SHOPP Asset Management Pilot Request Form

SHOPPCPR: Ver 3 11/14

Submittal Date: 08/14/2015

Caltrans

Division of Transportation Programming
State Highway Operation and Protection Program (SHOPP)

Project Manager: Clint Burkenpas

Phone: (530) 225-2455

Dist	County	Route	Prefix	PM	Prefix	PM	EA	PPNO	Project ID
02	Tehama	36	R	40.3	R	41.2	0H830	3598	02-1500-0084

☐ Includes Multiple Locations (Complete Page 2 of this Form)

MPO: Non-MPO

Project Location/Description (Include the nearest city, town or landmark)

In Tehama County in and near Red Bluff from 0.5 mile east of Baker Road to 0.1 mile east of Main Street.

Need for project and proposed improvements (Elaborate using PID language)

Need: The existing alignment is functionally obsolete. 1) Pavement triggers for rehab, 2) No paved shoulders, 3) frequent sharp curves and dips in the profile, 4) Roadway subject to annual flooding, 5) Existing skewed at-grade railroad crossing, and 6) Lacks CMS facing westbound traffic.

Proposed improvements: 1) Reconstruct roadway on new alignment immediately adjacent to the existing highway. 2) replace existing railroad crossing, 3) add westbound left turn lane at Monroe Avenue intersection, and 4) add CMS.

Note: Due to the extensive impacts to several Oak trees and acquiring the necessary R/W for the project, the project cannot be completed in a normal 4 year SHOPP Cycle. Dates shown below assume a project start date of 01/01/017.

PA&ED / M200	10/22/2019	R/W Cert / M410	11/29/2021	CCA / M600	12/30/2024
PS&E / M380	11/29/2021	RTL / M460	01/03/2022	END Project / M800	06/28/2032

Capital ($1,000)
(Escalated to FY of Programming)

	FY	Cost
R/W	2021/22	$1,600
Construction	2021/22	$7,637
	Total Capital	$9,237

Support ($1,000)

	FY	Cost
PA & ED	2016/17	$890
PS & E	2021/22	$1,150
R/W	2021/22	$450
Construction	2021/22	$1,060
	Total Support	$3,550

Legislative District Numbers
(Separate multiple Districts with a comma)

State Assembly	03
State Senate	01
Congressional	04

☐ Approved ☐ Denied

CAPITAL CONSTRUCTION COST ESCALATION RATE: 3.5%

District SFP (Print)	Phil Baker	District SFP (Sign)	Phil Baker	Phone	530-225-3191
District Director (Print)	Dave Moore	District Director (Sign)	Dave Moore	Phone	530-225-3477
SHOPP Exec. (Print)		SHOPP Exec. (Sign)		Phone	

SHOPP Long Lead Request Form Attachment

02 - Tehama - 36

EA: 0H830 PPNO: 3598

EFIS: 02-1500-0084

Multiple Locations Listing

Location	Perf Measure #	Performance Measure	County	Route	Prefix	PM	Prefix	PM	Bridge Number If Applicable
1	48	Collisions Reduced							.010 Prog
2	1.8	Lane Miles							.120 Prog
3	8	Drainage Systems							.151 Prog
4	2	Signs							.170 Prog
5	1	1.000 Vehicle Hours							.310 Prog
6	1	Field Elements							.315 Prog
7	2	Location(s)							.325 Prog
8									
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2018 Asset Management Pilot Nomination

North Red Bluff New Alignment

EA 02-0H830
EFIS ID 02-1500-0084
PPNO 3598
02-TEH-36-PM-R40.3/R41.2

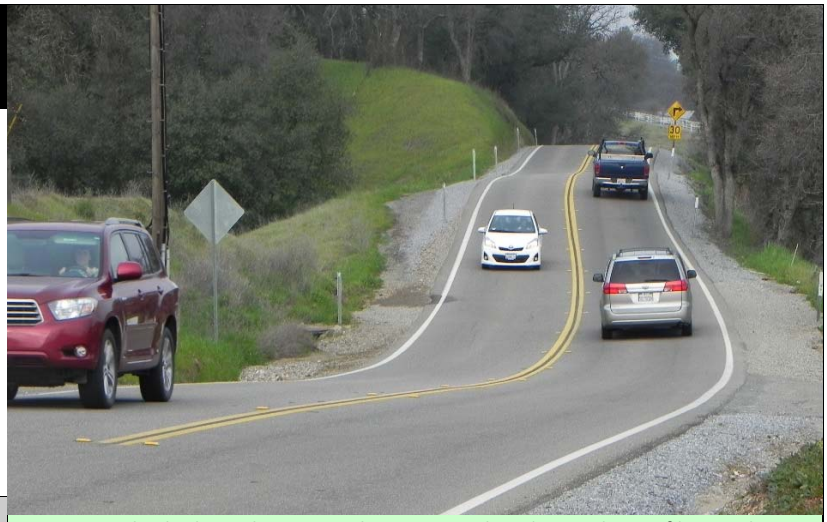


Figure 1 – This highway has many sharp curves, has dips in the profile, is subject to annual flooding, has no paved shoulders, and has limited CRZ. The new alignment will improve safety, operations, and will be efficient to maintain.

1. INTRODUCTION

This pilot project proposes the use of asset management principles to address the overall transportation needs of SR-36 in Red Bluff, Tehama County, in District 2. This summary will quantify the safety, stewardship, rehabilitation needs, sustainability, and innovation proposed with this new alignment project that is currently being developed in a PSR-PDS.

