-37)	1.5' from curb face	
Drainage Design	City: 100-yr Storm contained by Top of Curb (Pg. 4-1) County : 10-yr storm cannot inundate roadway (Pg. 4.1)	Local Standard	None	Culvert – 100 yr storm Roadway – 25 yr Bridge – 100 yr	
Freeboard	City: None County : None	None	None	Q-100 + 3 per current CVFBP Requirements. Requires justification.	
Deck Drainage	City: None County : None	Per BDA 17-1	None	Calculate per BDA 17-1	
Design Vehicle	City: None County : CA Truck (P. 3.21)	Ca Truck	None	STAA Truck	
Street Lighting	City: Per Phillip Soares comments, IESNA national Std RP-8-2K County : 150' Staggered to each side, 200W	None	None	IESNA national standard RP-8-2000	
Lane Drop Signage	Defers to MUTCD. MUTCD Figure 3B-14 & Table 2C-4 (CA).	Defers to MUTCD. MUTCD Figure 3B-14 & Table 2C-4 (CA).	Defers to MUTCD. MUTCD Figure 3B-14 & Table 2C-4 (CA).	Use Condition A for normal lane drops. Use Condition B on Table 2C-4 – Column 0 for intersection departures	
Lane Drop Taper	Width x Speed (Plate #364)	Width x Speed (206.3)	Width x Speed	Width x Speed	

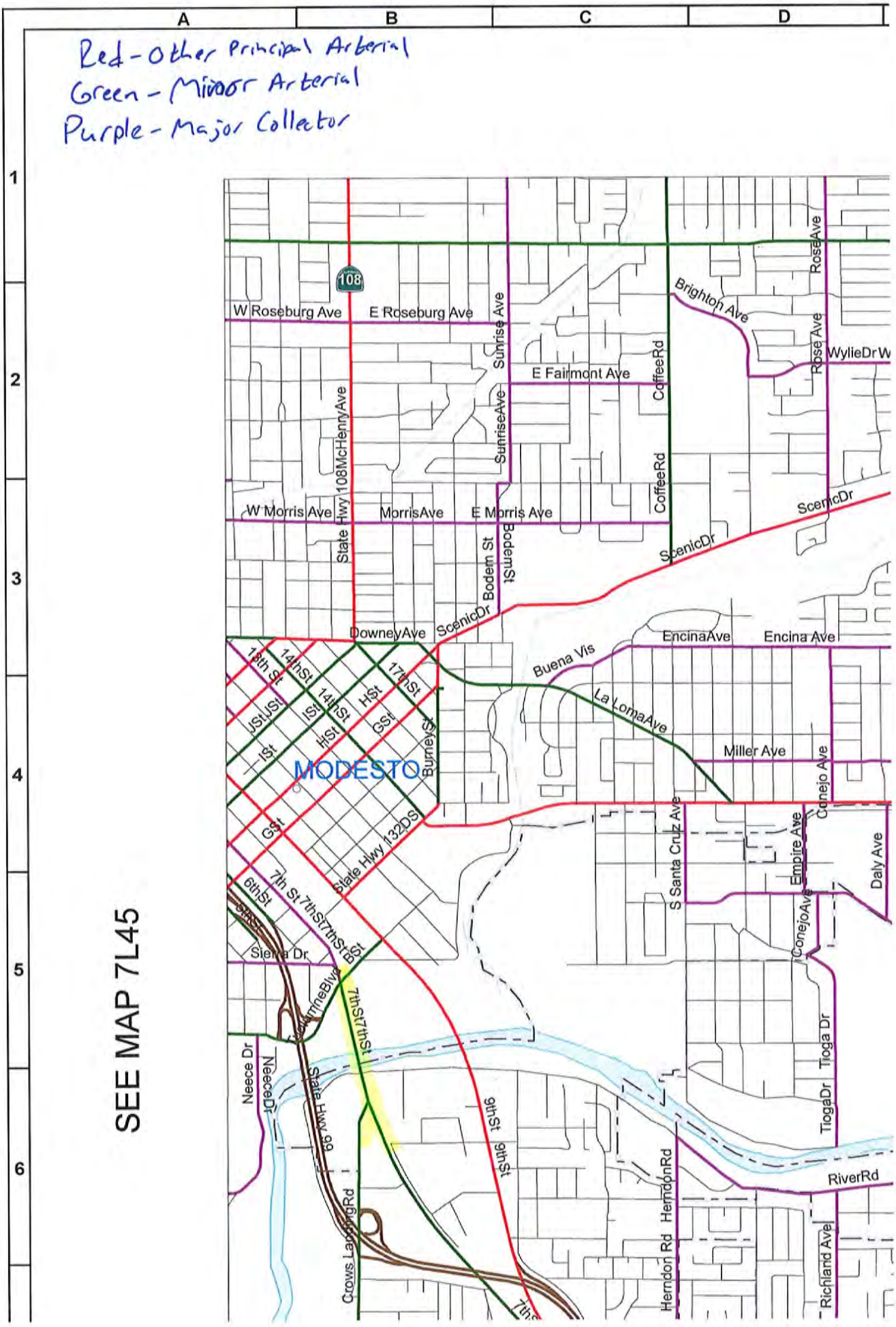
7th Street Bridge Replacement
Typical Section



4-LANE SECTION

QUINCY ENGINEERING

Red - Other Principal Arterial
Green - Minor Arterial
Purple - Major Collector



the posted speed limit is determined arbitrarily. In addition, speed zones should be determined from traffic engineering studies, should be consistent with prevailing conditions along the street and with the cross section of the street, and should be capable of reasonable enforcement.

Urban arterial streets and highways generally have running speeds of 30 to 70 km/h [20 to 45 mph]. It follows that the appropriate design speeds for arterials should range from 50 to 100 km/h [30 to 60 mph]. The design speed selected for an urban arterial should depend largely on the spacing of signalized intersections, the selected type of median cross section, the presence or absence of curb and gutter along the outside edges of the traveled way, and the amount and type of access to the street. Reconstructed urban arterial highways should generally be designed for an operating speed of at least 50 km/h [30 mph].

The preceding discussion describes the considerations in selecting an appropriate design speed. From this discussion, it should be evident that there are important differences between the design criteria applicable to low- and high-speed designs. Because of these distinct differences, the upper limit for low-speed design is 70 km/h [45 mph] and the lower limit for high-speed design is 80 km/h [50 mph].

2.3.7 Traffic Flow Relationships

Traffic flow conditions on roadways can be characterized by the volume flow rate expressed in vehicles per hour, the average speed in kilometers per hour [miles per hour], and the traffic density in vehicles per kilometer [vehicles per mile]. These three variables—volume, speed, and density—are interrelated and have predictable relationships. The generalized relationships between volume, speed, and density for uninterrupted flow facilities, as presented in the HCM (*37*) are shown in Figure 2-29. The relationships shown in Figure 2-29 are conceptual in nature and do not necessarily correspond to the actual relationships used in specific HCM procedures. For example, the HCM procedures for freeways and multilane highways show that speed does not vary with volume through most of the low and intermediate volume range, as shown in Figure 2-29. The HCM procedures for two-lane highways show that speed varies linearly with volume throughout the entire volume range from zero to capacity.

Density, the number of vehicles per unit length of roadway, increases as vehicles crowd closer together. As Figure 2-29 shows, when speeds decrease, increased crowding can occur and drivers can comfortably follow more closely behind other vehicles. Density is used in the HCM as the measure of quality of traffic service for freeways and multilane highways.

Traffic volumes also vary with density from zero to maximum flow rate, as shown in Figure 2-29. The two points of zero flow in Figure 2-29 represent either no vehicles at all or so many vehicles on the roadway that flow has stopped. The maximum flow is reached at the point of maximum density.

Interference to traffic flow causes speeds to be reduced, vehicles to travel closer together, and density to increase. Interference may be caused by weather conditions, cross traffic, disabled vehicles, crashes, or other conditions. As these conditions cause more interference, the flow rates within certain limits can still be maintained but with reduced speed, closer vehicle spacing, and greater density. When interference becomes so great (despite closer vehicle spacing and greater density) that the average speed drops below that needed to maintain stable flow, there is a rapid decrease in speed and traffic flow, and severe congestion occurs.

Effect of Grade on Stopping

When a highway is on a grade, Equation 3-1 for braking distance is modified as follows:

Metric

$$d_B = \frac{V^2}{254\left[\left(\frac{a}{9.81}\right) \pm G\right]}$$

where:

d_B = braking distance on grade, m
V = design speed, km/h
a = deceleration, m/s^2
G = grade, rise/run, m/m

U.S. Customary

$$d_B = \frac{V^2}{30\left[\left(\frac{a}{32.2}\right) \pm G\right]} \quad (3\text{-}3)$$

where:

d_B = braking distance on grade, ft
V = design speed, mph
a = deceleration, ft/s^2
G = grade, rise/run, ft/ft

In this equation, G is the rise in elevation divided by the distance of the run and the percent of grade divided by 100, and the other terms are as previously stated. The stopping distances needed on upgrades are shorter than on level roadways; those on downgrades are longer. The stopping sight distances for various grades shown in Table 3-2 are the values determined by using Equation 3-3 in place of the second term in Equation 3-2. These adjusted sight distance values are computed for wet-pavement conditions using the same design speeds and brake reaction times used for level roadways in Table 3-1.

Table 3-2. Stopping Sight Distance on Grades

Metric							U.S. Customary						
Design Speed (km/h)	Stopping Sight Distance (m)						Design Speed (mph)	Stopping Sight Distance (ft)					
	Downgrades			Upgrades				Downgrades			Upgrades		
	3 %	6 %	9 %	3 %	6 %	9 %		3 %	6 %	9 %	3 %	6 %	9 %
20	20	20	20	19	18	18	15	80	82	85	75	74	73
30	32	35	35	31	30	29	20	116	120	126	109	107	104
40	50	50	53	45	44	43	25	158	165	173	147	143	140
50	66	70	74	61	59	58	30	205	215	227	200	184	179
60	87	92	97	80	77	75	35	257	271	287	237	229	222
70	110	116	124	100	97	93	40	315	333	354	289	278	269
80	136	144	154	123	118	114	45	378	400	427	344	331	320
90	164	174	187	148	141	136	50	446	474	507	405	388	375
100	194	207	223	174	167	160	55	520	553	593	469	450	433
110	227	243	262	203	194	186	60	598	638	686	538	515	495
120	263	281	304	234	223	214	65	682	728	785	612	584	561
130	302	323	350	267	254	243	70	771	825	891	690	658	631
							75	866	927	1003	772	736	704
							80	965	1035	1121	859	817	782

Table 3-7. Minimum Radius Using Limiting Values of e and f

Metric						U.S. Customary					
Design Speed (km/h)	Maximum e (%)	Maximum f	Total (e/100 + f)	Calculated Radius (m)	Rounded Radius (m)	Design Speed (mph)	Maximum e (%)	Maximum f	Total (e/100 + f)	Calculated Radius (ft)	Rounded Radius (ft)
15	4.0	0.40	0.44	4.0	4	10	4.0	0.38	0.42	15.9	16
20	4.0	0.35	0.39	8.1	8	15	4.0	0.32	0.36	41.7	42
30	4.0	0.28	0.32	22.1	22	20	4.0	0.27	0.31	86.0	86
40	4.0	0.23	0.27	46.7	47	25	4.0	0.23	0.27	154.3	154
50	4.0	0.19	0.23	85.6	86	30	4.0	0.20	0.24	250.0	250
60	4.0	0.17	0.21	135.0	135	35	4.0	0.18	0.22	371.2	371
70	4.0	0.15	0.19	203.1	203	40	4.0	0.16	0.20	533.3	533
80	4.0	0.14	0.18	280.0	280	45	4.0	0.15	0.19	710.5	711
90	4.0	0.13	0.17	375.2	375	50	4.0	0.14	0.18	925.9	926
100	4.0	0.12	0.16	492.1	492	55	4.0	0.13	0.17	1186.3	1190
						60	4.0	0.12	0.16	1500.0	1500
15	6.0	0.40	0.46	3.9	4	10	6.0	0.38	0.44	15.2	15
20	6.0	0.35	0.41	7.7	8	15	6.0	0.32	0.38	39.5	39
30	6.0	0.28	0.34	20.8	21	20	6.0	0.27	0.33	80.8	81
40	6.0	0.23	0.29	43.4	43	25	6.0	0.23	0.29	143.7	144
50	6.0	0.19	0.25	78.7	79	30	6.0	0.20	0.26	230.8	231
60	6.0	0.17	0.23	123.2	123	35	6.0	0.18	0.24	340.3	340
70	6.0	0.15	0.21	183.7	184	40	6.0	0.16	0.22	484.8	485
80	6.0	0.14	0.20	252.0	252	45	6.0	0.15	0.21	642.9	643
90	6.0	0.13	0.19	335.7	336	50	6.0	0.14	0.20	833.3	833
100	6.0	0.12	0.18	437.4	437	55	6.0	0.13	0.19	1061.4	1060
110	6.0	0.11	0.17	560.4	560	60	6.0	0.12	0.18	1333.3	1330
120	6.0	0.09	0.15	755.9	756	65	6.0	0.11	0.17	1656.9	1660
130	6.0	0.08	0.14	950.5	951	70	6.0	0.10	0.16	2041.7	2040
						75	6.0	0.09	0.15	2500.0	2500
						80	6.0	0.08	0.14	3047.6	3050
15	8.0	0.40	0.48	3.7	4	10	8.0	0.38	0.46	14.5	14
20	8.0	0.35	0.43	7.3	7	15	8.0	0.32	0.40	37.5	38
30	8.0	0.28	0.36	19.7	20	20	8.0	0.27	0.35	76.2	76
40	8.0	0.23	0.31	40.6	41	25	8.0	0.23	0.31	134.4	134
50	8.0	0.19	0.27	72.9	73	30	8.0	0.20	0.28	214.3	214
60	8.0	0.17	0.25	113.4	113	35	8.0	0.18	0.26	314.1	314
70	8.0	0.15	0.23	167.8	168	40	8.0	0.16	0.24	444.4	444
80	8.0	0.14	0.22	229.1	229	45	8.0	0.15	0.23	587.0	587
90	8.0	0.13	0.21	303.7	304	50	8.0	0.14	0.22	757.6	758
100	8.0	0.12	0.20	393.7	394	55	8.0	0.13	0.21	960.3	960
110	8.0	0.11	0.19	501.5	501	60	8.0	0.12	0.20	1200.0	1200
120	8.0	0.09	0.17	667.0	667	65	8.0	0.11	0.19	1482.5	1480
130	8.0	0.08	0.16	831.7	832	70	8.0	0.10	0.18	1814.8	1810
						75	8.0	0.09	0.17	2205.9	2210
						80	8.0	0.08	0.16	2666.7	2670
15	10.0	0.40	0.50	3.5	4	10	10.0	0.38	0.48	13.9	14
20	10.0	0.35	0.45	7.0	7	15	10.0	0.32	0.42	35.7	36
30	10.0	0.28	0.38	18.6	19	20	10.0	0.27	0.37	72.1	72
40	10.0	0.23	0.33	38.2	38	25	10.0	0.23	0.33	126.3	126
50	10.0	0.19	0.29	67.9	68	30	10.0	0.20	0.30	200.0	200
60	10.0	0.17	0.27	105.0	105	35	10.0	0.18	0.28	291.7	292
70	10.0	0.15	0.25	154.3	154	40	10.0	0.16	0.26	410.3	410
80	10.0	0.14	0.24	210.0	210	45	10.0	0.15	0.25	540.0	540
90	10.0	0.13	0.23	277.3	277	50	10.0	0.14	0.24	694.4	694
100	10.0	0.12	0.22	357.9	358	55	10.0	0.13	0.23	876.8	877
110	10.0	0.11	0.21	453.7	454	60	10.0	0.12	0.22	1090.9	1090
120	10.0	0.09	0.19	596.8	597	65	10.0	0.11	0.21	1341.3	1340
130	10.0	0.08	0.18	739.3	739	70	10.0	0.10	0.20	1633.3	1630
						75	10.0	0.09	0.19	1973.7	1970
						80	10.0	0.08	0.18	2370.4	2370
15	12.0	0.40	0.52	3.4	3	10	12.0	0.38	0.50	13.3	13
20	12.0	0.35	0.47	6.7	7	15	12.0	0.32	0.44	34.1	34
30	12.0	0.28	0.40	17.7	18	20	12.0	0.27	0.39	68.4	68
40	12.0	0.23	0.35	36.0	36	25	12.0	0.23	0.35	119.0	119
50	12.0	0.19	0.31	63.5	64	30	12.0	0.20	0.32	187.5	188
60	12.0	0.17	0.29	97.7	98	35	12.0	0.18	0.30	272.2	272
70	12.0	0.15	0.27	142.9	143	40	12.0	0.16	0.28	381.0	381
80	12.0	0.14	0.26	193.8	194	45	12.0	0.15	0.27	500.0	500
90	12.0	0.13	0.25	255.1	255	50	12.0	0.14	0.26	641.0	641
100	12.0	0.12	0.24	328.1	328	55	12.0	0.13	0.25	806.7	807
110	12.0	0.11	0.23	414.2	414	60	12.0	0.12	0.24	1000.0	1000
120	12.0	0.09	0.21	539.9	540	65	12.0	0.11	0.23	1224.6	1220
130	12.0	0.08	0.20	665.4	665	70	12.0	0.10	0.22	1484.8	1480
						75	12.0	0.09	0.21	1785.7	1790
						80	12.0	0.08	0.20	2133.3	2130

Note: In recognition of safety considerations, use of e_{max} = 4.0% should be limited to urban conditions.

Control Grades for Design

Maximum grades—On the basis of the data in Figures 3-24 through 3-27, and according to the grade controls now in use in a large number of states, reasonable design guidelines for maximum grades can be established. Maximum grades of about 5 percent are considered appropriate for a design speed of 110 km/h [70 mph]. For a design speed of 50 km/h [30 mph], maximum grades generally are in the range of 7 to 12 percent, depending on terrain. If only the more important highways are considered, it appears that maximum grades of 7 or 8 percent are representative of current design practice for a 50-km/h [30-mph] design speed. Control grades for design speeds from 60 to 100 km/h [40 to 60 mph] fall between the above extremes. Maximum grade controls for each functional class of highway and street are presented in Chapters 5 through 8.

The maximum design grade should be used only infrequently; in most cases, grades should be less than the maximum design grade. At the other extreme, for short grades less than 150 m [500 ft] in length and for one-way downgrades, the maximum grade may be about 1 percent steeper than other locations; for low-volume rural highways, the maximum grade may be 2 percent steeper.

Minimum grades—Flat grades can typically provide proper surface drainage on uncurbed highways where the cross slope is adequate to drain the pavement surface laterally. With curbed highways or streets, longitudinal grades should be provided to facilitate surface drainage. An appropriate minimum grade is typically 0.5 percent, but grades of 0.30 percent may be used where there is a paved surface accurately sloped and supported on firm subgrade. Use of even flatter grades may be justified in special cases as discussed in Chapter 5. Particular attention should be given to the design of stormwater inlets and their spacing to keep the spread of water on the traveled way within tolerable limits. Roadside channels and median swales frequently need grades steeper than the roadway profile for adequate drainage. Drainage channels are discussed in Section 4.8.3.

Critical Lengths of Grade for Design

Maximum grade in itself is not a complete design control. It is also appropriate to consider the length of a particular grade in relation to desirable vehicle operation. The term "critical length of grade" is used to indicate the maximum length of a designated upgrade on which a loaded truck can operate without an unreasonable reduction in speed. For a given length of grade, lengths less than critical result in acceptable operation in the desired range of speeds. If the desired freedom of operation is to be maintained on grades longer than critical, design adjustments such as changes in location to reduce grades or addition of extra lanes should be considered. The data for critical lengths of grade should be used with other pertinent factors (such as traffic volume in relation to capacity) to determine where added lanes are warranted.

asphalt friction courses are quite effective because of their frictional and hydraulic properties. For further discussion, refer to the AASHTO *Guide for Pavement Friction* (*10*).

4.2.4 Hydroplaning

When a rolling tire encounters a film of water on the roadway, the water is channeled through the tire tread pattern and through the surface roughness of the pavement. Hydroplaning occurs when the drainage capacity of the tire tread pattern and the pavement surface is exceeded, and water begins to build up in front of the tire. As the water builds up, a water wedge is created and this wedge produces a hydrodynamic force which may provide lift to the rolling tire in some situations.

The circumstances under which hydroplaning will occur are influenced by water depth, roadway geometrics, vehicle speed, tread depth, tire inflation pressure, and the condition of the pavement surface. To reduce the potential for hydroplaning, designers should consider pavement transverse slopes, utilize pavement roughness characteristics, and avoid potential ponding areas during the establishment of horizontal and vertical alignments as well as during the pavement design phase of the project. Also, drivers should be expected to exercise caution in wet conditions in a manner similar to operating a vehicle during ice or snow events. The AASHTO *Model Drainage Manual* (*8*) and other publications (*14, 20*) provide additional design discussion of dynamic hydroplaning.

4.3 LANE WIDTHS

The lane width of a roadway influences the comfort of driving, operational characteristics, and, in some situations, the likelihood of crashes. Lane widths of 2.7 to 3.6 m [9 to 12 ft] are generally used, with a 3.6-m [12-ft] lane predominant on most high-speed, high-volume highways. The extra cost of providing a 3.6-m [12-ft] lane width, over the cost of providing a 3.0-m [10-ft] lane width is offset to some extent by a reduction in cost of shoulder maintenance and a reduction in surface maintenance due to lessened wheel concentrations at the pavement edges. The wider 3.6-m [12-ft] lane provides desirable clearances between large commercial vehicles traveling in opposite directions on two-lane, two-way rural highways when high traffic volumes and particularly high percentages of commercial vehicles are expected.

Lane widths also affect highway level of service. Narrow lanes force drivers to operate their vehicles closer to each other laterally than they would normally desire. Restricted clearances have a similar effect. In a capacity sense, the effective width of traveled way is reduced by adjacent obstructions such as retaining walls, bridge trusses or headwalls, and parked cars that restrict the lateral clearance. Further information on the effect of lane width on capacity and level of service is presented in the *Highway Capacity Manual* (HCM) (*40*).

Where unequal-width lanes are used, locating the wider lane on the outside (right) provides more space for large vehicles that usually occupy that lane, provides more space for bicycles, and allows drivers to keep their vehicles at a greater distance from the right edge. Where a curb is used adjacent to only one edge, the wider lane should be placed adjacent to that curb. The basic design decision is the total roadway width, while the placement of stripes actually determines the lane widths.

In urban areas where pedestrian crossings, right-of-way, or existing development become stringent controls on lane widths, the use of 3.3-m [11-ft] lanes may be appropriate. Lanes 3.0 m [10 ft] wide are accept-

However, site conditions such as restricted right-of-way or the cost-effectiveness of such design may dictate the use of slope combinations steeper than desirable. If constraints make it impractical to provide the appropriate roadside recovery distance, the need for a roadside barrier should be considered. Where the height and slope of roadway embankments are such that the severity of potential crashes will be reduced by the placement of a roadside barrier, the cross section should be designed to allow adequate slope rounding and to support the barrier.

Flat and well-rounded sideslopes simplify the establishment of turf and its subsequent maintenance. Grasses usually can be readily established on sideslopes as steep as 1V:2H in favorable climates and 1V:3H in semiarid climates. With slopes of 2V:3H and steeper, it is difficult to establish turf, even in areas of abundant rainfall. Because of the greater velocity of runoff, sufficient water for the maintenance of grass does not seep into the soil. Deep-rooted plants that do not depend upon surface water alone may be appropriate where slopes are excessively steep. Slopes of the order of 1V:3H and flatter can be mechanically mowed. Although steeper slopes reduce the mowing area considerably, the slow, time-consuming manual methods needed to mow the area add substantially to maintenance costs.

With some types of soils, it is essential for stability that slopes be reasonably flat. Soils that are predominantly clay or gumbo are particularly susceptible to erosion, and slopes of 1V:3H or flatter should be used. The intersections of slope planes in the highway cross section should complement the earth forms of the terrain being traversed. Some earth forms are well-rounded and others are steeply sloped. The designer should strive to create a natural look that is aesthetically pleasing. Since rounded landforms are the natural result of erosion, such rounded forms are stable; therefore, use of well-rounded forms in the design of the highway cross section is likely to result in greater stability.

To attain a natural appearance along the roadside, flat, well-rounded sideslopes should be provided. A uniform slope through a cut or fill section often results in a formal or stilted appearance. This appearance can be softened and made more natural by flattening the slopes on the ends where the cut or fill is minimal and by gradually steepening it toward the controlling maximum slope of the cut or fill. This design may be readily accomplished by liberal rounding of the hinge point in the transition area. On short cut or fill sections, the result may be one of continuous longitudinal rounding whereas, on sections of substantial length, the effect will be one of funneling. The transitioning of sideslopes is especially effective at the ends of cuts when combined with an increased lateral offset of the drainage channel and a widened shoulder.

The combination of flat slopes and rounding is frequently referred to as a "streamlined cross section." With this shape, the crosswinds sweep along the surface without forming eddies that contribute to the wind erosion and drifting of snow. The streamlined cross section usually results in a minimum expenditure for snow removal because the winds blow the snow off the traveled way instead of drifting it, as happens in cross sections with steep slopes and no rounding. When combined with the design of an elevated roadway on earth embankment to ensure drainage of the subgrade, the streamlined cross section results in a roadway that needs minimal maintenance and operating costs and operates with fewer severe crashes.

In some cases, an irregular slope stake line results from the strict adherence to specified cut or fill slopes. It may be more aesthetically pleasing to vary the slope to yield a neat stake line.

the clear width provided, traffic volume, remaining structure life, pedestrian volume, snow storage, design speed, crash history, and other pertinent factors.

Table 5-7. Minimum Structural Capacities and Minimum Roadway Widths for Bridges to Remain in Place

Metric			U.S. Customary		
Design Volume (veh/day)	Design Loading Structural Capacity	Minimum Clear Roadway Width (m)[a,b,c]	Design Volume (veh/day)	Design Loading Structural Capacity	Minimum Clear Roadway Width (ft)[a,b,c]
0 to 50	MS 13.5	6.0[d]	0 to 50	HS 15	20[d]
50 to 250	MS 13.5	6.0	50 to 250	HS 15	20
250 to 1500	MS 13.5	6.6	250 to 1500	HS 15	22
1500 to 2000	MS 13.5	7.2	1500 to 2000	HS 15	24
over 2000	MS 13.5	8.5	over 2000	HS 15	28

a Clear width between curbs or rails, whichever is the lesser.

b Minimum clear widths that are 0.6 m [2 ft] narrower may be used on roads with few trucks. In no case should the minimum clear width be less than the approach traveled way width.

c Does not apply to structures with total length greater than 30 m [100 ft].

d For single-lane bridges, use 5.4 m [18 ft].

Vertical Clearance

Vertical clearance at underpasses should be at least 4.3 m [14 ft] over the entire roadway width, with an allowance for future resurfacing. Pedestrian, bicycle, and sign structures should be provided with a vertical clearance of at least 4.5 m [15 ft].

5.2.4 Roadside Design

There are two primary considerations for roadside design along the traveled way for local rural roads—clear zones and lateral offset.

Clear Zones

A clear zone of 2 to 3 m [7 to 10 ft] or more from the edge of the traveled way, appropriately graded with relatively flat slopes and rounded cross-sectional design, is desirable. An exception may be made where guardrail protection is provided. The clear zone should be clear of all unyielding objects such as trees, sign supports, utility poles, light poles, and any other fixed objects that might increase the potential severity of a crash when a vehicle runs off the road. Further guidance on clear zones can be found in the AASHTO *Roadside Design Guide* (*9*).

One source of alternative clear zone design criteria that may be considered for local roads and streets that carry 400 vehicle per day or less is the AASHTO *Guidelines for Geometric Design of Very Low-Volume Local Roads (ADT ≤ 400)* (*3*).

Lateral Offset

Lateral offset is defined in Section 4.6.2. Further discussion and suggested guidance on the application of lateral offsets is provided in the AASHTO *Roadside Design Guide* (*9*).

If superelevation is used, street curves should be designed for a maximum superelevation rate of 4 percent. If terrain dictates sharp curvature, a maximum superelevation rate of 6 percent may be justified if the curve is long enough to provide an adequate superelevation transition. Minimum lengths of superelevation runoff and a detailed discussion of superelevation are found in Chapter 3.

Sight Distance

Minimum stopping sight distance for local streets should range from 30 to 60 m [100 to 200 ft] depending on the design speed (see Table 3-1). Design for passing sight distance seldom is applicable on local streets.

Cross Slope

Pavement cross slope should be adequate to provide proper drainage. Normally cross slopes range from 1.5 to 2 percent for paved surfaces and 2 to 6 percent for unpaved surfaces where there are flush shoulders. Where there are outer curbs, cross slopes steeper than the guidelines given above by about 0.5 to 1 percent are desirable for the lane adjacent to the curb.

For unpaved surfaces, such as stabilized or loose gravel or stabilized earth surfaces, a 3 percent cross slope is desirable. For further information on pavement cross slope, see Section 4.2.2.

5.3.2 Cross-Sectional Elements

Width of Traveled Way

Street lanes for moving traffic preferably should be 3.0 to 3.3 m [10 to 11 ft] wide, and in industrial areas they should be 3.6 m [12 ft] wide. Where the available or attainable width of right-of-way imposes severe limitations, 2.7-m [9-ft] lanes can be used in residential areas, and 3.3-m [11-ft] lanes can be used in industrial areas. Added turning lanes where used at intersections should be at least 2.7 m [9 ft] wide, and desirably 3.0 to 3.6 m [10 to 12 ft] wide, depending on the percentage of trucks.

Where bicycle facilities are included as part of the design, refer to the AASHTO *Guide for the Development of Bicycle Facilities* (*2*).

Number of Lanes

On residential streets where the primary function of the street is to provide access to adjacent development and foster a community environment, at least one unobstructed moving lane must be provided even where parking occurs on both sides. The level of user inconvenience occasioned by the lack of two moving lanes is remarkably low in areas where single-family units prevail. Local residential street patterns are such that travel distances are less than 1 km [0.5 mi] from the trip origin to a collector street. In multifamily-unit residential areas, a minimum of two moving traffic lanes to accommodate opposing traffic may be desirable. In many residential areas, a minimum roadway width of 8 m [26 ft] is needed where on-street parking is permitted. This curb face-to-curb face width of 8 m [26 ft] provides a 3.6-m [12-ft] center travel lane that provides for the passage of fire trucks and two 2.2-m [7-ft] parking lanes. Opposing conflicting traffic will yield and pause in the parking lane area until there is sufficient width to pass.

In commercial areas where there are midblock left turns, it may be advantageous to provide an additional continuous two-way left-turn lane in the center of the roadway.

At street intersections, there are two distinct radii that need to be considered—the effective turning radius of the turning vehicle and the radius of the curb return (see Figure 5-3). The effective turning radius is the minimum radius appropriate for turning from the right-hand travel lane on the approach street to the appropriate lane of the receiving street. This radius is determined by the selection of a design vehicle appropriate for the streets being designed and the lane on the receiving street into which that design vehicle will turn. Desirably this radius should be at least 7.5 m [25 ft].

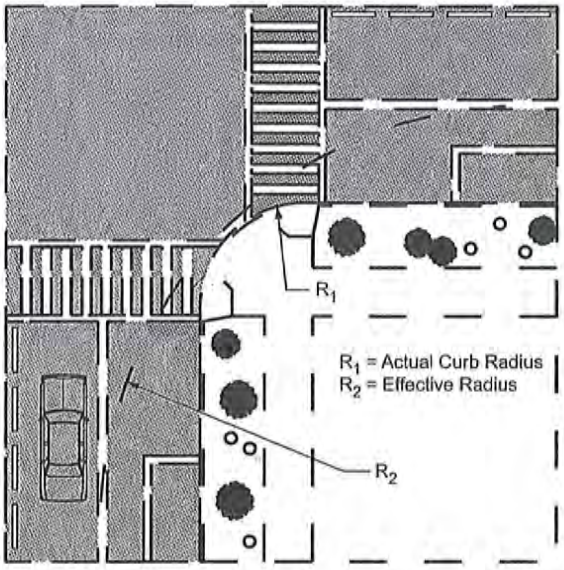


Figure 5-3. Actual Curb Radius and Effective Radius for Right-Turn Movements at Intersections

The radius of the curb return should be no greater than that needed to accommodate the design turning radius. However, the curb return radius should be at least 1.5 m [5 ft] to enable effective use of street-sweeping equipment.

In industrial areas with no on-street parking, the radius of the curb return should not be less than 10 m [30 ft]; the use of a three-centered curve with sufficiently large radius to accommodate the largest vehicles expected with some frequency is desirable.

Further information pertaining to intersection design appears in Chapter 9.

5.3.6 Railroad-Highway Grade Crossings

Appropriate grade-crossing warning devices should be installed at all railroad-highway grade crossings on local roads and streets. Details of the devices to be used are given in the MUTCD (*12*). In some states, the final approval of the devices to be used may be vested in an agency having oversight over railroads.

Sight distance is an important consideration at railroad-highway grade crossings. There should be sufficient sight distance along the road and railroad tracks for an approaching driver to recognize the crossing, perceive the warning device, determine whether a train is approaching, and stop if necessary. (For further information on railroad-highway grade crossings, see Section 9.12.) Signalized intersections adjacent to signalized railroad grade crossings should be designed with railroad preemption.

arterial need to watch traffic in only one direction at a time and have a refuge at the median, particularly if a raised island is provided. Where the median is wide enough, crossing and left-turning vehicles can slow down or stop between the one-way roadways to take advantage of breaks in traffic and proceed when the driver decides it is safe to do so. Divided multilane arterials provide more relaxed and pleasant travel than undivided arterials, particularly in inclement weather and at night when headlight glare is bothersome. Headlight glare is reduced somewhat by addition of a narrow median, but it can almost be eliminated by addition of a wide median or a glare screen on a median barrier.

Lane Widths

Due to the high speeds and large volumes typically associated with divided arterials, they should be designed with lanes 3.6 m [12 ft] wide. On reconstructed arterials, it may be acceptable to retain 3.3-m [11-ft] lanes if the alignment is satisfactory and there is no crash pattern suggesting the need for widening.

Cross Slope

Each roadway of a divided arterial may be sloped to drain to both edges, or each roadway may be sloped to drain to its outer edge, depending on climatic conditions and the width of median. Roadways on divided arterials should have a normal cross slope of 1.5 to 2 percent.

When three or more lanes are inclined in the same direction on multilane divided highways, each successive pair of lanes outward from the first two lanes adjacent to the crown line may have an increased slope. A cross slope should not normally exceed 3 percent on tangent alignment, however. In no case should the cross slope of an outer or auxiliary lane, or both, be less than that of the adjacent lane.

For a more complete discussion, see Section 4.2.2 on "Cross Slope."

Shoulders

Arterials with sufficient traffic volume to justify the provision of four lanes will also justify having full-width shoulders. The width of usable outside shoulders should be at least 2.4 m [8 ft] and be usable during all seasons. Paving of the usable width of shoulder is preferred. Shoulders on rural arterials are also desirable for use by bicyclists. Where bicycles are to be accommodated on the shoulder, a minimum paved shoulder width of 1.2 m [4 ft] should be used.

The normal roadway section, including usable shoulders, should be extended across all structures except long bridges (those over 60 m [200 ft] long), which may have 1.2-m [4-ft] shoulders).

Shoulder space on the left side of the individual roadways of a four-lane divided arterial (i.e., within the median) does not serve the same purpose as the right shoulder. The shoulder on the right, through customary use on undivided arterials, is understood by drivers as a suitable refuge space for stops. Where the median is flush with the roadway or has sloping curbs, vehicles may encroach or drive on it momentarily if forced to do so to avoid a crash. Only on rare occasions should drivers need to use the median for deliberate stops.

On divided arterials with two lanes in each direction, a paved shoulder 1.2 m [4 ft] wide should satisfy the needs for a shoulder within the median. Such a shoulder will preclude rutting at the edge-of-traveled way and will reduce the likelihood of loss of control for vehicles that inadvertently encroach on the median.

Most urban arterials provide some access to abutting property. Such access service should, however, not unduly hinder the arterial's primary function of serving major traffic and other user movements. Before designing an urban arterial, it is important to establish the extent and need for such a facility. Once the need is established, steps should then be taken to protect the ability of the arterial to serve all users at the desired level of service from future changes, such as strip development or the unplanned location of a major traffic generator. Development along an arterial should be anticipated regardless of the urban area size. However, with proper planning and design, such development need not seriously affect the arterial's major function of serving through-travel. Rather, a well-designed arterial can complement such development and provide the desired level of service for all users.

Urban arterials are functionally divided into two classes, principal and minor. These classes are discussed in detail in Chapter 1. The urban arterial system, which includes arterial streets and freeways, normally serves the major activity centers of a metropolitan area, the highest traffic volume corridors, and the longest trips. The portion of the arterial system, either planned or existing, on which access is not fully controlled, constitutes the arterial street system for the urban area. From the standpoint of design characteristics, all such urban and suburban streets are treated as a single class and are addressed in this chapter. Design of freeways is addressed in Chapter 8.

7.3.2 General Design Considerations

In the development of a transportation improvement program, routes selected for improvement as arterials may comprise portions of an existing street system, or they may be anticipated locations on new alignments through relatively undeveloped areas. Usually, they will be existing streets because, historically, the need for improving existing streets has surpassed the availability of resources. As a consequence, street improvements tend to lag, rather than lead, land-use development.

Major improvement of existing arterials can be extremely costly, particularly where additional rights-of-way need to be acquired through highly developed areas. Accordingly, it is often necessary to use design values that are below the values used where sufficient right-of-way is available or can be acquired economically.

Design Speed

Design speeds for urban arterials generally range from 50 to 100 km/h [30 to 60 mph]. Lower speeds apply in central business districts and in more developed areas, while higher speeds are more applicable to outlying suburban and developing areas. Design speed should be selected as described in Section 2.3.6.

Design Traffic Volume

The design of urban arterials should be based on traffic and other user data developed for the design year, normally 20 years into the future. The design hourly volume (DHV) is the most reliable traffic volume measure representing the vehicular traffic demand for use in design of urban arterials. Sometimes capacity analysis, which is used to determine whether a particular design can provide a desired level of service for conditions represented by the design traffic volume, is also used as a design tool. Refer to Sections 2.3 and 2.4 for further information on design traffic volumes and capacity analysis.

Table 7-4. Maximum Grades for Urban Arterials

	Metric						U.S. Customary						
	Maximum Grade (%) for Specified Design Speed (km/h)						Maximum Grade (%) for Specified Design Speed (mph)						
Type of Terrain	50	60	70	80	90	100	30	35	40	45	50	55	60
Level	8	7	6	6	5	5	8	7	7	6	6	5	5
Rolling	9	8	7	7	6	6	9	8	8	7	7	6	6
Mountainous	11	10	9	9	8	8	11	10	10	9	9	8	8

Superelevation

Curves on low-speed, curbed arterial streets are usually not superelevated. Difficulties associated with drainage, ice formation, driveways, pedestrian crossings, and the effect on adjacent developed property should be evaluated when superelevation is considered. Section 3.3 on "Horizontal Alignment" provides a more detailed discussion of superelevation. When little or no superelevation is provided on curves for low-speed arterial streets, the Method 2 distribution of superelevation discussed in Section 3.3.6 is usually used. Supplemental guidance applicable to both rural and urban arterials is presented in the discussion of "Superelevated Cross Sections" presented in the earlier discussion of rural arterials in Section 7.2.11.

Cross Slope

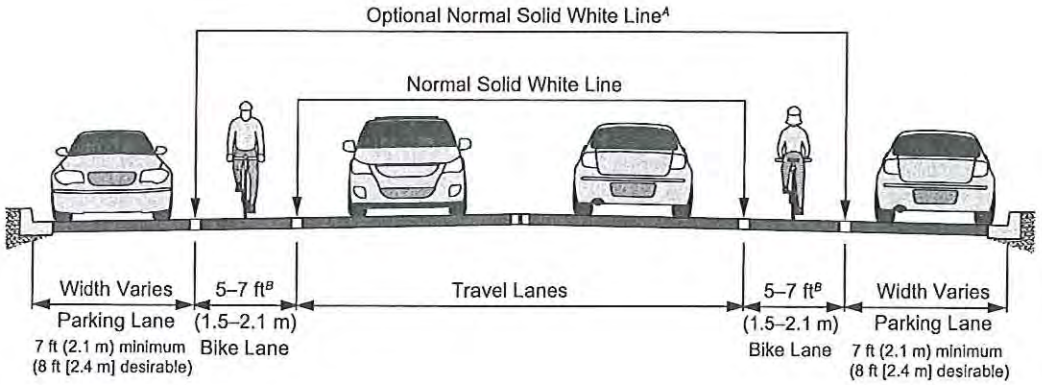
Sufficient cross slope for adequate pavement drainage is important on urban arterials. The typical problems related to splashing and hydroplaning are compounded by heavy traffic volumes and curbed sections, especially for higher speeds. Cross slopes should range from 1.5 to 3 percent; the lower portion of this range is appropriate where drainage flow is across a single lane and higher values are appropriate where flow is across several lanes. Even higher cross-slope rates may be used for parking lanes. The overall cross section should provide a smooth appearance without sharp breaks, especially within pedestrian access routes where specific accessibility guidelines apply (*17*). Because urban arterials are often curbed, it is necessary to provide for longitudinal as well as cross-slope drainage. The use of higher cross-slope rates also reduces flow on the roadway and ponding of water due to pavement irregularities and rutting. Section 4.2.2 on "Cross Slopes" provides additional guidance.