Capital Outlay Construction Estimate:	Current (2015): $5.0 to $7.5 million	Escalated @ 3.5% to 2022: $6.4 to $9.5 million
Capital Outlay Right of Way Estimate:	Current (2015): $1.1 to $1.5 million	Escalated @ 5.0% to 2022: $1.4 to $2.0 million
Goal 1 - Safety and Health:	• Reduce total collision rate by 70%. • Add 1.8 mi of paved shoulders for safety & increased bike and ped activity. • Eliminate worker exposure associated with annual flooding maintenance. • Relocate poles, remove trees, & redesign side slopes for better vehicle recovery.	
Goal 2 - Stewardship and Efficiency:	• 1.8 lane miles of new pavement • 8 culverts replaced • 1 left turn lane added • 1 ITS element added	• 3 private driveways eliminated • 1 railroad crossing upgraded • 1.8 lane miles new shoulders • 0.9 miles kingpin restriction elim.
Goal 3 - Sustainability, Livability, and Economy:	• 17 yes answers on SHOPP Sustainability Worksheet • Reduce GHG during const. w/ local borrow adjacent to project R/W with contour grading and natural vegetation • Old roadbed structural section stockpiled for use by maintenance forces	
Goal 4 - System Performance:	• Modern facility and roadside are maintenance friendly. • Scope meets design concept identified in the 2012 TCR. • New CMS will notify WB motorists of closures in the mountains due to weather and other natural occurrences.	
Goal 5 – Organizational Excellence:	• "Daylighted" structural section for improved drainage/pavement life • Morale booster – doing the "right thing" - good for employees, our local partners, and the public • Reclaimed water used for const. and to establish mitigation trees in R/W	
Project Limits:	02-TEH-36-PM-R40.3/R41.2	
Legal Description:	In Tehama County in and near Red Bluff from 0.5 mile east of Baker Road to 0.1 mile east of Main Street.	

2. BACKGROUND

This 2-lane, 0.9-mile segment of SR-36 is the last stretch of highway with no shoulders and poor alignment in the 5 miles heading into Red Bluff from the west and is considered functionally obsolete. The route, also known as Beegum Road, has many dips in the profile, sharp curves, and no paved shoulders.

Route designations include:

- National Highway System - Class 2
- Caltrans Maintenance Service Level - 3

The pavement conditions from the 2009 Pavement Condition Survey Inventory triggers for a rehabilitation project based on the following:

- Alligator B cracking - 31% to 61%
- Patching – 40%
- IRI – over 200

Caltrans, together with the City of Red Bluff and Tehama County, developed the North Red Bluff new alignment project to address the many deficiencies along the route. A Project Study Report – Project Development Support (PSR-PDS) project initiation document was initiated in the spring on 2015.

A new alignment was selected over upgrading the existing facility for the following reasons:

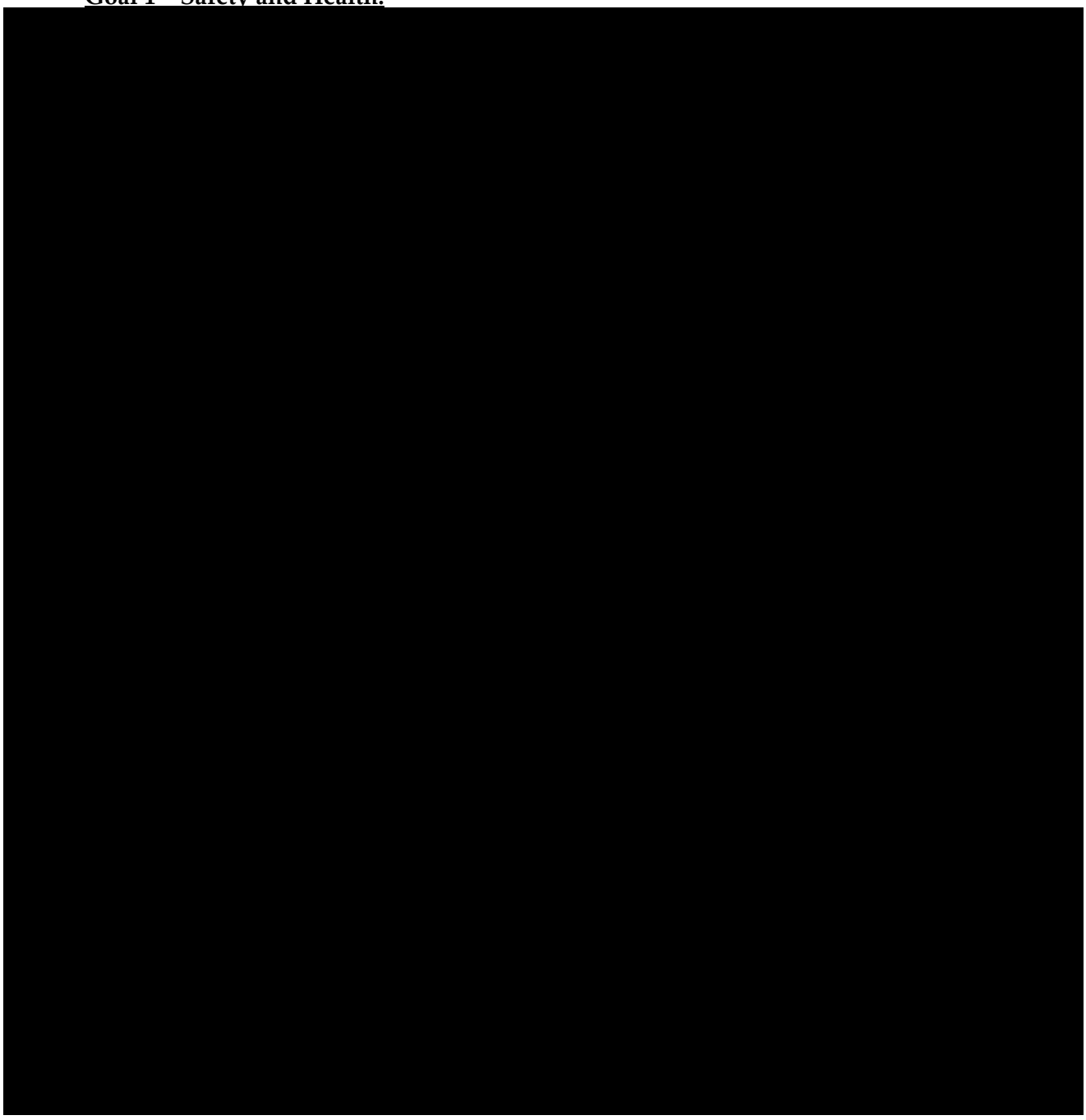
1. Profile changes of 6 ft to 8 ft are difficult to construct on the existing facility.
    - Safer and more constructible for the contractor and the public to build the new alignment separate from traffic.
2. Existing structural section cannot be saved due to profile and horizontal changes.
3. Entire roadway can be built all at once – eliminating multiple stages and continuous traffic control.
    - Significantly less "throw away" work by avoiding stage construction.
4. Building on a new alignment has less restrictions on the contractor – therefor less expensive.

Project Scope:

- Construct new alignment parallel to the existing highway.
    - Traffic remains on the existing highway.
- Add westbound left turn lane at Monroe Avenue intersection.

- Reconstruct the at grade railroad crossing with a crossing perpendicular to the tracks.
- Eliminate 3 private driveway connections by consolidating existing driveways.
- Add changeable message sign facing westbound traffic.

Goal 1 – Safety and Health:



Safety benefits from this new alignment project include:

[redacted]

- Modernize highway with consistent horizontal and vertical alignment and standard clear recovery zone.
- Eliminate worker exposure to traffic for culvert maintenance during annual flood events.
- Provide 8 ft paved shoulders for bikes and peds.
- Reduce significantly the overturned vehicles and hit object run off the road collisions by increasing clear recovery to 30 feet or more.
- Reduce worker exposure by providing mower friendly 6:1 side slopes.
- Replace existing skewed at-grade railroad crossing with poor sight distance replaced with a modern at grade crossing perpendicular to the tracks.
- Install a CMS to advise drivers heading into the mountains of road conditions.
- Provide storm water treatment on site to minimize system-related pollution from runoff.
- Plant oak trees along the highway within the state right of way (outside current and future CRZ) to mitigate visual impacts and minimize system-related pollutant emissions.

Table 2 below has the existing and projected traffic data for the suburban highway.

Table 2: Traffic Data

TEH-36-PM-R40.3/R41.2		Average Daily Traffic	DHV	TI	ESAL	Design Speed
ADT^1 (2013)	=	3350				Varies 50 to 30 mph
ADT^2 (2022)	=	3780	373			
ADT^3 (2032)	=	4260	420	8.0	339,800	
ADT^4 (2042)	=	4740	467	8.5	708,600	

Where:

ADT^1	=	Average Two-Way Daily Traffic (Data Year)
ADT^2	=	Average Two-Way Daily Traffic (Begin Construction Year)
ADT^3	=	Average Two-Way Daily Traffic (End Construction Year + 10 years)
ADT^4	=	Average Two-Way Daily Traffic (End Construction Year + 20 years)
DHV	=	Two-Way Design Hourly Volume (Peak Hour)
TI	=	Traffic Index (10 year and 20 year)
ESAL	=	Equivalent Single Axel Loads
% Trucks	=	3% Trucks in 2013
Directional Split	=	71% in 2013

Goal 2 - Stewardship and Efficiency:

As proposed, this project has the opportunity to reduce the waste of valuable highway resources.

- Multiple environmental clearance efforts, multiple design efforts, multiple advertising, and multiple construction administration efforts quickly accumulate redundant support costs on overlapping projects with different funding sources. Substantial savings in support costs are realized when highway improvements are bundled together.

- In addition, the staged construction of several smaller improvements with temporary tie-ins for traffic wastes capital resources. The combined scope of this project requires very little temporary or "throw away" work and makes better use of California's highway funds.

The following SHOPP related needs exist within the project limits of 02-TEH-36-PM-R40.3/R41.2. The existing pavement condition triggers for a rehabilitation strategy due to the following conditions:

- 40% patching
- High ABC cracking (31% to 61%)
- IRI score over 207
- Pavement Maintenance Priority 11

In addition, the route has the following designations:

- National Highway System (NHS) – Class 2
- Maintenance Service Level (MSL) – Class 3

This segment of highway is included in a 2016 SHOPP West Red Bluff Capital Maintenance (Cap-M) candidate project (EA 02-4G540). A Cap-M project was pursued instead of a rehabilitation project because this is a Class 3 MSL route.

See Table 3 below for the various SHOPP assets included in the project.

Table 3: SHOPP Asset Summary

Asset	Total Quantity	Pre-Project Condition			Post-Project Condition		
		Good	Fair	Poor	Good	Fair	Poor
Pavement	1.8 lane miles	0	0	1.8	1.8	0	0
Paved Shoulder Added	1.8 lane miles	N/A	N/A	N/A	1.8	0	0
Culverts	8 each	0	6	2	8	0	0
ITS Elements	1 each	0	0	0	1	0	0
Railroad Crossing Arms	2 each	0	2	0	2	0	0
Left Turn Lane	1 each	0	0	0	1	0	0
Private Driveways Removed	3 each	0	0	0	3	0	0
Existing Luminaires	2 each	0	2	0	2	0	0
R/W fencing	1.6 miles	0	0	1.6	1.6	0	0
Existing loop detectors	4 each	0	4	0	4	0	0

Table 4 below shows the estimated capital improvement cost associated with the various assets.

Table 4: SHOPP Capital Asset Estimate Summary*

Item (Program)	Performance Measures	Description of Work	Cost
Safety (010)	48 each – collisions eliminated	Costs include proportional shares of earthwork, structural section, right of way, and traffic control.	$1,325,000
New Shoulders (015)	1.8 Linear miles of Shoulders	Costs include proportional shares of earthwork, structural section, right of way, and traffic control.	$1,025,000
Pavement (120)	1.8 Lane miles	Costs include construction of new alignment parallel to existing, and proportional shares of right of way and traffic control.	$1,825,000
Culverts (151)	8 each – new culverts	Costs include new culverts placed on new alignment and a proportional share of right of way.	$175,000
Signs and Lighting (170)	2 each Luminaires	Costs include new poles and proportional shares of right of way and traffic control.	$50,000
Non – Capacity Operations (310)	1 each Turn lanes	Costs include proportional shares of earthwork, structural section, right of way, and traffic control.	$600,000
CMS (315)	I each - Sign	Costs include a new CMS, service drop, proportional shares of right of way and traffic control.	$400,000
Railroad Crossings (325)	2 each - Crossings Arms upgraded	Costs include crossing arms, concrete panels, railroad flaggers, and proportional shares of earthwork, right of way, and traffic control.	$600,000
*The PSR-PDS document proposes a range of capital cost from $5.0 mil to $7.5 mil. For the purposes of this table, $6.0 million in capital construction was used.		**TOTAL**	$6,000,000

<u>Goal 3 - Sustainability, Livability and Economy:</u>

See the attached Sustainability Worksheet which shows 17 yes answers on sustainability, livability, and economy.