7.3.3 Cross-Sectional Elements

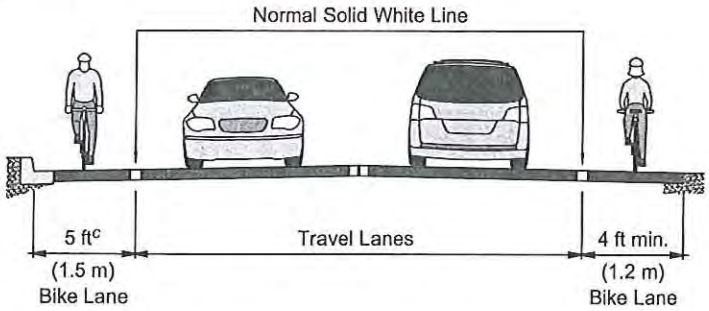
Lane Widths

Lane widths may vary from 3.0 to 3.6 m [10 to 12 ft]. Lane widths of 3.0 m [10 ft] may be used in more constrained areas where truck and bus volumes are relatively low and speeds are less than 60 km/h [35 mph]. Lane widths of 3.3 m [11 ft] are used quite extensively for urban arterial street designs. The 3.6-m [12-ft] lane widths are desirable, where practical, on high-speed, free-flowing, principal arterials.

Under interrupted-flow operating conditions at low speeds (70 km/h [45 mph] or less), narrower lane widths are normally adequate and have some advantages. For example, reduced lane widths allow more lanes to be provided in areas with restrictive right-of-way and allow shorter pedestrian crossing times because of reduced crossing distances. Arterials with reduced lane widths are also more economical to construct. A 3.3-m [11-ft] lane width is adequate for through lanes, continuous two-way left-turn lanes, and lanes adjacent to a painted median. Left-turn and combination lanes used for parking during off-peak



On Street Parking



Parking Prohibited

Notes:

A An optional normal (4–6-in./100–150-mm) solid white line may be helpful even when no parking stalls are marked (because parking is light), to make the presence of a bicycle lane more evident. Parking stall markings may also be used.

B Bike lanes up to 7 ft (2.1 m) in width may be considered adjacent to narrow parking lanes with high turnover.

C On extremely constrained, low-speed roadways (45 mph [70 km/h] or less) with curbs but no gutter, where the preferred bike lane width cannot be achieved despite narrowing all other travel lanes to their minimum widths, a 4-ft (1.2-m) wide bike lane can be used.

Figure 4-13. Typical Bike Lane Cross Sections

Where bicycle lanes are provided, appropriate marking or signing should be used so the lanes are not mistaken for motor-vehicle travel lanes or parking areas. For roadways with no curb and gutter and no on-street parking, the minimum width of a bicycle lane is 4 ft (1.2 m). For roadways where the bike lane is immediately adjacent to a curb, guardrails, or other vertical surface, the minimum bike lane width is 5 ft (1.5 m), measured from the face of a curb or vertical surface to the center of the bike lane line. There are two exceptions to this:

- In locations with higher motor-vehicle speeds where a 2-ft (0.6 m) wide gutter is used, the preferred bike lane width is 6 ft (1.8 m), inclusive of the gutter.
- On extremely constrained, low-speed roadways with curbs but no gutter, where the preferred bike lane width cannot be achieved despite narrowing all other travel lanes to their minimum widths, a 4-ft (1.2 m) wide bike lane can be used.

Along sections of roadway with curb and gutter, a usable width of 4 ft (1.2 m) measured from the longitudinal joint to the center of the bike lane line is recommended. Drainage inlets and

- Pavement markings are the simplest form of separation and should consist of two solid yellow lines, the standard centerline marking where passing (across the centerline) is prohibited in both directions.
- Medians or traffic separators provide more separation between motorists and bicyclists traveling in opposing directions. This treatment should be considered in situations with higher speeds or volumes. If medians or traffic separators are used, the contra-flow bike lane width should be at least 7 ft (2.1 m).

- At intersecting streets, alleys, and major driveways, "DO NOT ENTER" signs and turn restriction signs should include supplemental plaque that says "EXCEPT BICYCLES," to establish that the street is two-way for bicyclists and to remind motorists to expect two-way bicycle traffic.
- At traffic signals, signal heads should be provided for contra-flow bicyclists, as well as suitable bicycle detection measures. A supplemental plaque that says "BICYCLE SIGNAL" may be needed beneath the signal to clarify its purpose.

4.6.4 Bicycle Lane Widths

Bicycle lane widths should be determined by context and anticipated use. The speed, volume, and type of vehicles in adjacent lanes significantly affect bicyclists' comfort and desire for lateral separation from other vehicles. Bike lane widths should be measured from the center of the bike lane line. The appropriate width should take into account design features at the right edge of the bicycle lane, such as the curb, gutter, on-street parking lane, or guardrail. Figure 4-13 shows two typical locations for bicycle lanes in relation to the rest of the roadway, and the widths associated with these facilities.

As discussed in the previous chapter, a bicyclist's preferred operating width is 5 ft (1.5 m). Therefore, under most circumstances the recommended width for bike lanes is 5 ft (1.5 m). Wider bicycle lanes may be desirable under the following conditions:

- Adjacent to a narrow parking lane (7 ft [2.1 m]) with high turnover (such as those servicing restaurants, shops, or entertainment venues), a wider bicycle lane (6–7 ft or 1.8–2.1 m) provides more operating space for bicyclists to ride out of the area of opening vehicle doors.
- In areas with high bicycle use and without on-street parking, a bicycle lane width of 6 to 8 ft (1.8-2.4 m) makes it possible for bicyclists to ride side-by-side or pass each other without leaving the lane.
- On high-speed (greater than 45 mph [70 km/h]) and high-volume roadways, or where there is a substantial volume of heavy vehicles, a wide bicycle lane provides additional lateral separation between motor vehicles and bicycles to minimize wind blast and other effects.

Stanislaus County Design Stds.

1. **"Class A" Expressway**: is a fully access-controlled road with grade separated interchanges at intervals of approximately one mile at other Expressway, Major, or Local roads. The typical right-of-way is 110 or 135 feet (4 or 6 lanes, respectively).

2. **"Class B" Expressway:** is a partially access-controlled road with traffic-controlled intersections at Major roads and other Expressways. Collectors and Locals are permitted right-in, right-out access only at 1/4- to 1/2-mile intervals. The typical right-of-way is 110 or 135 feet (4 or 6 lanes, respectively). On limited rights-of-way, Class B Expressways may be 100 feet for four lanes and 124 for six lanes.

3. **"Class C" Expressway:** is a limited access-controlled road with traffic-controlled intersections at Majors and other Expressways. Intersections at Collectors and Locals may or may not be controlled by a traffic signal. The typical right-of-way is 110 or 135 feet (4 or 6 lanes, respectively). On limited rights-of-way, Class C Expressways may be 100 feet for four lanes and 124 for six lanes.

c. **Major:** The function of a Major road is to carry moderate- to high-volume traffic to and from collectors to other Majors, Expressways, and Freeways with a secondary function of land access.

Majors located within areas zoned for heavy or light industrial or that are expected to carry large or heavy trucks shall be constructed to Industrial Major standards. Limited direct access is provided to abutting property. On-street parking will be permitted only where the Engineer has determined that traffic flow and safety conditions allow on-street parking. The typical right-of-way is 110 feet (up to 6 lanes, ultimately). On limited rights-of-way, Majors may be 100 feet.

d. **Collector:** Collectors serve a dual function by providing both access to abutting property and movement of moderate volumes of people and goods for medium length trips. Collectors serve as transition facilities, carrying traffic from lower to higher level roads. Most Collectors are two-lane roads with a typical right-of-way of 60 feet. On-street parking will be permitted only where the Engineer has determined that traffic flow and safety conditions allow on-street parking. In urban residential subdivisions, roads not shown on the General Plan Circulation Diagram or as an Official Plan Line that will serve more than 50 dwelling units, when the maximum density and full extent of the development is considered, shall be deemed Collectors. In some instances, the Engineer may determine that project design features dictate that a road serving as few as 20 urban dwelling units be deemed a Collector. Under certain circumstances, 80 feet of right-of-way may be required to provide

slope nor be less than 32 feet in width. Due to conditions, design constraints or environmental issues, the Engineer may approve an increase in the maximum allowed grade from 10% to 12%.

Private roads may also be approved by the Planning Commission or Board of Supervisors as an exception to the Subdivision Ordinance to provide access to parcels in an urban or planned development when it is determined that such a request serves a public purpose and that future divisions of land requiring road access to or through the development would not occur due to topographic features, physical barriers, existing development, and other physical constraints of the development and the adjacent lands. If approved, these roads shall be constructed to the same standards as County-maintained roads or other standard approved by the Department of Public Works.

The formation of a Community Service Agency (CSA). or Home Owners Association (HOA) may be required as determined by the Engineer.

3.3 **GEOMETRIC DESIGN**: Road right of way widths shall conform with the street classification and the corresponding construction plate details as shown in Table 3.1, "Street Classification and Plate No."

The gutter slope shall not be less than 0.20%.

The maximum vertical grade for all public roadways in Stanislaus County shall be 10%. However, due to conditions, design constraints or environmental issues, the Engineer may approve an increase in the maximum allowed grade from 10% to 12%.

When required by the Engineer, a truck auxiliary lane shall be installed.

The cross slope of County roadways shall be 2.0% for new construction. When matching existing pavement and/or other restrictions, the cross slope may vary between 1.0% and 4.0% upon prior approval from the Engineer.

Vertical and horizontal alignment shall be designed in accordance with the State Standards.

Table 3.2 lists the minimum design speed and radii for various types of roadway (see Table 3.2).

3.4 **INTERSECTIONS**: Road intersections shall be as close as possible to right angles. Where required by topographic conditions, the angle of intersection of two local roads may be less than perpendicular but must always be 70° or greater.

highest adjacent finished grade.

The wall shall be shown on the Plans and, if the wall exceeds 6 feet in height, a building permit shall be obtained by the Developer from the County Building & Development Services Division prior to commencement of work on the wall.

For additional information regarding specific construction requirements for access control walls and fences, contact the County Building & Development Services Division.

CMU masonry retaining walls, when required, shall be designed in accordance to UBC/ICC standards. Construction of CMU masonry walls that are six feet in height or more shall be designed and checked for minimum wind and seismic lateral load resistance.

3.25 **CURBED MEDIANS**: On existing roads of 70 feet from curb to curb or wider, a 6-inch high curbed median shall be installed at the intersection of a major road, at Developer's expense, in conformance with the plates contained in these Standards or as directed by the Engineer.

The median shall extend a minimum of 350 feet from the intersection centerline.

The minimum width of a median shall be 4 feet without landscaping or 8 feet with landscaping. Landscaping shall be designed in accordance with the requirements of the Parks & Recreation Department and shall not interfere with pedestrian or vehicle safety.

On new major and expressway roads or where part of a road is widened from 2 lanes to 4 or more lanes, a curbed median shall be installed for the full length of the new road or road widening at Developer's expense and shall conform to one of the following:

a. A 4-foot wide curbed median without landscaping, surfaced with concrete, "Bomanite" or approved equal.

b. A curbed median ranging in width from 8 feet to 16.5 feet with landscaping. A water barrier shall be installed 6 inches beneath the road structural section.

Breaks in curbed medians shall be at all major and collector roads with a minimum of 600 feet between breaks. Additional breaks shall be as approved by the Engineer.

Traffic lanes adjacent to curbed medians shall be 12.5 feet in width. Specific design of medians and traffic lanes shall be as directed by the Engineer.

3.33 SAW CUTTING EXISTING PAVED STREETS: When placing asphalt concrete adjacent to existing paved streets, the pavement at the edge of the existing structural section shall be vertically cut in a neat straight line by sawing. This shall be done to the limits shown on the plans and as directed by the Engineer.

Sawing shall be done with an approved saw capable of cutting a minimum of 1-1/2 inches in depth. It is the Contractor's responsibility to provide a clean, smooth, vertical surface for the depth of the proposed structural section. The sawing shall be done to the exact lines snapped with a chalk line.

Any damage occurring to the saw cut after the cut has taken place will be corrected to the satisfaction of the Engineer at the Contractor's expense.

A seal coat of asphaltic emulsion shall be applied in accordance with the requirements of Section 37 of the Caltrans Specifications along all saw cut edges.

3.34 TURNING RADIUS

The criteria for truck turning shall be designed in accordance to the latest edition of the Highway Design Manual (HDM), Topic 404 and follow these general guidelines:

a. Intersections should be evaluated to accommodate design vehicles. See HDM Topic 404.1 and HDM Index 405.8.

b. The Design Engineer should inspect the ground adjacent to intersection curb returns for physical evidence of vehicle off-tracking and evaluate required upgrades as may be needed. Intersections shall be designed so that design vehicles begin and end their turn wholly within their lane.

c. It may be impractical to provide for truck turning on local streets due to the infrequency of truck use at these locations. Where truck volumes are very low, bus turning may be a more appropriate application, especially if it is a school bus or transit route. Design exceptions may be granted where truck volume and bus volume are very low.

d. At intersections, the California Design Vehicle template shall be used to evaluate the corner radius. Where STAA (Surface Transportation Assistance Act of 1982) is anticipated, the STAA Design Vehicle template shall be used (refer to Figure 404.2 in the HDM).

TABLE 3-1

STREET CLASSIFICATION AND PLATE NO.

ROW & Street Classification	Plate No.	Pavement Width (ft)	Sidewalk Width (ft)
50 FT MINOR	3-A1	36	5
60 FT LOCAL	3-A1	40	5
60 FT COLLECTOR	3-A2	40	5
80 FT COLLECTOR	3-A2	68	6
100 FT MAJOR	3-A3	86	7
110 FT MAJOR	3-A3	90	10
70 FT MINOR INDUSTRIAL	3-A4-A	50	5
110' MAJOR INDUSTRIAL	3-A4-A	94	8
4-LANE EXPRESSWAY WITH LIMITED 100' ROW	3-A4-B	86	8
4-LANE EXPRESSWAY WITH 110' ROW	3-A4-B	90	8
6-LANE EXPRESSWAY WITH LIMITED 124' ROW	3-A5	104	10
6-LANE EXPRESSWAY WITH 135' ROW	3-A5	104	10
2-LANE RURAL COLLECTOR WITH 60' ROW	3-A6	32	See Notes
2-LANE RURAL COLLECTOR WITH 80' ROW	3-A6	36	See Notes
2-LANE RURAL MAJOR WITH 100' ROW	3-A6	56	See Notes
4-LANE RURAL MAJOR WITH 110' ROW	3-A7	78	See Notes
6-LANE RURAL EXPRESSWAY WITH 135' ROW	3-A7	104	See Notes

NOTES:

1. All items shown in the Street Classification Index table are minimum values only. Actual configuration may vary and/or be determined by the Engineer.

2. "Rural Areas" in this table refers to "Agricultural Areas" as identified in the Stanislaus County General Plan.

3. Pavement area width shown is measured from flow line to flow line or from edge of pavement to edge of pavement.

4. Sidewalk width shown is measured from back of walk to flowline of gutter.

TABLE 3-2

MINIMUM TI-VALUES FOR STREETS AND INTERSECTIONS

ROW & Street Classification	Traffic Index (Streets)	Traffic Index (Intersections)
50 FT MINOR	5	6
60 FT LOCAL	6	7
60 FT COLLECTOR	8	9
80 FT COLLECTOR	8	9
100 FT MAJOR	10	11
110 FT MAJOR	10	11
70 FT MINOR INDUSTRIAL	9	10
110' MAJOR INDUSTRIAL	9	10
4-LANE EXPRESSWAY WITH LIMITED 100' ROW	11	12
4-LANE EXPRESSWAY WITH 110' ROW	11	12
6-LANE EXPRESSWAY WITH LIMITED 124' ROW	11	12
6-LANE EXPRESSWAY WITH 135' ROW	11	12
2-LANE RURAL COLLECTOR WITH 60' ROW	8	9
2-LANE RURAL COLLECTOR WITH 80' ROW	8	9
2-LANE RURAL MAJOR WITH 100' ROW	10	11
4-LANE RURAL MAJOR WITH 110' ROW	10	11
6-LANE RURAL EXPRESSWAY WITH 135' ROW	11	12

NOTES:

1. All items shown in the Street Classification Index table are minimum values only. Actual configuration may vary and/or be determined by the Engineer.

2. TI values and other minimum values shown in the Table may be increased at the discretion of the Engineer if traffic warrants a higher value.

3. "Rural Areas" in this table refers to "Agricultural Areas" as identified in the Stanislaus County General Plan.

TABLE 3-3

MINIMUM STRUCTURAL PAVEMENT SECTION

ROW & Street Classification	Minimum Asphalt Concrete (ft)	Minimum Aggregate Base (ft)
50 FT MINOR	0.25	0.50
60 FT LOCAL	0.35	0.50
60 FT COLLECTOR	0.40	0.50
80 FT COLLECTOR	0.40	0.50
100 FT MAJOR	0.50	0.50
110 FT MAJOR	0.50	0.50
70 FT MINOR INDUSTRIAL	0.45	0.50
110' MAJOR INDUSTRIAL	0.45	0.50
4-LANE EXPRESSWAY WITH LIMITED 100' ROW	0.50	0.50
4-LANE EXPRESSWAY WITH 110' ROW	0.50	0.50
6-LANE EXPRESSWAY WITH LIMITED 124' ROW	0.60	0.50
6-LANE EXPRESSWAY WITH 135' ROW	0.60	0.50
2-LANE RURAL COLLECTOR WITH 60' ROW	0.40	0.50
2-LANE RURAL COLLECTOR WITH 80' ROW	0.40	0.50
2-LANE RURAL MAJOR WITH 100' ROW	0.50	0.50
4-LANE RURAL MAJOR WITH 110' ROW	0.50	0.50
6-LANE RURAL EXPRESSWAY WITH 135' ROW	0.60	0.50

NOTES:

1. All items shown in the Street Classification Index table are minimum values only. Actual configuration may vary and/or be determined by the Engineer.

2. If there is insufficient soils data to determine the structural thickness of the pavement ashpalt and agrregate base, specifically R-vaues, then streets shall be designed using an assumed R-value of 5.

3. "Rural Areas" in this table refers to "Agricultural Areas" as identified in the Stanislaus County General Plan.

TABLE 3.4
MINIMUM CENTERLINE RADIUS
BASED ON HORIZONTAL DESIGN SPEED
AND ROADWAY TYPE

ROW & Street Classification	Design Speed (mph)	Horizontal Centerline Radius (ft)
50 FT MINOR	30	500
60 FT LOCAL	30	500
60 FT COLLECTOR	35	600
80 FT COLLECTOR	35	600
100 FT MAJOR	50	1500
110 FT MAJOR	50	1500
70 FT MINOR INDUSTRIAL	35	600
110' MAJOR INDUSTRIAL	35	600
4-LANE EXPRESSWAY WITH LIMITED 100' ROW	45	1200
4-LANE EXPRESSWAY WITH 110' ROW	45	1200
6-LANE EXPRESSWAY WITH LIMITED 124' ROW	55	1800
6-LANE EXPRESSWAY WITH 135' ROW	55	1800
2-LANE RURAL COLLECTOR WITH 60' ROW	55	1800
2-LANE RURAL COLLECTOR WITH 80' ROW	55	1800
2-LANE RURAL MAJOR WITH 100' ROW	55	1800
4-LANE RURAL MAJOR WITH 110' ROW	60	2200
6-LANE RURAL EXPRESSWAY WITH 135' ROW	70	3000

NOTES:

1. All items shown in the Street Classification Index table are minimum values only. Actual configuration may vary and/or be determined by the Engineer.

2. "Rural Areas" in this table refers to "Agricultural Areas" as identified in the Stanislaus County General Plan.

3. Design Speed for Vertical Alignment shall be 5.0 miles per hour higher than the minimum values shown.

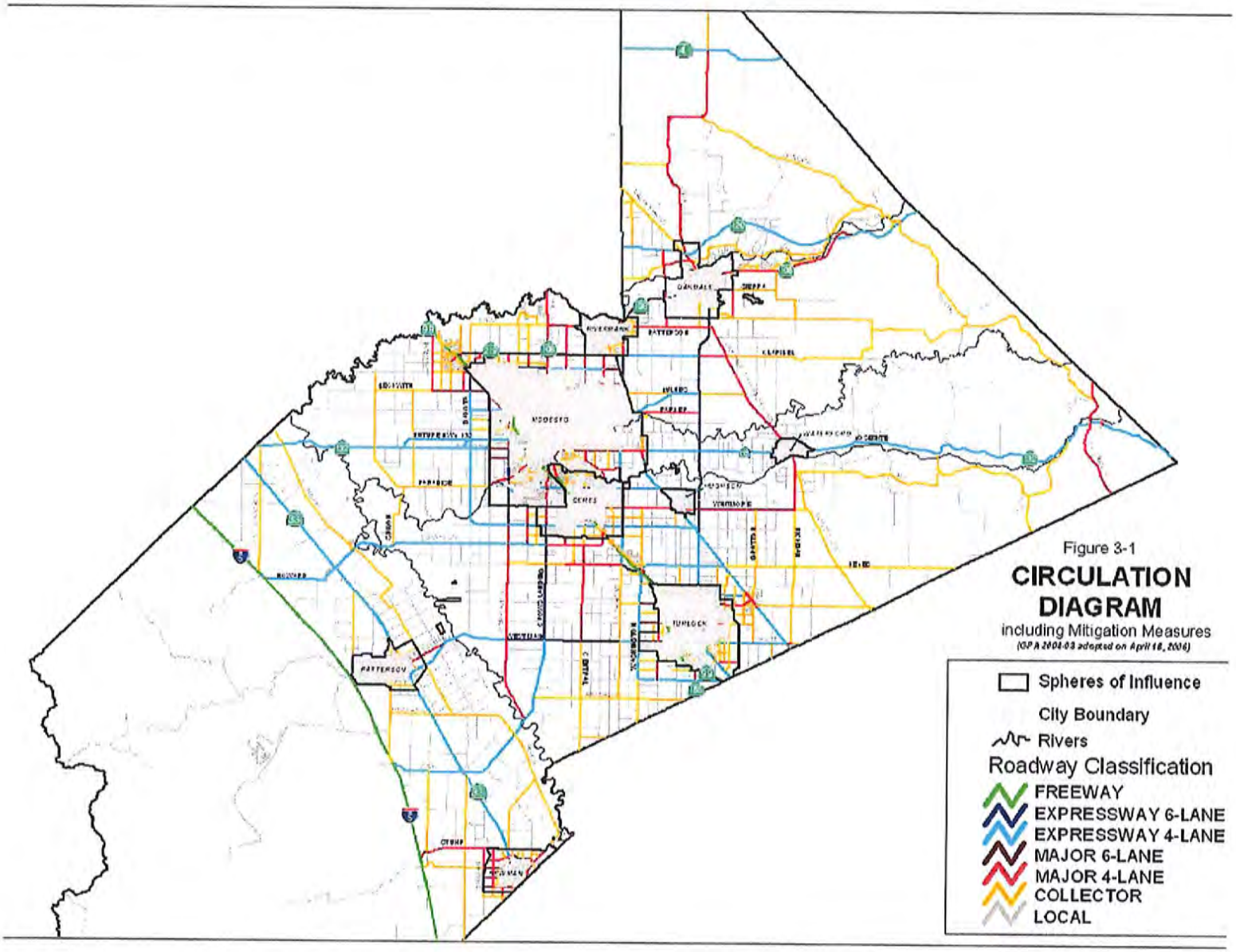


Figure 3-1
CIRCULATION DIAGRAM
including Mitigation Measures
(GPA 2004-03 adopted on April 18, 2006)
Spheres of Influence
City Boundary
Rivers
Roadway Classification
FREEWAY
EXPRESSWAY 6-LANE
EXPRESSWAY 4-LANE
MAJOR 6-LANE
MAJOR 4-LANE
COLLECTOR
LOCAL

STREET CLASSIFICATION INDEX TABLE

ROW & Street Classification	Plate No.	Flow Line to Flow Line Width (ft)	Sidewalk Width (ft)	Traffic Index	Design Speed (mph)	Horizontal Centerline Radius (ft)	Minimum AC (ft)	Minimum AB (ft)
50 FT MINOR	3-A1	36	5	5	30	500	0.25	0.50
60 FT LOCAL	3-A1	40	5	6	30	500	0.35	0.50
60 FT COLLECTOR	3-A2	40	5	8	35	600	0.40	0.50
80 FT COLLECTOR	3-A2	68	6	8	35	600	0.40	0.50
100 FT MAJOR	3-A3	86	7	10	50	1500	0.50	0.50
110 FT MAJOR	3-A3	90	10	10	50	1500	0.50	0.50
70 FT MINOR INDUSTRIAL	3-A4-A	50	5	9	35	600	0.45	0.50
110 FT MAJOR INDUSTRIAL	3-A4-A	94	8	9	35	600	0.45	0.50
4-LANE EXPRESSWAY WITH LIMITED 100' ROW	3-A4-B	86	8	11	45	1200	0.50	0.50
4-LANE EXPRESSWAY WITH 110' ROW	3-A4-B	90	8	11	45	1200	0.50	0.50
6-LANE EXPRESSWAY WITH LIMITED 124' ROW	3-A5	104	10	11	55	1800	0.60	0.50
6-LANE EXPRESS WAY WITH 135' ROW	3-A5	104	10	11	55	1800	0.60	0.50
2-LANE RURAL COLLECTOR WITH 60' ROW	3-A6	32	See Notes	8	55	1800	0.40	0.50
2-LANE RURAL COLLECTOR WITH 80' ROW	3-A6	36	See Notes	8	55	1800	0.40	0.50
2-LANE RURAL MAJOR WITH 110' ROW	3-A6	56	See Notes	10	55	1800	0.50	0.50
4-LANE RURAL MAJOR WITH 110' ROW	3-A7	78	See Notes	10	60	2200	0.50	0.50
6-LANE RURAL EXPRESSWAY WITH 135' ROW	3-A7	104	See Notes	11	70	3000	0.60	0.50

NOTES:

1. All items shown in the Street Classification Index table are minimum values only. Actual configuration may vary and/or be determined by the Engineer.

2. TI values and other minimum values shown in the Table may be increased at the discretion of the Engineer if traffic warrants a higher value.

3. If there is insufficient soils data to determine the structural thickness of the pavement ashpalt and agrregate base, specifically R-vaues, then streets shall be designed using an assumed R-value of 5.

4. "Rural Areas" in this table refers to "Agricultural Areas" as identified in the Stanislaus County General Plan.

5. Pavement area width shown is measured from flow line to flow line or from edge of pavement to edge of pavement.

6. Sidewalk width shown is measured from back of walk to flowline of gutter.

Stanislaus County
Striving to be the Best

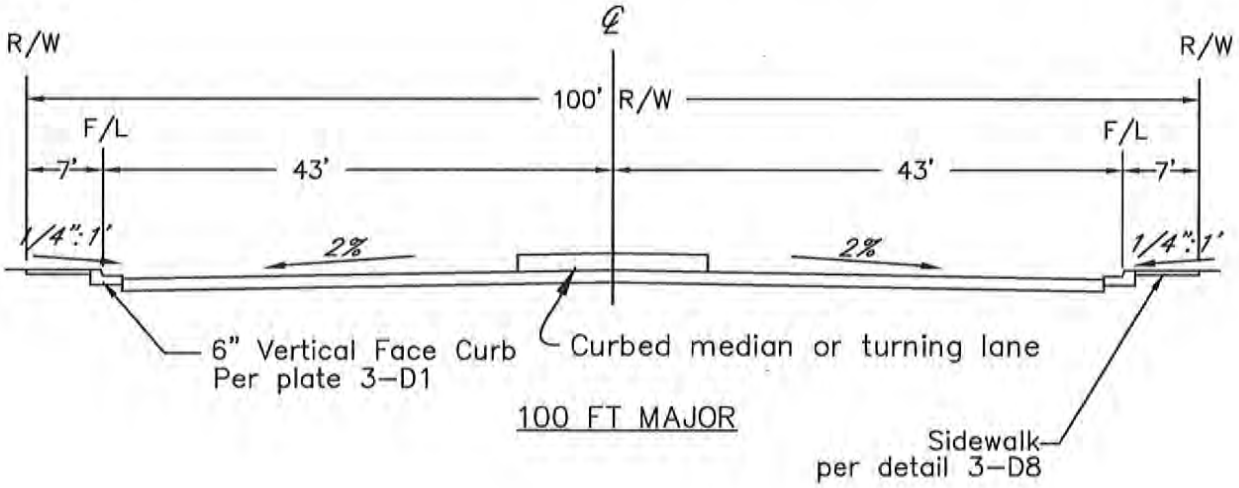
No.	Revised	By

Updated by P. Saini
Checked by S. Erickson

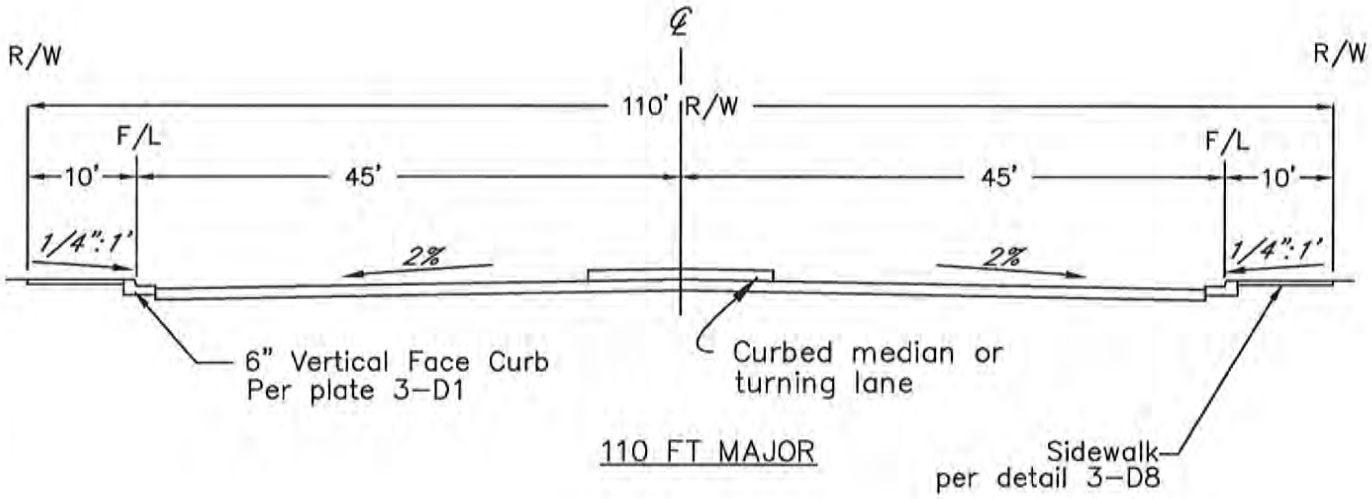
STREET CLASSIFICATION INDEX TABLE

COUNTY OF STANISLAUS
DEPARTMENT OF PUBLIC WORKS

Approved by
Director of Public Works
Date 01/02/2007
PLATE NO: 3-A0



100 FT MAJOR



110 FT MAJOR

NOTE:

1. Sidewalk Slope = 1/4" per foot between back of curb and right–of–way.
2. Pavement cross slope shall be 2.0% on new road construction.
3. Install concrete curb per detail 3–D1.
4. Install concrete sidewalk per detail 3–D8.

No.	Revised	By

ROAD SECTION
100 FT MAJOR
110 FT MAJOR

Approved by

Director of Public Works

Updated by P. Saini

Checked by S. Erickson

COUNTY OF STANISLAUS
DEPARTMENT OF PUBLIC WORKS

Date 01/02/2007

PLATE NO: 3–A3

CHAPTER 4: STORM DRAINAGE

4.1 GENERAL: These Standards have been prepared for use in the design of storm water facilities within the unincorporated areas of Stanislaus County. The criteria and guidelines set forth herein shall be followed in instances where the facilities are subject to review by the Department.

Where County developments drain into a storm drain system located within a City Sphere of Influence, the developments shall comply with the requirements of that particular agency. However, all drainage facilities constructed in and maintained by Stanislaus County shall be designed in accordance with accepted engineering principles, and shall conform to these minimum design standards:

Residential, commercial and industrial developments shall have surface drainage disposal accommodated in one or more of the following prioritized ways:

a. Positive Drainage: Positive drainage is a gravity flow storm drainage collection and discharge system into a river, stream, creek, irrigation facility, or other water way.

b. Drainage Retention Facility: Drainage retention facilities may be used when positive drainage is not available.

c. Rock Well: A rock well (vertical or horizontal) may be used only when above methods 4.1a or 4.1b are not feasible. Rock wells are typically not a standard design option. Department approval of the use of a rock well shall be obtained prior to submittal of the drainage plan.

d. On-Site Drainage: Commercial and Industrial properties shall contain all storm drainage on-site unless above methods are available and approved for use by the Department prior to submittal of the drainage plan.

4.2 STANDARD OF DESIGN: All storm drainage storage facilities within Stanislaus County shall be designed using a 50 year storm or greater. All conveyance drainage facilities shall be designed for a 10 year storm or greater. All drainage facilities shall be designed to provide for public safety and there shall be no increased inundation of any building or roadway surface.

Proposed storm drainage facilities may require provisions for future upstream development. If required, calculations for storm drainage design within a development, as well as calculations for runoff generated by upstream areas within the contributing watershed, shall be submitted to the Engineer for approval.

The diversion of natural drainage will be allowed only within the limits of

City of Modesto Design Stds.

B. Vertical Alignment:

1. Top of Curb Grades - Grades shall not be less than 0.20% and not greater than 6%. With the approval of the City Engineer, in problem areas, the gutter slope may be 0.15% for residential and 0.10% for commercial.

2. Grades - Grades on opposite sides of the street shall be the same wherever practical.

3. Curb Returns - The minimum fall around returns shall be as follows:
   - 0.20' for 15' to 20' radius.
   - 0.35' for 30' to 40' radius.
   - 0.40' for a radius greater than 40'.

4. Cross Slope - The standard cross slope of the street shall be 2%. Where necessary when matching existing facilities, the cross slope may vary between 1.5% and 4%.

5. Vertical Curves - Where the algebraic difference in slope exceeds 1%, a vertical curve shall be used. The minimum length of vertical curve shall be 50' minimum or as required by the Highway Design Manual, whichever is larger.

6. Low Points - Whenever possible, streets shall be designed to collect storm water at intersections (3' past the end of curb return) and property lines. Low points shall not be designed in driveways or curb returns.

7. High Points - High points shall be successively lower than the last high point for at least 2 (two) high points. The purpose for this is to allow plugged up drains to overflow within the street right-of-way and overland release to the next inlet before flooding private property. Successive high points with a relative flat grade shall not differ more than 0.3' (ponding at inlet limited to 0.8').

C. Pavement Design:

1. For purposes of geometric and structural design, streets shall be classified according to the following. Any deviation from the following standard will require the approval of the City Engineer.

   If there is insufficient soils data, specifically R-values, then streets shall be designed using an assumed R-value of 5. The maximum R-value allowed for street design in the City of Modesto shall be 60, per Standard Detail 301. The table on Standard Detail #301 lists street structural sections.

TABLE 3.1 STREET DESIGN STANDARDS

Class	Right-of-Way (Feet)	Mid-Block Width Between Curbs (Feet)	Design Speeds	*Traffic Index	Street Section Requirement	Minimum Pavement Section AC/AB	Minimum Centerline Radius for Horizontal Curve (ft.)
Expressway 4 lane	110	90	55	11	"	.55/.35	1300**
Expressway 6 lane	135	115	55	11	"	.55/.35	1300**
Principal Arterial	114	94	45	11	"	.55/.35	1000
Minor Arterial	100	80	40	10	"	.50/.35	750
Major Collector	84 96 w/bike lanes	64 76	35	10	"	.40/.35	525
Minor Collector	60 72 w/bike lanes	40 52	25	8	"	.40/.35	250
Local	50	36	25	6	"	.30/.35	250**
Cul-de-sac	50	34	25	4.5	"	.20/.35	250**
Major Industrial	110	94	45	10		0.50/0.35	1200**
Industrial	60	40	40	9	"	.45/.35	600**
Residential Alleys	20	N/A	15	5	"	.20/.35	200**
Commercial Alleys	20	N/A	15	5	"	.20/.35	200**

*May be raised at the discretion of the City Engineer if traffic warrants a higher value. **Smaller radii may be approved by the City Engineer.

The minimum street section shall be determined from R-values obtained from material gathered from the level of the proposed subgrade using the design method described in the Highway Design Manual. In no case shall the minimum street section be less than 0.20' of asphalt concrete (AC) and 0.35' of aggregate base (AB). Aggregate base section may be comprised of an equivalent section of aggregate base and aggregate subbase, but in no case shall aggregate base be less than 0.35'.

The Developer's Engineer shall indicate on the plans a 0.1' overlay on any section of street where five (5) or more multiple street tie-ins for sewer and/or water in 500' are placed in an existing city street. The overlay shall be proceeded by grinding at the lip of curbs and conforms, and removal of any temporary AC. Feathering the edges will not be allowed. City water tie-ins in the area of multiple taps shall be backfilled with a minimum of 24" aggregate base and 0.17' of temporary AC. The Developer shall remove the temporary AC and pave to the depth required. The City will not charge the patching fee and will offer discounts on multiple water taps.

In designing a half street, the design shall be per Standard Detail 324.

The Developer shall dedicate the appropriate taper area for intersections and transitions per the Standard Details.

J. Curbed Medians:
On existing major streets of 70' or wider (excluding expressways), from curb flowline to curb, flowline, an 8' high curbed median shall be installed at the intersection of a major street as shown in Standard Details #328, 329, 353-387 or as directed by the City Engineer. The median shall extend a minimum of 350' from the intersection centerline. Medians shall be installed per City of Modesto Standard Details.

On new major streets or where part of a street is widened from two (2) lanes to four (4) or more lanes, a curbed median shall be installed for the full length of the new street or street widening and shall conform to the following:

1. A curbed median with a minimum width of 4' and a maximum width of 16' shall be installed as indicated in the Standard Details. The specific design of medians and traffic lanes shall be as directed by the City Engineer. Breaks in curbed medians shall be at all arterial and collector streets with a minimum of 660' between breaks. Additional or fewer breaks are at the discretion of the City Engineer and shall be approved by the City Engineer. Traffic lanes adjacent to the medians shall be 12'-6" in width.

2. All areas of the median that are 6" in width or greater shall be landscaped. In landscaped areas the curb shall extend to the bottom of the aggregate base layer of pavement section or a maximum of 24". Landscape and Irrigation Plans shall be submitted for approval as part of any Improvement Plans for work within the public right-of-way.

3. All areas of the median that are less than 6" in width shall be paved with exposed aggregate concrete as shown on Standard Detail #328 except that on principle arterial and larger streets the median paving shall be colored stamped concrete. The stamp pattern shall be Bomanite "Hex Tile" and the color shall be Bomanite "Brick Red" or approved equal.

K. Bus Turnouts:
Prior to filing of a tentative parcel or subdivision map or prior to property development, the location of bus turnouts shall be approved by the City Engineer. Bus turnouts may be required on expressway, major and collector streets where there is a curbside travel or bike lane or the probability of replacing curbside parking with travel or bike lanes. Bus turnouts may be placed approximately 1,000' apart, or as directed by the City Engineer. Turnouts may be required at all four (4) corners at expressway/arterial and collector, arterial/arterial, arterial/collector, and collector/collector street intersections where there is no parking lane or where the parking lane will be eliminated, as directed by the City Engineer.

Bus turnouts may be placed on the far side of the intersection in the travel direction. Other locations shall be as determined by the City Engineer. Location of mid-block turnouts shall be as approved by the City Engineer and shall only be approved if there is no intersection available to accommodate a turnout within 1,000'.