The five sustainability goal measures associated with this project include:

- Quality of life –
  - Provide 8-ft shoulders for bikes and peds.
  - Provide left turn lane at Monroe Avenue.
  - Reduce the number of private driveways.
  - Plant oak trees along the highway and along Dibble Creek.

- Leadership –
  - Providing 8-ft shoulders for bikes and peds is context sensitive.
  - Partner with City of Red Bluff, Tehama County, and Union Pacific Rail Road.
  - Eliminates 0.9 centerline miles of kingpin to rear axle restrictions
- Resource allocation –
  - Local borrow site adjacent to the project right of way to limit the amount of trucking needed and related delay impacts to traffic
  - Local borrow site to be contour graded to look natural
  - Existing structural section will be stockpiled and reused by maintenance
- Natural world –
  - Upgrade cross culverts for two intermittent streams to reduce flooding frequency
  - Provide bio-strips and bio swales to handle increase in impervious areas
  - Provide 6:1 side slopes that are maintenance friendly
- Climate and Risk –
  - Green House Gases will be reduced by not stopping regular highway traffic during construction. The contractor and traffic will stay separated by using a local borrow site adjacent to the project.

Goal 4 - System Performance:

The *Fix It First* concept applies to this project. This project proposes to replace elements of the highway system that are non-functional or obsolete. This project will not expand the highway system; the project will replace existing facilities in compliance with current technology and design standards. The existing pavement condition triggers a rehabilitation strategy. In addition, the poor vertical and horizontal alignment are not worth efforts to expand by adding shoulders or turn lanes.

Objectives called for in the most resent Transportation Concept Report (TCR) include:

- Upgraded alignment
- Upgrade shoulder to 8-ft paved shoulders
- Provide CMS added facing westbound traffic
- Upgrade existing at-grade railroad crossing

Goal 5 - Organizational Excellence:

In addition to using capital and support resources more efficiently, combining multiple asset improvements into a single project breaks down the barriers created by the individual requirements of separate funding sources and allows the District to propose the "right solution."

Combining funding programs to deliver the "right solution" will inspire our staff and improve job satisfaction throughout the District. Removing the limitations associated with the individual funding programs will invigorate innovation and motivate staff to seek the best solutions for California's transportation needs.

Delivering the "right solution" will also improve Caltrans' image with the public and with our local partners. The flexibility to contribute SHOPP funding to the "right solution" may encourage local partners to contribute funding as well and improve opportunities for future collaboration.

Several areas of innovation are included in this project to improve safety, save money, and extend pavement life. Innovations specific to this project include:

- Extend pavement life and improve structural section drainage by "daylighting" the aggregate base layer of the structural section.
    - Typical "bathtub" section used by Caltrans can trap water in the section.
    - Water trapped in the structural section shortens pavement life.
    - Edge drains for structural section drainage are not encouraged because they are not maintenance friendly.
    - This innovative typical section is under consideration for the next update to the HDM.
- New alignment selected to allow existing traffic to remain unimpeded by construction.
    - Contractor has the project to himself which means he does not have to interact with traffic which leads to better prices and a better project.
    - Cone zone crash rates are higher than without a work zone. This layout keeps traffic away from the contractor.
    - Construction inspection efforts will be reduced with the contractor separated from traffic.
- Local borrow site adjacent to the project set up to keep the contractor separated from traffic.
    - No need to haul in material from outside the project which costs more money, impedes traffic, takes more time, and generates more greenhouse gases.
- Temporary reclaimed water will be used during construction and for aiding in plant establishment for mitigation oak tree planting.
    - Plant viability should be greatly enhanced by using temporary reclaimed water vs. dry water type concepts.

Funding Plan:

This project is eligible for federal funds.

Tehama County is anticipating a STIP savings of up to $1,200,000 (construction capital plus support) on another active project (EA 02-4F730, EFIS 02-1200-0098). They have expressed their intent to apply all of those STIP savings to this project.

Table 5 includes the project funding summary.

Table 5: Funding Summary*

	Total Need	Proposed SHOPP Pilot Program Contribution	Proposed SHOPP Pilot Program Contribution Escalated to 2022
Construction Capital	$5.0 to $7.5 million	$5.0 to $7.5 million	$6.4 to 9.5 million
Right of Way Capital	$1.1 to $1.5 million	$1.1 to $1.5 million	$1.4 to $2.0 million
Support	$3,550,000	$3,550,000	$3,550,000
TOTAL	$10,850,000	$10,850,000	$12,787,000

*The PSR-PDS document proposes a range of capital construction estimate from $5.0 mil to $7.5 mil. For the purposes of this table, $6.0 million in capital construction and $1.3 million for right of way capital was used.

3. RECOMMENDATION

In an effort to promote asset management, it is recommended that this project to be included as part of the 2018 SHOPP Asset Management Pilot program.

District Contacts:

Acting District 2 SHOPP Manager	Don Anderson	(530) 225-3545
Project Manager	Clint Burkenpas	(530) 225-2455
Project Engineer	Dale Widner	(530) 225-3546