APPROVED BY:
BILL SANDHU, CITY ENGINEER
C59650

REVISED: DATE:

REVISED: DATE:

REVISED: DATE:

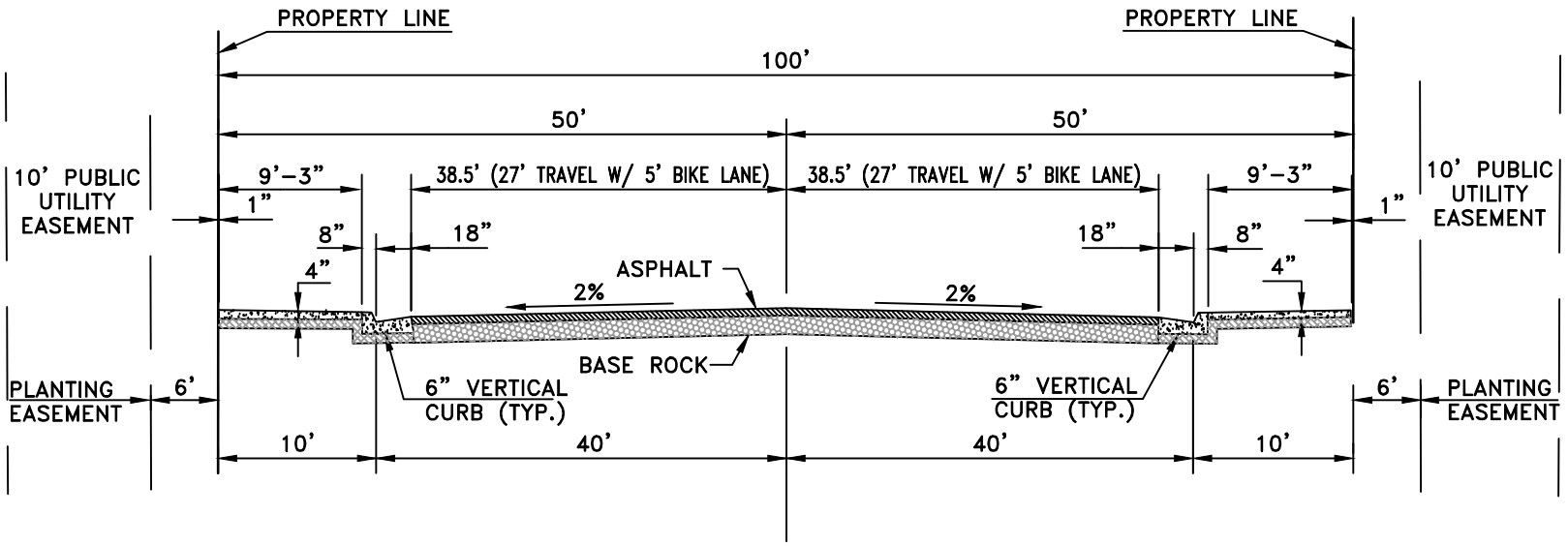
STREETS

MINOR ARTERIAL STREET SECTION

ADOPTED BY CITY COUNCIL
RESOLUTION NO. 2014-345

DETAIL NO.
306

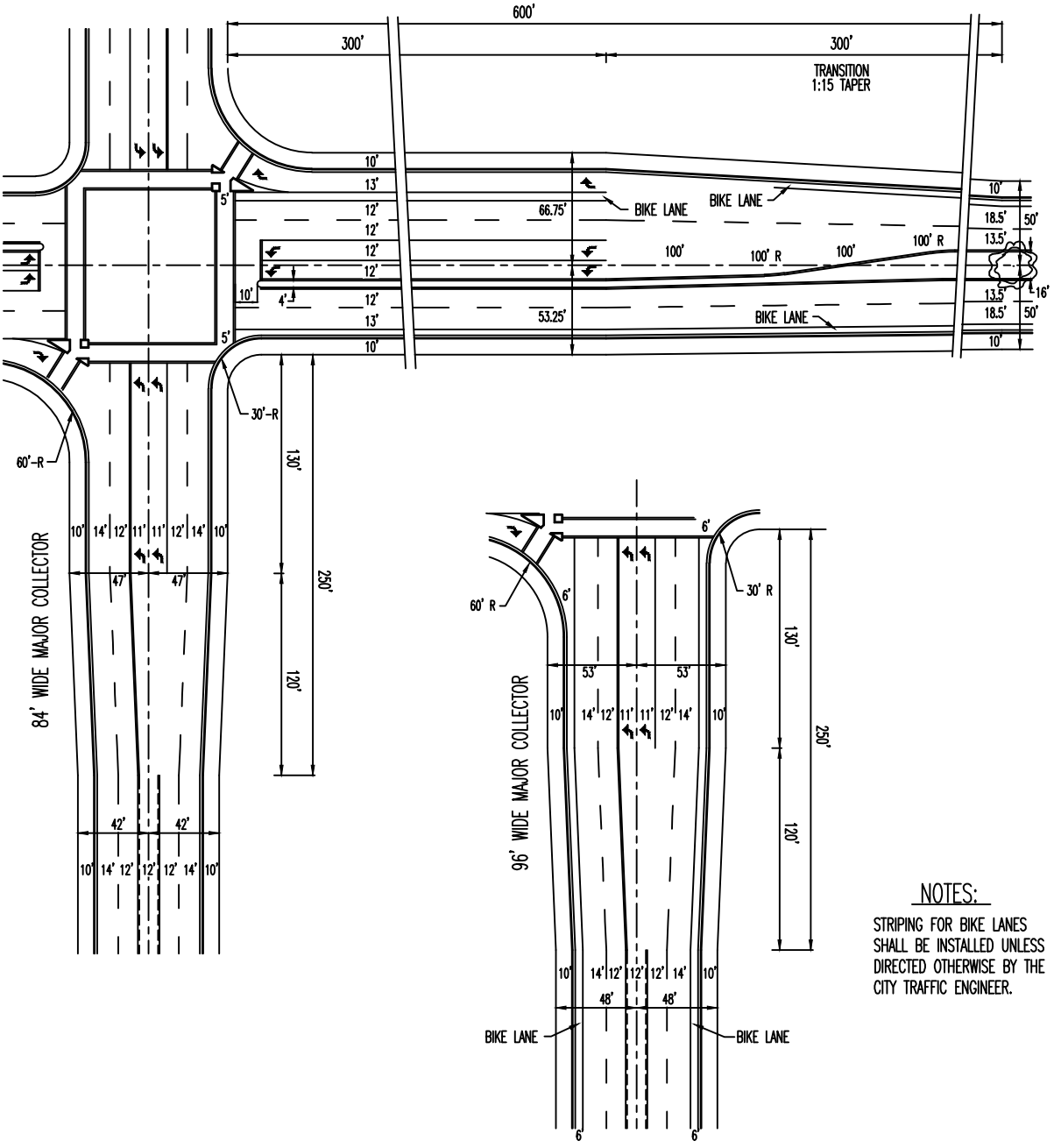
MODESTO
CALIFORNIA



NOTE:

6" VERTICAL CURB AND SIDEWALK INSTALLED IN C-1, C-2, C-M AND C-3 ZONES TO BE EXTENDED TO WITHIN 1" OF THE PROPERTY LINE. (WIDTH MAY BE DETERMINED BY USE OR BY EXISTING CONDITIONS. IF SPECIFICALLY APPROVED IN WRITING BY THE CITY ENGINEER.) SEE STANDARD DETAIL #337 FOR STREET TREE BLOCK OUT ON FULL WIDTH SIDEWALK.

MINOR ARTERIAL



NOTES:

STRIPING FOR BIKE LANES SHALL BE INSTALLED UNLESS DIRECTED OTHERWISE BY THE CITY TRAFFIC ENGINEER.

APPROVED BY: *BILL SANDHU, CITY ENGINEER* *C59650*	STREETS	MODESTO CALIFORNIA
REVISED: DATE: REVISED: DATE: REVISED: DATE:	MINOR ARTERIAL AT A MAJOR COLLECTOR	
	ADOPTED BY CITY COUNCIL RESOLUTION NO. 2014-345	DETAIL NO. 380

CHAPTER 4

STORM DRAINAGE DESIGN

4.01 GENERAL

A. Description:
This work shall include furnishing of all the labor, materials, tools, and equipment to construct and complete all drainage facilities designed in accordance with accepted engineering principles, the approved plans, Standard Details and these Specifications.

B. Storm Drain Master Plan Requirements:
The Storm Drainage Master Plan requires a multiple criteria policy for all drainage system design within the City. The criteria are as follows:

1. The 100-year storm is to be contained within the top of curb grade (provided finished grade pads are a minimum 1' above top of curb). Commercial projects finished floor pads may be lower than 1' above the adjacent top of curb. However, commercial projects must provide a high point on-site of at least 0.8' above street flow line. This is to prevent flooding between street and site. This also assumes the commercial development has mounded landscaping to prevent the 0.8' of street water from entering the parking area over the landscaping. Typically, the high point in a commercial drive is placed 10' to 35' behind the property line within the driveway lane.

2. The hydraulic grade line (HGL) for a 10-year, 24-hour duration storm shall be below the gutter pan (flowline). Engineer will assume the storm basin is at HGL when modeling with these criteria.

   All proposed storm drainage facilities shall include provisions for future upstream development. This would entail indicating on plans a storm drain pipe stub 5' beyond the development for pipe depths less than 6' and an additional 1' per foot of depth over 6'. All developments connecting to a pipe network discharging directly to a creek, river, or stream shall not exceed the pre-development storm release rates and no development shall discharge at a rate, which exceeds the capacity of any portion of the existing downstream system. Calculations for storm drainage design within a development as well as calculations for runoff generated by upstream areas within the contributing watershed shall be submitted to the City Engineer for approval.

3. Storm drain discharges for all projects, commercial, industrial, or residential, regardless of project size, shall include Stormwater Quality Control Measures. A City of Modesto document entitled "Guidance Manual for New Development Stormwater Quality Control Measures" has been adopted to establish minimum requirements for stormwater quality control measures and to provide guidance to the Developer, Contractor, and Engineer in selecting appropriate control measures. This document is incorporated into these Standard Specifications by reference. The Contractor and Developer assume full responsibility for conforming to the requirements stated in this document. In the event of conflict between the requirements stated in this document and these Standard Specifications, the requirements of the Standard Specifications shall take precedence.

Caltrans HDM

Table 201.1, measured as previously described.

(d) Urban Driveways (Refer to Index 205.3)--Corner sight distance requirements as described above are not applied to urban driveways.

(3) Decision Sight Distance. At intersections where the State route turns or crosses another State route, the decision sight distance values given in Table 201.7 should be used. In computing and measuring decision sight distance, the 3.5-foot eye height and the 0.5-foot object height should be used, the object being located on the side of the intersection nearest the approaching driver.

The application of the various sight distance requirements for the different types of intersections is summarized in Table 405.1B.

(4) Acceleration Lanes for Turning Moves onto State Highways. At rural intersections, with stop control on the local cross road, acceleration lanes for left and right turns onto the State facility should be considered. At a minimum, the following features should be evaluated for both the major highway and the cross road:

- divided versus undivided
- number of lanes
- design speed
- gradient
- lane, shoulder and median width
- traffic volume and composition
- turning volumes
- horizontal curve radii
- sight distance
- proximity of adjacent intersections
- types of adjacent intersections

For additional information and guidance, refer to AASHTO, A Policy on Geometric Design of Highways and Streets, the Headquarters Traffic Liaison and the Design Coordinator.

Table 405.1A
Corner Sight Distance
(7-1/2 Second Criteria)

Design Speed (mph)	Corner Sight Distance (ft)
25	275
30	330
35	385
40	440
45	495
50	550
55	605
60	660
65	715
70	770

Table 405.1B
Application of Sight Distance Requirements

Intersection Types	Sight Distance		
	Stopping	Corner	Decision
Private Roads	X	X(1)	
Public Streets and Roads	X	X	
Signalized Intersections	X	(2)	
State Route Intersections & Route Direction Changes, with or without Signals	X	X	X

(1) Using stopping sight distance between an eye height of 3.5 ft and an object height of 4.25 ft. See Index 405.1(2)(a) for setback requirements.

(2) Apply corner sight distance requirements at signalized intersections whenever possible due to unanticipated violations of the signals or malfunctions of the signals. See Index 405.1(2)(b).

405.7 Public Road Intersections

The basic design to be used at right-angle public road intersections on the State Highway System is shown in Figure 405.7. The essential elements are sight distance (see Index 405.1) and the treatment of the right-turn on and off the main highway. Encroachment into opposing traffic lanes by the turning vehicle should be avoided or minimized.

(1) Right-turn Onto the Main Highway. The combination of a circular curve joined by a 2:1 taper on the crossroads and a 75-foot taper on the main highway is designed to fit the wheel paths of the appropriate turning template chosen by the designer.

It is desirable to keep the right-turn as tight as practical, so the "STOP" or "YIELD" sign on the minor leg can be placed close to the intersection.

(2) Right-turn Off the Main Highway. The combination of a circular curve joined by a 150-foot taper on the main highway and a 4:1 taper on the crossroads is designed to fit the wheel paths of the appropriate turning template and to move the rear of the vehicle off the main highway. Deceleration and storage lanes may be provided when necessary (see Index 405.3).

(3) Alternate Designs. Offsets are given in Figure 405.7 for right angle intersections. For skew angles, roadway curvature, and possibly other reasons, variations to the right-angle design are permitted, but the basic rule is still to approximate the wheel paths of the design vehicle.

A three-center curve is an alternate treatment that may be used at the discretion of the designer.

405.8 City Street Returns and Corner Radii

The pavement width and corner radius at city street intersections is determined by the type of vehicle to be accommodated taking into consideration the amount of available right of way, the roadway width, the number of lanes on the intersecting street, and the number of pedestrians.

At urban intersections, the California truck or the Bus Design Vehicle template may be used to determine the corner radius. Where STAA truck access is anticipated, the STAA Design Vehicle template may be used giving consideration to factors mentioned above. (See Index 404.3.)

Smaller radii of 15 feet to 25 feet are appropriate at minor cross streets where few trucks are turning. Local agency standards may be appropriate in urban and suburban areas.

Encroachment into opposing traffic lanes should be avoided.

405.9 Widening of 2-lane Roads at Signalized Intersections

Two-lane State highways may be widened at intersections to 4-lanes whenever signals are installed. Sometimes it may be necessary to widen the intersecting road. The minimum design is shown in Figure 405.9. More elaborate treatment may be warranted by the volume and pattern of traffic movements. Unusual turning movement patterns may possibly call for a different shape of widening.

Topic 406 - Ramp Intersection Capacity Analysis

The following procedure for ramp intersection analysis may be used to estimate the capacity of any signalized intersection where the phasing is relatively simple. It is useful in analyzing the need for additional turning and through traffic lanes.

(a) Ramp Intersection Analysis--For the typical local street interchange there is usually a critical intersection of a ramp and the crossroads that establishes the capacity of the interchange. The capacity of a point where lanes of traffic intersect is 1500 vehicles per hour. This is expressed as intersecting lane vehicles per hour (ILV/hr). Table 406 gives values of ILV/hr for various traffic flow conditions

CHAPTER 200
GEOMETRIC DESIGN AND STRUCTURE STANDARDS

Topic 201 - Sight Distance

Index 201.1 - General

Sight distance is the continuous length of highway ahead visible to the driver. Four types of sight distance are considered here: passing, stopping, decision, and corner. Passing sight distance is used where use of an opposing lane can provide passing opportunities (see Index 201.2). Stopping sight distance is the minimum sight distance to be provided on multilane highways and on 2-lane roads when passing sight distance is not economically obtainable. Stopping sight distance also is to be provided for all elements of interchanges and intersections at grade, including private road connections (see Topic 504, Index 405.1, & Figure 405.7). Decision sight distance is used at major decision points (see Indexes 201.7 and 504.2). Corner sight distance is used at intersections (see Index 405.1, Figure 405.7, and Figure 504.3J).

Table 201.1 shows the standards for stopping sight distance related to design speed, and these shall be the minimum values used in design. Also shown are the values for use in providing passing sight distance.

Chapter 3 of "A Policy on Geometric Design of Highways and Streets," AASHTO, contains a thorough discussion of the derivation of stopping sight distance.

201.2 Passing Sight Distance

Passing sight distance is the minimum sight distance required for the driver of one vehicle to pass another vehicle safely and comfortably. Passing must be accomplished assuming an oncoming vehicle comes into view and maintains the design speed, without reduction, after the overtaking maneuver is started.

Table 201.1
Sight Distance Standards

Design Speed[1] (mph)	Stopping[2] (ft)	Passing (ft)
20	125	800
25	150	950
30	200	1,100
35	250	1,300
40	300	1,500
45	360	1,650
50	430	1,800
55	500	1,950
60	580	2,100
65	660	2,300
70	750	2,500
75	840	2,600
80	930	2,700

(1) See Topic 101 for selection of design speed.
(2) For sustained downgrades, refer to advisory standard in Index 201.3

The sight distance available for passing at any place is the longest distance at which a driver whose eyes are 3 ½ feet above the pavement surface can see the top of an object 4 ¼ feet high on the road. See Table 201.1 for the calculated values that are associated with various design speeds.

In general, 2-lane highways should be designed to provide for passing where possible, especially those routes with high volumes of trucks or recreational vehicles. Passing should be done on tangent horizontal alignments with constant grades or a slight sag vertical curve. Not only are drivers reluctant to pass on a long crest vertical curve, but it is impracticable to design crest vertical curves to provide for passing sight distance because of high cost where crest cuts are involved. Passing sight distance for crest vertical curves is 7 to 17 times longer than the stopping sight distance.

Ordinarily, passing sight distance is provided at locations where combinations of alignment and

Where:

e = Superelevation slope in feet per foot
e_{max} = Maximum superelevation rate for a given condition
f = Side friction factor
R = Curve radius in feet
V = Velocity in miles per hour

Standard superelevation rates are designed to hold the portion of the centrifugal force that must be taken up by tire friction within allowable limits. Friction factors as related to speed are shown on Figure 202.2. The factors apply equally to portland cement concrete and bituminous pavements.

202.2 Standards for Superelevation

Maximum superelevation rates for various highway conditions are shown on Table 202.2.

Based on an e_{max} selected by the designer for one of the conditions, superelevation rates from Table 202.2 shall be used within the given range of curve radii. If less than standard superelevation rates are approved (see Index 82.1), Figure 202.2 shall be used to determine superelevation based on the curve radius and maximum comfortable speed.

Maximum comfortable speed is determined by the formula given on Figure 202.2. It represents the speed on a curve where discomfort caused by centrifugal force is evident to a driver. Side friction factors tabulated on Figure 202.2 are recommended by AASHTO for design purposes. AASHTO, A Policy on Geometric Design of Highways and Streets, states, "In general, studies show that the maximum side friction factors developed between new tires and wet concrete pavements range from about 0.5 at 20 mph to approximately 0.35 at 60 mph." The design side friction factors are, therefore, about one-third the values that occur when side skidding is imminent.

To use Figure 202.2, the designer must decide on the relative importance among three variables. Normally, when a nonstandard superelevation rate is approved, Figure 202.2 will be entered with the rate and a desired curve radius. It must then be determined whether the resulting maximum comfortable speed is adequate for the conditions or whether further adjustments to radius and superelevation may be needed.

Except for short radius curves, the standard superelevation rate results in very little side thrust at speeds less than 45 miles per hour. This provides maximum comfort for most drivers.

Superelevation for horizontal curves with radii of 10,000 feet and greater may be deleted in those situations where the combination of a flat grade and a superelevation transition would create undesirable drainage conditions on the pavement.

Superelevated cross slopes on curves extend the full width of the traveled way and shoulders, except that the shoulder slope on the low side should be not less than the minimum shoulder slope used on the tangents (see Index 304.3 for cross slopes under cut widening conditions).

On rural 2-lane roads, superelevation should be on the same plane for the full width of traveled way and shoulders, except on transitions (see Index 304.3 for cut widening conditions).

202.3 Restrictive Conditions

Lower superelevation rates than those given in either Table 202.2 or Figure 202.2 may be necessary in areas where restricted speed zones or ramp/street intersections are controlling factors. Other typical locations are short radius curves on ramps near the local road juncture, either at an intersection or where a loop connects with an overcrossing structure. Often, established street grades, curbs, or drainage may prove difficult to alter and/or superelevation transition lengths would be undesirably short.

Such conditions may justify a reduction in the superelevation rate, different rates for each half of the roadbed, or both. In any case, the superelevation rate provided should be appropriate for the conditions allowing for a smooth transition while providing the maximum level of comfort to the driver. Where standard superelevation rates cannot be attained, discussions should be held with the Design Reviewer and/or the Design Coordinator to determine the proper solution and the necessity of preparing a design exception fact sheet. In warping street or ramp surface areas for

Every effort should be made to exceed minimum values, and such minimum radii should be used only when the cost or other adverse effects of realizing a higher standard are inconsistent with the benefits. As an aid to designers, Figure 202.2 displays the maximum comfortable speed for various curve radii and superelevation rates. Use of Figure 202.2, in lieu of the above standards must be documented as discussed in Index 82.2.

The recommended minimum radii for freeways are 5,000 feet in rural areas and 3,000 feet in urban areas.

If a glare screen or a median barrier is contemplated, either initially or ultimately, adjustments may be necessary to maintain the required sight distance on curves on divided highways. In such cases, a larger curve radius or a wider median may be required throughout the length of the curve. For design purposes, a planting screen is presumed to be 8 feet wide. See Chapter 7 of the Traffic Manual for glare screen criteria.

Table 203.2
Standards for Curve Radius

Design Speed mph	Minimum Radius of Curve (ft)
20	130
30	300
40	550
50	850
60	1,150
70	2,100
80	3,900

203.3 Alignment Consistency

Sudden reductions in alignment standards should be avoided. Where physical restrictions on curve radius cannot be overcome and it becomes necessary to introduce curvature of lower standard than the design speed for the project, the design speed between successive curves should change not more than 10 miles per hour. Introduction of curves with lower design speeds should be avoided at the end of long tangents, steep downgrades, or at other locations where high approach speeds may be anticipated.

The horizontal and vertical alignments should be coordinated such that horizontal curves are not hidden behind crest vertical curves. Sharp horizontal curves should not follow long tangents because some drivers tend to develop higher speeds on the tangent and could over drive the curve.

See "Combination of Horizontal and Vertical Alignment" in Chapter III of AASHTO, A Policy on Geometric Design of Highways and Streets, for further guidance on alignment consistency.

203.4 Curve Length and Central Angle

The minimum curve length for central angles less than 10 degrees should be 800 feet to avoid the appearance of a kink. For central angles smaller than 30 minutes, no curve is required. Above a 20,000 -foot radius, a parabolic curve may be used. In no event should sight distance or other safety considerations be sacrificed to meet the above requirements.

On 2-lane roads a curve should not exceed a length of one-half mile and should be no shorter than 500 feet.

203.5 Compound Curves

Compound curves should be avoided because drivers who have adjusted to the first curve could over drive the second curve if the second curve has a smaller radius than the first. Exceptions can occur in mountainous terrain or other situations where use of a simple curve would result in excessive cost. Where compound curve is necessary, the shorter radius should be at least two-thirds the longer radius when the shorter radius is 1,000 feet or less. On one-way roads, the larger radius should follow the smaller radius.

The total arc length of a compound curve should be not less than 500 feet.

(3) Divided Highways. The grade line should be positioned at the centerline of the median for paved medians 65 feet wide or less, thus avoiding a "saw tooth" section, which can reduce horizontal stopping sight distance.

The grade line may be positioned at the ultimate median edge of traveled way when:

(a) The median edges of traveled way of the two roadways are at equal elevation.

(b) The two roadways are at different elevations as described in Index 204.8.

(c) The width of median is nonuniform (see Index 305.6).

204.3 Standards for Grade

Table 204.3 shows the maximum grades which shall not be exceeded for the condition indicated.

Steep grades affect truck speeds and overall capacity. They also cause operational problems at intersections. For these reasons it is desirable to provide the flattest grades practicable (see Index 204.5 for information on truck issues with grades).

Table 204.3
Maximum Grades for Type of Highway and Terrain Conditions

Type of Terrain	Freeways and Expressways	Rural Highways	Urban Highways
Level	3%	4%	6%
Rolling	4%	5%	7%
Mountainous	6%	7%	9%

Minimum grades should be 0.5 percent in snow country and 0.3 percent at other locations. Except for conventional highways in urban or suburban areas, a level grade line is permissible in level terrain where side fill slopes are 4:1 or flatter and dikes are not needed to carry water in the roadbed. Flat grades are not permissible in superelevation transitions due to flat spots which cause ponding on the roadbed.

Ramp grades should not exceed 8 percent. On descending on-ramps and ascending off-ramps, one percent steeper is allowed (see Index 504.2(5)).

204.4 Vertical Curves

Properly designed vertical curves should provide adequate sight distance, safety, comfortable driving, good drainage, and pleasing appearance.

A parabolic vertical curve is used. Figure 204.4 gives all necessary mathematical relations for computing a vertical curve, either at crests or sags. For algebraic grade differences of 2 percent and greater, and design speeds equal to or greater than 40 miles per hour, the minimum length of vertical curve in feet should be equal to 10V, where V = design speed. As an example, a 65 miles per hour design speed would require a 650-foot minimum vertical curve length. For algebraic grade differences of less than 2 percent, or design speeds less than 40 miles per hour, the vertical curve length should be a minimum of 200 feet. Vertical curves are not required where the algebraic difference in grades is 0.5 percent or less. Grade breaks should not be closer together than 50 feet and a total of all grade breaks within 200 feet should not exceed 0.5 percent.

Since flat vertical curves may develop poor drainage at the level section, adjusting the gutter grade or shortening the vertical curve may overcome any drainage problems.

On 2-lane roads, extremely long crest vertical curves, over one-half mile, should be avoided, since many drivers refuse to pass on such curves despite adequate sight distance. It is sometimes more economical to construct passing lanes than to obtain passing sight distance by the use of a long vertical curve.

Broken-back vertical curves consist of two vertical curves in the same direction separated by a short grade tangent. A profile with such curvature normally should be avoided, particularly in sags where the view of both curves is not pleasing.

CHAPTER 300
GEOMETRIC CROSS SECTION

Topic 301 - Traveled Way Standards

Index 301.1 - Traveled Way Width

The traveled way width is determined by the number of lanes demanded by the design hourly volume. The traveled way width does not include curbs, dikes, gutters, or gutter pans. **The basic lane width for new construction on two-lane and multilane highways, ramps, collector roads, and other appurtenant roadways shall be 12 feet.** For roads with curve radii of 300 feet or less, widening due to offtracking should be considered. See Index 404.1 and Table 504.3A. For roads under other jurisdictions, see Topic 308.

301.2 Cross Slopes

(1) General. The purpose of sloping on roadway cross sections is to provide a mechanism to direct water (usually from precipitation) off the traveled way. Undesirable accumulations of water can lead to hydroplaning or other problems which can increase accident potential. See Topics 831 and 833 for hydroplaning considerations.

(2) Standards.

(a) **The standard cross slope to be used for new construction on the traveled way for all types of surfaces shall be 2 percent.**

(b) **For resurfacing or widening when necessary to match existing cross slopes, the minimum shall be 1.5 percent and the maximum shall be 3 percent.** However, the cross slope on 2-lane and multilane AC highways should be increased to 2 percent if the cost is reasonable.

(c) **On unpaved roadway surfaces, including gravel and penetration treated earth, the cross slope shall be 2.5 percent to 5.0 percent.**

On undivided highways with two or more lanes in a normal tangent section, the high point of the crown should be centered on the pavement and the pavement sloped toward the edges on a uniform grade.

For rehabilitation and widening projects, the maximum algebraic difference in cross slope between adjacent lanes of opposing traffic for either 2-lane or undivided multilane highways should be 6 percent. **For new construction, the maximum shall be 4 percent.**

On divided highway roadbeds, the high point of crown may be centered at, or left of, the center of the traveled way, and preferably over a lane line (tent sections). This strategy may be employed when adding lanes on the inside of divided highways, or when widening an existing "crowned" 2-lane highway to a 4-lane divided highway by utilizing the existing 2-lane pavement as one of the divided highway roadbeds.

The maximum algebraic difference in cross slope between same direction traffic lanes of divided highway roadbeds should be 4 percent.

The maximum difference in cross slope between the traveled way and the shoulder should not exceed 8 percent. This applies to new construction as well as pavement overlay projects.

At freeway entrances and exits, the maximum difference in cross slope between adjacent lanes, or between lanes and gore areas, should not exceed 5 percent.

Topic 302 - Shoulder Standards

302.1 Width

The shoulder widths given in Table 302.1 shall be the minimum continuous usable width of paved shoulder. For new construction, and major reconstruction projects on conventional highways, adequate width should be provided to permit shared use by motorists and bicyclists.

See Index 308.1 for shoulder width requirements on city streets or county roads. See shoulder definition, Index 62.1(8).

See Index 1102.2 for shoulder width requirements next to noise Barriers.

guidelines established in this topic and placed as shown on Figure 307.4. Local curb standards should be used when requested by local authorities for roads and streets that will be relinquished to them.

Topic 304 - Side Slopes

304.1 Side Slope Standards

Slopes should be designed as flat as is reasonable. For new construction, widening, or where slopes are otherwise being modified, embankment (fill) slopes should be 4:1 or flatter. Factors affecting slope design are as follows:

(a) Safety. Flatter slopes provide better recovery for errant vehicles that may run off the road. A cross slope of 6:1 or flatter is suggested for high speed roadways whenever it is achievable. Cross slopes of 10:1 are desirable.

Recoverable slopes are embankment slopes 4:1 or flatter. Motorists who encroach on recoverable slopes can generally stop their vehicles or slow them enough to return to the traveled way safely.

A slope which is between 3:1 and 4:1 is considered traversable, but not recoverable. Since a high percentage of vehicles will reach the toe of these slopes, the recovery area should be extended beyond the toe of slope. The AASHTO Roadside Design Guide should be consulted for methods of determining the preferred extent of the runout area.

Embankment slopes steeper than 3:1 are considered non-recoverable and non-traversable. District Traffic, and the AASHTO Roadside Design Guide should be consulted for methods of determining the preferred treatment.

Regardless of slope steepness, it is desirable to round the top of slopes so an encroaching vehicle remains in contact with the ground. Likewise, the toe of slopes should be rounded to prevent vehicles from nosing into the ground.

(b) Erosion Control. Slope designs steeper than 4:1 must be approved by the District Landscape Architect in order to assure compliance with the regulations affecting Stormwater Pollution contained in the Federal Clean Water Act (see Index 82.4). Slope steepness and length are two of the most important factors affecting the erodability of a slope. Slopes should be designed as flat as possible to prevent erosion. However, since there are other factors such as soil type, climate, and exposure to the sun, District Landscape Architecture and the District Stormwater Coordinator must be contacted for erosion control requirements.

A Storm Water Data Report (SWDR) documents project information and considerations pertaining to Storm Water Best Management Practices (BMPs) and Erosion Control methods. The SWDR is prepared and signed by key personnel (including the District Landscape Architect) at the completion of each phase of a project. By signing the SWDR, the District Landscape Architect approves compliance with the proposed slope designs.

(c) Structural Integrity. Slopes steeper than 2:1 require approval of District Maintenance. The Geotechnical Design Report (See Topic 113) will recommend a minimum slope required to prevent slope failure due to soil cohesiveness, loading, slip planes and other global stability type failures. There are other important issues found in the Geotechnical Design Report affecting slope design such as the consistency of the soil likely to be exposed in cuts, identification of the presence of ground water, and recommendations for rock fall.

(d) Economics. Economic factors such as purchasing right of way, imported borrow, and environmental impacts frequently play a role in the decision of slope length and steepness. In some cases, the cost of stabilizing, planting, and maintaining steep slopes may exceed the cost of

additional grading and right of way to provide a flatter slope.

(e) Aesthetics. Flat, gentle, and smooth, well transitioned slopes are visually more satisfying than steep, obvious cuts and fills. In addition, flatter slopes are more easily revegetated, which helps visually integrate the transportation improvement within its surrounding environment. Contact the District Landscape Architect when preparing a contour grading plan.

In light grading where normal slopes catch in a distance less than 18 feet from the edge of the shoulder, a uniform catch point, at least 18 feet from the edge of the shoulder, should be used. This is done not only to improve errant vehicle recovery and aesthetics, but also to reduce grading costs. Uniform slopes wider than 18 feet can be constructed with large production equipment thereby reducing earthwork costs.

Transition slopes should be provided between adjoining cuts and fills. Such slopes should intersect the ground at the uniform catch point line.

In areas where heavy snowfall can be expected, consideration should be given to snow removal problems and snow storage in slope design. It is considered advisable to use flatter slopes in cuts on the southerly side of the roadway where this will provide additional exposure of the pavement to the sun.

304.2 Clearance From Slope to Right of Way Line

The minimum clearance from the right of way line to catch point of a cut or fill slope should be 10 feet for all types of cross sections. When feasible, at least 15 feet should be provided.

Following are minimum clearances recommended for cuts higher than 30 feet:

(a) Twenty feet for cuts from 30 feet to 50 feet high.

(b) Twenty-five feet for cuts from 50 feet to 75 feet high.

(c) One-third the cut height for cuts above 75 feet, but not to exceed a width of 50 feet.

The foregoing clearance standards should apply to all types of cross sections.

304.3 Slope Benches and Cut Widening

The necessity for benches, their width, and vertical spacing should be finalized only after an adequate materials investigation. Since greater traffic benefits are realized from widening a cut than from benching the slope, benches above grade should be used only where necessary. Benches above grade should be used for such purposes as installation of horizontal drains, control of surface erosion, or intercepting falling rocks. Design of the bench should be compatible with the geotechnical features of the site.

Benches should be at least 20 feet wide and sloped to form a valley at least 1 foot deep with the low point a minimum of 5 feet from the toe of the upper slope. Access for maintenance equipment should be provided to the lowest bench, and if feasible to all higher benches.

In cuts over 150 feet in height, with slopes steeper than 1½:1, a bench above grade may be desirable to intercept rolling rocks. The Division of Engineering Services – Geotechnical Services (DES-GS) should be consulted for assistance in recommending special designs to contain falling and/or rolling rocks.

Cut widening may be necessary:

(a) To provide for drainage along the toe of the slope.

(b) To intercept and store loose material resulting from slides, rock fall, and erosion.

(c) For snow storage in special cases.

(d) To allow for planting.

Where the widened area is greater than that required for the normal gutter or ditch, it should be flush with the edge of the shoulder and sloped upward or downward on a gentle slope, preferably 20:1 in areas of no snow; and downward on a 10:1 slope in snow areas.

It is important to note that AASHTO, A Policy on Geometric Design of Highways and Streets, standards are based on functional classification and not on a Federal-aid System.

Chapter 1 of AASHTO, A Policy on Geometric Design of Highways and Streets, list standards for the following six functional classes:

- Local rural roads
- Local urban streets
- Rural collectors
- Urban collectors
- Rural arterials
- Urban arterials

AASHTO, A Policy on Geometric Design of Highways and Streets, gives minimum lane and shoulder widths. When selecting a cross section, the effects on capacity of commercial vehicles and grades should be considered as discussed under Topic 102 and in the Transportation Research Board, Highway Capacity Manual.

The minimum width of 2-lane overcrossing structures shall not be less than 28 feet curb to curb. Also see Index 208.1(2) and Index 307.3.

If the local agency has definite plans to widen the local street either concurrently or within 5 years following freeway construction, the reconstruction to be accomplished by the State should generally conform to the widening planned by the local agency. Stage construction should be considered where the planned widening will occur beyond the 5-year period following freeway construction or where the local agency has a master plan indicating an ultimate width greater than the existing facility. Where an undercrossing is involved, the initial structure construction should provide for ultimate requirements.

Where a local facility crosses over or under a freeway or expressway and connects to the State facility (such as ramp terminal intersections), the minimum design standards for the cross section of the local facility shall be at least equal to those for a conventional highway with the exception that the outside shoulder width shall match the approach roadway, but not less than 4 feet (shoulder width should not be less than 5 feet where curbs with 2-foot gutter pans are proposed and bicycle use is expected). **The minimum width for two-lane overcrossings at interchanges shall be 40 feet curb-to-curb.**

Topic 309 - Clearances

309.1 Horizontal Clearances

(1) General. The horizontal clearance to all roadside objects should be based on engineering judgment with the objective of maximizing the distance between roadside objects and the edge of traveled way. Engineering judgment should be exercised in order to balance the achievement of horizontal clearance objectives with the prudent expenditure of available funds.

Certain yielding objects, such as sand filled barrels, metal beam guardrail, breakaway wood posts, etc. may encroach within the clear recovery zone (see Index 309.1(2)). While these objects are designed to reduce the severity of accidents, efforts should be made to maximize the distance between any object and the edge of traveled way.

Clearances are measured from the edge of the traveled way to the nearest point on the obstruction (usually the bottom). **Horizontal clearances greater than those cited below under subsection (3) - "Minimum Clearances" shall be provided where necessary to meet horizontal stopping sight distance requirements.** See discussion on ".. technical reductions in design speed .." under Topic 101.

(2) Clear Recovery Zone (CRZ). The roadside environment can and should be made as safe as practical. A clear recovery zone is an unobstructed, relatively flat (4:1 or flatter) or gently sloping area beyond the edge of the traveled way which affords the drivers of errant vehicles the opportunity to regain control. The AASHTO Roadside Design Guide provides detailed design guidance for creating a forgiving roadside environment. See also Index 304.1 regarding side slopes.

The following clear recovery zone widths are the minimum desirable for the type of facility

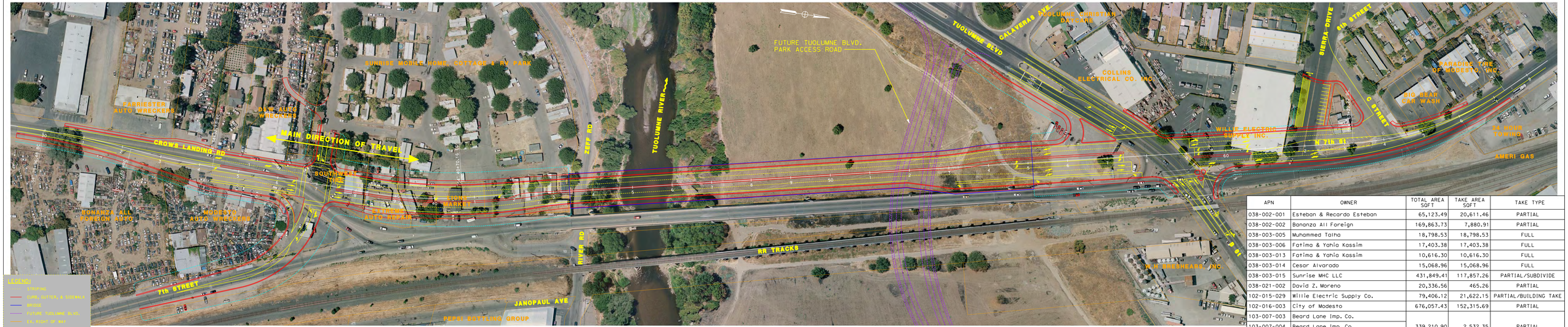
Attachment C

Geometric Drawings for Alternatives

06 / 07 / 2016

7th STREET BRIDGE REPLACEMENT
GEOMETRIC APPROVAL DRAWING (ALT. 1)

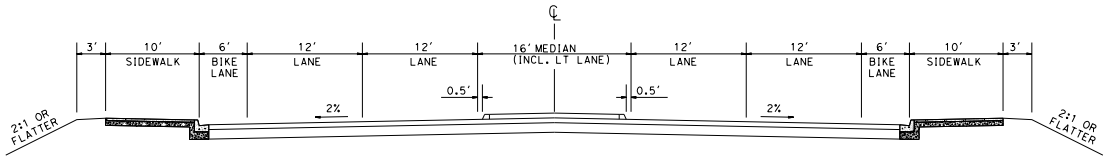
SCALE: 1" = 100'



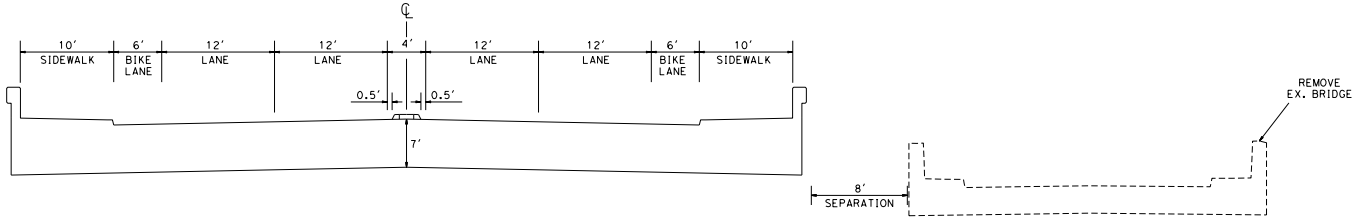
APN	OWNER	TOTAL AREA SQFT	TAKE AREA SQFT	TAKE TYPE
038-002-001	Esteban & Recardo Esteban	65,123.49	20,611.46	PARTIAL
038-002-002	Bananza All Foreign	169,863.73	7,880.91	PARTIAL
038-003-005	Muhammed Taiha	18,798.53	18,798.53	FULL
038-003-006	Fatima & Yahia Kassim	17,403.38	17,403.38	FULL
038-003-013	Fatima & Yahia Kassim	10,616.30	10,616.30	FULL
038-003-014	Cesar Alvarado	15,068.96	15,068.96	FULL
038-003-015	Sunrise MHC LLC	431,849.41	117,857.26	PARTIAL/SUBDIVIDE
038-021-002	David Z. Moreno	20,336.56	465.26	PARTIAL
102-015-029	Willie Electric Supply Co.	79,406.12	21,622.15	PARTIAL/BUILDING TAKE
102-016-003	City of Modesto	676,057.43	152,315.69	PARTIAL
103-007-003	Beard Lane Imp. Co.			
103-007-004	Beard Lane Imp. Co.	339,210.90	2,532.35	PARTIAL
103-008-004	Bearden Family Limited Partnership	9,642.45	2,067.98	PARTIAL
103-008-005	Angelica C. Montes	9,672.65	5,659.1	PARTIAL

06/07/2016

7th STREET BRIDGE REPLACEMENT
TYPICAL SECTION (ALT. 1)



TYPICAL ROADWAY SECTION



TYPICAL BRIDGE SECTION

SCALE: 1" = 50'

06/07/2016

7th STREET BRIDGE REPLACEMENT
GEOMETRIC APPROVAL DRAWING (ALT. 2A/2B)

SCALE: 1" = 100'

CURVE DATA

No.	R	Δ	T	L
1	810.00'	XX°XX'XX.XX"	XXX.XX'	XXX.XX'
2	2000.00'	XX°XX'XX.XX"	XXX.XX'	XXX.XX'
3	5600.00'	XX°XX'XX.XX"	XXX.XX'	XXX.XX'
4	2100.00'	05°51'05.37"	107.33'	214.47'
5	1400.00'	13°04'05.00"	160.35'	319.31'
6	510.00'	24°02'29.19"	108.60'	213.99'
7	XXX.XX'	XX°XX'XX.XX"	XXX.XX'	XXX.XX'
8	XXX.XX'	XX°XX'XX.XX"	XXX.XX'	XXX.XX'

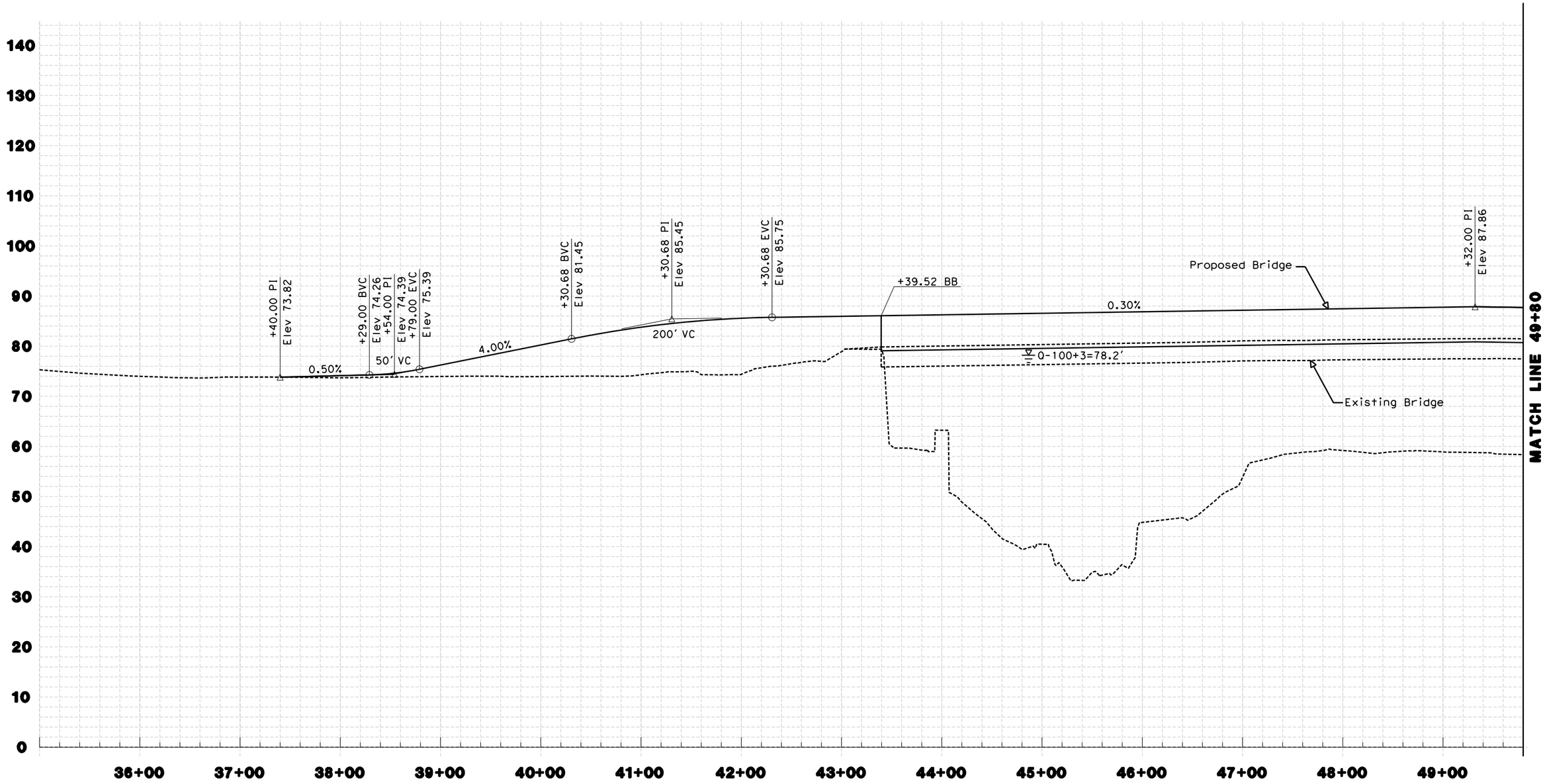
APN	OWNER	TOTAL AREA SQFT	TAKE AREA SQFT	TAKE TYPE
038-002-001	Esteban & Recardo Esteban	65,123.49	10,912.27	PARTIAL
038-002-002	Bananza All Foreign	169,863.73	5,012.73	PARTIAL
038-002-008	Larry Boss	81,324.14	1,521.50	PARTIAL
038-003-005	Muhammed Talha	18,798.53	1,396.03	PARTIAL
038-003-006	Fatima & Yahia Kassim	17,403.38	17,403.38	FULL
038-003-013	Fatima & Yahia Kassim	10,616.30	1,180.93	PARTIAL
038-003-014	Cesar Alvarado	15,068.96	2,262.30	PARTIAL/SUBDIVIDE
038-003-015	Sunrise MHC LLC	431,849.41	15,658.90	PARTIAL
038-021-002	David Z. Moreno	20,336.56	741.00	PARTIAL
102-015-029	Willie Electric Supply Co.	79,406.12	5,317.11	PARTIAL
102-016-003	City of Modesto	676,057.43	83,602.56	PARTIAL

EXISTING BRIDGE WILL BE DEMOLISHED AND TRAFFIC WILL BE TEMPORARILITY RE-ROUTED ALONG 9TH STREET.