4. ATTACHMENTS

A. Location/Vicinity Map
[redacted]
D. Typical Section
E. Sustainability Worksheet

Attachments

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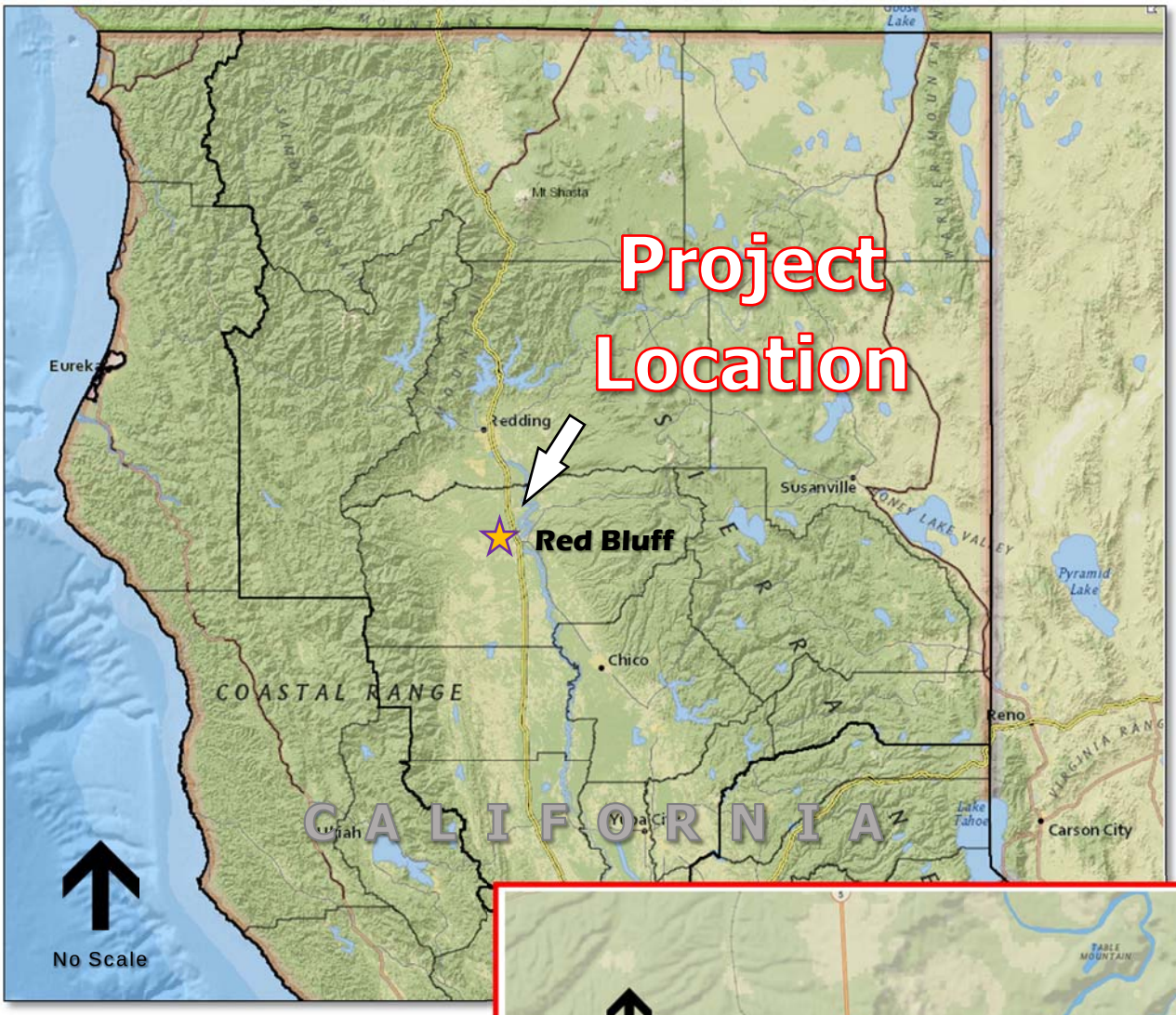
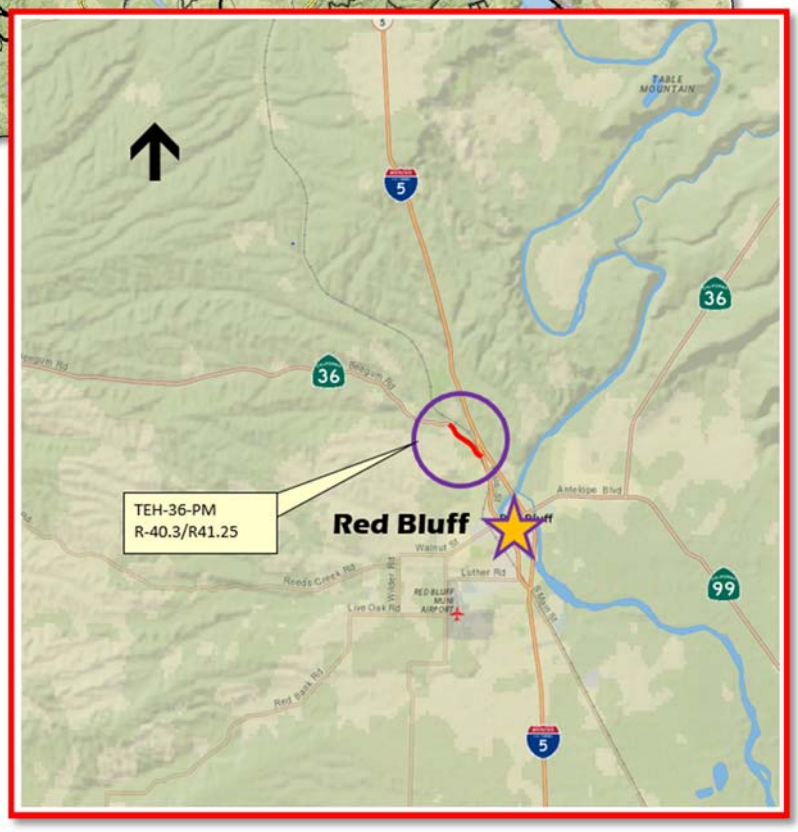
August 2015