06/14/2016

7th STREET BRIDGE REPLACEMENT
PROFILE DRAWING (ALT. 2A/2B)

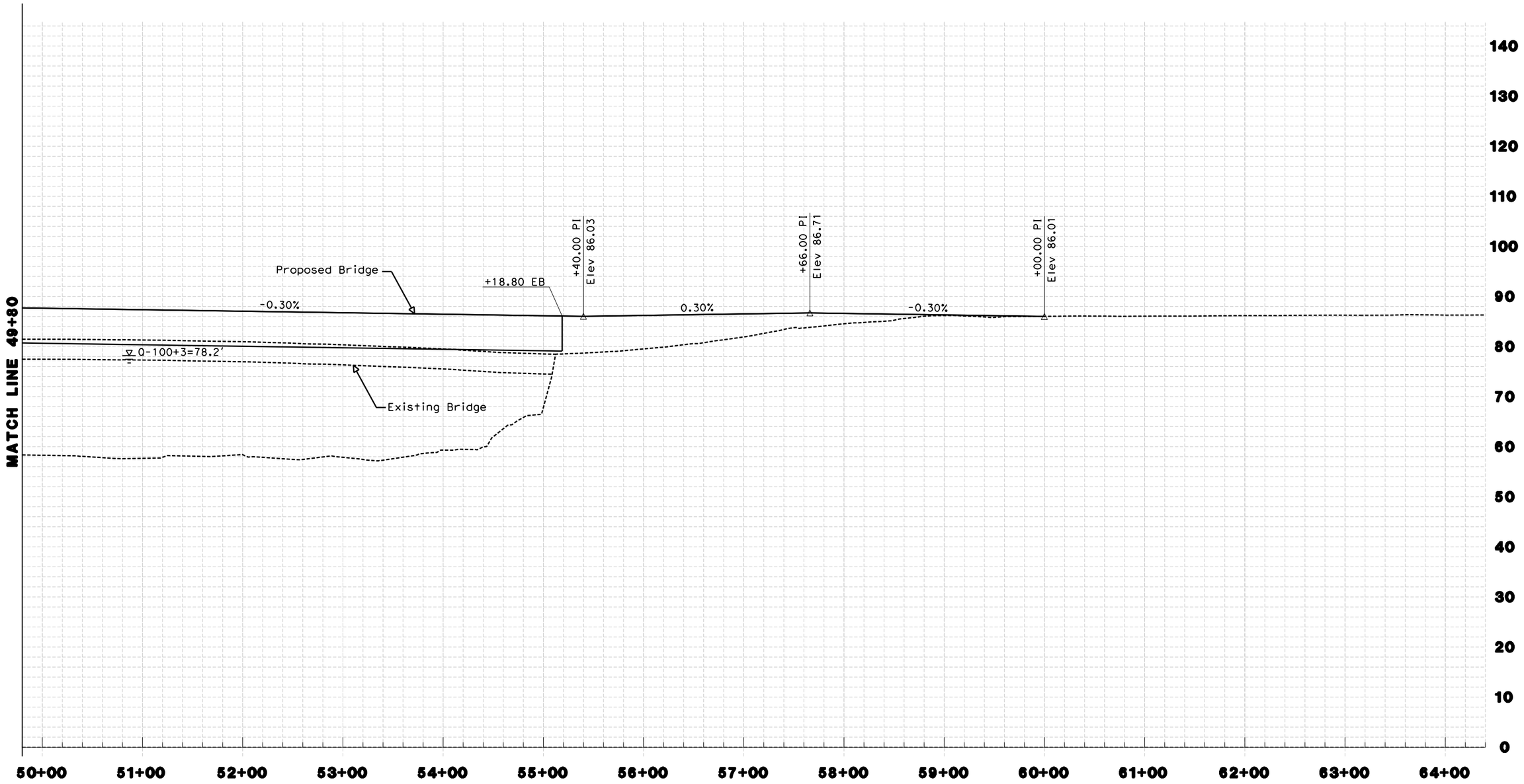
SCALE 1" = 50'



06/14/2016

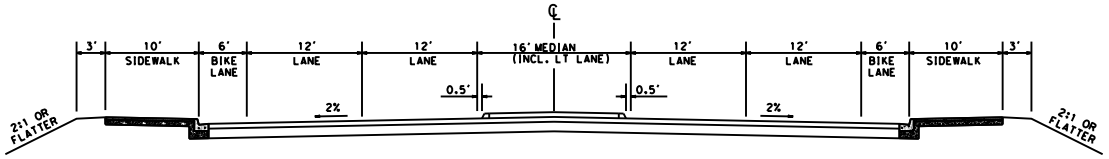
7th STREET BRIDGE REPLACEMENT
PROFILE DRAWING (ALT. 2A/2B)

SCALE 1" = 50'

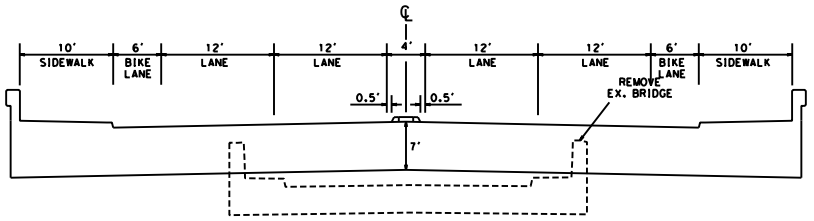


06/07/2016

7th STREET BRIDGE REPLACEMENT
TYPICAL SECTION (ALT. 2A/2B)



TYPICAL ROADWAY SECTION



TYPICAL BRIDGE SECTION

SCALE: 1" = 50'

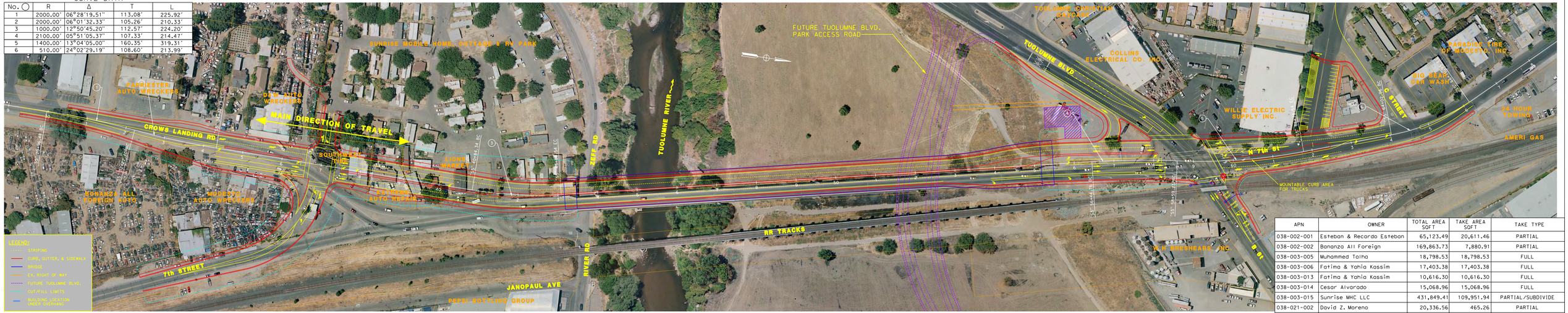
06 / 07 / 2016

7th STREET BRIDGE REPLACEMENT
GEOMETRIC APPROVAL DRAWING (ALT. 3)

SCALE: 1" = 100'

CURVE DATA

No.	R	Δ	T	L
1	2000.00'	06°28'19.51"	113.08'	225.92'
2	2000.00'	06°01'32.33"	105.26'	210.33'
3	1000.00'	12°50'45.20"	112.57'	224.20'
4	2100.00'	05°51'05.37"	107.33'	214.47'
5	1400.00'	13°04'05.00"	160.35'	319.31'
6	510.00'	24°02'29.19"	108.60'	213.99'



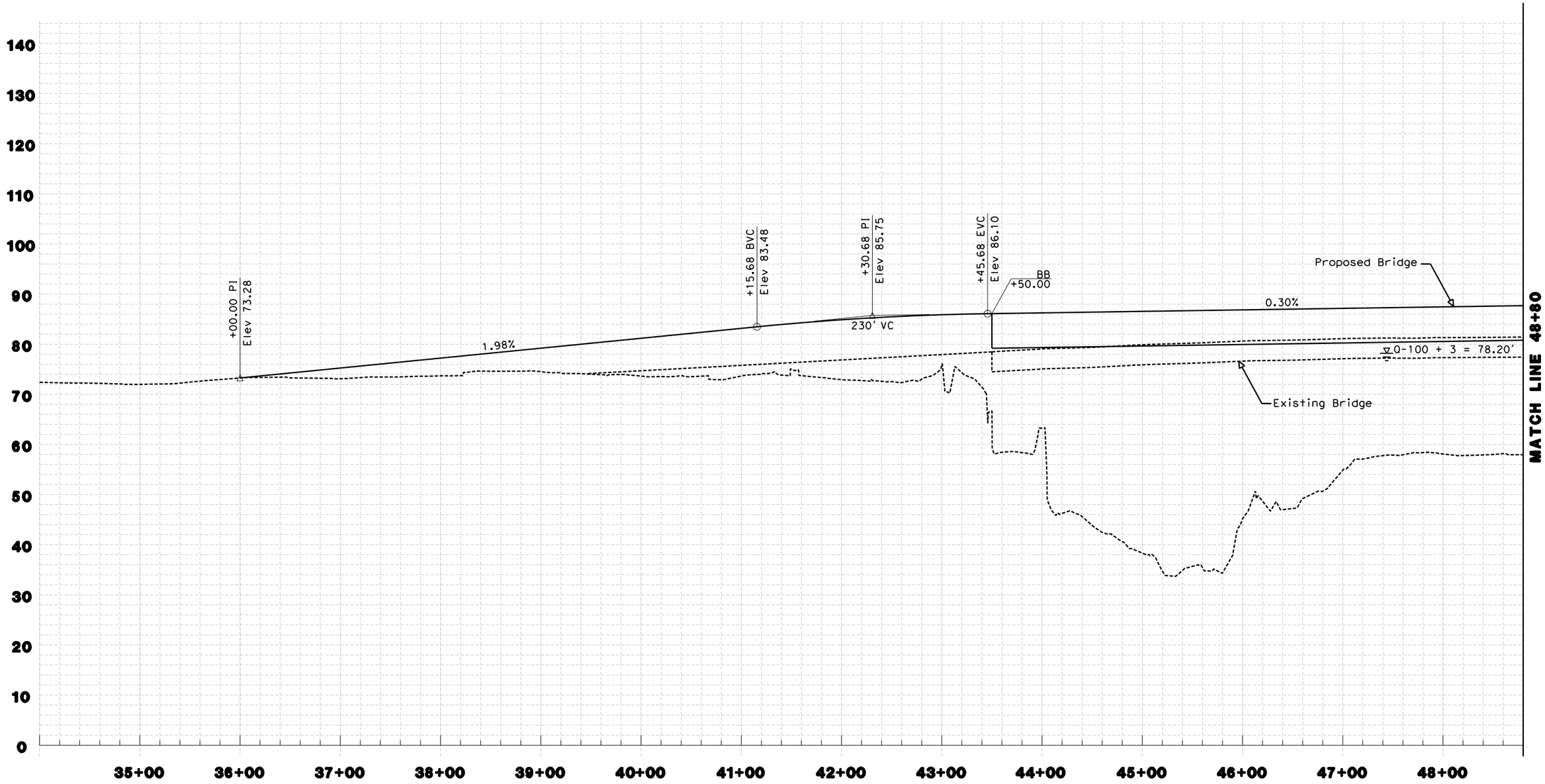
APN	OWNER	TOTAL AREA SQFT	TAKE AREA SQFT	TAKE TYPE
038-002-001	Esteban & Recardo Esteban	65,123.49	20,611.46	PARTIAL
038-002-002	Bananza All Foreign	169,863.73	7,880.91	PARTIAL
038-003-005	Muhammed Talha	18,798.53	18,798.53	FULL
038-003-006	Fatima & Yahia Kassim	17,403.38	17,403.38	FULL
038-003-013	Fatima & Yahia Kassim	10,616.30	10,616.30	FULL
038-003-014	Cesar Alvarado	15,068.96	15,068.96	FULL
038-003-015	Sunrise MHC LLC	431,849.41	109,951.94	PARTIAL/SUBDIVIDE
038-021-002	David Z. Moreno	20,336.56	465.26	PARTIAL
102-015-029	Willie Electric Supply Co.	79,406.12	5,317.11	PARTIAL/BUILDING TAKE
102-016-003	City of Modesto	676,057.43	86,592.78	PARTIAL
102-016-XXX	City of Modesto	54,100.86	2,033.60	PARTIAL

BRIDGE WILL BE BUILT IN 2 STAGES MAINTAINING TRAFFIC ALONG 7TH STREET DURING CONSTRUCTION.

06/14/2016

7th STREET BRIDGE REPLACEMENT
PROFILE DRAWING (ALT. 3)

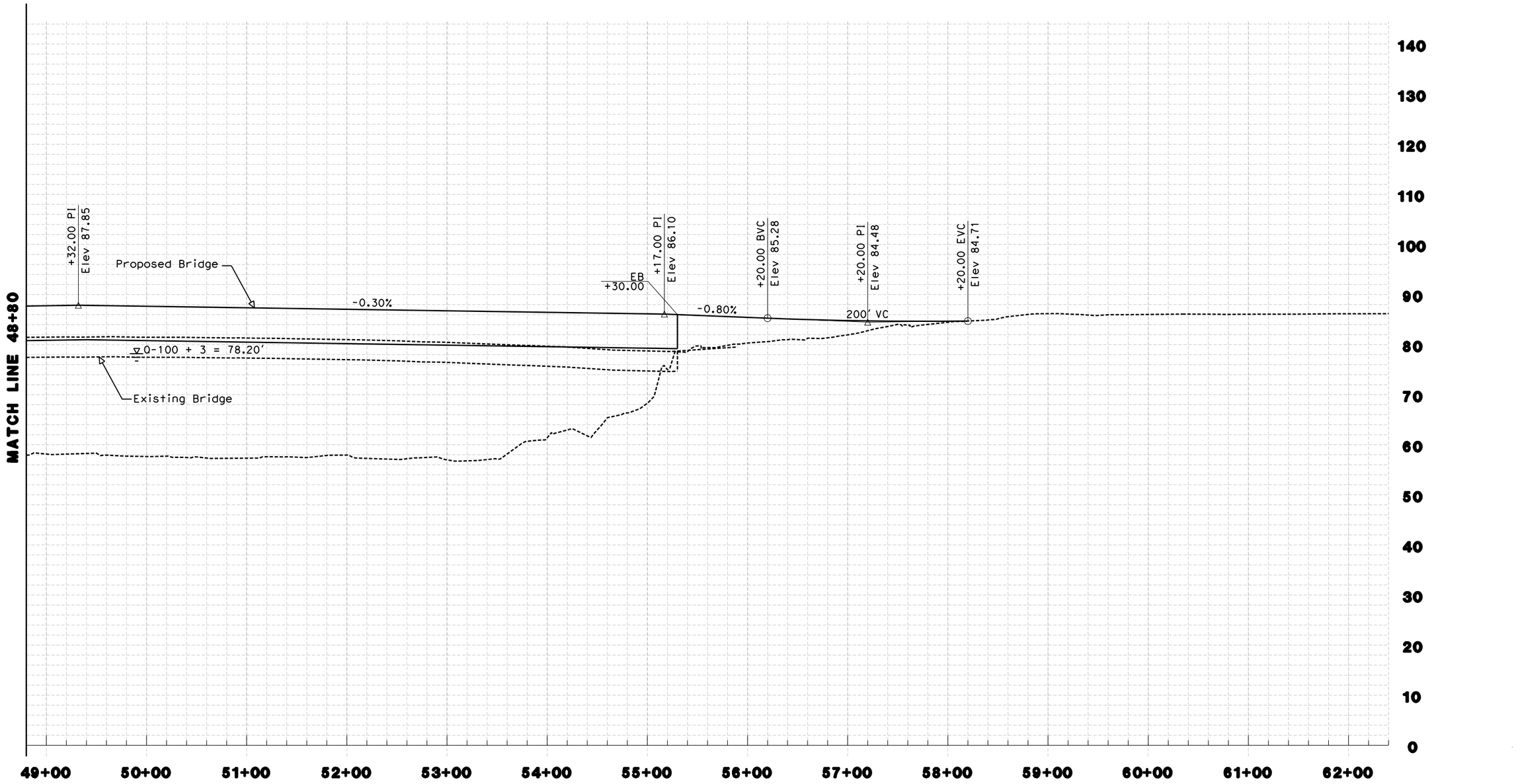
SCALE 1" = 50'



06/14/2016

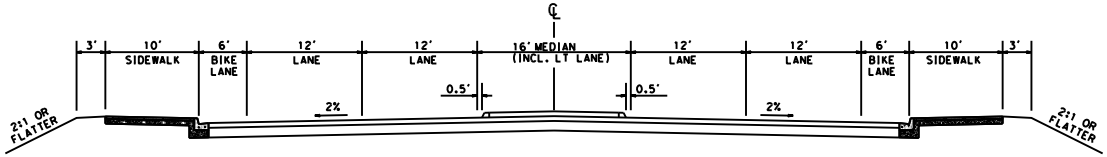
7th STREET BRIDGE REPLACEMENT
PROFILE DRAWING (ALT. 3)

SCALE 1" = 50'

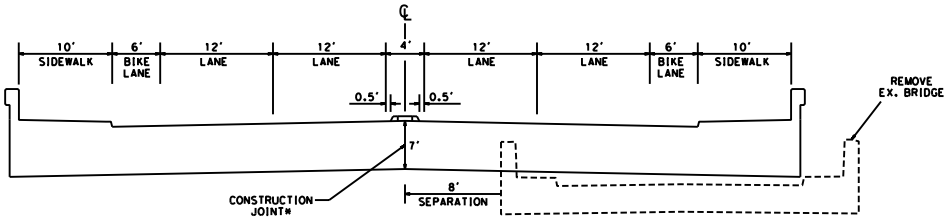


06/07/2016

7th STREET BRIDGE REPLACEMENT
TYPICAL SECTION (ALT. 3)



TYPICAL ROADWAY SECTION



TYPICAL BRIDGE SECTION

SCALE: 1" = 50'

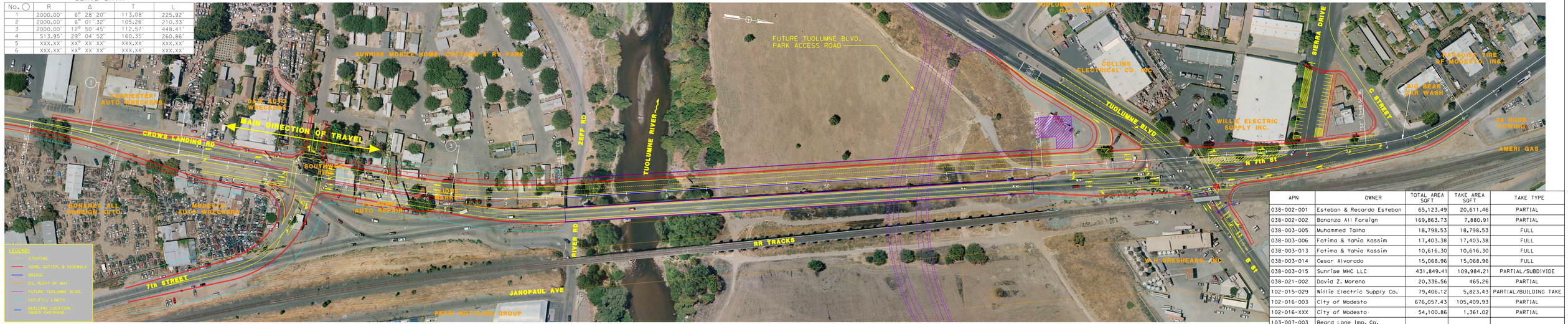
06 / 07 / 2015

7th STREET BRIDGE REPLACEMENT
GEOMETRIC APPROVAL DRAWING (ALT. 4)

SCALE: 1" = 100'

CURVE DATA

No.	R	Δ	T	L
1	2000.00'	6° 28' 20"	113.08'	225.92'
2	2000.00'	6° 01' 32"	105.26'	210.33'
3	2000.00'	12° 50' 45"	112.57'	448.41'
4	513.95'	29° 04' 52"	160.35'	260.86'
5	XXX.XX'	XX° XX' XX"	XXX.XX'	XXX.XX'
6	XXX.XX'	XX° XX' XX"	XXX.XX'	XXX.XX'

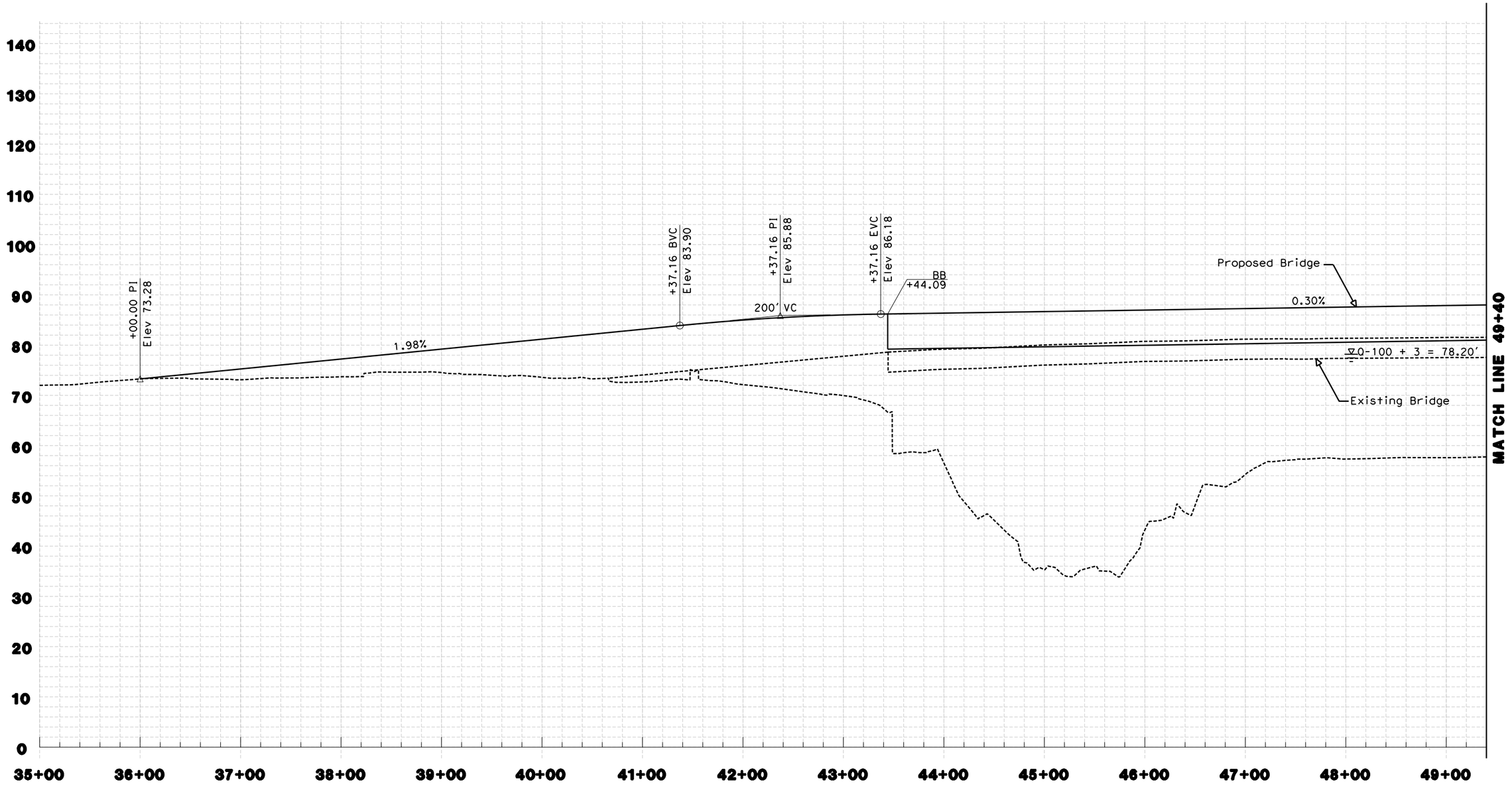


APN	OWNER	TOTAL AREA SQFT	TAKE AREA SQFT	TAKE TYPE
038-002-001	Esteban & Recardo Esteban	65,123.49	20,611.46	PARTIAL
038-002-002	Bananza All Foreign	169,863.73	7,880.91	PARTIAL
038-003-005	Muhammed Taiha	18,798.53	18,798.53	FULL
038-003-006	Fatima & Yahia Kassim	17,403.38	17,403.38	FULL
038-003-013	Fatima & Yahia Kassim	10,616.30	10,616.30	FULL
038-003-014	Cesar Alvarado	15,068.96	15,068.96	FULL
038-003-015	Sunrise MHC LLC	431,849.41	109,984.21	PARTIAL/SUBDIVIDE
038-021-002	David Z. Moreno	20,336.56	465.26	PARTIAL
102-015-029	Willie Electric Supply Co.	79,406.12	5,823.43	PARTIAL/BUILDING TAKE
102-016-003	City of Modesto	676,057.43	105,409.93	PARTIAL
102-016-XXX	City of Modesto	54,100.86	1,361.02	PARTIAL
103-007-003	Beard Lane Imp. Co.			
103-007-004	Beard Lane Imp. Co.	339,210.90	2,532.35	PARTIAL
103-008-005	Angelina C. Montes	9,672.65	945.80	PARTIAL

06/14/2016

7th STREET BRIDGE REPLACEMENT
PROFILE DRAWING (ALT. 4)

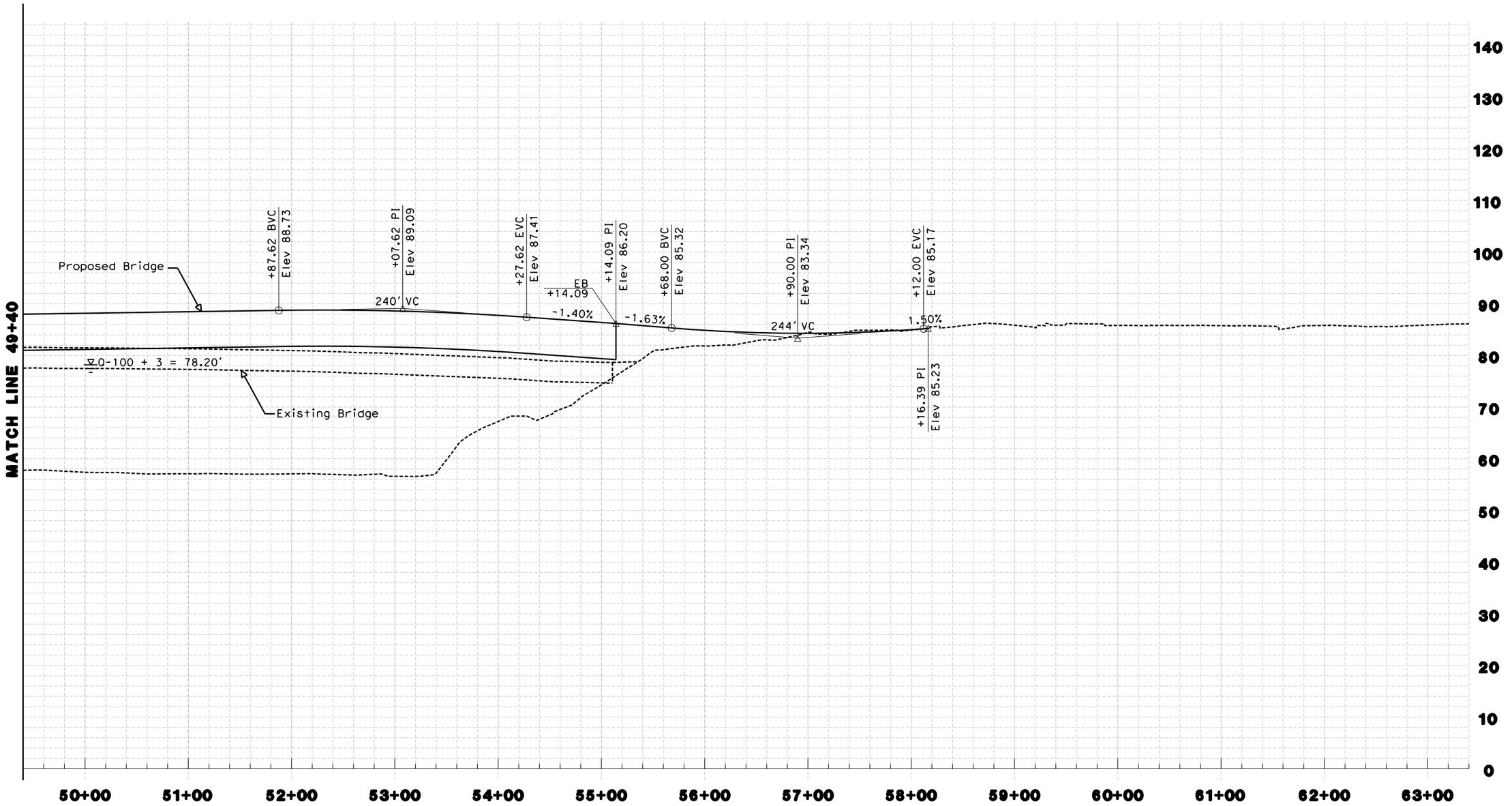
SCALE 1" = 50'



06/14/2016

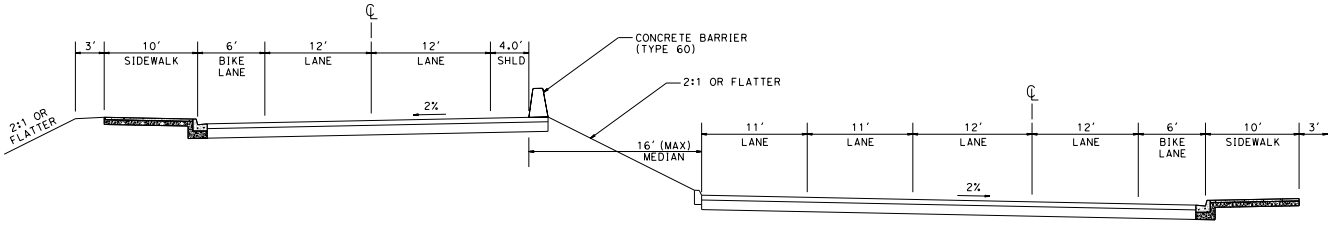
7th STREET BRIDGE REPLACEMENT
PROFILE DRAWING (ALT. 4)

SCALE 1" = 50'

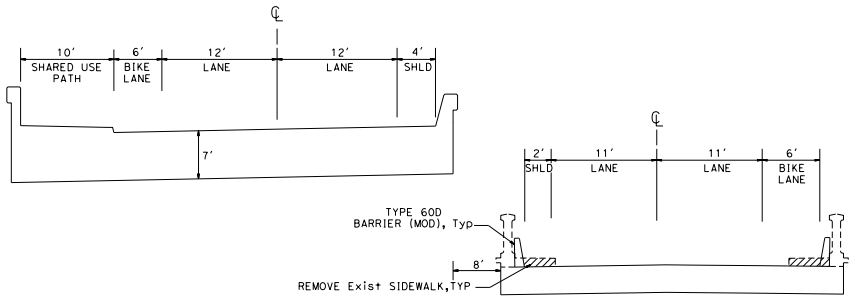


06/07/2016

7th STREET BRIDGE REPLACEMENT
TYPICAL SECTION (ALT. 4)



TYPICAL ROADWAY SECTION



TYPICAL BRIDGE SECTION (ALTERNATIVE 4)

SCALE: 1" = 50'

Attachment D

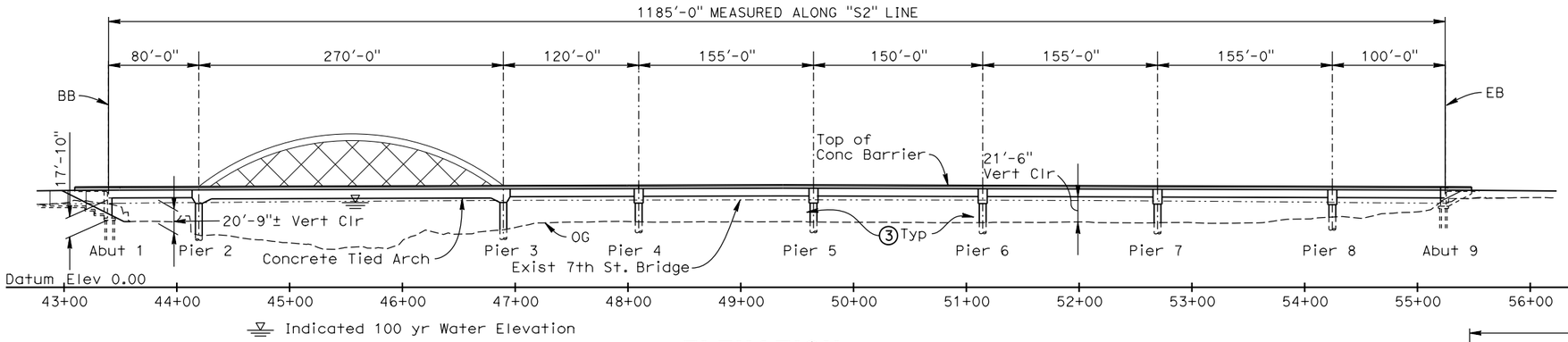
Advanced Planning Studies

PREPARED FOR THE STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT
-	STAN	-	-

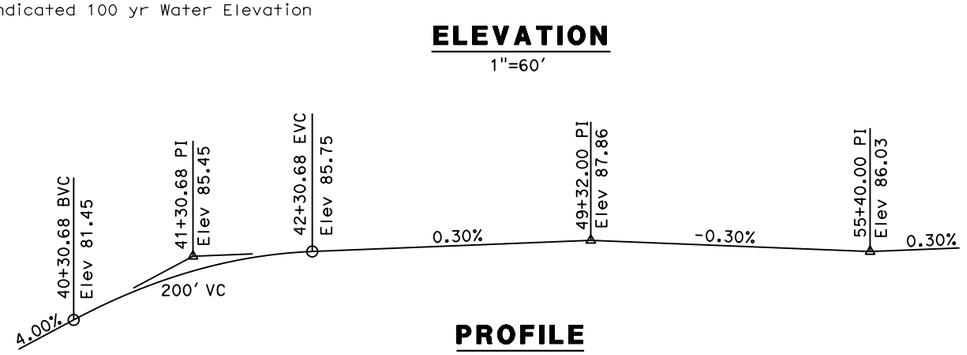
STANISLAUS COUNTY PUBLIC WORKS
1716 MORGAN RD.
MODESTO, CA 95358

CH2MHILL
2485 NATOMAS PARK DR. STE 600
SACRAMENTO, CA 95833

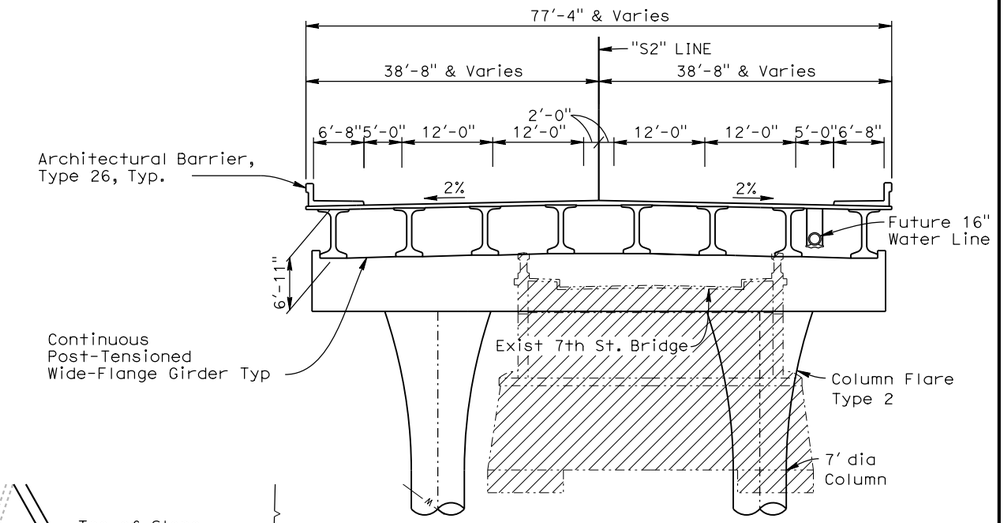


ELEVATION
1"=60'