North Red Bluff

New Alignment

TEH-36-PM-R40.3/R41.25

EA 02-0H830

EFIS 02-1500-0084

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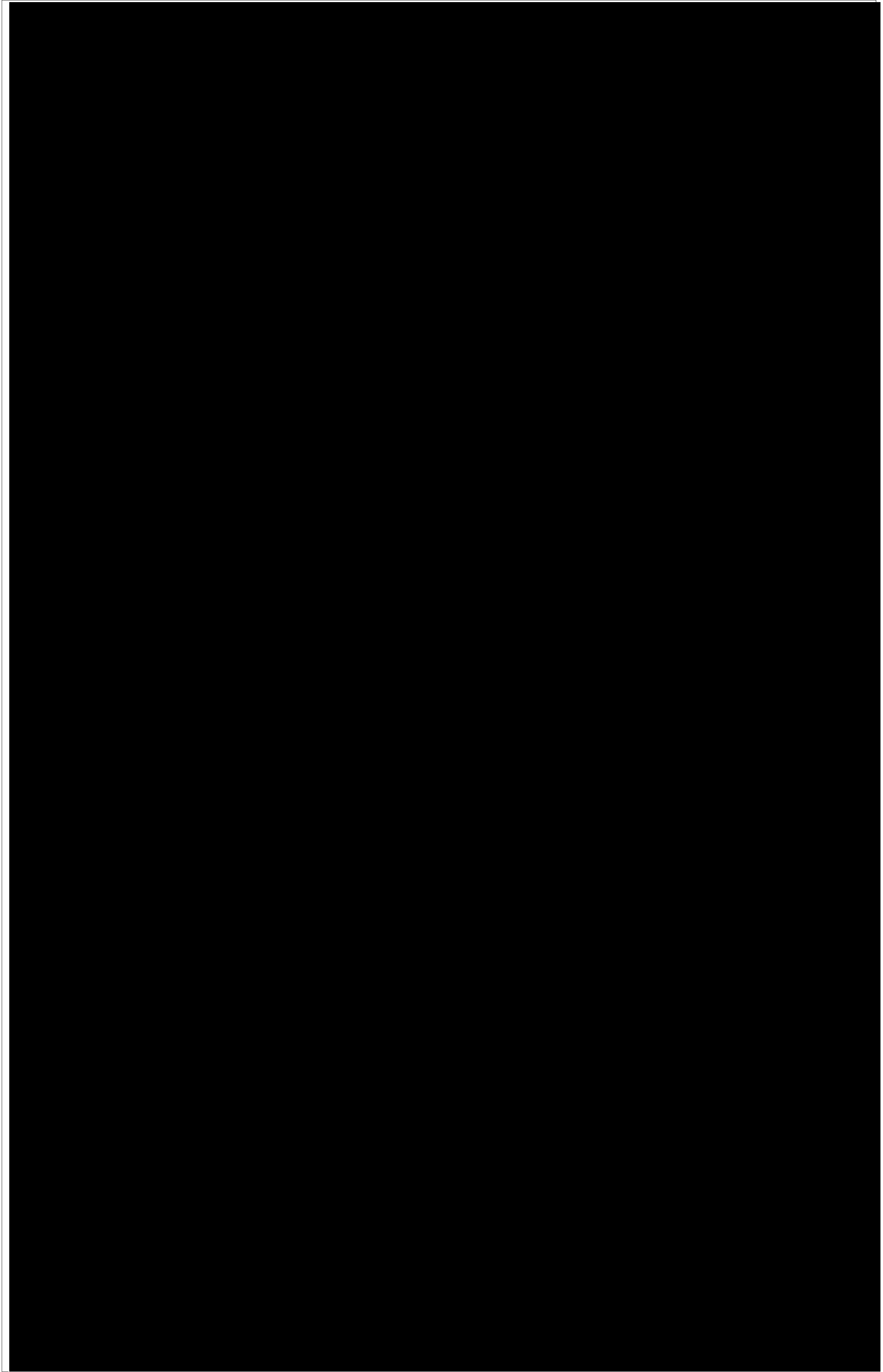

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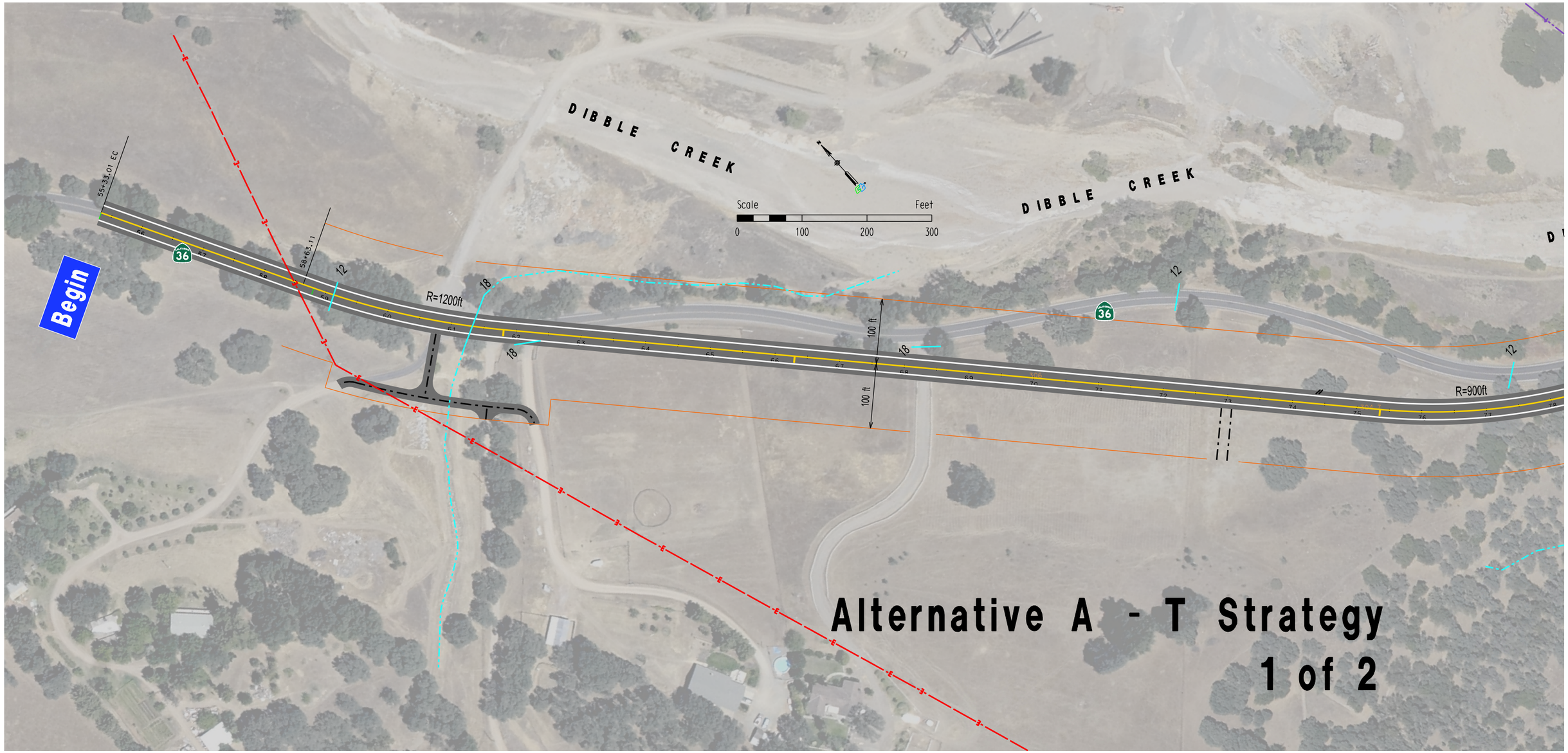

DIBBLE CREEK
DIBBLE CREEK
Scale
Feet
0
100
200
300
Begin
55+33.01 EC
58+63.11
R=1200ft
R=900ft
100 ft
100 ft
12
18
36
Alternative A - T Strategy
1 of 2

UPRR

Hess Road

DIBBLE CREEK

DIBBLE CREEK

DIBBLE CREEK

UPRR

Extend Reclaimed Water Line
1100 LF by 4 inch

End

Main Street

UPRR

R=600ft

R=900ft

Monroe Ave

Future Driveway

RED BLUFF

100 ft

100 ft

DOT #762303M
RR Milepost 224.9

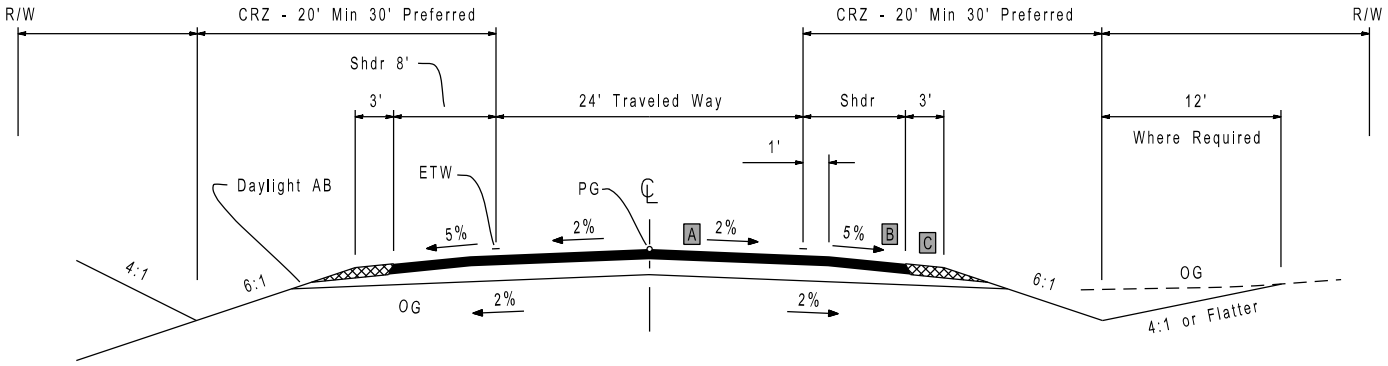
R=400ft

Monroe Ave

Highland Bluffs Dr

Scale
Feet
0
100
200
300

Alternative A - T Strategy
2 of 2

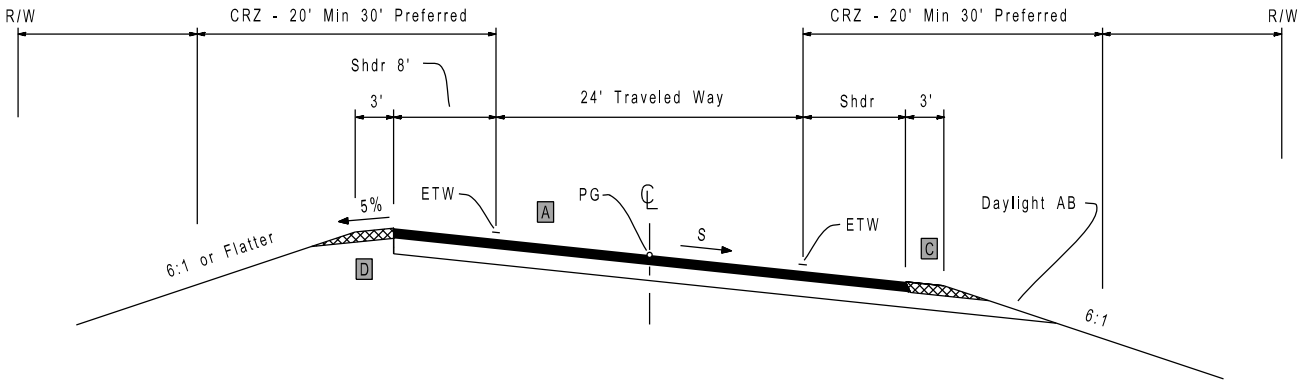


STANDARD "DAYLIGHTED" TANGENT CROSS SECTION

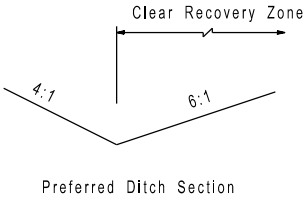
A
0.10' RHMA - O
0.20' RHMA - G
0.25' HMA - A
1.3' CL 2 AB
SEG

B
0.10' RHMA - O
0.20' RHMA - G
0.25' HMA - A
VAR 1.3' - 1.1' CL 2 AB
SEG
SAFETY EDGE

C
0.55' AND VAR SHDR BACKING
VAR 1.1' - 0.9' CL 2 AB



STANDARD "DAYLIGHTED" SUPERELEVATION SECTION



Preferred Ditch Section

D
0.55' AND VAR SHDR BACKING

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SHOPP Nomination Sustainability Contacts:

Gina Moran (916) 651-8164
Amy Bailey (916) 651-8166
Mary Beth Herritt (916) 653-4166
Melissa Thompson *(out July 29-Aug 11)* (916) 653-7569

Complete 20 question below: Sections in Green

Please answer these 20 question to help develop sustanability components (highlighted in Green) for your SHOPP Pilot project. This will be used for the project sustainability score as it relates to the Department's Strategic Goals for Sustainabilit, Livability and Economy (See Tab on Sustainability Goal for reference). For further background you can see the Envision Guidance tab.