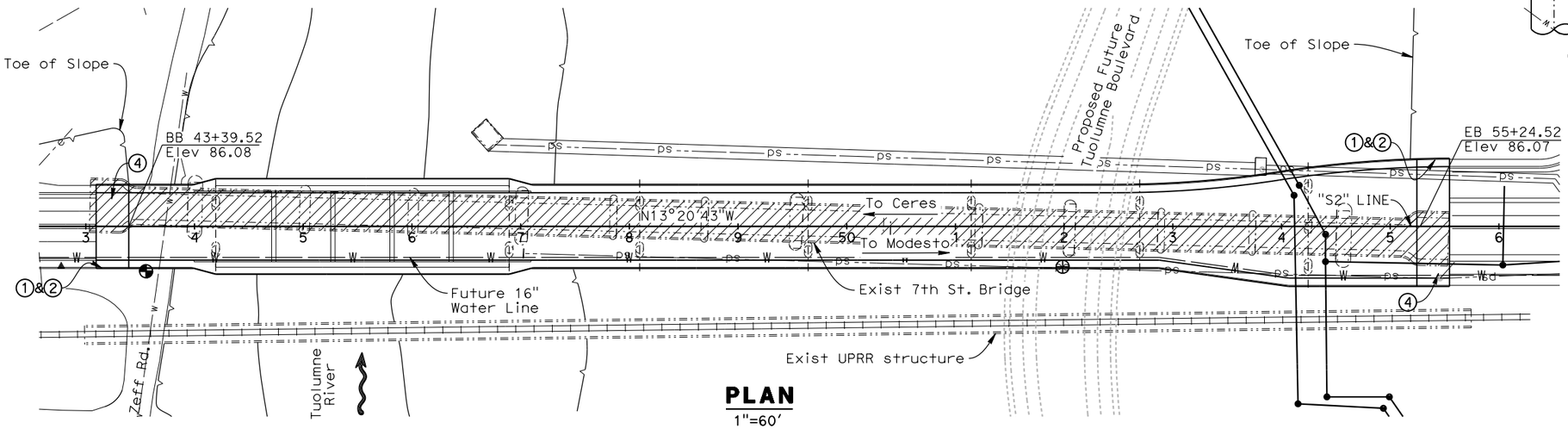
Hydrologic Summary			
Frequency (yr)	50	100	200
Discharge (cfs)	37,500	70,000	105,400
Water surface (NAVD 88 ft)	67.7	75.1	80.7



PROFILE
NO SCALE



TYPICAL SECTION
1"=10'



PLAN
1"=60'

NOTES
1. Paint Br. No.
2. Paint "Seventh Street Bridge"
3. Paint Pier No.
4. Structure Approach Slab Type N30S

LEGEND
- Indicates Existing Structure
- Indicates New Construction
- Indicates Point of Minimum Vertical Clearance
- Indicates Point of Vertical Clearance
- Indicates Existing Br to be removed

X
DESIGN OVERSIGHT
X
SIGN OFF DATE

DESIGNED BY	JENNIFER ELWOOD	DATE	02/11/15
DRAWN BY	PATRICK WALKER	DATE	02/11/15
CHECKED BY		DATE	
APPROVED		DATE	

CHIRS SERROELS
PROJECT ENGINEER

ALTERNATIVE 2A
PLANNING STUDY
7TH STREET BRIDGE

BRIDGE NO. 38C-0023	UNIT:
SCALE: AS NOTED	PROJECT NUMBER & PHASE:

CONTRACT NO.: X

USERNAME => pwalker DATE PLOTTED => 23-FEB-2016 TIME PLOTTED => 14:35

ADVANCE PLANNING STUDY SHEET (ENGLISH) (REV. 7/16/10)

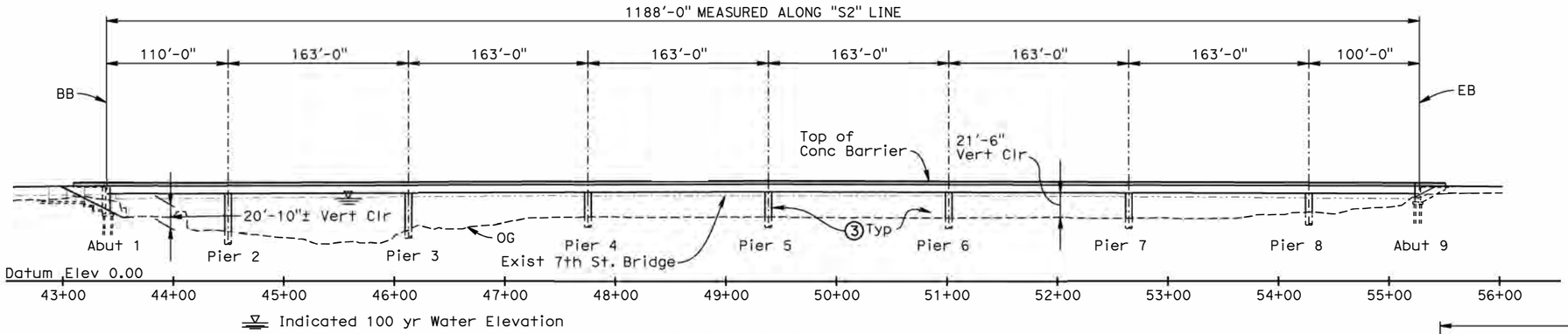
FILE => 7thstBR_alt2a_short-A-gp01.dgn

PREPARED FOR THE STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT
-	STAN	-	-

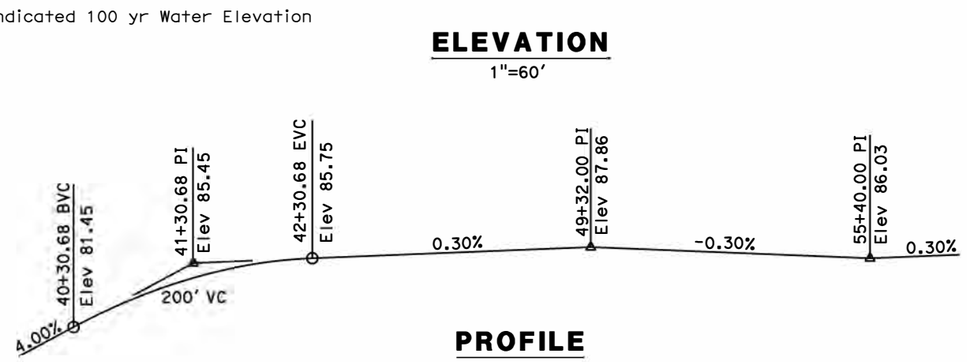
STANISLAUS COUNTY PUBLIC WORKS
1716 MORGAN RD.
MODESTO, CA 95358

CH2MHILL
2485 NATOMAS PARK DR. STE 600
SACRAMENTO, CA 95833

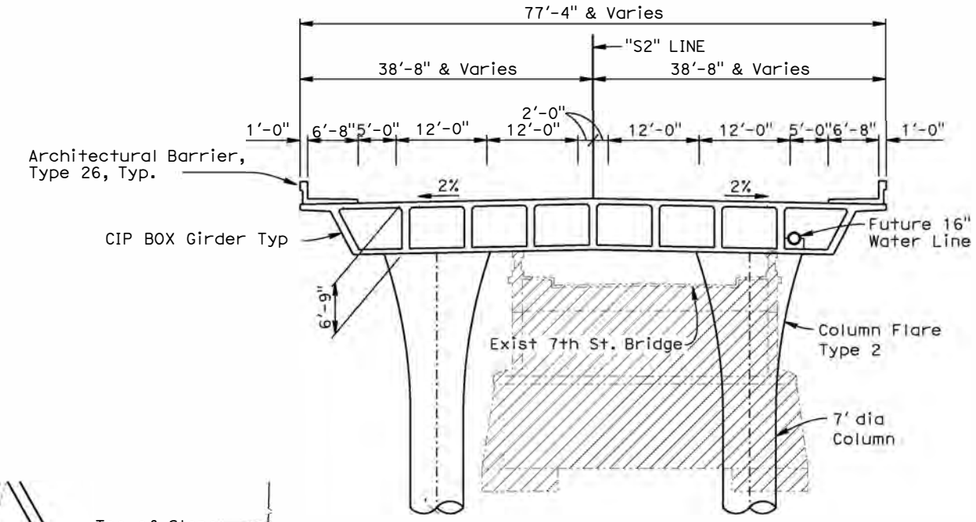


ELEVATION
1"=60'

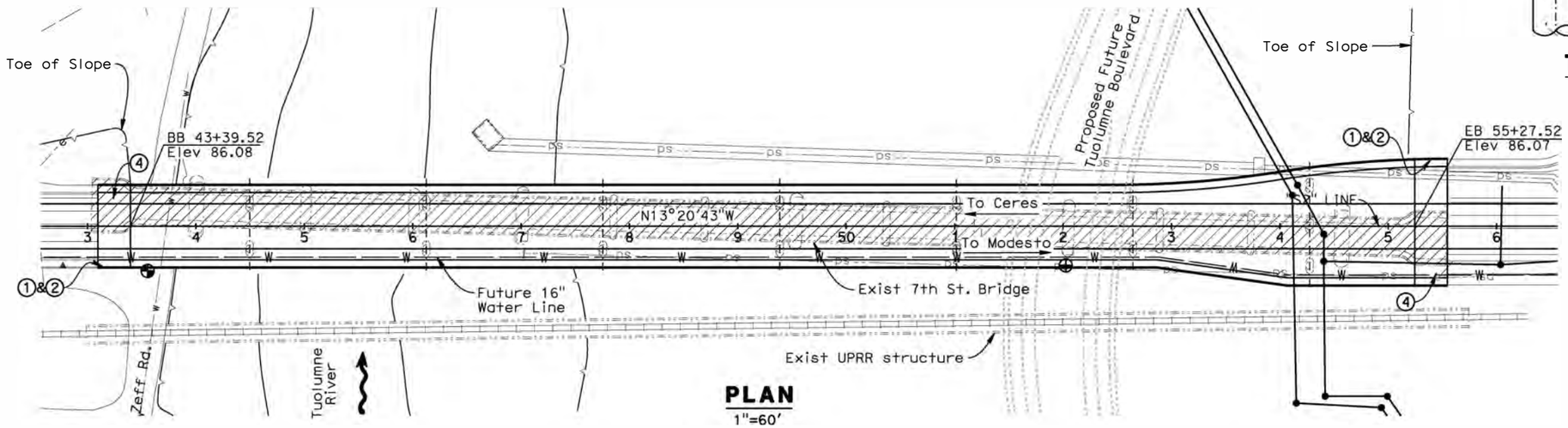
Hydrologic Summary			
Frequency (yr)	50	100	200
Discharge (cfs)	37,500	70,000	105,400
Water surface (NAVD 88 ft)	67.7	75.1	80.7



PROFILE
NO SCALE



TYPICAL SECTION
1"=10'



PLAN
1"=60'

NOTES
1. Paint Br. No.
2. Paint "Seventh Street Bridge"
3. Paint Pier No.
4. Structure Approach Slab Type N30S

LEGEND
- Indicates Existing Structure
- Indicates New Construction
- Indicates Point of Minimum Vertical Clearance
- Indicates Point of Vertical Clearance
- Indicates Existing Br to be removed

DESIGNED BY	JENNIFER ELWOOD	DATE	10/11/16
DRAWN BY	PATRICK WALKER	DATE	10/11/16
CHECKED BY		DATE	
APPROVED		DATE	

CHIRS SERROELS
PROJECT ENGINEER

ALTERNATIVE 2B (CIP)
PLANNING STUDY
7TH STREET BRIDGE

BRIDGE NO. 38C-0023	UNIT:
SCALE: AS NOTED	PROJECT NUMBER & PHASE:

X
DESIGN OVERSIGHT
X
SIGN OFF DATE

ADVANCE PLANNING STUDY SHEET (ENGLISH) (REV. 7/16/10)

FILE => 7thstBR_alt2c_a-A-gp01.dgn

CONTRACT NO.: X

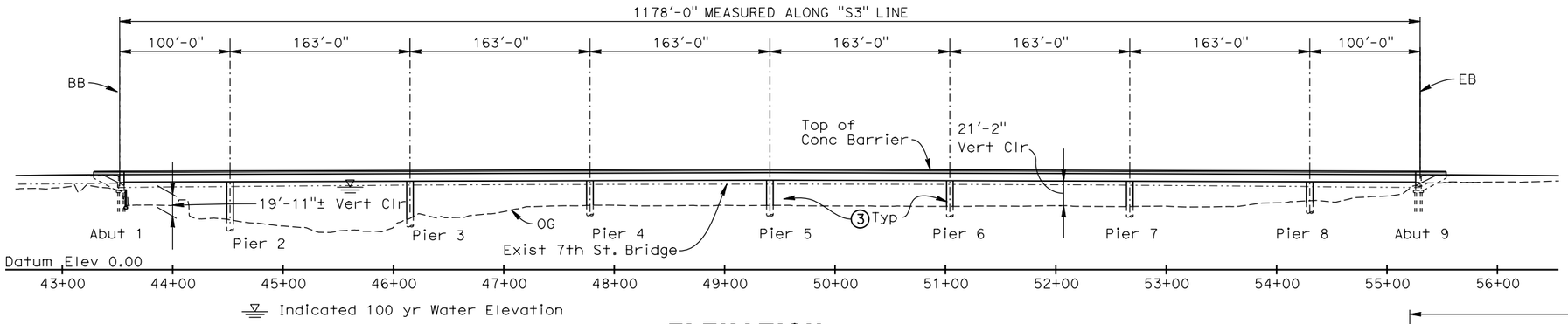
USERNAME => emaechle DATE PLOTTED => 21-OCT-2016 TIME PLOTTED => 15:40

PREPARED FOR THE STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT
-	STAN	-	-

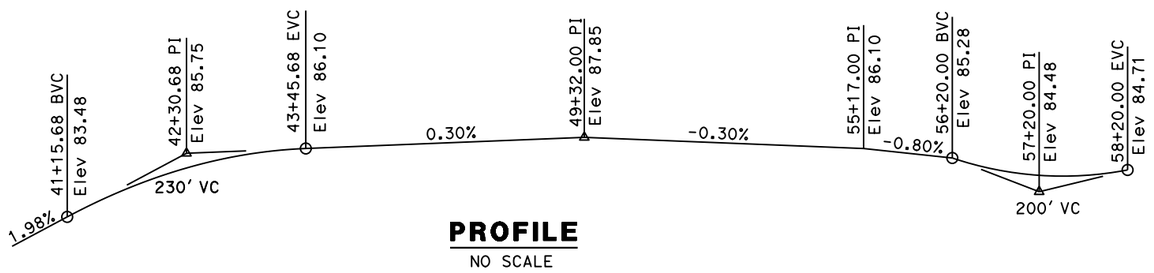
STANISLAUS COUNTY PUBLIC WORKS
1716 MORGAN RD.
MODESTO, CA 95358

CH2MHILL
2485 NATOMAS PARK DR. STE 600
SACRAMENTO, CA 95833

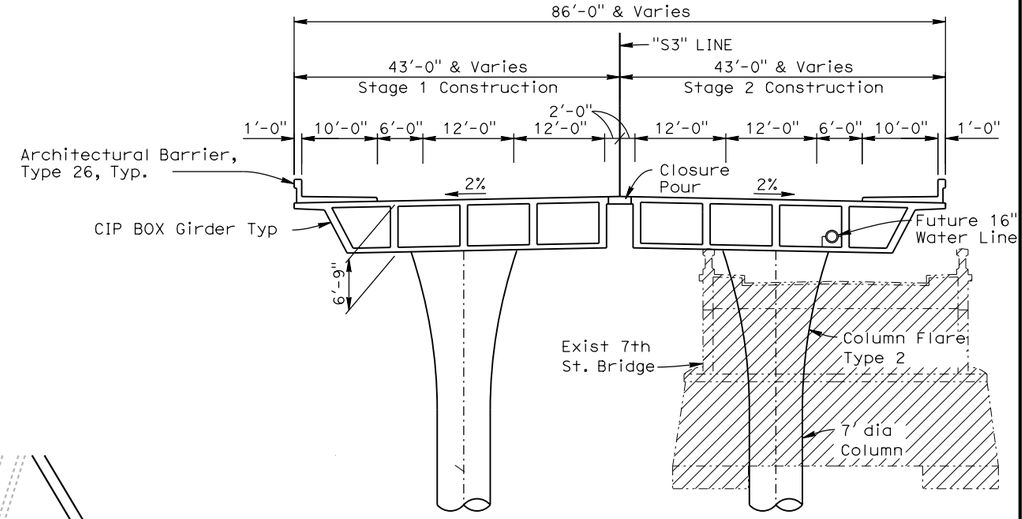


ELEVATION
1"=60'

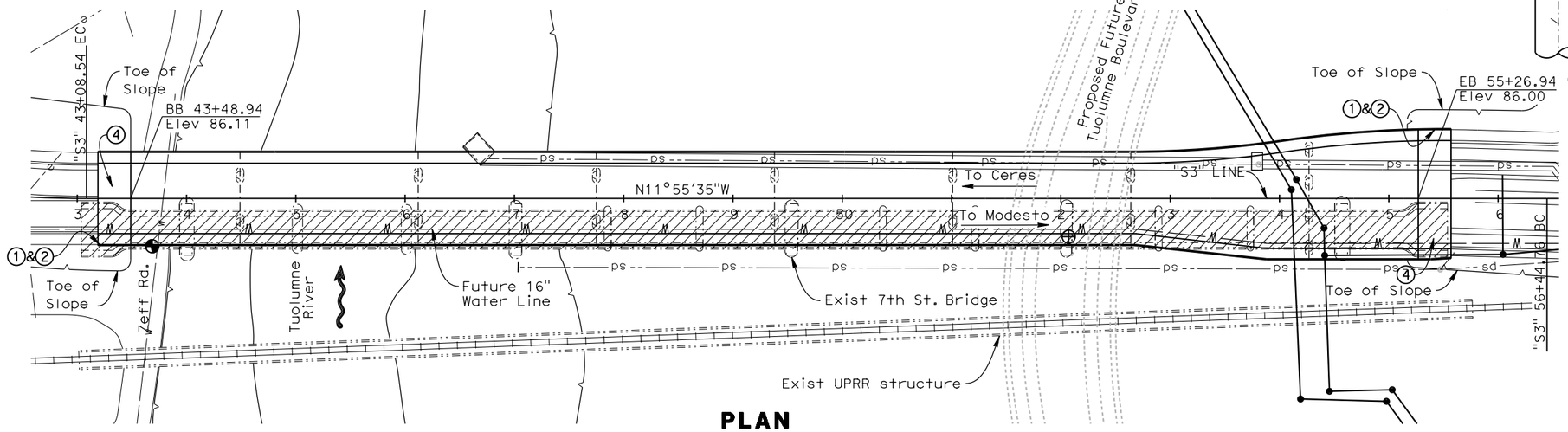
Hydrologic Summary			
Frequency (yr)	50	100	200
Discharge (cfs)	37,500	70,000	105,400
Water surface (NAVD 88 ft)	67.7	75.1	80.7



PROFILE
NO SCALE



TYPICAL SECTION
1"=10'



PLAN
1"=60'

NOTE:
Traffic will be carried on the existing structure. Stage Construction required.

NOTES
1. Paint Br. No.
2. Paint "Seventh Street Bridge"
3. Paint Pier No.
4. Structure Approach Slab Type N30S

LEGEND
- Indicates Existing Structure
- Indicates New Construction
- Indicates Point of Minimum Vertical Clearance
- Indicates Point of Vertical Clearance
- Indicates Existing Br to be removed

X
DESIGN OVERSIGHT
X
SIGN OFF DATE

DESIGNED BY	JENNIFER ELWOOD	DATE	06/06/14
DRAWN BY	PATRICK WALKER	DATE	06/06/14
CHECKED BY		DATE	
APPROVED		DATE	

CHIRS SERROELS
PROJECT ENGINEER

ALTERNATIVE 3
PLANNING STUDY
7TH STREET BRIDGE

BRIDGE NO. 38C-0023	UNIT:
SCALE: AS NOTED	PROJECT NUMBER & PHASE:

CONTRACT NO.: X

ADVANCE PLANNING STUDY SHEET (ENGLISH) (REV. 7/16/10)

FILE => 7thstBR_alt3_a_gp01.dgn

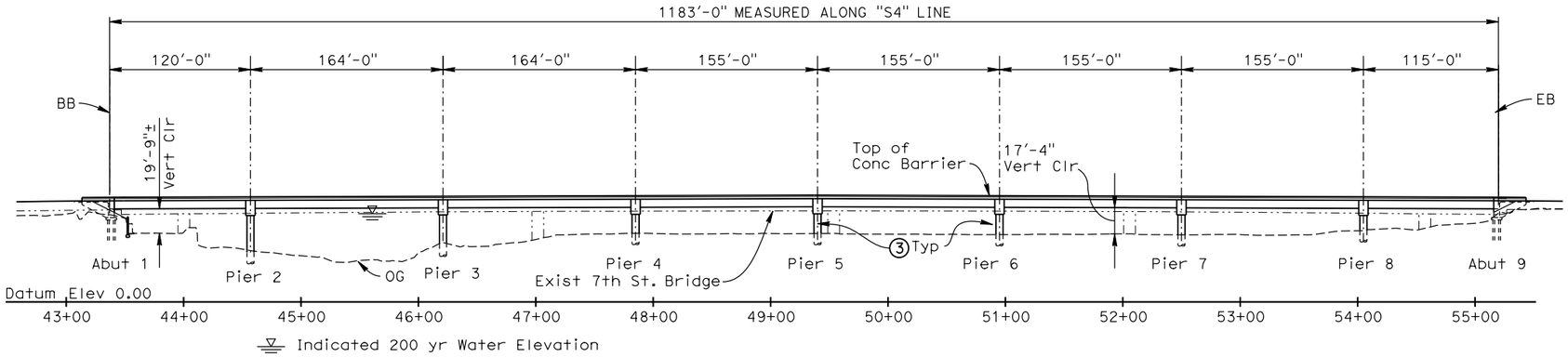
USERNAME => pwalker DATE PLOTTED => 24-FEB-2016 TIME PLOTTED => 10:13

PREPARED FOR THE STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION

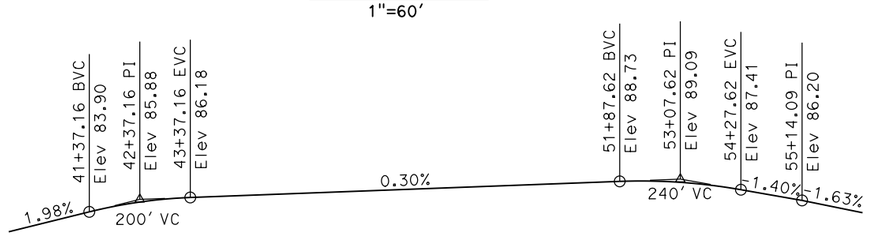
DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT
-	STAN	-	-

STANISLAUS COUNTY PUBLIC WORKS
1716 MORGAN RD.
MODESTO, CA 95358

CH2MHILL
2485 NATOMAS PARK DR. STE 600
SACRAMENTO, CA 95833

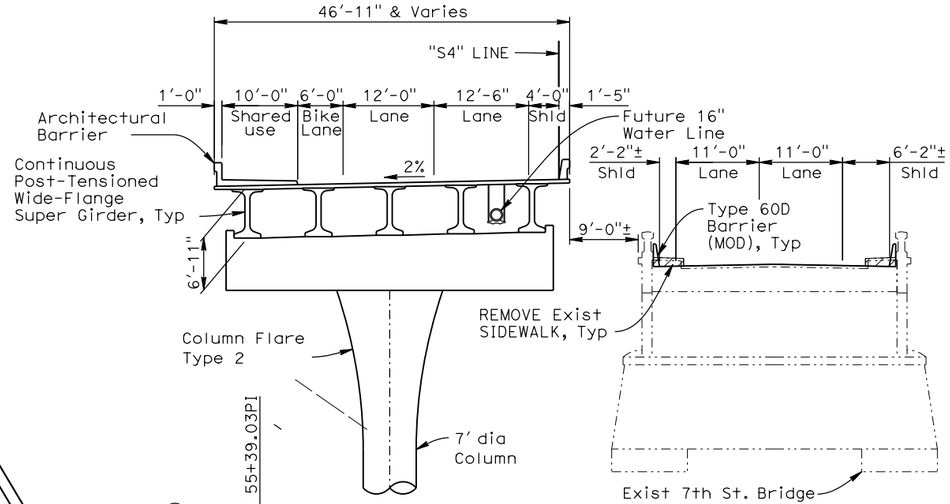


ELEVATION
1"=60'

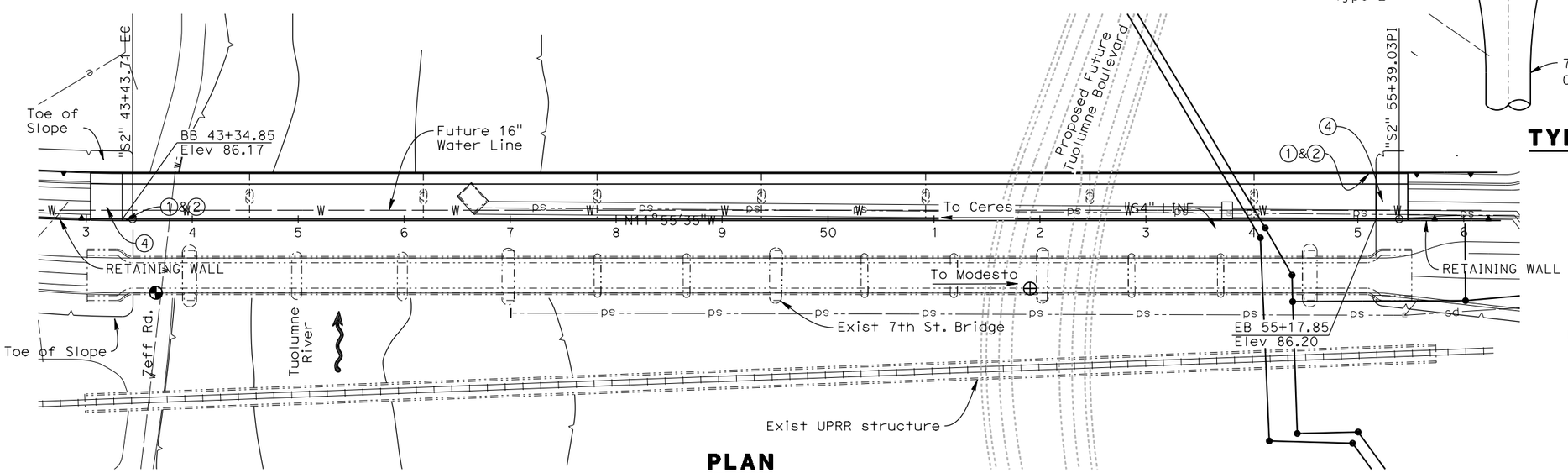


PROFILE
NO SCALE

Hydrologic Summary			
Frequency (yr)	50	100	200
Discharge (cfs)	37,500	70,000	105,400
Water surface (NAVD 88 ft)	67.6	75.1	80.5



TYPICAL SECTION
1"=10'



PLAN
1"=60'

NOTE

Existing 7th Street Bridge to be retrofitted and rehabilitated in accordance with the "Final Rehabilitation and Retrofit Strategy Report" dated 2013.

NOTES
1. Paint Br. No.
2. Paint "Seventh Street Bridge, Left"
3. Paint Pier No.
4. Structure Approach Slab Type N30S

LEGEND
- Indicates Existing Structure
- Indicates New Construction
- Indicates Point of Minimum Vertical Clearance
- Indicates Point of Vertical Clearance
- Indicates Portion Existing Br to be removed

X
DESIGN OVERSIGHT

X
SIGN OFF DATE

DESIGNED BY JENNIFER ELWOOD	DATE
DRAWN BY PATRICK WALKER	DATE
CHECKED BY	DATE
APPROVED	DATE

CHIRS SERROELS
PROJECT ENGINEER

ALTERNATIVE 4
PLANNING STUDY
7TH STREET BRIDGE

BRIDGE NO. 38C-0023 R/L	UNIT:
SCALE: AS NOTED	PROJECT NUMBER & PHASE:

CONTRACT NO.: X

ADVANCE PLANNING STUDY SHEET (ENGLISH) (REV. 7/16/10)

FILE => 7thstBR_alt4_a_gp01.dgn

USERNAME => pwalker DATE PLOTTED => 23-FEB-2016 TIME PLOTTED => 14:33

Attachment E

Cost Estimates

Preliminary Cost Estimate

Project ID: C12-200

Type of Estimate : 30% Estimate
Program Code :
Project Limits : 7th Street/Crows Landing Intersection
Description: Bridge Replacement
Scope : Construct new Bridge in 1 Stage on existing alignment. Close 7th Street during construction.
Alternative : 2A

	Current Cost	Escalated Cost
ROADWAY ITEMS	$ 8,914,500	$ 9,184,618
STRUCTURE ITEMS	$ 42,251,093	$ 43,531,343
SUBTOTAL CONSTRUCTION COST	$ 51,165,593	$ 52,715,962
RIGHT OF WAY	$ 4,444,360	$ 4,785,806
TOTAL CAPITAL OUTLAY COST	$ 55,610,000	$ 57,502,000
PR/ED SUPPORT	$ -	$ -
PS&E SUPPORT	$ -	$ -
RIGHT OF WAY SUPPORT	$ -	$ -
CONSTRUCTION SUPPORT	$ -	$ -
TOTAL CAPITAL OUTLAY SUPPORT COST*	$ -	$ -
TOTAL PROJECT COST	$ 55,700,000	$ 57,600,000

If Project has been programmed enter Programmed Amount $ -

Date of Estimate (Month/Year) Month / Year /

Estimated Date of Construction Start (Month/Year) /

Number of Working Days 99 Working Days

Estimated Mid-Point of Construction (Month/Year) Month / Year

Number of Plant Establishment Days Days

Estimated Project Schedule

PID Approval	July-16
PA/ED Approval	November-17
PS&E	December-17
RTL	January-19
Begin Construction	March-19

Approved by Project Manager

Dave Leamon **Date** (209) 525-4302 **Phone**

I. ROADWAY ITEMS SUMMARY

	Section		Cost
1	**Earthwork**	$	586,700
2	**Pavement Structural Section**	$	1,822,700
3	**Drainage**	$	850,000
4	**Specialty Items**	$	40,000
5	**Environmental**	$	467,400
6	**Traffic Items**	$	1,719,000
7	**Detours**	$	-
8	**Minor Items**	$	-
9	**Roadway Mobilization**	$	548,600
10	**Supplemental Work**	$	548,600
11	**State Furnished**	$	548,600
12	**Contingencies**	$	1,782,900
13	**Overhead**	$	-
	TOTAL ROADWAY ITEMS	**$**	**8,914,500**

Estimate Prepared By _____

Name and Title Date Phone

Estimate Reviewed By _____

Name and Title Date Phone

By signing this estimate you are attesting that you have discussed your project with all functional units and have incorporated all their comments or have discussed with them why they will not be incorporated.

SECTION 1: EARTHWORK

Item code		Unit	Quantity		Unit Price ($)			Cost
160101	Clearing & Grubbing	LS		x		=	$	-
170101	Develop Water Supply	LS		x		=	$	-
190101	Roadway Excavation	CY	14,719	x	20.00	=	$	294,380
190103	Roadway Excavation (Type Y) ADL	CY		x		=	$	-
190105	Roadway Excavation (Type Z-2) ADL	CY		x		=	$	-
192037	Structure Excavation (Retaining Wall)	CY		x		=	$	-
193013	Structure Backfill (Retaining Wall)	CY		x		=	$	-
193031	Pervious Backfill Material (Retaining Wall)	CY		x		=	$	-
194001	Ditch Excavation	CY		x		=	$	-
198010	Impored Borrow	CY	19,483	x	15.00	=	$	292,245
198007	Imported Material (Shoulder Backing)	TON		x		=	$	-
XXXXXX	Some Item			x		=	$	-

TOTAL EARTHWORK SECTION ITEMS $ 586,700

SECTION 2: PAVEMENT STRUCTURAL SECTION

Item code		Unit	Quantity		Unit Price ($)			Cost
150771	Remove Asphalt Concrete Dike	LF		x		=	$	-
150860	Remove Base and Surfacing	CY		x		=	$	-
153103	Cold Plane Asphalt Concrete Pavement	SQYD		x		=	$	-
1532XX	Remove Concrete (type)	CY		x		=	$	-
250401	Class 4 Aggregate Subbase	CY		x		=	$	-
260201	Class 2 Aggregate Base	CY		x		=	$	-
290201	Asphalt Treated Permeable Base	CY		x		=	$	-
365001	Sand Cover	TON		x		=	$	-
374002	Asphaltic Emulsion (Fog Seal Coat)	TON		x		=	$	-
374492	Asphaltic Emulsion (Polymer Modified)	TON		x		=	$	-
3750XX	Screenings (Type XX)	TON		x		=	$	-
377501	Slurry Seal	TON		x		=	$	-
390095	Replace Asphalt Concrete Surfacing	CY		x		=	$	-
390132	Hot Mix Asphalt (Type A)	TON		x		=	$	-
390136	Minor Hot Mix Asphalt	TON		x		=	$	-
390137	Rubberized Hot Mix Asphalt (Gap Graded)	TON		x		=	$	-
393003	Geosynthetic Pavement Interlayer	SQYD		x		=	$	-
39405X	Shoulder Rumber Strip *(HMA, Type XX Inden*	STA		x		=	$	-
394071	Place Hot Mix Asphalt Dike	LF		x		=	$	-
394090	Place Hot Mix Asphalt (Misc. Area)	SQYD		x		=	$	-
397005	Tack Coat	TON		x		=	$	-
401000	Concrete Pavement	CY		x		=	$	-
401108	Replace Concrete Pavement (Rapid Strength	CY		x		=	$	-
404092	Seal Pavement Joint	LF		x		=	$	-
404094	Seal Longitudinal Isolation Joint	LF		x		=	$	-
413112A	Repair Spalled Joints (Polyester Grout)	SQYD		x		=	$	-
413115	Seal Existing Concrete Pavement Joint	LF		x		=	$	-
420102	Groove Existing Concrete Pavement	SQYD		x		=	$	-
420201	Grind Existing Concrete Pavement	SQYD		x		=	$	-
731502	Minor Concrete (Misc. Const)	CY		x		=	$	-
731530	Minor Concrete (Textured Paving)	SQFT		x		=	$	-
XXXXXX	Overlay	SQFT	100,160	x	3.00	=	$	300,480
XXXXXX	New Pavement	SQFT	122,099	x	8.00	=	$	976,792
XXXXXX	Sidewalk	SQFT	55,200	x	6.00	=	$	331,200
XXXXXX	Median Curb	LF	4,076	x	12.00	=	$	48,912
XXXXXX	Curb and Gutter	LF	6,610	x	25.00	=	$	165,250
XXXXXX	Some Item			x		=	$	-

TOTAL STRUCTURAL SECTION ITEMS $ 1,822,700

SECTION 3: DRAINAGE

Item code		Unit	Quantity		Unit Price ($)			Cost
150206	Abandon Culvert	LF		x		=	$	-
150805	Remove Culvert	LF		x		=	$	-
150820	Modify Inlet	EA		x		=	$	-
152430	Adjust Inlet	LF		x		=	$	-
155003	Cap Inlet	EA		x		=	$	-
193114	Sand Backfill	CY		x		=	$	-
510502	Minor Concrete (Minor Structure)	CY		x		=	$	-
510512	Minor Concrete (Box Culvert)	CY		x		=	$	-
62XXXX	XXX" APC Pipe	LF		x		=	$	-
64XXXX	XXX" Plastic Pipe	LF		x		=	$	-
65XXXX	XXX" RCP Pipe	LF		x		=	$	-
66XXXX	XXX" CSP Pipe	LF		x		=	$	-
68XXXX	Edge Drain	LF		x		=	$	-
69XXXX	XXX" Pipe Downdrain	LF		x		=	$	-
70XXXX	XXX" Pipe Inlet	LF		x		=	$	-
70XXXX	XXX" Pipe Riser	LF		x		=	$	-
70XXXX	XXX" Flared End Section	EA		x		=	$	-
703233	Grated Line Drain	LF		x		=	$	-
72XXXX	Rock Slope Protection (Type and Method)	CY		x		=	$	-
721420	Concrete (Ditch Lining)	CY		x		=	$	-
721430	Concrete (Channel Lining)	CY		x		=	$	-
729010	Rock Slope Protection Fabric	SQYD		x		=	$	-
750001	Miscellaneous Iron and Steel	LB		x		=	$	-
XXXXXX	Drainage/Permanent Treatment	LS	1	x	850,000.00	=	$	850,000
XXXXXX	Some Item			x		=	$	-

TOTAL DRAINAGE ITEMS $ 850,000

SECTION 4: SPECIALTY ITEMS

Item code		Unit	Quantity		Unit Price ($)			Cost
070012	Progress Schedule (Critical Path Method)	LS		x		=	$	-
150662	Remove Metal Beam Guard Railing	LF		x		=	$	-
150668	Remove Terminal Systems	EA		x		=	$	-
1532XX	Remove Barrier (*Insert Type)*	LF		x		=	$	-
153250	Remove Sound Wall	SQFT		x		=	$	-
190110	Lead Compliance Plan	LS		x		=	$	-
49XXXX	CIDH Concrete Piling *(Insert Diameter)*	LF		x		=	$	-
510060	Structural Concrete (Retaining Wall)	CY		x		=	$	-
510133	Class 2 Concrete (Retaining Wall)	CY		x		=	$	-
510524	Minor Concrete (Sound Wall)	CY		x		=	$	-
5110XX	Architectural Treatment *(Insert Type)*	SQFT		x		=	$	-
511048	Apply Anti-Graffiti Coating	SQFT		x		=	$	-
5136XX	Reinforced Concrete Crib Wall *(Insert Type)*	SQFT		x		=	$	-
518002	Sound Wall (Masonry Block)	SQFT		x		=	$	-
520103	Bar Reinf. Steel (Retaining Wall)	LB		x		=	$	-
80XXXX	Fence (*Insert Type*)	LF		x		=	$	-
832005	Midwest Guard Railing	LF	200	x	100.00	=	$	20,000
839310	Double Thrie Beam Barrier	LF		x		=	$	-
839521	Cable Railing	LF		x		=	$	-
83954X	Transition Railing *(Insert Type)*	EA		x		=	$	-
8395XX	Terminal System (Type CAT)	EA		x		=	$	-
8395XX	Alternative Flared Terminal System	EA		x		=	$	-
8395XX	End Anchor Assembly (*Insert Type*)	EA		x		=	$	-
839561	Rail Tensioning Assembly	EA		x		=	$	-
839XXX	Crash Cushion *(Insert Type)*	EA		x		=	$	-
83XXXX	Concrete Barrier *(Insert Type)*	LF		x		=	$	-
XXXXXX	Resident Engineer Office Space	EA	1	x	20,000.00	=	$	20,000
XXXXXX				x		=	$	-
XXXXXX	Some Item			x		=	$	-

TOTAL SPECIALTY ITEMS $ 40,000

SECTION 5: ENVIRONMENTAL

5A - ENVIRONMENTAL MITIGATION

Item code		Unit	Quantity		Unit Price ($)			Cost
XXXXXX	Environmental Compliance	LS	1	x	310,000.00	=	$	310,000
071325	Temporary Reinforced Silt Fence	LF		x		=	$	-
071325	Temporary Fence (Type ESA)	LF		x		=	$	-

Subtotal Environmental *$ 310,000*

5B - LANDSCAPE AND IRRIGATION

Item code		Unit	Quantity		Unit Price ($)			Cost
200001	Highway Planting	LS	1	x	40,000.00	=	$	40,000
20XXXX	XXX" (*Insert Type*) Conduit *(Use for*	LF		x		=	$	-
20XXXX	Extend XXX" *(Insert Type)* Conduit	LF		x		=	$	-
201700	Imported Topsoil	CY		x		=	$	-
2030XX	Erosion Control (Type __)	SQYD		x		=	$	-
203021	Fiber Rolls	LF		x		=	$	-
203026	Move In/ Move Out (Erosion Control)	EA		x		=	$	-
204099	Plant Establishment Work	LS		x		=	$	-
204101	Extend Plant Establishment (X Years)	LS		x		=	$	-
208000	Irrigation System	LS		x		=	$	-
208304	Water Meter	EA		x		=	$	-
209801	Maintenance Vehicle Pullout	EA		x		=	$	-
XXXXXX	Replacement Planting	LS	1	x	15,000.00	=	$	15,000
XXXXXX	Irrigation Modification	LS	1	x	13,333.33	=	$	13,333
XXXXXX	Irrigation Crossovers	LS	4	x	2,000.00	=	$	8,000
XXXXXX	Some Item							

Subtotal Landscape and Irrigation *$ 76,333*

5C - NPDES

Item code		Unit	Quantity		Unit Price ($)			Cost
074016	Construction Site Management	LS		x		=	$	-
074017	Prepare WPCP	LS		x		=	$	-
074019	Prepare SWPPP	LS		x		=	$	-
074023	Temporary Erosion Control	SQYD		x		=	$	-
074027	Temporary Erosion Control Blanket	SQYD		x		=	$	-
074028	Temporary Fiber Roll	LF		x		=	$	-
074032	Temporary Concrete Washout Facility	EA		x		=	$	-
074033	Temporary Construction Entrance	EA		x		=	$	-
074035	Temporary Check Dam	LF		x		=	$	-
074037	Move In/ Move Out (Temporary Erosion Cont	EA		x		=	$	-
074038	Temp. Drainage Inlet Protection	EA		x		=	$	-
074041	Street Sweeping	LS		x		=	$	-
074042	Temporary Concrete Washout (Portable)	LS		x		=	$	-
XXXXXX	Vegetation Control Treatments	LF	200	x	5.00	=	$	1,000
07XXXX	Erosion Control	LS	1	x	80,000.00	=	$	80,000
XXXXXX	Some Item							

Supplemental Work for NPDES

(These costs are not accounted in total here but under Supplemental Work on sheet 7 of 11).

066595	Water Pollution Control Maintenance Sharing	LS		x		=	$	-
066596	Additional Water Pollution Control**	LS		x		=	$	-
066597	Storm Water Sampling and Analysis***	LS		x		=	$	-
XXXXXX	Some Item							

Subtotal NPDES (Without Supplemental Work) *$ 81,000*

*Applies to all SWPPPs and those WPCPs with sediment control or soil stabilization BMPs.

**Applies to both SWPPPs and WPCP projects.

*** Applies only to project with SWPPPs.

TOTAL ENVIRONMENTAL $ 467,400

SECTION 6: TRAFFIC ITEMS

6A - Traffic Electrical

Item code		Unit	Quantity		Unit Price ($)			Cost
150760	Remove Sign Structure	EA		x		=	$	-
151581	Reconstruct Sign Structure	EA		x		=	$	-
152641	Modify Sign Structure	EA		x		=	$	-
5602XX	Furnish Sign Structure	LB		x		=	$	-
5602XX	Install Sign Structure	LB		x		=	$	-
56XXXX	XXX" CIDHC Pile (Sign Foundation)	LF		x		=	$	-
860090	Maintain Existing Traffic Management	LS		x		=	$	-
860810	Inductive Loop Detectors	EA		x		=	$	-
860XXX	Lighting	LF	5,200	x	30.00	=	$	156,000
8607XX	Interconnection Facilities	LS		x		=	$	-
8609XX	Traffic Monitoring Stations	LS		x		=	$	-
860XXX	Traffic Signals (including interconnect)	EA	2	x	300,000.00	=	$	600,000
8611XX	Ramp Metering System (Location X)	LS		x		=	$	-
8611XX	Ramp Metering System (Location X)	LS		x		=	$	-
86XXXX	Fiber Optic Conduit System	LS		x		=	$	-
XXXXX	Some Item							

Subtotal Traffic Electrical *$ 756,000*

6B - Traffic Signing and Striping

Item code		Unit	Quantity		Unit Price ($)			Cost
120090	Construction Area Signs	LS	1	x	16,000.00	=	$	16,000
150701	Remove Yellow Painted Traffic Stripe	LF		x		=	$	-
150710	Remove Traffic Stripe	LF		x		=	$	-
150713	Remove Pavement Marking	SQFT		x		=	$	-
150742	Remove Roadside Sign	EA		x		=	$	-
152320	Reset Roadside Sign	EA		x		=	$	-
152390	Relocate Roadside Sign	EA		x		=	$	-
566011	Roadside Sign (One Post)	EA		x		=	$	-
566012	Roadside Sign (Two Post)	EA		x		=	$	-
560XXX	Furnish Sign Panels	SQFT		x		=	$	-
560XXX	Install Sign Panels	SQFT		x		=	$	-
82010X	Delineator (Class X)	EA		x		=	$	-
566XXX	Roadside Signs	LS	1	x	30,000.00	=	$	30,000
84XXXX	Permanent Pavement Delineation	LF	20,980	x	2.00	=	$	41,960

Subtotal Traffic Signing and Striping *$ 87,960*

6C - Stage Construction and Traffic Handling

Item code		Unit	Quantity		Unit Price ($)			Cost
120100	Traffic Control System	LS	1	x	325,000.00	=	$	325,000
120120	Type III Barricade	EA		x		=	$	-
120143	Temporary Pavement Delineation	LF		x		=	$	-
12016X	Channelizer	EA		x		=	$	-
128650	Portable Changeable Message Signs	EA		x		=	$	-
129000	Temporary Railing (Type K)	LF		x		=	$	-
129100	Temp. Crash Cushion Module	EA		x		=	$	-
129099A	Traffic Plastic Drum	EA		x		=	$	-
839603A	Temporary Crash Cushion (ADIEM)	EA		x		=	$	-
XXXXXX	Temporary Transit Service	LS	1	x	300,000.00	=	$	300,000
XXXXXX	Temporary Pedestrian Path	LS	1	x	250,000.00	=	$	250,000
XXXXXX	Some Item							

Subtotal Stage Construction and Traffic Handling *$ 875,000*

TOTAL TRAFFIC ITEMS **$ 1,719,000**

SECTION 7: DETOURS

Include constructing, maintaining, and removal

Item code		Unit	Quantity		Unit Price ($)		Cost
0713XX	Temporary Fence (Type X)	LF		x		= $	-
07XXXX	Temporary Drainage	LS		x		= $	-
120143	Temporary Pavement Delineation	LF		x		= $	-
1286XX	Temporary Signals	EA		x		= $	-
129000	Temporary Railing (Type K)	LF		x		= $	-
190101	Roadway Excavation	CY		x		= $	-
198001	Imported Borrow	CY		x		= $	-
198050	Embankment	CY		x		= $	-
250401	Class 4 Aggregate Subbase	CY		x		= $	-
260201	Class 2 Aggregate Base	CY		x		= $	-
390132	Hot Mix Asphalt (Type A)	TON		x		= $	-
XXXXXX	Some Item	LS		x		= $	-

TOTAL DETOURS $ -

SUBTOTAL SECTIONS 1-7 $ 5,485,800

SECTION 8: MINOR ITEMS

8A - Americans with Disabilities Act Items							
	ADA Items				0.0%	$	-
8B - Bike Path Items							
	Bike Path Items				0.0%	$	-
8C - Other Minor Items							
	Other Minor Items				0.0%	$	-
	Total of Section 1-7	$	5,485,800	x	0.0%	= $	-

TOTAL MINOR ITEMS $ -

SECTIONS 9: MOBILIZATION

Item code							
999990	Total Section 1-8	$	5,485,800	x	10%	= $	548,580

TOTAL MOBILIZATION $ 548,600

SECTION 10: SUPPLEMENTAL WORK

Item code		Unit	Quantity		Unit Price ($)		Cost
066015	Federal Trainee Program	LS		x		= $	-
066063	Traffic Management Plan - Public Informatic	LS		x		= $	-
066090	Maintain Traffic	LS		x		= $	-
066094	Value Analysis	LS		x		= $	-
066204	Remove Rock & Debris	LS		x		= $	-
066222	Locate Existing Cross-Over	LS		x		= $	-
066670	Payment Adjustments For Price Index Fluct	LS		x		= $	-
066700	Partnering	LS		x		= $	-
066866	Operation of Existing Traffic Management S	LS		x		= $	-
066920	Dispute Review Board	LS		x		= $	-
XXXXXX	Some Item			x		= $	-
	*Cost of **NPDES** Supplemental Work specified in Section 5C*					= $	-
	Total Section 1-8	$	5,485,800		10%	= $	548,580

TOTAL SUPPLEMENTAL WORK $ 548,600

SECTION 11: STATE FURNISHED MATERIALS AND EXPENSES

Item code		Unit	Quantity		Unit Price ($)		Cost
066063	Public Information	LS		x		=	$0
066105	RE Office	LS		x		=	$0
066803	Padlocks	LS		x		=	$0
066838	Reflective Numbers and Edge Sealer	LS		x		=	$0
066901	Water Expenses	LS		x		=	$0
066062A	COZEEP Expenses	LS		x		=	$0
06684X	Ramp Meter Controller Assembly	LS		x		=	$0
06684X	TMS Controller Assembly	LS		x		=	$0
06684X	Traffic Signal Controller Assembly	LS		x		=	$0
XXXXXX	Some Item						

Total Section 1-8	$	5,485,800	10%	= $	548,580

TOTAL STATE FURNISHED **$548,600**

SECTION 12: TIME-RELATED OVERHEAD

Estiamted Time-Releated Overhead (TRO) Percentage (0% to 10%) = 5%

Item code		Unit	Quantity		Unit Price ($)		Cost
070018	Time-Related Overhead	WD	99	X	0	=	$0

TOTAL TIME-RELATED OVERHEAD **$0**

SECTION 13: CONTINGENCY

(Pre-PSR 30%-50%, PSR 25%, Draft PR 20%, PR 15%, after PR approval 10%, Final PS&E 5%)

Total Section 1-11	$	7,131,600	x	25%	=	$1,782,900

TOTAL CONTINGENCY **$1,782,900**

II. STRUCTURE ITEMS

	Bridge 1	Bridge 2	Bridge 3
DATE OF ESTIMATE	00/00/00	00/00/00	00/00/00
Bridge Name	NB/SB Bridge	Retaining Wall	Railroad Related Costs
Bridge Number	57-XXX	57-XXX	57-XXX
Structure Type	xxxxxxxxxxxxxxxxxx	xxxxxxxxxxxxxxxxxx	xxxxxxxxxxxxxxxxxx
Width (Feet) [out to out]	0.00 LF	0.00 LF	0.00 LF
Total Bridge Length (Feet)	0.00 LF	0.00 LF	0.00 LF
Total Area (Square Feet)	0.00 SQFT	0.00 SQFT	0 SQFT
Structure Depth (Feet)	0.00 LF	0.00 LF	0.00 LF
Footing Type (pile or spread)	xxxxxxxxxxxxxxxxxx	xxxxxxxxxxxxxxxxxx	xxxxxxxxxxxxxxxxxx
Cost Per Square Foot			$0.00
COST OF EACH STRUCTURE	**$41,146,000.00**	**$587,093.00**	**$518,000.00**

DATE OF ESTIMATE	00/00/00	00/00/00	00/00/00
Name	xxxxxxxxxxxxxxxxxx	xxxxxxxxxxxxxxxxxx	xxxxxxxxxxxxxxxxxx
Bridge Number	57-XXX	57-XXX	57-XXX
Structure Type	xxxxxxxxxxxxxxxxxx	xxxxxxxxxxxxxxxxxx	xxxxxxxxxxxxxxxxxx
Width (Feet) [out to out]	0.00 LF	0.00 LF	0.00 LF
Total Length (Feet)	0.00 LF	0.00 LF	0.00 LF
Total Area (Square Feet)	0 SQFT	0.00 SQFT	0.0 SQFT
Structure Depth (Feet)	0.00 LF	0.00 LF	0.00 LF
Footing Type (pile or spread)	xxxxxxxxxxxxxxxxxx	xxxxxxxxxxxxxxxxxx	xxxxxxxxxxxxxxxxxx
Cost Per Square Foot	$0.00	$0.00	$0.00
COST OF EACH STRUCTURE	**$0.00**	**$0.00**	**$0.00**

TOTAL COST OF BRIDGES	**$42,251,093.00**
TOTAL COST OF BUILDINGS	**$0.00**
TOTAL COST OF STRUCTURES[1]	**$42,251,093.00**

Estimate Prepared By: _____ Date: _____

XXXXXXXXXXXXXXXX ------ Division of Structures

[1]Structure's Estimate includes Overhead and Mobilization.
Add more sheets if needed. Call them 9a, 9b, 9c, …, etc

DO NOT PRINT THIS SHEET AS PART OF COST ESTIMATE ATTACHMENT TO PROJECT INITIATION OR APPROVAL DOCUMENTS.

III. RIGHT OF WAY

Fill in all of the available information from the Right of Way data sheet.

A)	A1)	Acquisition, including Excess Land Purchases, Damages & Goodwill,	$	3,744,360
	A2)	SB-1210	$	0
B)		Acquisition of Offsite Mitigation	$	0
C)	C1)	Utility Relocation (State Share)	$	700,000
	C2)	Potholing (Design Phase)	$	0
D)		Railroad Acquisition	$	0
E)		Clearance / Demolition	$	0
F)		Relocation Assistance (RAP and/or Last Resort Housing Costs)	$	0
G)		Title and Escrow	$	0
H)		Environmental Review	$	0
I)		Condemnation Settlements 0% (Items G & H applied to items A + B)	$	0
J)		Design Appreciation Factor 0%	$	0
K)		Utility Relocation (Construction Cost)	$	0

L) **TOTAL RIGHT OF WAY ESTIMATE** **$4,444,360**

(Excluding Item #8 - Hazardous Waste)

M) **TOTAL R/W ESTIMATE: Escalated** **$4,785,805.54**

N) **Right of Way Support** **$** **0**

Support Cost Estimate Prepared By _____ Project Coordinator[1] Phone

Utility Estimate Prepared By _____ Utiliy Coordinator[2] Phone

R/W Acquistion Estimate Prepared By _____ Right of Way Estimator[3] Phone

[1] When estimate has Support Costs only [2] When estimate has Utility Relocation [3] When R/W Acquisition is required

DO NOT PRINT THIS SHEET AS PART OF COST ESTIMATE ATTACHMENT TO PROJECT INITIATION OR APPROVAL DOCUMENTS.

IV. SUPPORT COST ESTIMATE SUMMARY

Please obtain a P3 report (CL#3) from PPM to fill in the support cost for these categories.

SB-45 CATEGORY SUPPORT COST	PREVIOUS	FY 10/11	FY 11/12	FY 12/13	FY 13/14	FY 14/15	FY 15/16	FY 16/17	FY 17/18	FUTURE	P3 Total	Support Ratio
PR/ED (PD,PE,PM)											$ -	0.00%
PS&E (PS)											$ -	0.00%
R/W (RW)											$ -	0.00%
CONSTRUCTION (CM)											$ -	0.00%
Total Support Cost:	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -		**$ -**	0.00%

Note: It is assumed that the Support Costs are already escalated by Programming to the year of expenditure. Use project Programming Sheet data.

Total Capital Cost:	**$55,610,000**
Total Capital Outlay Support Cost:	**$0**
Overall Percent Support Cost:	**0.00%**

V. ESCALATED CONSTRUCTION COST ESTIMATE SUMMARY

Note: Right of way escalated cost are accounted for on sheet 10 of 11.

	Month	/	Year
Date of Estimate (Month/Year)	0	/	0
Estimated Date of Construction Start (Month/Year)	0	/	0
Number of Working Days	99	WD	
Estimated Mid-Point of Construction (Month/Year)	0	/	0

YEAR	0	1	2	3	4	5	6	7	8	9	FUTURE
FORECASTED ESCALATION RATE*	1.0%	1.0%	1.0%								

ESCALATED CONSTRUCTION COSTS	0	1	2	3	4	5	6	7	8	9	FUTURE	TOTAL ESCALATED COSTS
ROADWAY ITEMS	$ 9,003,645	$ 9,093,681	$ 9,184,618	$ 9,184,618	$ 9,184,618	$ 9,184,618	$ 9,184,618	$ 9,184,618	$ 9,184,618	$ 9,184,618	$ 9,184,618	$ 9,184,618
STRUCTURE ITEMS	$ 42,673,604	$ 43,100,340	$ 43,531,343	$ 43,531,343	$ 43,531,343	$ 43,531,343	$ 43,531,343	$ 43,531,343	$ 43,531,343	$ 43,531,343	$ 43,531,343	$ 43,531,343
SUBTOTAL	$ 51,677,249	$ 52,194,021	$ 52,715,962	$ 52,715,962	$ 52,715,962	$ 52,715,962	$ 52,715,962	$ 52,715,962	$ 52,715,962	$ 52,715,962	$ 52,715,962	**$ 52,715,962**

Dave Leamon Date Phone

Approved by: _____
Project Control Engineer

_____
Date

Preliminary Cost Estimate

Project ID: C12-200

Type of Estimate : 30% Estimate
Program Code :
Project Limits : 7th Street/Crows Landing Intersection
Description: Bridge Replacement
Scope : Construct new Bridge in 1 Stage on existing alignment. Close 7th Street during construction.
Alternative : 2B

	Current Cost	Escalated Cost
ROADWAY ITEMS	$ 8,914,500	$ 9,184,618
STRUCTURE ITEMS	$ 23,539,093	$ 24,252,351
SUBTOTAL CONSTRUCTION COST	$ 32,453,593	$ 33,436,969
RIGHT OF WAY	$ 4,444,360	$ 4,785,806
TOTAL CAPITAL OUTLAY COST	$ 36,898,000	$ 38,223,000
PA/ED SUPPORT	$ -	$ -
PS&E SUPPORT	$ -	$ -
RIGHT OF WAY SUPPORT	$ -	$ -
CONSTRUCTION SUPPORT	$ -	$ -
TOTAL CAPITAL OUTLAY SUPPORT COST*	$ -	$ -
TOTAL PROJECT COST	$ 36,900,000	$ 38,250,000

If Project has been programmed enter Programmed Amount $ -

Date of Estimate (Month/Year) Month / Year /

Estimated Date of Construction Start (Month/Year) /

Number of Working Days 99 Working Days

Estimated Mid-Point of Construction (Month/Year) Month / Year

Number of Plant Establishment Days Days

Estimated Project Schedule

PID Approval	July-16
PA/ED Approval	November-17
PS&E	December-17
RTL	January-19
Begin Construction	March-19

Approved by Project Manager

Dave Leamon	Date	(209) 525-4302
		Phone

I. ROADWAY ITEMS SUMMARY

	Section		Cost
1	**Earthwork**	$	586,700
2	**Pavement Structural Section**	$	1,822,700
3	**Drainage**	$	850,000
4	**Specialty Items**	$	40,000
5	**Environmental**	$	467,400
6	**Traffic Items**	$	1,719,000
7	**Detours**	$	-
8	**Minor Items**	$	-
9	**Roadway Mobilization**	$	548,600
10	**Supplemental Work**	$	548,600
11	**State Furnished**	$	548,600
12	**Contingencies**	$	1,782,900
13	**Overhead**	$	-
	TOTAL ROADWAY ITEMS	**$**	**8,914,500**

Estimate Prepared By

Name and Title Date Phone

Estimate Reviewed By

Name and Title Date Phone

By signing this estimate you are attesting that you have discussed your project with all functional units and have incorporated all their comments or have discussed with them why they will not be incorporated.

SECTION 1: EARTHWORK

Item code		Unit	Quantity		Unit Price ($)			Cost
160101	Clearing & Grubbing	LS		x		=	$	-
170101	Develop Water Supply	LS		x		=	$	-
190101	Roadway Excavation	CY	14,719	x	20.00	=	$	294,380
190103	Roadway Excavation (Type Y) ADL	CY		x		=	$	-
190105	Roadway Excavation (Type Z-2) ADL	CY		x		=	$	-
192037	Structure Excavation (Retaining Wall)	CY		x		=	$	-
193013	Structure Backfill (Retaining Wall)	CY		x		=	$	-
193031	Pervious Backfill Material (Retaining Wall)	CY		x		=	$	-
194001	Ditch Excavation	CY		x		=	$	-
198010	Impored Borrow	CY	19,483	x	15.00	=	$	292,245
198007	Imported Material (Shoulder Backing)	TON		x		=	$	-
XXXXXX	Some Item			x		=	$	-

TOTAL EARTHWORK SECTION ITEMS $ 586,700

SECTION 2: PAVEMENT STRUCTURAL SECTION

Item code		Unit	Quantity		Unit Price ($)			Cost
150771	Remove Asphalt Concrete Dike	LF		x		=	$	-
150860	Remove Base and Surfacing	CY		x		=	$	-
153103	Cold Plane Asphalt Concrete Pavement	SQYD		x		=	$	-
1532XX	Remove Concrete (type)	CY		x		=	$	-
250401	Class 4 Aggregate Subbase	CY		x		=	$	-
260201	Class 2 Aggregate Base	CY		x		=	$	-
290201	Asphalt Treated Permeable Base	CY		x		=	$	-
365001	Sand Cover	TON		x		=	$	-
374002	Asphaltic Emulsion (Fog Seal Coat)	TON		x		=	$	-
374492	Asphaltic Emulsion (Polymer Modified)	TON		x		=	$	-
3750XX	Screenings (Type XX)	TON		x		=	$	-
377501	Slurry Seal	TON		x		=	$	-
390095	Replace Asphalt Concrete Surfacing	CY		x		=	$	-
390132	Hot Mix Asphalt (Type A)	TON		x		=	$	-
390136	Minor Hot Mix Asphalt	TON		x		=	$	-
390137	Rubberized Hot Mix Asphalt (Gap Graded)	TON		x		=	$	-
393003	Geosynthetic Pavement Interlayer	SQYD		x		=	$	-
39405X	Shoulder Rumber Strip *(HMA, Type XX Inden*	STA		x		=	$	-
394071	Place Hot Mix Asphalt Dike	LF		x		=	$	-
394090	Place Hot Mix Asphalt (Misc. Area)	SQYD		x		=	$	-
397005	Tack Coat	TON		x		=	$	-
401000	Concrete Pavement	CY		x		=	$	-
401108	Replace Concrete Pavement (Rapid Strength	CY		x		=	$	-
404092	Seal Pavement Joint	LF		x		=	$	-
404094	Seal Longitudinal Isolation Joint	LF		x		=	$	-
413112A	Repair Spalled Joints (Polyester Grout)	SQYD		x		=	(209) 525-4302	
413115	Seal Existing Concrete Pavement Joint	LF		x		=	$	-
420102	Groove Existing Concrete Pavement	SQYD		x		=	$	-
420201	Grind Existing Concrete Pavement	SQYD		x		=	$	-
731502	Minor Concrete (Misc. Const)	CY		x		=	$	-
731530	Minor Concrete (Textured Paving)	SQFT		x		=	$	-
XXXXXX	Overlay	SQFT	100,160	x	3.00	=	$	300,480
XXXXXX	New Pavement	SQFT	122,099	x	8.00	=	$	976,792
XXXXXX	Sidewalk	SQFT	55,200	x	6.00	=	$	331,200
XXXXXX	Median Curb	LF	4,076	x	12.00	=	$	48,912
XXXXXX	Curb and Gutter	LF	6,610	x	25.00	=	$	165,250
XXXXXX	Some Item			x		=	$	-

TOTAL STRUCTURAL SECTION ITEMS $ 1,822,700

SECTION 3: DRAINAGE

Item code		Unit	Quantity		Unit Price ($)			Cost
150206	Abandon Culvert	LF		x		=	$	-
150805	Remove Culvert	LF		x		=	$	-
150820	Modify Inlet	EA		x		=	$	-
152430	Adjust Inlet	LF		x		=	$	-
155003	Cap Inlet	EA		x		=	$	-
193114	Sand Backfill	CY		x		=	$	-
510502	Minor Concrete (Minor Structure)	CY		x		=	$	-
510512	Minor Concrete (Box Culvert)	CY		x		=	$	-
62XXXX	XXX" APC Pipe	LF		x		=	$	-
64XXXX	XXX" Plastic Pipe	LF		x		=	$	-
65XXXX	XXX" RCP Pipe	LF		x		=	$	-
66XXXX	XXX" CSP Pipe	LF		x		=	$	-
68XXXX	Edge Drain	LF		x		=	$	-
69XXXX	XXX" Pipe Downdrain	LF		x		=	$	-
70XXXX	XXX" Pipe Inlet	LF		x		=	$	-
70XXXX	XXX" Pipe Riser	LF		x		=	$	-
70XXXX	XXX" Flared End Section	EA		x		=	$	-
703233	Grated Line Drain	LF		x		=	$	-
72XXXX	Rock Slope Protection (Type and Method)	CY		x		=	$	-
721420	Concrete (Ditch Lining)	CY		x		=	$	-
721430	Concrete (Channel Lining)	CY		x		=	$	-
729010	Rock Slope Protection Fabric	SQYD		x		=	$	-
750001	Miscellaneous Iron and Steel	LB		x		=	$	-
XXXXXX	Drainage/Permanent Treatment	LS	1	x	850,000.00	=	$	850,000
XXXXXX	Some Item			x		=	$	-

TOTAL DRAINAGE ITEMS $ 850,000

SECTION 4: SPECIALTY ITEMS

Item code		Unit	Quantity		Unit Price ($)			Cost
070012	Progress Schedule (Critical Path Method)	LS		x		=	$	-
150662	Remove Metal Beam Guard Railing	LF		x		=	$	-
150668	Remove Terminal Systems	EA		x		=	$	-
1532XX	Remove Barrier (*Insert Type)*	LF		x		=	$	-
153250	Remove Sound Wall	SQFT		x		=	$	-
190110	Lead Compliance Plan	LS		x		=	$	-
49XXXX	CIDH Concrete Piling *(Insert Diameter)*	LF		x		=	$	-
510060	Structural Concrete (Retaining Wall)	CY		x		=	$	-
510133	Class 2 Concrete (Retaining Wall)	CY		x		=	$	-
510524	Minor Concrete (Sound Wall)	CY		x		=	$	-
5110XX	Architectural Treatment *(Insert Type)*	SQFT		x		=	$	-
511048	Apply Anti-Graffiti Coating	SQFT		x		=	$	-
5136XX	Reinforced Concrete Crib Wall *(Insert Type)*	SQFT		x		=	$	-
518002	Sound Wall (Masonry Block)	SQFT		x		=	$	-
520103	Bar Reinf. Steel (Retaining Wall)	LB		x		=	$	-
80XXXX	Fence (*Insert Type*)	LF		x		=	(209) 525-4302	
832005	Midwest Guard Railing	LF	200	x	100.00	=	$	20,000
839310	Double Thrie Beam Barrier	LF		x		=	$	-
839521	Cable Railing	LF		x		=	$	-
83954X	Transition Railing *(Insert Type)*	EA		x		=	$	-
8395XX	Terminal System (Type CAT)	EA		x		=	$	-
8395XX	Alternative Flared Terminal System	EA		x		=	$	-
8395XX	End Anchor Assembly (*Insert Type*)	EA		x		=	$	-
839561	Rail Tensioning Assembly	EA		x		=	$	-
839XXX	Crash Cushion *(Insert Type)*	EA		x		=	$	-
83XXXX	Concrete Barrier *(Insert Type)*	LF		x		=	$	-
XXXXXX	Resident Engineer Office Space	EA	1	x	20,000.00	=	$	20,000
XXXXXX				x		=	$	-
XXXXXX	Some Item			x		=	$	-

TOTAL SPECIALTY ITEMS $ 40,000

SECTION 5: ENVIRONMENTAL

5A - ENVIRONMENTAL MITIGATION

Item code		Unit	Quantity		Unit Price ($)			Cost
XXXXXX	Environmental Compliance	LS	1	x	310,000.00	=	$	310,000
071325	Temporary Reinforced Silt Fence	LF		x		=	$	-
071325	Temporary Fence (Type ESA)	LF		x		=	$	-

Subtotal Environmental *$ 310,000*

5B - LANDSCAPE AND IRRIGATION

Item code		Unit	Quantity		Unit Price ($)			Cost
200001	Highway Planting	LS	1	x	40,000.00	=	$	40,000
20XXXX	XXX" (*Insert Type*) Conduit *(Use for*	LF		x		=	$	-
20XXXX	Extend XXX" *(Insert Type)* Conduit	LF		x		=	$	-
201700	Imported Topsoil	CY		x		=	$	-
2030XX	Erosion Control (Type __)	SQYD		x		=	$	-
203021	Fiber Rolls	LF		x		=	$	-
203026	Move In/ Move Out (Erosion Control)	EA		x		=	$	-
204099	Plant Establishment Work	LS		x		=	$	-
204101	Extend Plant Establishment (X Years)	LS		x		=	$	-
208000	Irrigation System	LS		x		=	$	-
208304	Water Meter	EA		x		=	$	-
209801	Maintenance Vehicle Pullout	EA		x		=	$	-
XXXXXX	Replacement Planting	LS	1	x	15,000.00	=	$	15,000
XXXXXX	Irrigation Modification	LS	1	x	13,333.33	=	$	13,333
XXXXXX	Irrigation Crossovers	LS	4	x	2,000.00	=	$	8,000
XXXXXX	Some Item							

Subtotal Landscape and Irrigation *$ 76,333*

5C - NPDES

Item code		Unit	Quantity		Unit Price ($)			Cost
074016	Construction Site Management	LS		x		=	$	-
074017	Prepare WPCP	LS		x		=	$	-
074019	Prepare SWPPP	LS		x		=	$	-
074023	Temporary Erosion Control	SQYD		x		=	$	-
074027	Temporary Erosion Control Blanket	SQYD		x		=	$	-
074028	Temporary Fiber Roll	LF		x		=	$	-
074032	Temporary Concrete Washout Facility	EA		x		=	$	-
074033	Temporary Construction Entrance	EA		x		=	$	-
074035	Temporary Check Dam	LF		x		=	$	-
074037	Move In/ Move Out (Temporary Erosion Cont	EA		x		=	$	-
074038	Temp. Drainage Inlet Protection	EA		x		=	$	-
074041	Street Sweeping	LS		x		=	$	-
074042	Temporary Concrete Washout (Portable)	LS		x		=	$	-
XXXXXX	Vegetation Control Treatments	LF	200	x	5.00	=	$	1,000
07XXXX	Erosion Control	LS	1	x	80,000.00	=	$	80,000
XXXXXX	Some Item							

(209) 525-4302

Supplemental Work for NPDES

(These costs are not accounted in total here but under Supplemental Work on sheet 7 of 11).

066595	Water Pollution Control Maintenance Sharing	LS		x		=	$	-
066596	Additional Water Pollution Control**	LS		x		=	$	-
066597	Storm Water Sampling and Analysis***	LS		x		=	$	-
XXXXXX	Some Item							

Subtotal NPDES (Without Supplemental Work) *$ 81,000*

*Applies to all SWPPPs and those WPCPs with sediment control or soil stabilization BMPs.

**Applies to both SWPPPs and WPCP projects.

*** Applies only to project with SWPPPs.

TOTAL ENVIRONMENTAL $ 467,400

SECTION 6: TRAFFIC ITEMS

6A - Traffic Electrical

Item code		Unit	Quantity		Unit Price ($)			Cost
150760	Remove Sign Structure	EA		x		=	$	-
151581	Reconstruct Sign Structure	EA		x		=	$	-
152641	Modify Sign Structure	EA		x		=	$	-
5602XX	Furnish Sign Structure	LB		x		=	$	-
5602XX	Install Sign Structure	LB		x		=	$	-
56XXXX	XXX" CIDHC Pile (Sign Foundation)	LF		x		=	$	-
860090	Maintain Existing Traffic Management	LS		x		=	$	-
860810	Inductive Loop Detectors	EA		x		=	$	-
860XXX	Lighting	LF	5,200	x	30.00	=	$	156,000
8607XX	Interconnection Facilities	LS		x		=	$	-
8609XX	Traffic Monitoring Stations	LS		x		=	$	-
860XXX	Traffic Signals (including interconnect)	EA	2	x	300,000.00	=	$	600,000
8611XX	Ramp Metering System (Location X)	LS		x		=	$	-
8611XX	Ramp Metering System (Location X)	LS		x		=	$	-
86XXXX	Fiber Optic Conduit System	LS		x		=	$	-
XXXXX	Some Item							

Subtotal Traffic Electrical *$ 756,000*

6B - Traffic Signing and Striping

Item code		Unit	Quantity		Unit Price ($)			Cost
120090	Construction Area Signs	LS	1	x	16,000.00	=	$	16,000
150701	Remove Yellow Painted Traffic Stripe	LF		x		=	$	-
150710	Remove Traffic Stripe	LF		x		=	$	-
150713	Remove Pavement Marking	SQFT		x		=	$	-
150742	Remove Roadside Sign	EA		x		=	$	-
152320	Reset Roadside Sign	EA		x		=	$	-
152390	Relocate Roadside Sign	EA		x		=	$	-
566011	Roadside Sign (One Post)	EA		x		=	$	-
566012	Roadside Sign (Two Post)	EA		x		=	$	-
560XXX	Furnish Sign Panels	SQFT		x		=	$	-
560XXX	Install Sign Panels	SQFT		x		=	$	-
82010X	Delineator (Class X)	EA		x		=	$	-
566XXX	Roadside Signs	LS	1	x	30,000.00	=	$	30,000
84XXXX	Permanent Pavement Delineation	LF	20,980	x	2.00	=	$	41,960

Subtotal Traffic Signing and Striping *$ 87,960*

6C - Stage Construction and Traffic Handling

Item code		Unit	Quantity		Unit Price ($)			Cost
120100	Traffic Control System	LS	1	x	325,000.00	=	$	325,000
120120	Type III Barricade	EA		x		=	$	-
120143	Temporary Pavement Delineation	LF		x		=	$	-
12016X	Channelizer	EA		x		=	$	-
128650	Portable Changeable Message Signs	EA		x		=	$	-
129000	Temporary Railing (Type K)	LF		x		=	(209) 525-4302	
129100	Temp. Crash Cushion Module	EA		x		=	$	-
129099A	Traffic Plastic Drum	EA		x		=	$	-
839603A	Temporary Crash Cushion (ADIEM)	EA		x		=	$	-
XXXXXX	Temporary Transit Service	LS	1	x	300,000.00	=	$	300,000
XXXXXX	Temporary Pedestrian Path	LS	1	x	250,000.00	=	$	250,000
XXXXXX	Some Item							

Subtotal Stage Construction and Traffic Handling *$ 875,000*

TOTAL TRAFFIC ITEMS **$ 1,719,000**

SECTION 7: DETOURS

Include constructing, maintaining, and removal

Item code		Unit	Quantity		Unit Price ($)		Cost
0713XX	Temporary Fence (Type X)	LF		x		=	$ -
07XXXX	Temporary Drainage	LS		x		=	$ -
120143	Temporary Pavement Delineation	LF		x		=	$ -
1286XX	Temporary Signals	EA		x		=	$ -
129000	Temporary Railing (Type K)	LF		x		=	$ -
190101	Roadway Excavation	CY		x		=	$ -
198001	Imported Borrow	CY		x		=	$ -
198050	Embankment	CY		x		=	$ -
250401	Class 4 Aggregate Subbase	CY		x		=	$ -
260201	Class 2 Aggregate Base	CY		x		=	$ -
390132	Hot Mix Asphalt (Type A)	TON		x		=	$ -
XXXXXX	Some Item	LS		x		=	$ -

TOTAL DETOURS $ -

SUBTOTAL SECTIONS 1-7 $ 5,485,800

SECTION 8: MINOR ITEMS

8A - Americans with Disabilities Act Items							
	ADA Items				0.0%	$	-
8B - Bike Path Items							
	Bike Path Items				0.0%	$	-
8C - Other Minor Items							
	Other Minor Items				0.0%	$	-
	Total of Section 1-7	$	5,485,800	x	0.0%	= $	-

TOTAL MINOR ITEMS $ -

SECTIONS 9: MOBILIZATION

Item code							
999990	Total Section 1-8	$	5,485,800	x	10%	= $	548,580

TOTAL MOBILIZATION $ 548,600

SECTION 10: SUPPLEMENTAL WORK

Item code		Unit	Quantity		Unit Price ($)		Cost
066015	Federal Trainee Program	LS		x		=	$ -
066063	Traffic Management Plan - Public Informatic	LS		x		=	$ -
066090	Maintain Traffic	LS		x		=	$ -
066094	Value Analysis	LS		x		=	$ -
066204	Remove Rock & Debris	LS		x		=	$ -
066222	Locate Existing Cross-Over	LS		x		=	(209) 525-4302
066670	Payment Adjustments For Price Index Fluct	LS		x		=	$ -
066700	Partnering	LS		x		=	$ -
066866	Operation of Existing Traffic Management S	LS		x		=	$ -
066920	Dispute Review Board	LS		x		=	$ -
XXXXXX	Some Item			x		=	$ -
	*Cost of **NPDES** Supplemental Work specified in Section 5C*					=	$ -
	Total Section 1-8	$	5,485,800		10%	= $	548,580

TOTAL SUPPLEMENTAL WORK $ 548,600

SECTION 11: STATE FURNISHED MATERIALS AND EXPENSES

Item code		Unit	Quantity		Unit Price ($)		Cost
066063	Public Information	LS		x		=	$0
066105	RE Office	LS		x		=	$0
066803	Padlocks	LS		x		=	$0
066838	Reflective Numbers and Edge Sealer	LS		x		=	$0
066901	Water Expenses	LS		x		=	$0
066062A	COZEEP Expenses	LS		x		=	$0
06684X	Ramp Meter Controller Assembly	LS		x		=	$0
06684X	TMS Controller Assembly	LS		x		=	$0
06684X	Traffic Signal Controller Assembly	LS		x		=	$0
XXXXXX	Some Item						

Total Section 1-8	$	5,485,800	10%	= $	548,580

TOTAL STATE FURNISHED	**$548,600**

SECTION 12: TIME-RELATED OVERHEAD

Estiamted Time-Releated Overhead (TRO) Percentage (0% to 10%) = 5%

Item code		Unit	Quantity		Unit Price ($)		Cost
070018	Time-Related Overhead	WD	99	X	0	=	$0

TOTAL TIME-RELATED OVERHEAD	**$0**

SECTION 13: CONTINGENCY

(Pre-PSR 30%-50%, PSR 25%, Draft PR 20%, PR 15%, after PR approval 10%, Final PS&E 5%)

Total Section 1-11	$	7,131,600	x	25%	=	$1,782,900

TOTAL CONTINGENCY	**$1,782,900**

II. STRUCTURE ITEMS

	Bridge 1	Bridge 2	Bridge 3
DATE OF ESTIMATE	00/00/00	00/00/00	00/00/00
Bridge Name	NB/SB Bridge	Retaining Wall	Railroad Related Costs
Bridge Number	57-XXX	57-XXX	57-XXX
Structure Type	xxxxxxxxxxxxxxxxxxx	xxxxxxxxxxxxxxxxxxx	xxxxxxxxxxxxxxxxxxx
Width (Feet) [out to out]	0.00 LF	0.00 LF	0.00 LF
Total Bridge Length (Feet)	0.00 LF	0.00 LF	0.00 LF
Total Area (Square Feet)	0.00 SQFT	0.00 SQFT	0 SQFT
Structure Depth (Feet)	0.00 LF	0.00 LF	0.00 LF
Footing Type (pile or spread)	xxxxxxxxxxxxxxxxxxx	xxxxxxxxxxxxxxxxxxx	xxxxxxxxxxxxxxxxxxx
Cost Per Square Foot			$0.00
COST OF EACH STRUCTURE	**$22,434,000.00**	**$587,093.00**	**$518,000.00**

DATE OF ESTIMATE	00/00/00	00/00/00	00/00/00
Name	xxxxxxxxxxxxxxxxxxx	xxxxxxxxxxxxxxxxxxx	xxxxxxxxxxxxxxxxxxx
Bridge Number	57-XXX	57-XXX	57-XXX
Structure Type	xxxxxxxxxxxxxxxxxxx	xxxxxxxxxxxxxxxxxxx	xxxxxxxxxxxxxxxxxxx
Width (Feet) [out to out]	0.00 LF	0.00 LF	0.00 LF
Total Length (Feet)	0.00 LF	0.00 LF	0.00 LF
Total Area (Square Feet)	0 SQFT	0.00 SQFT	0.0 SQFT
Structure Depth (Feet)	0.00 LF	0.00 LF	0.00 LF
Footing Type (pile or spread)	xxxxxxxxxxxxxxxxxxx	xxxxxxxxxxxxxxxxxxx	xxxxxxxxxxxxxxxxxxx
Cost Per Square Foot	$0.00	$0.00	$0.00
COST OF EACH STRUCTURE	**$0.00**	**$0.00**	**$0.00**

(209) 525

TOTAL COST OF BRIDGES	**$23,539,093.00**
TOTAL COST OF BUILDINGS	**$0.00**

TOTAL COST OF STRUCTURES[1] $23,539,093.00

Estimate Prepared By: _____ _____
XXXXXXXXXXXXXXXX ------ Division of Structures Date

[1]Structure's Estimate includes Overhead and Mobilization.
Add more sheets if needed. Call them 9a, 9b, 9c, …, etc

DO NOT PRINT THIS SHEET AS PART OF COST ESTIMATE ATTACHMENT TO PROJECT INITIATION OR APPROVAL DOCUMENTS.

III. RIGHT OF WAY

Fill in all of the available information from the Right of Way data sheet.

A)	A1)	Acquisition, including Excess Land Purchases, Damages & Goodwill,		$	3,744,360
	A2)	SB-1210		$	0
B)	Acquisition of Offsite Mitigation			$	0
C)	C1)	Utility Relocation (State Share)		$	700,000
	C2)	Potholing (Design Phase)		$	0
D)	Railroad Acquisition			$	0
E)	Clearance / Demolition			$	0
F)	Relocation Assistance (RAP and/or Last Resort Housing Costs)			$	0
G)	Title and Escrow			$	0
H)	Environmental Review			$	0
I)	Condemnation Settlements (Items G & H applied to items A + B)		0%	$	0
J)	Design Appreciation Factor		0%	$	0
K)	Utility Relocation (Construction Cost)			$	0

L) **TOTAL RIGHT OF WAY ESTIMATE** **$4,444,360**

(Excluding Item #8 - Hazardous Waste)

M) **TOTAL R/W ESTIMATE: Escalated** **$4,785,806**

N) **Right of Way Support $ 0**

Support Cost Estimate Prepared By _____ Project Coordinator[1] _____ Phone

Utility Estimate Prepared By _____ Utiliy Coordinator[2] _____ Phone

R/W Acquistion Estimate Prepared By _____ Right of Way Estimator[3] _____ Phone

[1] When estimate has Support Costs only [2] When estimate has Utility Relocation [3] When R/W Acquisition is required

DO NOT PRINT THIS SHEET AS PART OF COST ESTIMATE ATTACHMENT TO PROJECT INITIATION OR APPROVAL DOCUMENTS.

IV. SUPPORT COST ESTIMATE SUMMARY

Please obtain a P3 report (CL#3) from PPM to fill in the support cost for these categories.

SB-45 CATEGORY SUPPORT COST	PREVIOUS	FY 10/11	FY 11/12	FY 12/13	FY 13/14	FY 14/15	FY 15/16	FY 16/17	FY 17/18	FUTURE	P3 Total	Support Ratio
PR/ED (PD,PE,PM)											$ -	0.00%
PS&E (PS)											$ -	0.00%
R/W (RW)											$ -	0.00%
CONSTRUCTION (CM)											$ -	0.00%
Total Support Cost:	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -		**$ -**	0.00%

Note: It is assumed that the Support Costs are already escalated by Programming to the year of expenditure. Use project Programming Sheet data.

Total Capital Cost:	**$36,898,000**
Total Capital Outlay Support Cost:	**$0**
Overall Percent Support Cost:	**0.00%**

V. ESCALATED CONSTRUCTION COST ESTIMATE SUMMARY

Note: Right of way escalated cost are accounted for on sheet 10 of 11.

	Month	/	Year
Date of Estimate (Month/Year)	0	/	0
Estimated Date of Construction Start (Month/Year)	0	/	0
Number of Working Days	99	WD	
Estimated Mid-Point of Construction (Month/Year)	0	/	0

YEAR	0	1	2	3	4	5	6	7	8	9	FUTURE
FORECASTED ESCALATION RATE*	1.0%	1.0%	1.0%								

ESCALATED CONSTRUCTION COSTS	0	1	2	3	4	5	6	7	8	9	FUTURE	TOTAL ESCALATED COSTS
ROADWAY ITEMS	$ 9,003,645	$ 9,093,681	$ 9,184,618	$ 9,184,618	$ 9,184,618	$ 9,184,618	$ 9,184,618	$ 9,184,618	$ 9,184,618	$ 9,184,618	$ 9,184,618	$ 9,184,618
STRUCTURE ITEMS	$ 23,774,484	$ 24,012,229	$ 24,252,351	$ 24,252,351	$ 24,252,351	$ 24,252,351	$ 24,252,351	$ 24,252,351	$ 24,252,351	$ 24,252,351	$ 24,252,351	$ 24,252,351
SUBTOTAL	$ 32,778,129	$ 33,105,910	$ 33,436,969	$ 33,436,969	$ 33,436,969	$ 33,436,969	$ 33,436,969	$ 33,436,969	$ 33,436,969	$ 33,436,969	$ 33,436,969	**$ 33,436,969**

Dave Leamon — Date — (209) 525-4302 Phone

Approved by: _____ Project Control Engineer _____ Date

Preliminary Cost Estimate

Project ID: C12-200

Type of Estimate : 30% Estimate
Program Code :
Project Limits : 7th Street/Crows Landing Intersection
Description: Bridge Replacement
Scope : Construct new Bridge in 1 Stage on existing alignment. Close 7th Street during construction.
Alternative : 3

	Current Cost	Escalated Cost
ROADWAY ITEMS	$ 9,055,700	$ 9,330,097
STRUCTURE ITEMS	$ 26,074,000	$ 26,864,068
SUBTOTAL CONSTRUCTION COST	$ 35,129,700	$ 36,194,165
RIGHT OF WAY	$ 7,355,500	$ 7,920,599
TOTAL CAPITAL OUTLAY COST	$ 42,486,000	$ 44,115,000
PR/ED SUPPORT	$ -	$ -
PS&E SUPPORT	$ -	$ -
RIGHT OF WAY SUPPORT	$ -	$ -
CONSTRUCTION SUPPORT	$ -	$ -
TOTAL CAPITAL OUTLAY SUPPORT COST*	$ -	$ -
TOTAL PROJECT COST	$ 42,500,000	$ 44,150,000

If Project has been programmed enter Programmed Amount $ -

Date of Estimate (Month/Year) Month / Year /

Estimated Date of Construction Start (Month/Year) /

Number of Working Days 99 Working Days

Estimated Mid-Point of Construction (Month/Year) Month / Year

Number of Plant Establishment Days Days

Estimated Project Schedule

PID Approval	July-16
PA/ED Approval	November-17
PS&E	December-17
RTL	January-19
Begin Construction	March-19

Approved by Project Manager

(209) 525-4302

Dave Leamon **Date** **Phone**

I. ROADWAY ITEMS SUMMARY

	Section		Cost
1	**Earthwork**	$	426,500
2	**Pavement Structural Section**	$	2,085,500
3	**Drainage**	$	850,000
4	**Specialty Items**	$	40,000
5	**Environmental**	$	467,400
6	**Traffic Items**	$	1,703,200
7	**Detours**	$	-
8	**Minor Items**	$	-
9	**Roadway Mobilization**	$	557,300
10	**Supplemental Work**	$	557,300
11	**State Furnished**	$	557,300
12	**Contingencies**	$	1,811,200
13	**Overhead**	$	-
	TOTAL ROADWAY ITEMS	**$**	**9,055,700**

Estimate Prepared By _____

Name and Title Date Phone

Estimate Reviewed By _____

Name and Title Date Phone

By signing this estimate you are attesting that you have discussed your project with all functional units and have incorporated all their comments or have discussed with them why they will not be incorporated.

SECTION 1: EARTHWORK

Item code		Unit	Quantity		Unit Price ($)			Cost
160101	Clearing & Grubbing	LS		x		=	$	-
170101	Develop Water Supply	LS		x		=	$	-
190101	Roadway Excavation	CY	16,999	x	20.00	=	$	339,980
190103	Roadway Excavation (Type Y) ADL	CY		x		=	$	-
190105	Roadway Excavation (Type Z-2) ADL	CY		x		=	$	-
192037	Structure Excavation (Retaining Wall)	CY		x		=	$	-
193013	Structure Backfill (Retaining Wall)	CY		x		=	$	-
193031	Pervious Backfill Material (Retaining Wall)	CY		x		=	$	-
194001	Ditch Excavation	CY		x		=	$	-
198010	Impored Borrow	CY	5,765	x	15.00	=	$	86,475
198007	Imported Material (Shoulder Backing)	TON		x		=	$	-
XXXXXX	Some Item			x		=	$	-

TOTAL EARTHWORK SECTION ITEMS $ 426,500

SECTION 2: PAVEMENT STRUCTURAL SECTION

Item code		Unit	Quantity		Unit Price ($)			Cost
150771	Remove Asphalt Concrete Dike	LF		x		=	$	-
150860	Remove Base and Surfacing	CY		x		=	$	-
153103	Cold Plane Asphalt Concrete Pavement	SQYD		x		=	$	-
1532XX	Remove Concrete (type)	CY		x		=	$	-
250401	Class 4 Aggregate Subbase	CY		x		=	$	-
260201	Class 2 Aggregate Base	CY		x		=	$	-
290201	Asphalt Treated Permeable Base	CY		x		=	$	-
365001	Sand Cover	TON		x		=	$	-
374002	Asphaltic Emulsion (Fog Seal Coat)	TON		x		=	$	-
374492	Asphaltic Emulsion (Polymer Modified)	TON		x		=	$	-
3750XX	Screenings (Type XX)	TON		x		=	$	-
377501	Slurry Seal	TON		x		=	$	-
390095	Replace Asphalt Concrete Surfacing	CY		x		=	$	-
390132	Hot Mix Asphalt (Type A)	TON		x		=	$	-
390136	Minor Hot Mix Asphalt	TON		x		=	$	-
390137	Rubberized Hot Mix Asphalt (Gap Graded)	TON		x		=	$	-
393003	Geosynthetic Pavement Interlayer	SQYD		x		=	$	-
39405X	Shoulder Rumber Strip *(HMA, Type XX Inden*	STA		x		=	$	-
394071	Place Hot Mix Asphalt Dike	LF		x		=	$	-
394090	Place Hot Mix Asphalt (Misc. Area)	SQYD		x		=	$	-
397005	Tack Coat	TON		x		=	$	-
401000	Concrete Pavement	CY		x		=	$	-
401108	Replace Concrete Pavement (Rapid Strength	CY		x		=	$	-
404092	Seal Pavement Joint	LF		x		=	$	-
404094	Seal Longitudinal Isolation Joint	LF		x		=	$	-
413112A	Repair Spalled Joints (Polyester Grout)	SQYD		x		=	$	-
413115	Seal Existing Concrete Pavement Joint			x		=	$	-
420102	Groove Existing Concrete Pavement	SQYD		x		=	$	-
420201	Grind Existing Concrete Pavement	SQYD		x		=	$	-
731502	Minor Concrete (Misc. Const)	CY		x		=	$	-
731530	Minor Concrete (Textured Paving)	SQFT		x		=	$	-
XXXXXX	Overlay	SQFT	130,230	x	3.00	=	$	390,690
XXXXXX	New Pavement	SQFT	152,992	x	8.00	=	$	1,223,936
XXXXXX	Sidewalk	SQFT	45,323	x	6.00	=	$	271,938
XXXXXX	Median Curb	LF	3,383	x	12.00	=	$	40,596
XXXXXX	Curb and Gutter	LF	6,330	x	25.00	=	$	158,250
XXXXXX	Some Item			x		=	$	-

TOTAL STRUCTURAL SECTION ITEMS $ 2,085,500

SECTION 3: DRAINAGE

Item code		Unit	Quantity		Unit Price ($)			Cost
150206	Abandon Culvert	LF		x		=	$	-
150805	Remove Culvert	LF		x		=	$	-
150820	Modify Inlet	EA		x		=	$	-
152430	Adjust Inlet	LF		x		=	$	-
155003	Cap Inlet	EA		x		=	$	-
193114	Sand Backfill	CY		x		=	$	-
510502	Minor Concrete (Minor Structure)	CY		x		=	$	-
510512	Minor Concrete (Box Culvert)	CY		x		=	$	-
62XXXX	XXX" APC Pipe	LF		x		=	$	-
64XXXX	XXX" Plastic Pipe	LF		x		=	$	-
65XXXX	XXX" RCP Pipe	LF		x		=	$	-
66XXXX	XXX" CSP Pipe	LF		x		=	$	-
68XXXX	Edge Drain	LF		x		=	$	-
69XXXX	XXX" Pipe Downdrain	LF		x		=	$	-
70XXXX	XXX" Pipe Inlet	LF		x		=	$	-
70XXXX	XXX" Pipe Riser	LF		x		=	$	-
70XXXX	XXX" Flared End Section	EA		x		=	$	-
703233	Grated Line Drain	LF		x		=	$	-
72XXXX	Rock Slope Protection (Type and Method)	CY		x		=	$	-
721420	Concrete (Ditch Lining)	CY		x		=	$	-
721430	Concrete (Channel Lining)	CY		x		=	$	-
729010	Rock Slope Protection Fabric	SQYD		x		=	$	-
750001	Miscellaneous Iron and Steel	LB		x		=	$	-
XXXXXX	Drainage/Permanent Treatment	LS	1	x	850,000.00	=	$	850,000
XXXXXX	Some Item			x		=	$	-

TOTAL DRAINAGE ITEMS $ 850,000

SECTION 4: SPECIALTY ITEMS

Item code		Unit	Quantity		Unit Price ($)			Cost
070012	Progress Schedule (Critical Path Method)	LS		x		=	$	-
150662	Remove Metal Beam Guard Railing	LF		x		=	$	-
150668	Remove Terminal Systems	EA		x		=	$	-
1532XX	Remove Barrier (*Insert Type)*	LF		x		=	$	-
153250	Remove Sound Wall	SQFT		x		=	$	-
190110	Lead Compliance Plan	LS		x		=	$	-
49XXXX	CIDH Concrete Piling *(Insert Diameter)*	LF		x		=	$	-
510060	Structural Concrete (Retaining Wall)	CY		x		=	$	-
510133	Class 2 Concrete (Retaining Wall)	CY		x		=	$	-
510524	Minor Concrete (Sound Wall)	CY		x		=	$	-
5110XX	Architectural Treatment *(Insert Type)*	SQFT		x		=	$	-
511048	Apply Anti-Graffiti Coating	SQFT		x		=	$	-
5136XX	Reinforced Concrete Crib Wall *(Insert Type)*	SQFT		x		=	$	-
518002	Sound Wall (Masonry Block)	SQFT		x		=	$	-
520103	Bar Reinf. Steel (Retaining Wall)	LB		x		=	$	-
80XXXX	Fence (*Insert Type*)	LF		x		=	$	-
832005	Midwest Guard Railing		200	x	100.00	=	$	20,000
839310	Double Thrie Beam Barrier	LF		x		=	$	-
839521	Cable Railing	LF		x		=	$	-
83954X	Transition Railing *(Insert Type)*	EA		x		=	$	-
8395XX	Terminal System (Type CAT)	EA		x		=	$	-
8395XX	Alternative Flared Terminal System	EA		x		=	$	-
8395XX	End Anchor Assembly (*Insert Type*)	EA		x		=	$	-
839561	Rail Tensioning Assembly	EA		x		=	$	-
839XXX	Crash Cushion *(Insert Type)*	EA		x		=	$	-
83XXXX	Concrete Barrier *(Insert Type)*	LF		x		=	$	-
XXXXXX	Resident Engineer Office Space	EA	1	x	20,000.00	=	$	20,000
XXXXXX				x		=	$	-
XXXXXX	Some Item			x		=	$	-

TOTAL SPECIALTY ITEMS $ 40,000

SECTION 5: ENVIRONMENTAL

5A - ENVIRONMENTAL MITIGATION

Item code		Unit	Quantity		Unit Price ($)			Cost
XXXXXX	Environmental Compliance	LS	1	x	310,000.00	=	$	310,000
071325	Temporary Reinforced Silt Fence	LF		x		=	$	-
071325	Temporary Fence (Type ESA)	LF		x		=	$	-

Subtotal Environmental *$ 310,000*

5B - LANDSCAPE AND IRRIGATION

Item code		Unit	Quantity		Unit Price ($)			Cost
200001	Highway Planting	LS	1	x	40,000.00	=	$	40,000
20XXXX	XXX" (*Insert Type*) Conduit *(Use for*	LF		x		=	$	-
20XXXX	Extend XXX" *(Insert Type)* Conduit	LF		x		=	$	-
201700	Imported Topsoil	CY		x		=	$	-
2030XX	Erosion Control (Type __)	SQYD		x		=	$	-
203021	Fiber Rolls	LF		x		=	$	-
203026	Move In/ Move Out (Erosion Control)	EA		x		=	$	-
204099	Plant Establishment Work	LS		x		=	$	-
204101	Extend Plant Establishment (X Years)	LS		x		=	$	-
208000	Irrigation System	LS		x		=	$	-
208304	Water Meter	EA		x		=	$	-
209801	Maintenance Vehicle Pullout	EA		x		=	$	-
XXXXXX	Replacement Planting	LS	1	x	15,000.00	=	$	15,000
XXXXXX	Irrigation Modification	LS	1	x	13,333.33	=	$	13,333
XXXXXX	Irrigation Crossovers	LS	4	x	2,000.00	=	$	8,000
XXXXXX	Some Item							

Subtotal Landscape and Irrigation *$ 76,333*

5C - NPDES

Item code		Unit	Quantity		Unit Price ($)			Cost
074016	Construction Site Management	LS		x		=	$	-
074017	Prepare WPCP	LS		x		=	$	-
074019	Prepare SWPPP	LS		x		=	$	-
074023	Temporary Erosion Control	SQYD		x		=	$	-
074027	Temporary Erosion Control Blanket	SQYD		x		=	$	-
074028	Temporary Fiber Roll	LF		x		=	$	-
074032	Temporary Concrete Washout Facility	EA		x		=	$	-
074033	Temporary Construction Entrance	EA		x		=	$	-
074035	Temporary Check Dam	LF		x		=	$	-
074037	Move In/ Move Out (Temporary Erosion Cont	EA		x		=	$	-
074038	Temp. Drainage Inlet Protection	EA		x		=	$	-
074041	Street Sweeping	LS		x		=	$	-
074042	Temporary Concrete Washout (Portable)	LS		x		=	$	-
XXXXXX	Vegetation Control Treatments	LF	200	x	5.00	=	$	1,000
07XXXX	Erosion Control	LS	1	x	80,000.00	=	$	80,000
XXXXXX	Some Item							

Supplemental Work for NPDES Dave Leamon Date Phone

(These costs are not accounted in total here but under Supplemental Work on sheet 7 of 11).

066595	Water Pollution Control Maintenance Sharing	LS		x		=	$	-
066596	Additional Water Pollution Control**	LS		x		=	$	-
066597	Storm Water Sampling and Analysis***	LS		x		=	$	-
XXXXXX	Some Item							

Subtotal NPDES (Without Supplemental Work) *$ 81,000*

*Applies to all SWPPPs and those WPCPs with sediment control or soil stabilization BMPs.

**Applies to both SWPPPs and WPCP projects.

*** Applies only to project with SWPPPs.

TOTAL ENVIRONMENTAL $ 467,400

SECTION 6: TRAFFIC ITEMS

6A - Traffic Electrical

Item code		Unit	Quantity		Unit Price ($)			Cost
150760	Remove Sign Structure	EA		x		=	$	-
151581	Reconstruct Sign Structure	EA		x		=	$	-
152641	Modify Sign Structure	EA		x		=	$	-
5602XX	Furnish Sign Structure	LB		x		=	$	-
5602XX	Install Sign Structure	LB		x		=	$	-
56XXXX	XXX" CIDHC Pile (Sign Foundation)	LF		x		=	$	-
860090	Maintain Existing Traffic Management	LS		x		=	$	-
860810	Inductive Loop Detectors	EA		x		=	$	-
860XXX	Lighting	LF	4,780	x	30.00	=	$	143,400
8607XX	Interconnection Facilities	LS		x		=	$	-
8609XX	Traffic Monitoring Stations	LS		x		=	$	-
860XXX	Traffic Signals (including interconnect)	EA	2	x	300,000.00	=	$	600,000
8611XX	Ramp Metering System (Location X)	LS		x		=	$	-
8611XX	Ramp Metering System (Location X)	LS		x		=	$	-
86XXXX	Fiber Optic Conduit System	LS		x		=	$	-
XXXXX	Some Item							

Subtotal Traffic Electrical *$ 743,400*

6B - Traffic Signing and Striping

Item code		Unit	Quantity		Unit Price ($)			Cost
120090	Construction Area Signs	LS	1	x	16,000.00	=	$	16,000
150701	Remove Yellow Painted Traffic Stripe	LF		x		=	$	-
150710	Remove Traffic Stripe	LF		x		=	$	-
150713	Remove Pavement Marking	SQFT		x		=	$	-
150742	Remove Roadside Sign	EA		x		=	$	-
152320	Reset Roadside Sign	EA		x		=	$	-
152390	Relocate Roadside Sign	EA		x		=	$	-
566011	Roadside Sign (One Post)	EA		x		=	$	-
566012	Roadside Sign (Two Post)	EA		x		=	$	-
560XXX	Furnish Sign Panels	SQFT		x		=	$	-
560XXX	Install Sign Panels	SQFT		x		=	$	-
82010X	Delineator (Class X)	EA		x		=	$	-
566XXX	Roadside Signs	LS	1	x	30,000.00	=	$	30,000
84XXXX	Permanent Pavement Delineation	LF	19,369	x	2.00	=	$	38,738

Subtotal Traffic Signing and Striping *$ 84,738*

6C - Stage Construction and Traffic Handling

Item code		Unit	Quantity		Unit Price ($)			Cost
120100	Traffic Control System	LS	1	x	325,000.00	=	$	325,000
120120	Type III Barricade	EA		x		=	$	-
120143	Temporary Pavement Delineation	LF		x		=	$	-
12016X	Channelizer	EA		x		=	$	-
128650	Portable Changeable Message Signs	EA		x		=	$	-
129000	Temporary Railing (Type K)	LF		x		=	$	-
129100	Temp. Crash Cushion Module			x		=	$	-
129099A	Traffic Plastic Drum	EA		x		=	$	-
839603A	Temporary Crash Cushion (ADIEM)	EA		x		=	$	-
XXXXXX	Temporary Transit Service	LS	1	x	300,000.00	=	$	300,000
XXXXXX	Temporary Pedestrian Path	LS	1	x	250,000.00	=	$	250,000
XXXXXX	Some Item							

Subtotal Stage Construction and Traffic Handling *$ 875,000*

TOTAL TRAFFIC ITEMS **$ 1,703,200**

SECTION 7: DETOURS

Include constructing, maintaining, and removal

Item code		Unit	Quantity		Unit Price ($)			Cost
0713XX	Temporary Fence (Type X)	LF		x		=	$	-
07XXXX	Temporary Drainage	LS		x		=	$	-
120143	Temporary Pavement Delineation	LF		x		=	$	-
1286XX	Temporary Signals	EA		x		=	$	-
129000	Temporary Railing (Type K)	LF		x		=	$	-
190101	Roadway Excavation	CY		x		=	$	-
198001	Imported Borrow	CY		x		=	$	-
198050	Embankment	CY		x		=	$	-
250401	Class 4 Aggregate Subbase	CY		x		=	$	-
260201	Class 2 Aggregate Base	CY		x		=	$	-
390132	Hot Mix Asphalt (Type A)	TON		x		=	$	-
XXXXXX	Some Item	LS		x		=	$	-

TOTAL DETOURS **$ -**

SUBTOTAL SECTIONS 1-7 $ 5,572,600

SECTION 8: MINOR ITEMS

8A - Americans with Disabilities Act Items
ADA Items 0.0% $ -
8B - Bike Path Items
Bike Path Items 0.0% $ -
8C - Other Minor Items
Other Minor Items 0.0% $ -

Total of Section 1-7 $ 5,572,600 x 0.0% = $ -

TOTAL MINOR ITEMS **$ -**

SECTIONS 9: MOBILIZATION

Item code								
999990	Total Section 1-8	$	5,572,600	x	10%	=	$	557,260

TOTAL MOBILIZATION **$ 557,300**

SECTION 10: SUPPLEMENTAL WORK

Item code		Unit	Quantity		Unit Price ($)			Cost
066015	Federal Trainee Program	LS		x		=	$	-
066063	Traffic Management Plan - Public Informatic	LS		x		=	$	-
066090	Maintain Traffic	LS		x		=	$	-
066094	Value Analysis	LS		x		=	$	-
066204	Remove Rock & Debris	LS		x		=	$	-
066222	Locate Existing Cross-Over	LS		x		=	$	-
066670	Payment Adjustments For Price Index Fluct			x		=	$	-
066700	Partnering	LS		x		=	$	-
066866	Operation of Existing Traffic Management S	LS		x		=	$	-
066920	Dispute Review Board	LS		x		=	$	-
XXXXXX	Some Item			x		=	$	-

*Cost of **NPDES** Supplemental Work specified in Section 5C* = $ -

Total Section 1-8 $ 5,572,600 10% = $ 557,260

TOTAL SUPPLEMENTAL WORK **$ 557,300**

SECTION 11: STATE FURNISHED MATERIALS AND EXPENSES

Item code		Unit	Quantity		Unit Price ($)		Cost
066063	Public Information	LS		x		=	$0
066105	RE Office	LS		x		=	$0
066803	Padlocks	LS		x		=	$0
066838	Reflective Numbers and Edge Sealer	LS		x		=	$0
066901	Water Expenses	LS		x		=	$0
066062A	COZEEP Expenses	LS		x		=	$0
06684X	Ramp Meter Controller Assembly	LS		x		=	$0
06684X	TMS Controller Assembly	LS		x		=	$0
06684X	Traffic Signal Controller Assembly	LS		x		=	$0
XXXXXX	Some Item						

Total Section 1-8	$	5,572,600	10%	= $	557,260

TOTAL STATE FURNISHED $557,300

SECTION 12: TIME-RELATED OVERHEAD

Estiamted Time-Releated Overhead (TRO) Percentage (0% to 10%) = 5%

Item code		Unit	Quantity		Unit Price ($)		Cost
070018	Time-Related Overhead	WD	99	X	0	=	$0

TOTAL TIME-RELATED OVERHEAD $0

SECTION 13: CONTINGENCY

(Pre-PSR 30%-50%, PSR 25%, Draft PR 20%, PR 15%, after PR approval 10%, Final PS&E 5%)

Total Section 1-11	$	7,244,500	x	25%	=	$1,811,125

TOTAL CONTINGENCY $1,811,200

II. STRUCTURE ITEMS

	Bridge 1	Bridge 2	Bridge 3
DATE OF ESTIMATE	00/00/00	00/00/00	00/00/00
Bridge Name	NB/SB Bridge	Retaining Wall	Railroad Related Costs
Bridge Number	57-XXX	57-XXX	57-XXX
Structure Type	xxxxxxxxxxxxxxxxxxx	xxxxxxxxxxxxxxxxxxx	xxxxxxxxxxxxxxxxxxx
Width (Feet) [out to out]	0.00 LF	0.00 LF	0.00 LF
Total Bridge Length (Feet)	0.00 LF	0.00 LF	0.00 LF
Total Area (Square Feet)	0.00 SQFT	0.00 SQFT	0 SQFT
Structure Depth (Feet)	0.00 LF	0.00 LF	0.00 LF
Footing Type (pile or spread)	xxxxxxxxxxxxxxxxxxx	xxxxxxxxxxxxxxxxxxx	xxxxxxxxxxxxxxxxxxx
Cost Per Square Foot			$0.00
COST OF EACH STRUCTURE	**$25,556,000.00**	**$0.00**	**$518,000.00**

DATE OF ESTIMATE	00/00/00	00/00/00	00/00/00
Name	xxxxxxxxxxxxxxxxxxx	xxxxxxxxxxxxxxxxxxx	xxxxxxxxxxxxxxxxxxx
Bridge Number	57-XXX	57-XXX	57-XXX
Structure Type	xxxxxxxxxxxxxxxxxxx	xxxxxxxxxxxxxxxxxxx	xxxxxxxxxxxxxxxxxxx
Width (Feet) [out to out]	0.00 LF	0.00 LF	0.00 LF
Total Length (Feet)	0.00 LF	0.00 LF	0.00 LF
Total Area (Square Feet)	0 SQFT	0.00 SQFT	0.0 SQFT
Structure Depth (Feet)	0.00 LF	0.00 LF	0.00 LF
Footing Type (pile or spread)	xxxxxxxxxxxxxxxxxxx	xxxxxxxxxxxxxxxxxxx	xxxxxxxxxxxxxxxxxxx
Cost Per Square Foot	$0.00	$0.00	$0.00
COST OF EACH STRUCTURE	**$0.00**	**$0.00**	**$0.00**

Dave Leamon
Date Phone

TOTAL COST OF BRIDGES	**$26,074,000.00**
TOTAL COST OF BUILDINGS	**$0.00**

TOTAL COST OF STRUCTURES[1] $26,074,000.00

Estimate Prepared By: _____ _____
XXXXXXXXXXXXXXXX ------ Division of Structures Date

[1]Structure's Estimate includes Overhead and Mobilization.
Add more sheets if needed. Call them 9a, 9b, 9c, …, etc

DO NOT PRINT THIS SHEET AS PART OF COST ESTIMATE ATTACHMENT TO PROJECT INITIATION OR APPROVAL DOCUMENTS.

III. RIGHT OF WAY

Fill in all of the available information from the Right of Way data sheet.

A)	A1)	Acquisition, including Excess Land Purchases, Damages & Goodwill,		$	6,655,500
	A2)	SB-1210		$	0
B)	Acquisition of Offsite Mitigation			$	0
C)	C1)	Utility Relocation (State Share)		$	700,000
	C2)	Potholing (Design Phase)		$	0
D)	Railroad Acquisition			$	0
E)	Clearance / Demolition			$	0
F)	Relocation Assistance (RAP and/or Last Resort Housing Costs)			$	0
G)	Title and Escrow			$	0
H)	Environmental Review			$	0
I)	Condemnation Settlements (Items G & H applied to items A + B)		0%	$	0
J)	Design Appreciation Factor		0%	$	0
K)	Utility Relocation (Construction Cost)			$	0

L) **TOTAL RIGHT OF WAY ESTIMATE** **$7,355,500**

(Excluding Item #8 - Hazardous Waste)

M) **TOTAL R/W ESTIMATE: Escalated** **$7,920,599**

N) **Right of Way Support $ 0**

Support Cost Estimate Prepared By _____ Project Coordinator[1] _____ Phone

Utility Estimate Prepared By _____ Utiliy Coordinator[2] _____ Phone

R/W Acquistion Estimate Prepared By _____ Right of Way Estimator[3] _____ Phone

[1] When estimate has Support Costs only [2] When estimate has Utility Relocation [3] When R/W Acquisition is required

DO NOT PRINT THIS SHEET AS PART OF COST ESTIMATE ATTACHMENT TO PROJECT INITIATION OR APPROVAL DOCUMENTS.

IV. SUPPORT COST ESTIMATE SUMMARY

Please obtain a P3 report (CL#3) from PPM to fill in the support cost for these categories.

SB-45 CATEGORY SUPPORT COST	PREVIOUS	FY 10/11	FY 11/12	FY 12/13	FY 13/14	FY 14/15	FY 15/16	FY 16/17	FY 17/18	FUTURE	P3 Total	Support Ratio
PR/ED (PD,PE,PM)											$ -	0.00%
PS&E (PS)											$ -	0.00%
R/W (RW)											$ -	0.00%
CONSTRUCTION (CM)											$ -	0.00%
Total Support Cost:	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -		**$ -**	0.00%

Note: It is assumed that the Support Costs are already escalated by Programming to the year of expenditure. Use project Programming Sheet data.

Total Capital Cost:	**$42,486,000**
Total Capital Outlay Support Cost:	**$0**
Overall Percent Support Cost:	**0.00%**

V. ESCALATED CONSTRUCTION COST ESTIMATE SUMMARY

Note: Right of way escalated cost are accounted for on sheet 10 of 11.

	Month	/	Year
Date of Estimate (Month/Year)	0	/	0
Estimated Date of Construction Start (Month/Year)	0	/	0
Number of Working Days	99	WD	
Estimated Mid-Point of Construction (Month/Year)	0	/	0

YEAR	0	1	2	3	4	5	6	7	8	9	FUTURE
FORECASTED ESCALATION RATE*	1.0%	1.0%	1.0%								

ESCALATED CONSTRUCTION COSTS	0	1	2	3	4	5	6	7	8	9	FUTURE	TOTAL ESCALATED COSTS
ROADWAY ITEMS	$ 9,146,257	$ 9,237,720	$ 9,330,097	$ 9,330,097	$ 9,330,097	$ 9,330,097	$ 9,330,097	$ 9,330,097	$ 9,330,097	$ 9,330,097	$ 9,330,097	$ 9,330,097
STRUCTURE ITEMS	$ 26,334,740	$ 26,598,087	$ 26,864,068	$ 26,864,068	$ 26,864,068	$ 26,864,068	$ 26,864,068	$ 26,864,068	$ 26,864,068	$ 26,864,068	$ 26,864,068	$ 26,864,068
SUBTOTAL	$ 35,480,997	$ 35,835,807	$ 36,194,165	$ 36,194,165	$ 36,194,165	$ 36,194,165	$ 36,194,165	$ 36,194,165	$ 36,194,165	$ 36,194,165	$ 36,194,165	**$ 36,194,165**

Dave Leamon Date Phone

Approved by: _____ _____
Project Control Engineer Date

Preliminary Cost Estimate

Project ID: C12-200

Type of Estimate : 30% Estimate
Program Code :
Project Limits : 7th Street/Crows Landing Intersection
Description: Bridge Replacement
Scope : Construct new Bridge in 1 Stage on existing alignment. Close 7th Street during construction.
Alternative : 4

	Current Cost	Escalated Cost
ROADWAY ITEMS	$ 9,229,800	$ 9,509,472
STRUCTURE ITEMS	$ 27,021,000	$ 27,839,763
SUBTOTAL CONSTRUCTION COST	$ 36,250,800	$ 37,349,235
RIGHT OF WAY	$ 7,641,000	$ 8,228,033
TOTAL CAPITAL OUTLAY COST	$ 43,892,000	$ 45,578,000
PA/ED SUPPORT	$ -	$ -
PS&E SUPPORT	$ -	$ -
RIGHT OF WAY SUPPORT	$ -	$ -
CONSTRUCTION SUPPORT	$ -	$ -
TOTAL CAPITAL OUTLAY SUPPORT COST*	$ -	$ -
TOTAL PROJECT COST	$ 43,900,000	$ 45,600,000

If Project has been programmed enter Programmed Amount $ -

Date of Estimate (Month/Year) Month / Year /

Estimated Date of Construction Start (Month/Year) /

Number of Working Days 99 Working Days

Estimated Mid-Point of Construction (Month/Year) Month / Year

Number of Plant Establishment Days Days

Estimated Project Schedule

PID Approval	July-16
PA/ED Approval	November-17
PS&E	December-17
RTL	January-19
Begin Construction	March-19

Approved by Project Manager

Dave Leamon	Date	(209) 525-4302
		Phone

I. ROADWAY ITEMS SUMMARY

	Section		Cost
1	**Earthwork**	$	526,400
2	**Pavement Structural Section**	$	2,083,200
3	**Drainage**	$	850,000
4	**Specialty Items**	$	40,000
5	**Environmental**	$	467,400
6	**Traffic Items**	$	1,712,800
7	**Detours**	$	-
8	**Minor Items**	$	-
9	**Roadway Mobilization**	$	568,000
10	**Supplemental Work**	$	568,000
11	**State Furnished**	$	568,000
12	**Contingencies**	$	1,846,000
13	**Overhead**	$	-
	TOTAL ROADWAY ITEMS	**$**	**9,229,800**

Estimate Prepared By

Name and Title Date Phone

Estimate Reviewed By

Name and Title Date Phone

By signing this estimate you are attesting that you have discussed your project with all functional units and have incorporated all their comments or have discussed with them why they will not be incorporated.

SECTION 1: EARTHWORK

Item code		Unit	Quantity		Unit Price ($)			Cost
160101	Clearing & Grubbing	LS		x		=	$	-
170101	Develop Water Supply	LS		x		=	$	-
190101	Roadway Excavation	CY	13,884	x	20.00	=	$	277,680
190103	Roadway Excavation (Type Y) ADL	CY		x		=	$	-
190105	Roadway Excavation (Type Z-2) ADL	CY		x		=	$	-
192037	Structure Excavation (Retaining Wall)	CY		x		=	$	-
193013	Structure Backfill (Retaining Wall)	CY		x		=	$	-
193031	Pervious Backfill Material (Retaining Wall)	CY		x		=	$	-
194001	Ditch Excavation	CY		x		=	$	-
198010	Impored Borrow	CY	16,578	x	15.00	=	$	248,670
198007	Imported Material (Shoulder Backing)	TON		x		=	$	-
XXXXXX	Some Item			x		=	$	-

TOTAL EARTHWORK SECTION ITEMS $ 526,400

SECTION 2: PAVEMENT STRUCTURAL SECTION

Item code		Unit	Quantity		Unit Price ($)			Cost
150771	Remove Asphalt Concrete Dike	LF		x		=	$	-
150860	Remove Base and Surfacing	CY		x		=	$	-
153103	Cold Plane Asphalt Concrete Pavement	SQYD		x		=	$	-
1532XX	Remove Concrete (type)	CY		x		=	$	-
250401	Class 4 Aggregate Subbase	CY		x		=	$	-
260201	Class 2 Aggregate Base	CY		x		=	$	-
290201	Asphalt Treated Permeable Base	CY		x		=	$	-
365001	Sand Cover	TON		x		=	$	-
374002	Asphaltic Emulsion (Fog Seal Coat)	TON		x		=	$	-
374492	Asphaltic Emulsion (Polymer Modified)	TON		x		=	$	-
3750XX	Screenings (Type XX)	TON		x		=	$	-
377501	Slurry Seal	TON		x		=	$	-
390095	Replace Asphalt Concrete Surfacing	CY		x		=	$	-
390132	Hot Mix Asphalt (Type A)	TON		x		=	$	-
390136	Minor Hot Mix Asphalt	TON		x		=	$	-
390137	Rubberized Hot Mix Asphalt (Gap Graded)	TON		x		=	$	-
393003	Geosynthetic Pavement Interlayer	SQYD		x		=	$	-
39405X	Shoulder Rumber Strip *(HMA, Type XX Inden*	STA		x		=	$	-
394071	Place Hot Mix Asphalt Dike	LF		x		=	$	-
394090	Place Hot Mix Asphalt (Misc. Area)	SQYD		x		=	$	-
397005	Tack Coat	TON		x		=	$	-
401000	Concrete Pavement	CY		x		=	$	-
401108	Replace Concrete Pavement (Rapid Strength	CY		x		=	$	-
404092	Seal Pavement Joint	LF		x		=	$	-
404094	Seal Longitudinal Isolation Joint	LF		x		=	$	-
413112A	Repair Spalled Joints (Polyester Grout)	SQYD		x		=	$	-
413115	Seal Existing Concrete Pavement Joint	LF		x		=	$	-
420102	Groove Existing Concrete Pavement	SQYD		x		=	$	-
420201	Grind Existing Concrete Pavement	SQYD		x		=	$	-
731502	Minor Concrete (Misc. Const)	CY		x		=	$	-
731530	Minor Concrete (Textured Paving)	SQFT		x		=	$	-
XXXXXX	Overlay	SQFT	110,094	x	3.00	=	$	330,282
XXXXXX	New Pavement	SQFT	166,674	x	8.00	=	$	1,333,392
XXXXXX	Sidewalk	SQFT	36,884	x	6.00	=	$	221,304
XXXXXX	Median Curb	LF	3,330	x	12.00	=	$	39,960
XXXXXX	Curb and Gutter	LF	6,330	x	25.00	=	$	158,250
XXXXXX	Some Item			x		=	$	-

TOTAL STRUCTURAL SECTION ITEMS $ 2,083,200

SECTION 3: DRAINAGE

Item code		Unit	Quantity		Unit Price ($)			Cost
150206	Abandon Culvert	LF		x		=	$	-
150805	Remove Culvert	LF		x		=	$	-
150820	Modify Inlet	EA		x		=	$	-
152430	Adjust Inlet	LF		x		=	$	-
155003	Cap Inlet	EA		x		=	$	-
193114	Sand Backfill	CY		x		=	$	-
510502	Minor Concrete (Minor Structure)	CY		x		=	$	-
510512	Minor Concrete (Box Culvert)	CY		x		=	$	-
62XXXX	XXX" APC Pipe	LF		x		=	$	-
64XXXX	XXX" Plastic Pipe	LF		x		=	$	-
65XXXX	XXX" RCP Pipe	LF		x		=	$	-
66XXXX	XXX" CSP Pipe	LF		x		=	$	-
68XXXX	Edge Drain	LF		x		=	$	-
69XXXX	XXX" Pipe Downdrain	LF		x		=	$	-
70XXXX	XXX" Pipe Inlet	LF		x		=	$	-
70XXXX	XXX" Pipe Riser	LF		x		=	$	-
70XXXX	XXX" Flared End Section	EA		x		=	$	-
703233	Grated Line Drain	LF		x		=	$	-
72XXXX	Rock Slope Protection (Type and Method)	CY		x		=	$	-
721420	Concrete (Ditch Lining)	CY		x		=	$	-
721430	Concrete (Channel Lining)	CY		x		=	$	-
729010	Rock Slope Protection Fabric	SQYD		x		=	$	-
750001	Miscellaneous Iron and Steel	LB		x		=	$	-
XXXXXX	Drainage/Permanent Treatment	LS	1	x	850,000.00	=	$	850,000
XXXXXX	Some Item			x		=	$	-

TOTAL DRAINAGE ITEMS $ 850,000

SECTION 4: SPECIALTY ITEMS

Item code		Unit	Quantity		Unit Price ($)			Cost
070012	Progress Schedule (Critical Path Method)	LS		x		=	$	-
150662	Remove Metal Beam Guard Railing	LF		x		=	$	-
150668	Remove Terminal Systems	EA		x		=	$	-
1532XX	Remove Barrier (*Insert Type)*	LF		x		=	$	-
153250	Remove Sound Wall	SQFT		x		=	$	-
190110	Lead Compliance Plan	LS		x		=	$	-
49XXXX	CIDH Concrete Piling *(Insert Diameter)*	LF		x		=	$	-
510060	Structural Concrete (Retaining Wall)	CY		x		=	$	-
510133	Class 2 Concrete (Retaining Wall)	CY		x		=	$	-
510524	Minor Concrete (Sound Wall)	CY		x		=	$	-
5110XX	Architectural Treatment *(Insert Type)*	SQFT		x		=	$	-
511048	Apply Anti-Graffiti Coating	SQFT		x		=	$	-
5136XX	Reinforced Concrete Crib Wall *(Insert Type)*	SQFT		x		=	$	-
518002	Sound Wall (Masonry Block)	SQFT		x		=	$	-
520103	Bar Reinf. Steel (Retaining Wall)	LB		x		=	$	-
80XXXX	Fence (*Insert Type*)	LF		x		=	$	-
832005	Midwest Guard Railing	LF	200	x	100.00	=	$	20,000
839310	Double Thrie Beam Barrier	LF		x		=	$	-
839521	Cable Railing	LF		x		=	$	-
83954X	Transition Railing *(Insert Type)*	EA		x		=	$	-
8395XX	Terminal System (Type CAT)	EA		x		=	$	-
8395XX	Alternative Flared Terminal System	EA		x		=	$	-
8395XX	End Anchor Assembly (*Insert Type*)	EA		x		=	$	-
839561	Rail Tensioning Assembly	EA		x		=	$	-
839XXX	Crash Cushion *(Insert Type)*	EA		x		=	$	-
83XXXX	Concrete Barrier *(Insert Type)*	LF		x		=	$	-
XXXXXX	Resident Engineer Office Space	EA	1	x	20,000.00	=	$	20,000
XXXXXX				x		=	$	-
XXXXXX	Some Item			x		=	$	-

TOTAL SPECIALTY ITEMS $ 40,000

SECTION 5: ENVIRONMENTAL

5A - ENVIRONMENTAL MITIGATION

Item code		Unit	Quantity		Unit Price ($)			Cost
XXXXXX	Environmental Compliance	LS	1	x	310,000.00	=	$	310,000
071325	Temporary Reinforced Silt Fence	LF		x		=	$	-
071325	Temporary Fence (Type ESA)	LF		x		=	$	-

Subtotal Environmental *$ 310,000*

5B - LANDSCAPE AND IRRIGATION

Item code		Unit	Quantity		Unit Price ($)			Cost
200001	Highway Planting	LS	1	x	40,000.00	=	$	40,000
20XXXX	XXX" (*Insert Type*) Conduit *(Use for*	LF		x		=	$	-
20XXXX	Extend XXX" *(Insert Type)* Conduit	LF		x		=	$	-
201700	Imported Topsoil	CY		x		=	$	-
2030XX	Erosion Control (Type __)	SQYD		x		=	$	-
203021	Fiber Rolls	LF		x		=	$	-
203026	Move In/ Move Out (Erosion Control)	EA		x		=	$	-
204099	Plant Establishment Work	LS		x		=	$	-
204101	Extend Plant Establishment (X Years)	LS		x		=	$	-
208000	Irrigation System	LS		x		=	$	-
208304	Water Meter	EA		x		=	$	-
209801	Maintenance Vehicle Pullout	EA		x		=	$	-
XXXXXX	Replacement Planting	LS	1	x	15,000.00	=	$	15,000
XXXXXX	Irrigation Modification	LS	1	x	13,333.33	=	$	13,333
XXXXXX	Irrigation Crossovers	LS	4	x	2,000.00	=	$	8,000
XXXXXX	Some Item							

Subtotal Landscape and Irrigation *$ 76,333*

5C - NPDES

Item code		Unit	Quantity		Unit Price ($)			Cost
074016	Construction Site Management	LS		x		=	$	-
074017	Prepare WPCP	LS		x		=	$	-
074019	Prepare SWPPP	LS		x		=	$	-
074023	Temporary Erosion Control	SQYD		x		=	$	-
074027	Temporary Erosion Control Blanket	SQYD		x		=	$	-
074028	Temporary Fiber Roll	LF		x		=	$	-
074032	Temporary Concrete Washout Facility	EA		x		=	$	-
074033	Temporary Construction Entrance	EA		x		=	$	-
074035	Temporary Check Dam	LF		x		=	$	-
074037	Move In/ Move Out (Temporary Erosion Cont	EA		x		=	$	-
074038	Temp. Drainage Inlet Protection	EA		x		=	$	-
074041	Street Sweeping	LS		x		=	$	-
074042	Temporary Concrete Washout (Portable)	LS		x		=	$	-
XXXXXX	Vegetation Control Treatments	LF	200	x	5.00	=	$	1,000
07XXXX	Erosion Control	LS	1	x	80,000.00	=	$	80,000
XXXXXX	Some Item							

Supplemental Work for NPDES

(These costs are not accounted in total here but under Supplemental Work on sheet 7 of 11).

066595	Water Pollution Control Maintenance Sharing	LS		x		=	$	-
066596	Additional Water Pollution Control**	LS		x		=	$	-
066597	Storm Water Sampling and Analysis***	LS		x		=	$	-
XXXXXX	Some Item							

Subtotal NPDES (Without Supplemental Work) *$ 81,000*

*Applies to all SWPPPs and those WPCPs with sediment control or soil stabilization BMPs.

**Applies to both SWPPPs and WPCP projects.

*** Applies only to project with SWPPPs.

TOTAL ENVIRONMENTAL $ 467,400

SECTION 6: TRAFFIC ITEMS

6A - Traffic Electrical

Item code		Unit	Quantity		Unit Price ($)			Cost
150760	Remove Sign Structure	EA		x		=	$	-
151581	Reconstruct Sign Structure	EA		x		=	$	-
152641	Modify Sign Structure	EA		x		=	$	-
5602XX	Furnish Sign Structure	LB		x		=	$	-
5602XX	Install Sign Structure	LB		x		=	$	-
56XXXX	XXX" CIDHC Pile (Sign Foundation)	LF		x		=	$	-
860090	Maintain Existing Traffic Management	LS		x		=	$	-
860810	Inductive Loop Detectors	EA		x		=	$	-
860XXX	Lighting	LF	5,040	x	30.00	=	$	151,200
8607XX	Interconnection Facilities	LS		x		=	$	-
8609XX	Traffic Monitoring Stations	LS		x		=	$	-
860XXX	Traffic Signals (including interconnect)	EA	2	x	300,000.00	=	$	600,000
8611XX	Ramp Metering System (Location X)	LS		x		=	$	-
8611XX	Ramp Metering System (Location X)	LS		x		=	$	-
86XXXX	Fiber Optic Conduit System	LS		x		=	$	-
XXXXX	Some Item							

Subtotal Traffic Electrical *$ 751,200*

6B - Traffic Signing and Striping

Item code		Unit	Quantity		Unit Price ($)			Cost
120090	Construction Area Signs	LS	1	x	16,000.00	=	$	16,000
150701	Remove Yellow Painted Traffic Stripe	LF		x		=	$	-
150710	Remove Traffic Stripe	LF		x		=	$	-
150713	Remove Pavement Marking	SQFT		x		=	$	-
150742	Remove Roadside Sign	EA		x		=	$	-
152320	Reset Roadside Sign	EA		x		=	$	-
152390	Relocate Roadside Sign	EA		x		=	$	-
566011	Roadside Sign (One Post)	EA		x		=	$	-
566012	Roadside Sign (Two Post)	EA		x		=	$	-
560XXX	Furnish Sign Panels	SQFT		x		=	$	-
560XXX	Install Sign Panels	SQFT		x		=	$	-
82010X	Delineator (Class X)	EA		x		=	$	-
566XXX	Roadside Signs	LS	1	x	30,000.00	=	$	30,000
84XXXX	Permanent Pavement Delineation	LF	20,255	x	2.00	=	$	40,510

Subtotal Traffic Signing and Striping *$ 86,510*

6C - Stage Construction and Traffic Handling

Item code		Unit	Quantity		Unit Price ($)			Cost
120100	Traffic Control System	LS	1	x	325,000.00	=	$	325,000
120120	Type III Barricade	EA		x		=	$	-
120143	Temporary Pavement Delineation	LF		x		=	$	-
12016X	Channelizer	EA		x		=	$	-
128650	Portable Changeable Message Signs	EA		x		=	$	-
129000	Temporary Railing (Type K)	LF		x		=	$	-
129100	Temp. Crash Cushion Module	EA		x		=	$	-
129099A	Traffic Plastic Drum	EA		x		=	$	-
839603A	Temporary Crash Cushion (ADIEM)	EA		x		=	$	-
XXXXXX	Temporary Transit Service	LS	1	x	300,000.00	=	$	300,000
XXXXXX	Temporary Pedestrian Path	LS	1	x	250,000.00	=	$	250,000
XXXXXX	Some Item							

Subtotal Stage Construction and Traffic Handling *$ 875,000*

TOTAL TRAFFIC ITEMS **$ 1,712,800**

SECTION 7: DETOURS

Include constructing, maintaining, and removal

Item code		Unit	Quantity		Unit Price ($)		Cost
0713XX	Temporary Fence (Type X)	LF		x		= $	-
07XXXX	Temporary Drainage	LS		x		= $	-
120143	Temporary Pavement Delineation	LF		x		= $	-
1286XX	Temporary Signals	EA		x		= $	-
129000	Temporary Railing (Type K)	LF		x		= $	-
190101	Roadway Excavation	CY		x		= $	-
198001	Imported Borrow	CY		x		= $	-
198050	Embankment	CY		x		= $	-
250401	Class 4 Aggregate Subbase	CY		x		= $	-
260201	Class 2 Aggregate Base	CY		x		= $	-
390132	Hot Mix Asphalt (Type A)	TON		x		= $	-
XXXXXX	Some Item	LS		x		= $	-

TOTAL DETOURS $ -

SUBTOTAL SECTIONS 1-7 $ 5,679,800

SECTION 8: MINOR ITEMS

8A - Americans with Disabilities Act Items							
	ADA Items				0.0%	$	-
8B - Bike Path Items							
	Bike Path Items				0.0%	$	-
8C - Other Minor Items							
	Other Minor Items				0.0%	$	-
	Total of Section 1-7	$	5,679,800	x	0.0%	= $	-

TOTAL MINOR ITEMS $ -

SECTIONS 9: MOBILIZATION

Item code							
999990	Total Section 1-8	$	5,679,800	x	10%	= $	567,980

TOTAL MOBILIZATION $ 568,000

SECTION 10: SUPPLEMENTAL WORK

Item code		Unit	Quantity		Unit Price ($)		Cost
066015	Federal Trainee Program	LS		x		= $	-
066063	Traffic Management Plan - Public Informatic	LS		x		= $	-
066090	Maintain Traffic	LS		x		= $	-
066094	Value Analysis	LS		x		= $	-
066204	Remove Rock & Debris	LS		x		= $	-
066222	Locate Existing Cross-Over	LS		x		= $	-
066670	Payment Adjustments For Price Index Fluct	LS		x		= $	-
066700	Partnering	LS		x		= $	-
066866	Operation of Existing Traffic Management S	LS		x		= $	-
066920	Dispute Review Board	LS		x		= $	-
XXXXXX	Some Item			x		= $	-
	*Cost of **NPDES** Supplemental Work specified in Section 5C*					= $	-
	Total Section 1-8	$	5,679,800		10%	= $	567,980

TOTAL SUPPLEMENTAL WORK $ 568,000

SECTION 11: STATE FURNISHED MATERIALS AND EXPENSES

Item code		Unit	Quantity		Unit Price ($)		Cost
066063	Public Information	LS		x		=	$0
066105	RE Office	LS		x		=	$0
066803	Padlocks	LS		x		=	$0
066838	Reflective Numbers and Edge Sealer	LS		x		=	$0
066901	Water Expenses	LS		x		=	$0
066062A	COZEEP Expenses	LS		x		=	$0
06684X	Ramp Meter Controller Assembly	LS		x		=	$0
06684X	TMS Controller Assembly	LS		x		=	$0
06684X	Traffic Signal Controller Assembly	LS		x		=	$0
XXXXXX	Some Item						

Total Section 1-8	$	5,679,800	10%	= $	567,980

TOTAL STATE FURNISHED	**$568,000**

SECTION 12: TIME-RELATED OVERHEAD

Estiamted Time-Releated Overhead (TRO) Percentage (0% to 10%) = 5%

Item code		Unit	Quantity		Unit Price ($)		Cost
070018	Time-Related Overhead	WD	99	X	0	=	$0

TOTAL TIME-RELATED OVERHEAD	**$0**

SECTION 13: CONTINGENCY

(Pre-PSR 30%-50%, PSR 25%, Draft PR 20%, PR 15%, after PR approval 10%, Final PS&E 5%)

Total Section 1-11	$	7,383,800	x	25%	=	$1,845,950

TOTAL CONTINGENCY	**$1,846,000**

II. STRUCTURE ITEMS

	Bridge 1	Bridge 2	Bridge 3
DATE OF ESTIMATE	00/00/00	00/00/00	00/00/00
Bridge Name	NB/SB Bridge	Retaining Wall	Railroad Related Costs
Bridge Number	57-XXX	57-XXX	57-XXX
Structure Type	xxxxxxxxxxxxxxxxxxx	xxxxxxxxxxxxxxxxxxx	xxxxxxxxxxxxxxxxxxx
Width (Feet) [out to out]	0.00 LF	0.00 LF	0.00 LF
Total Bridge Length (Feet)	0.00 LF	0.00 LF	0.00 LF
Total Area (Square Feet)	0.00 SQFT	0.00 SQFT	0 SQFT
Structure Depth (Feet)	0.00 LF	0.00 LF	0.00 LF
Footing Type (pile or spread)	xxxxxxxxxxxxxxxxxxx	xxxxxxxxxxxxxxxxxxx	xxxxxxxxxxxxxxxxxxx
Cost Per Square Foot			$0.00
COST OF EACH STRUCTURE	**$26,503,000.00**	**$0.00**	**$518,000.00**

DATE OF ESTIMATE	00/00/00	00/00/00	00/00/00
Name	xxxxxxxxxxxxxxxxxxx	xxxxxxxxxxxxxxxxxxx	xxxxxxxxxxxxxxxxxxx
Bridge Number	57-XXX	57-XXX	57-XXX
Structure Type	xxxxxxxxxxxxxxxxxxx	xxxxxxxxxxxxxxxxxxx	xxxxxxxxxxxxxxxxxxx
Width (Feet) [out to out]	0.00 LF	0.00 LF	0.00 LF
Total Length (Feet)	0.00 LF	0.00 LF	0.00 LF
Total Area (Square Feet)	0 SQFT	0.00 SQFT	0.0 SQFT
Structure Depth (Feet)	0.00 LF	0.00 LF	0.00 LF
Footing Type (pile or spread)	xxxxxxxxxxxxxxxxxxx	xxxxxxxxxxxxxxxxxxx	xxxxxxxxxxxxxxxxxxx
Cost Per Square Foot	$0.00	$0.00	$0.00
COST OF EACH STRUCTURE	**$0.00**	**$0.00**	**$0.00**

TOTAL COST OF BRIDGES	**$27,021,000.00**
TOTAL COST OF BUILDINGS	**$0.00**
TOTAL COST OF STRUCTURES[1]	**$27,021,000.00**

Estimate Prepared By: _____ _____
XXXXXXXXXXXXXXXX ------ Division of Structures Date

[1]Structure's Estimate includes Overhead and Mobilization.
Add more sheets if needed. Call them 9a, 9b, 9c, …, etc

DO NOT PRINT THIS SHEET AS PART OF COST ESTIMATE ATTACHMENT TO PROJECT INITIATION OR APPROVAL DOCUMENTS.

III. RIGHT OF WAY

Fill in all of the available information from the Right of Way data sheet.

A)	A1)	Acquisition, including Excess Land Purchases, Damages & Goodwill,		$	6,941,000
	A2)	SB-1210		$	0
B)	Acquisition of Offsite Mitigation			$	0
C)	C1)	Utility Relocation (State Share)		$	700,000
	C2)	Potholing (Design Phase)		$	0
D)	Railroad Acquisition			$	0
E)	Clearance / Demolition			$	0
F)	Relocation Assistance (RAP and/or Last Resort Housing Costs)			$	0
G)	Title and Escrow			$	0
H)	Environmental Review			$	0
I)	Condemnation Settlements (Items G & H applied to items A + B)		0%	$	0
J)	Design Appreciation Factor		0%	$	0
K)	Utility Relocation (Construction Cost)			$	0

L) **TOTAL RIGHT OF WAY ESTIMATE** **$7,641,000**

(Excluding Item #8 - Hazardous Waste)

M) **TOTAL R/W ESTIMATE: Escalated** **$8,228,033**

N) **Right of Way Support $ 0**

Support Cost Estimate Prepared By _____ Project Coordinator[1] _____ Phone

Utility Estimate Prepared By _____ Utiliy Coordinator[2] _____ Phone

R/W Acquistion Estimate Prepared By _____ Right of Way Estimator[3] _____ Phone

[1] When estimate has Support Costs only [2] When estimate has Utility Relocation [3] When R/W Acquisition is required

DO NOT PRINT THIS SHEET AS PART OF COST ESTIMATE ATTACHMENT TO PROJECT INITIATION OR APPROVAL DOCUMENTS.

IV. SUPPORT COST ESTIMATE SUMMARY

Please obtain a P3 report (CL#3) from PPM to fill in the support cost for these categories.

SB-45 CATEGORY SUPPORT COST	PREVIOUS	FY 10/11	FY 11/12	FY 12/13	FY 13/14	FY 14/15	FY 15/16	FY 16/17	FY 17/18	FUTURE	P3 Total	Support Ratio
PR/ED (PD,PE,PM)											$ -	0.00%
PS&E (PS)											$ -	0.00%
R/W (RW)											$ -	0.00%
CONSTRUCTION (CM)											$ -	0.00%
Total Support Cost:	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -		**$ -**	0.00%

Note: It is assumed that the Support Costs are already escalated by Programming to the year of expenditure. Use project Programming Sheet data.

Total Capital Cost:	**$43,892,000**
Total Capital Outlay Support Cost:	**$0**
Overall Percent Support Cost:	**0.00%**

V. ESCALATED CONSTRUCTION COST ESTIMATE SUMMARY

Note: Right of way escalated cost are accounted for on sheet 10 of 11.

	Month	/	Year
Date of Estimate (Month/Year)	0	/	0
Estimated Date of Construction Start (Month/Year)	0	/	0
Number of Working Days	99	WD	
Estimated Mid-Point of Construction (Month/Year)	0	/	0

YEAR	0	1	2	3	4	5	6	7	8	9	FUTURE
FORECASTED ESCALATION RATE*	1.0%	1.0%	1.0%								

ESCALATED CONSTRUCTION COSTS	0	1	2	3	4	5	6	7	8	9	FUTURE	TOTAL ESCALATED COSTS
ROADWAY ITEMS	$ 9,322,098	$ 9,415,319	$ 9,509,472	$ 9,509,472	$ 9,509,472	$ 9,509,472	$ 9,509,472	$ 9,509,472	$ 9,509,472	$ 9,509,472	$ 9,509,472	$ 9,509,472
STRUCTURE ITEMS	$ 27,291,210	$ 27,564,122	$ 27,839,763	$ 27,839,763	$ 27,839,763	$ 27,839,763	$ 27,839,763	$ 27,839,763	$ 27,839,763	$ 27,839,763	$ 27,839,763	$ 27,839,763
SUBTOTAL	$ 36,613,308	$ 36,979,441	$ 37,349,235	$ 37,349,235	$ 37,349,235	$ 37,349,235	$ 37,349,235	$ 37,349,235	$ 37,349,235	$ 37,349,235	$ 37,349,235	**$ 37,349,235**

Dave Leamon Date Phone

Approved by: _____
Project Control Engineer

_____
Date

Measure	Metric	Project Type	Build	Future No Build	Change	Increase or Decrease
Congestion Reduction	Change in Daily Vehicle Miles Travelled	Local Road	30,404	20,861	9,543	Increase
		Hwy Road Transit				
	Person Hours of Travel Time Saved	Local Road	10,465,400	33,692,274	-23,226,874	Decrease
		Hwy Road Transit				
Throughput	Bicyclist and Pedestrian Screen Line Counts (Optional)	Active Transportation				
System Reliability	Peak Period Travel Time Reliability Index	Hwy Road				
	Level of Transit Delay	Transit				
Safety	Number of Fatalities	All	0.073	0.2	-0.127	Decrease
	Number of Serious Injuries	All	5.5	13.2	-7.7	Decrease
	Rate of Fatalities	All	0.8	3.1	-2.3	Decrease
	Rate of Serious Injuries	All	51	205	-154	Decrease
Economic Development	Jobs Created	All	1574	0	1574	Increase
Air Quality	Particulate Matter (PM 2.5 PM 10)	All			0	No Change
					0	No Change
	Carbon Dioxide (CO_2)	All			13,129	Increase
	Volatile Organic Compounds (VOC)	All			14	Increase
	Sulphur Oxides (SO_x)	All			0	No Change
	Carbon Monoxide (CO)	All			210	Increase
	Nitrogen Oxides (NO_x)	All			19	Increase
Cost Effectiveness	Benefit Cost Ratio	All	2.66	0	2.66	Increase
Accessibility	Number of Jobs Accessible by Mode	All	148,462	70,508	77,954	Increase
	Access to Key Destinations by Mode	All	540	224	316	Increase
	Percent of Population Defined as Low Income or Disadvantaged within ½ mile of rail station, ferry terminal, or high-frequency bus stop	All		9.6		
System Preservation	Pavement Condition Index	Local Road Hwy Road	100	69		Increase
(*Pavement and Bridge Rehabilitation only*)	Bridge Condition Rating for Bridge Deck, Superstructure, Substructure	Local Road Hwy Road	Bridge Deck - 9 Superstructure - 9 Substructure - 9	Bridge Deck - 6 Superstructure - 5 Substructure - 5		Increase
Noise Level	Number of Receptors	Sound walls				
Sound walls only	Properties Directly Benefited	Sound walls				
(For reporting only)	Number of Decibels	Sound walls				

Required Back-Up Information

Please fill out this information, using this template if desired, for each metric. Even if this template is not used, this back-up information is required for all required metrics.

Metric Name:	*Daily Vehicle Miles Travelled*
Source Data:	*List source(s) of information used in calculations* Cal B/C Corridor model

Base Numbers & Calculation for "No Build" Estimate

Include the starting numbers used, and the calculation used to develop the "No Build" number. If "No Build" is not required for metric, put "N/A" for "Not Applicable."

- Model Inputs tab cell W29: 20,861

Base Numbers, Trends or Assumptions, and Calculation for "Build" Number

Include the starting numbers used, and the calculation used to develop the "No Build" number. Include any trends or assumptions used. Explain how the impact of the "Build" number was estimated. If "Build" is not required for metric, put "N/A" for "Not Applicable."

- Model Inputs tab cell W35: 30,404

Change

Include the subtraction used to get to the change number here.

30,404 (2047 Build VMT) minus 20,861 (2047 No Build VMT) = 9,543 (increase in VMT)

Required Back-Up Information

Please fill out this information, using this template if desired, for each metric. Even if this template is not used, this back-up information is required for all required metrics.

Metric Name:	Person Hours of Travel Time Saved
Source Data:	*List source(s) of information used in calculations* SAGS Traffic Methodology Memo

Base Numbers & Calculation for "No Build" Estimate

Include the starting numbers used, and the calculation used to develop the "No Build" number. If "No Build" is not required for metric, put "N/A" for "Not Applicable."

- Travel Time tab cell N108: Total Per-Hrs (No Build): 33,954,417 (per-hours/yr)

Base Numbers, Trends or Assumptions, and Calculation for "Build" Number

Include the starting numbers used, and the calculation used to develop the "No Build" number. Include any trends or assumptions used. Explain how the impact of the "Build" number was estimated. If "Build" is not required for metric, put "N/A" for "Not Applicable."

- Travel Time tab cell O108: Total Per-Hrs (Build): 10,552,057 (per-hours/yr)

Change

Include the subtraction used to get to the change number here.

Person Hours of Travel Time Saved = -23,402,360 (per-hours/yr saved)

Required Back-Up Information

Please fill out this information, using this template if desired, for each metric. Even if this template is not used, this back-up information is required for all required metrics.

Metric Name:	*Number of Fatalities*
Source Data:	*List source(s) of information used in calculations* BCA Calculations; TIMS Crashes

Base Numbers & Calculation for "No Build" Estimate

Include the starting numbers used, and the calculation used to develop the "No Build" number. If "No Build" is not required for metric, put "N/A" for "Not Applicable."

- 0 fatal collision 2019
- 0 fatal collision 2010
- 1 fatal collision 2021
- 0 fatal collision 2022
- 0 fatal collision 2023

(0 plus 0 plus 1 plus 0 plus 0) divided by 5 = 0.2 fatalities

Base Numbers, Trends or Assumptions, and Calculation for "Build" Number

Include the starting numbers used, and the calculation used to develop the "No Build" number. Include any trends or assumptions used. Explain how the impact of the "Build" number was estimated. If "Build" is not required for metric, put "N/A" for "Not Applicable."

- 2) Model Inputs tab cell BE39: Number of Fatal Crashes Build = 0.0002 (fatal crashes per day)
- 0.0002 (fatal crashes per day) multiply by 365 (days per year) = 0.073 (fatalities per year)

Change

Include the subtraction used to get to the change number here.

0.073 (Build) minus 0.20 (No Build) = -0.127 (change in fatalities)

Required Back-Up Information

Please fill out this information, using this template if desired, for each metric. Even if this template is not used, this back-up information is required for all required metrics.

Metric Name:	*Number of Serious Injuries*
Source Data:	*List source(s) of information used in calculations* BCA Calculations

Base Numbers & Calculation for "No Build" Estimate

Include the starting numbers used, and the calculation used to develop the "No Build" number. If "No Build" is not required for metric, put "N/A" for "Not Applicable."

- 21 serious injury crashes 2019
- 16 serious injury crashes 2020
- 17 serious injury crashes 2021
- 19 serious injury crashes 2022
- 29 serious injury crashes 2023

- (21 plus 16 plus 17 plus 19 plus 29 plus) divided by 5 = 13.2 serious injury crash

Base Numbers, Trends or Assumptions, and Calculation for "Build" Number

Include the starting numbers used, and the calculation used to develop the "No Build" number. Include any trends or assumptions used. Explain how the impact of the "Build" number was estimated. If "Build" is not required for metric, put "N/A" for "Not Applicable."

- Model 1) Model Inputs tab cell BF39: Number of Injury Crashes Build = 0.0156 (serious injury crashes per day)

- 0.0156 (serious injury crashes per day) multiply by 365 (days per year) = 5.7 (serious injuries per year)

Change

Include the subtraction used to get to the change number here.

5.7 (Build) minus 13.2 (No Build) = -7.5 (reduction in serious injuries)

Required Back-Up Information

Please fill out this information, using this template if desired, for each metric. Even if this template is not used, this back-up information is required for all required metrics.

Metric Name:	*Number of Fatalities per 100 Million VMT*
Source Data:	*List source(s) of information used in calculations* BCA Calculations; TIMS Crashes

Base Numbers & Calculation for "No Build" Estimate

Include the starting numbers used, and the calculation used to develop the "No Build" number. If "No Build" is not required for metric, put "N/A" for "Not Applicable."

- 2) Model Inputs tab cell BB29: Fatal Crashes No Build = 0.031 (fatal crash rate per MVM)
- 0.031 = 0.031 (fatalities per Million VMT)
- 0.031 multiply by 100 (VMT) = 3.1 (fatalities per 100 Million VMT)

Base Numbers, Trends or Assumptions, and Calculation for "Build" Number

Include the starting numbers used, and the calculation used to develop the "No Build" number. Include any trends or assumptions used. Explain how the impact of the "Build" number was estimated. If "Build" is not required for metric, put "N/A" for "Not Applicable."

- 2) Model Inputs tab cell BB46: Fatal Crashes Build = 0.008 (fatal crash rate per MVM)
- 0.008 = 0.008 (fatalities per Million VMT)
- 0.008 multiply by 100 (VMT) = 0.8 (fatalities per 100 Million VMT)

Change

Include the subtraction used to get to the change number here.

0.8 (Build) minus 3.1 (No Build) = -2.3 (change in fatalities per 100 Million VMT)

Required Back-Up Information

Please fill out this information, using this template if desired, for each metric. Even if this template is not used, this back-up information is required for all required metrics.

Metric Name:	*Number of Serious Injuries per 100 Million VMT*
Source Data:	*List source(s) of information used in calculations* BCA Calculations; TIMS Crashes; Crash Rate Calcs

Base Numbers & Calculation for "No Build" Estimate

Include the starting numbers used, and the calculation used to develop the "No Build" number. If "No Build" is not required for metric, put "N/A" for "Not Applicable."

- 2) Model Inputs tab cell BC33: Injury Crashes No Build = 2.05 (serious injury crash rate per MVM)
- 2.05 = 2.05 (serious injuries per Million VMT)
- 2.05 multiply by 100 (VMT) = 205 (serious injuries per 100 Million VMT)

Base Numbers, Trends or Assumptions, and Calculation for "Build" Number

Include the starting numbers used, and the calculation used to develop the "No Build" number. Include any trends or assumptions used. Explain how the impact of the "Build" number was estimated. If "Build" is not required for metric, put "N/A" for "Not Applicable."

- 2) Model Inputs tab cell BC43: Injury Crashes Build = 0.51 (serious injury crash rate per MVM)
- 0.51= 0.51 (serious injuries per Million VMT)
- 0.51 multiply by 100 (VMT) = 51 (serious injuries per 100 Million VMT)

Change

Include the subtraction used to get to the change number here.

51 (Build) minus 205 (No Build) = -154 (reduction in serious injuries per 100 Million VMT))

Required Back-Up Information

Please fill out this information, using this template if desired, for each metric. Even if this template is not used, this back-up information is required for all required metrics.

Metric Name:	*Jobs Created*
Source Data:	*List source(s) of information used in calculations* BCA Calculations

Base Numbers & Calculation for "No Build" Estimate

Include the starting numbers used, and the calculation used to develop the "No Build" number. If "No Build" is not required for metric, put "N/A" for "Not Applicable."

Base Numbers, Trends or Assumptions, and Calculation for "Build" Number

Include the starting numbers used, and the calculation used to develop the "No Build" number. Include any trends or assumptions used. Explain how the impact of the "Build" number was estimated. If "Build" is not required for metric, put "N/A" for "Not Applicable."

- 1) BC Sum tab Cell R58: TOTAL COSTS (in dollars), Present Value: $121,100,243 = Project Cost
- $1 billion dollars = 13,000 jobs (FHWA Employment Impacts of Highway Infrastructure Investment)
- 13,000 (jobs) dived by $1,000,000,000 = 0.000013 (jobs per $1)
- $121,100,243 *(Project Cost) multiply by 0.000013 (jobs per $1) = 1,574 (jobs)*

Change

Include the subtraction used to get to the change number here.

Required Back-Up Information

Please fill out this information, using this template if desired, for each metric. Even if this template is not used, this back-up information is required for all required metrics.

Metric Name:	*Benefit / Cost Ratio*
Source Data:	*List source(s) of information used in calculations* Cal B/C Sketch model

Base Numbers & Calculation for "No Build" Estimate

Include the starting numbers used, and the calculation used to develop the "No Build" number. If "No Build" is not required for metric, put "N/A" for "Not Applicable."

Base Numbers, Trends or Assumptions, and Calculation for "Build" Number

Include the starting numbers used, and the calculation used to develop the "No Build" number. Include any trends or assumptions used. Explain how the impact of the "Build" number was estimated. If "Build" is not required for metric, put "N/A" for "Not Applicable."

- 3) Results tab cell H13: Life-Cycle Costs (mil. $): $119.1
- 3) Results tab cell H14: Life-Cycle Benefits (mil. $): $316.5

Change

Include the subtraction used to get to the change number here.

$316.5 (Life-Cycle Benefits) divide by $119.1 (Life-Cycle Costs) = 2.66 *(Cost Benefit Ratio)*

Required Back-Up Information

Please fill out this information, using this template if desired, for each metric. Even if this template is not used, this back-up information is required for all required metrics.

Metric Name:	*Air Quality; Air Quality Particulate Matter (PM 10)*
Source Data:	*List source(s) of information used in calculations* Emission Calcs

Base Numbers & Calculation for "No Build" Estimate

Include the starting numbers used, and the calculation used to develop the "No Build" number. If "No Build" is not required for metric, put "N/A" for "Not Applicable."

- Emissions Results Table tab cell F13: PM 10 Emissions (No Build) Saved: 0.66

Base Numbers, Trends or Assumptions, and Calculation for "Build" Number

Include the starting numbers used, and the calculation used to develop the "No Build" number. Include any trends or assumptions used. Explain how the impact of the "Build" number was estimated. If "Build" is not required for metric, put "N/A" for "Not Applicable."

- Emissions Results Table tab cell G13: PM 10 Emissions (Build) Saved: 0.60

Change

Include the subtraction used to get to the change number here.

0.60 (build) minus 0.66 (no build) = -0.06 (decrease in PM 10 Emissions)

Required Back-Up Information

Please fill out this information, using this template if desired, for each metric. Even if this template is not used, this back-up information is required for all required metrics.

Metric Name:	*Air Quality; Air Quality Particulate Matter (PM 2.5)*
Source Data:	*List source(s) of information used in calculations* Emission Calcs

Base Numbers & Calculation for "No Build" Estimate

Include the starting numbers used, and the calculation used to develop the "No Build" number. If "No Build" is not required for metric, put "N/A" for "Not Applicable."

- Emissions Results Table tab cell F16: PM 2.5 Emissions (No Build) Saved: 0.62

Base Numbers, Trends or Assumptions, and Calculation for "Build" Number

Include the starting numbers used, and the calculation used to develop the "No Build" number. Include any trends or assumptions used. Explain how the impact of the "Build" number was estimated. If "Build" is not required for metric, put "N/A" for "Not Applicable."

- Emissions Results Table tab cell G16: PM 2.5 Emissions (Build) Saved: 0.56

Change

Include the subtraction used to get to the change number here.

0.56 (build) minus 0.62 (no build) = -0.06 (decrease in PM 2.5 Emissions)

Required Back-Up Information

Please fill out this information, using this template if desired, for each metric. Even if this template is not used, this back-up information is required for all required metrics.

Metric Name:	*Air Quality; Carbon Dioxide (CO2)*
Source Data:	*List source(s) of information used in calculations* Cal B/C Sketch model – Emission Calcs

Base Numbers & Calculation for "No Build" Estimate

Include the starting numbers used, and the calculation used to develop the "No Build" number. If "No Build" is not required for metric, put "N/A" for "Not Applicable."

- Emissions Results Table tab cell F11: CO2 Emissions (No Build): 69,437

Base Numbers, Trends or Assumptions, and Calculation for "Build" Number

Include the starting numbers used, and the calculation used to develop the "No Build" number. Include any trends or assumptions used. Explain how the impact of the "Build" number was estimated. If "Build" is not required for metric, put "N/A" for "Not Applicable."

- Emissions Results Table tab cell G11: CO2 Emissions (Build): 82,566

Change

Include the subtraction used to get to the change number here.

82,566 (build) minus 69,437 (no build) = 13,129 (increase in CO2 Emission)

Required Back-Up Information

Please fill out this information, using this template if desired, for each metric. Even if this template is not used, this back-up information is required for all required metrics.

Metric Name:	*Air Quality; Air Quality Sulphur Oxides (SOx)*
Source Data:	*List source(s) of information used in calculations* Emission Calcs

Base Numbers & Calculation for "No Build" Estimate

Include the starting numbers used, and the calculation used to develop the "No Build" number. If "No Build" is not required for metric, put "N/A" for "Not Applicable."

- Emissions Results Table tab cell F14: SOx Emissions (No Build) Saved: 0.69

Base Numbers, Trends or Assumptions, and Calculation for "Build" Number

Include the starting numbers used, and the calculation used to develop the "No Build" number. Include any trends or assumptions used. Explain how the impact of the "Build" number was estimated. If "Build" is not required for metric, put "N/A" for "Not Applicable."

- Emissions Results Table tab cell G14: SOx Emissions (Build) Saved: 0.82

Change

Include the subtraction used to get to the change number here.

0.82 (build) minus 0.69 (no build) = 0.13 (increase in SOx Emissions)

Required Back-Up Information

Please fill out this information, using this template if desired, for each metric. Even if this template is not used, this back-up information is required for all required metrics.

Metric Name:	*Air Quality; Carbon Dioxide (CO)*
Source Data:	*List source(s) of information used in calculations* Cal B/C Sketch model

Base Numbers & Calculation for "No Build" Estimate

Include the starting numbers used, and the calculation used to develop the "No Build" number. If "No Build" is not required for metric, put "N/A" for "Not Applicable."

- Emissions Results Table tab cell F10: CO Emissions (No Build) Saved: 409

Base Numbers, Trends or Assumptions, and Calculation for "Build" Number

Include the starting numbers used, and the calculation used to develop the "No Build" number. Include any trends or assumptions used. Explain how the impact of the "Build" number was estimated. If "Build" is not required for metric, put "N/A" for "Not Applicable."

- Emissions Results Table tab cell G10: CO Emissions (Build) Saved: 619

Change

Include the subtraction used to get to the change number here.

619 (build) minus 409 (no build) = 210 (increase in CO Emission)

Required Back-Up Information

Please fill out this information, using this template if desired, for each metric. Even if this template is not used, this back-up information is required for all required metrics.

Metric Name:	*Air Quality; Air Quality Nitrogen Oxides (NOx))*
Source Data:	*List source(s) of information used in calculations* Emission Calcs

Base Numbers & Calculation for "No Build" Estimate

Include the starting numbers used, and the calculation used to develop the "No Build" number. If "No Build" is not required for metric, put "N/A" for "Not Applicable."

- Emissions Results Table tab cell F12: NOx Emissions (No Build) Saved: 37.7

Base Numbers, Trends or Assumptions, and Calculation for "Build" Number

Include the starting numbers used, and the calculation used to develop the "No Build" number. Include any trends or assumptions used. Explain how the impact of the "Build" number was estimated. If "Build" is not required for metric, put "N/A" for "Not Applicable."

- Emissions Results Table tab cell G12: NOx Emissions (Build) Saved: 56.9

Change

Include the subtraction used to get to the change number here.

56.9 (build) minus 37.7 (no build) = 19 (increase in NOx Emissions)

State Transportation Improvement Program

Stanislaus County
Document Year 2024, Version Number 1
PPNO: 3699
(Dollars in Thousands)

DIST:	PPNO:	EA:	CTIPS ID:	TCRP NO.:
10	3699		114-0000-0242	

CT PROJECT ID:

COUNTY: Stanislaus County | ROUTE: | PM:

TITLE (DESCRIPTION): Seventh Street Bridge Replacement Project (In Stanislaus County and Modesto, on Seventh Street, from Tuolumne Boulevard/B Street and Crows Landing Road: Replace structurally deficient and functionally obsolete bridge with a 1,238-foot long 8-span arched concrete box girder bridge that is raised to meet current hydraulic design requirements. Project provides Class II bike lanes in each direction, a separated multi-use path on the west side of the bridge and a standard sidewalk on the east side, and improves the adjacent intersections.)

ELEMENT: Local Assistance | MPO ID: 14 | LAW: 25

SPONSOR: Stanislaus Council of Governments

MPO: Stanislaus Council of Governments

CORRIDOR:

PRJ MGR: Dave Leamon

PHONE: (209) 525-4130

EMAIL: leamond@stancounty.com

ASSEMBLY: 22
SENATE: 4
CONGRESS: 13

IMPLEMENTING AGENCIES:

PAED Stanislaus County
PSE Stanislaus County
RW Stanislaus County
CON Stanislaus County

Categories	Outputs/Outcomes	Unit	Total
Active Transportation	Bicycle lane mile(s)	Miles	1.86
Bridge/Tunnel	New bridge(s)/tunnel(s)	SQFT	97802
Operational Improvements	Intersection/Signal improvement(s)	Each	2
Active Transportation	Sidewalk mile(s)	Miles	1.03

PROJECT VERSION HISTORY *(Printed Version is Shaded)* (Last 9 versions displayed)

Programmed Dollars in Thousands - Total for Project

Version	Status	Date	Updated By	Change Reason	Amend No.	Vote	Cum Award	Prog Con	Prog RW	PA & ED	PS & E	RW Sup	Con Sup
1	Official	06/27/2025	CPARTOVI	Adoption - New Project	G-25-43			113,530	8,277	3,816	8,919		

Fund Source 1 of 5 Local HBRR

Extension

VOTE DATE AMOUNT

LOCAL HBRR - Local FHWA - HBRR

Fund Type
Highway Bridge Program

Funding Agency
Caltrans

	PRIOR	24-25	25-26	26-27	27-28	28-29	29-30	FUTURE	TOTAL
PA&ED	3,342								3,342
PS&E	6,471								6,471
R/W SUP									
CON SUP									
R/W	5,106								5,106
CON			75,861						75,861
Total:	14,919		75,861						90,780

Fund Source 2 of 5 CMAQ

Extension

VOTE DATE AMOUNT

20.30.010.820 - Congestion Mitigation & Air Quality Improvement Program

Fund Type
Congestion Mitigation

Funding Agency
Caltrans

	PRIOR	24-25	25-26	26-27	27-28	28-29	29-30	FUTURE	TOTAL
PA&ED									
PS&E	1,200								1,200
R/W SUP									
CON SUP									
R/W	400								400
CON									
Total:	1,600								1,600

State Transportation Improvement Program

Stanislaus County
Document Year 2024, Version Number 1
PPNO: 3699
(Dollars in Thousands)

Fund Source 3 of 5 State SB1 LPP

Extension

VOTE	DATE	AMOUNT

20.30.210.210 - Local Partnership Program (LPP - Competitive)
Fund Type
Local Partnership Program - Competitive program
Funding Agency
Stanislaus County

	PRIOR	24-25	25-26	26-27	27-28	28-29	29-30	FUTURE	TOTAL
PA&ED									
PS&E									
R/W SUP									
CON SUP									
R/W									
CON			15,000						15,000
Total:			15,000						15,000

Fund Source 4 of 5 Local Funds

Extension

VOTE	DATE	AMOUNT

20.10.400.100 - Locally Generated Funds
Fund Type
County Funds
Funding Agency
Stanislaus County

	PRIOR	24-25	25-26	26-27	27-28	28-29	29-30	FUTURE	TOTAL
PA&ED	237								237
PS&E	624								624
R/W SUP									
CON SUP									
R/W	294								294
CON			10,257						10,257
Total:	1,155		10,257						11,412

Fund Source 5 of 5 Local Funds

Extension

VOTE	DATE	AMOUNT

20.10.400.100 - Locally Generated Funds
Fund Type
City Funds
Funding Agency
Modesto, City of

	PRIOR	24-25	25-26	26-27	27-28	28-29	29-30	FUTURE	TOTAL
PA&ED	237								237
PS&E	624								624
R/W SUP									
CON SUP									
R/W	2,477								2,477
CON			12,412						12,412
Total:	3,338		12,412						15,750

Project Total:

VOTE	TOTAL AMOUNT
PAED	
PSE	
RW	
CON	
R/W SUP	
CON SUP	

	PRIOR	24-25	25-26	26-27	27-28	28-29	29-30	FUTURE	TOTAL
PA&ED	3,816								3,816
PS&E	8,919								8,919
R/W SUP									
CON SUP									
R/W	8,277								8,277
CON			113,530						113,530
Total:	21,012		113,530						134,542

HQ Comments:
******** VERSION 1 - 08/20/2025 ********
CTC Approved Program Adoption ; Programming $15,000K CON FY 25/26 LPP-C Cycle 4 Funds; June 2025 Resolution G-25-43 - SB

https://catc.ca.gov/-/media/ctc-media/documents/ctc-meetings/2025/2025-06/22-4-7-a11y.pdf

******** RTIP Version 1 - 08/20/2025 ********