	Sustainability Goal measures	**Project Title: North Red Bluff New Alignment EA 02-0H830**	**Yes/No**	**Description (of Yes responses)**
Quality of Life				
		Stimulate Sustainable Growth and Development *(Envision QL 1.2)*		
		Intent: Support and stimulate sustainable growth and development, including improvements in job growth, capacity building, productivity, business attractiveness and livability.		
1	Prosperity	Will the project enhance the community's quality of life and economic prosperity?	yes	8 ft shoulder added for bikes/peds
		Improve Community Mobility and Access *(Envision QL 1.2)*		
		Intent: Locate, design and construct the project in a way that eases traffic congestion, improves mobility and access, does not promote urban sprawl, and otherwise improves community livability.		
2	Access	Will the project provide good, safe access to adjacent facilities, amenities and transportation hubs, including appropriate wayfinding signage?	yes	left turn lane to Monroe Avenue
3	Non-Auto Mode Share	Will the project encourage the use of transit and/or non-motorized transportation?	yes	8 ft shoulder added for bikes/peds
4	Non-Auto Mode Share	Has the project team coordinated the design with other infrastructure assets to improve walkability and livability?	yes	8 ft shoulder added for bikes/peds - reduced driveways
		Preserve Historic and Cultural Resources *(Envision QL 3.1)*		
		Intent: Preserve or restore significant historical and cultural sites and related resources to preserve and enhance community cultural resources.		
5	Env	Will the project minimize impacts on historic and cultural resources? (Consulted the tribal, historic and cultural resource staff in Environmental (PQS)?	yes	No known resources present
		Enhance Public Space *(Envision QL 3.3)*		
		Intent: Improve existing public space including parks, plazas, recreational facilities, or wildlife refuges to enhance community livability.		
6	Livability	Will the proposed project make meaningful enhancements to public space or address Section 4(f) properties, (examples include parks, plazas, recreational facilities, or wildlife refuges) to enhance community, livability, and quality of life?	yes	additonal mitigation trees planted adjacent to the highway along Dibble Creek
Leadership				
		Foster Collaboration and Teamwork *(Envision LD 1.3)*		
		Intent: Eliminate conflicting design elements, and optimize system by using integrated design and delivery methodologies and collaborative		
7	Sustainable Corridor Master Plan (SCMP)	Are the project owner and the project team intending to take a Context Sensitive Solutions view of the project?	yes	project will include bike lanes and mitigation tree plantings
		Improve Infrastructure Integration *(Envision LD 2.2)*		
		Intent: Design the project to take into account the operational relationships among other elements of community infrastructure which results in an overall improvement in infrastructure efficiency and effectiveness.		
8	Livability	Will the project team seek input from local stakeholders regarding how the project impacts or enhances the community infrastructure?	yes	City of Red Bluff and Tehama County are partners with Caltrans in developing the PID
9	Freight	Will the project address the needs on the priority freight network included in the Freight Mobility Plan?	yes	eliminate 0.9 centerline miles of kingpin restrictions
Resource Allocation				
		Use Recycled Materials *(Envision RA 1.3)*		
		Intent: Minimize transportation costs and impacts and retain regional benefits through specifying local sources.		
10	Resource Consumption	Will the project team consider reuse of existing materials or recycled materials or use of materials from within 100 miles of the project site?	yes	local borrow site adjacent to the proposed r/w will reduce trucking costs and related traffic control delays. Old structural section ground up and stockpiled for use by maintenance
		Reduce Energy Consumption *(Envision RA 2.1)*		
		Intent: Conserve energy by reducing overall operation and maintenance energy consumption throughout the project life cycle.		

	Sustainability Goal measures	Project Title: North Red Bluff New Alignment EA 02-0H830	Yes/No	Description (of Yes responses)
11	Energy	Can the project incorporate reducing eneregy consumption or generating energy supply during the construction phase or after as a purpose for the project?	yes	local borrow site adjacent to the proposed r/w will reduce trucking costs and related traffic control delays
Natural World				
		Preserve Prime Habitat and Species *(Envision NW 1.1)*		
		Intent: Avoid placing the project – and the site compound/temporary works – on land that has been identified as of high ecological value or as having species of high value.		
12	Env	Does the project concept incorporate solutions to preserve, improve or connect important natural resources (habitat, species needs, or fish and wildlife movement corridors)?	no	
		Protect Wetlands and Surface Water *(Envision NW 1.2)*		
		Intent: Protect, buffer, enhance and restore areas designated as wetlands, shorelines, and waterbodies by providing natural buffer zones, vegetation and soil protection zones.		
13	Water	Does the project concept address or enhance adjacent wetlands, hydraulic connection and waters functions, values, or existing deficiencies?	yes	upgrade cross culverts on intermitten streams to reduce flooding frequency
		Preserve Prime Farmland *(Envision NW 1.3)*		
		Intent: Identify and protect soils designated as prime farmland, unique farmland, or farmland of statewide importance.		
14	Env	Does the project concept improve or enhance the existing farming conditions or associated interface with the transportation facility (water conveyance, quality, habitat preservation, weed management, farming operation, etc.)?	yes	upgrade cross culverts on intermitten streams to reduce flooding frequency
		Preserve Floodplain Functions *(Envision NW 1.5)*		
		Intent: Preserve floodplain functions by limiting development and development impacts to maintain water management capacities and capabilities.		
15	Water	Does the project concept allow for natural floodplain functions restored or rectified related to existing infrastructure impingements?	yes	culverts will be upgraded at two intermitten streams that cross the highway and flood on an annual basis
		Manage Stormwater *(Envision NW 2.1)*		
		Intent: Minimize the impact of infrastructure on stormwater runoff quantity and quality.		
16	Water Quality	Can the project be designed to treat more than minimum stormwater treatment requirements, for example post construction or TMDL compliance units?	yes	plenty of room to use best practices BMPs
		Roadside Vegetation Environment *(Envision NW 3.4)*		
		Intent: Use appropriate non-invasive species and control or eliminate existing invasive species.		
17	Env	Does the project concept incorporate improvements to roadside vegetation through restorative actions to native/appropriate vegetation to reduce/eliminate need for future management (maintenance, water use, pesticides, invasive species, etc.)?	yes	mower friendly 6:1 side slopes with bio swales
Climate & Risk				
		Reduce Greenhouse Gas Emissions *(Envision CR 1.1)*		
		Intent: Conduct a comprehensive life-cycle carbon analysis and use this assessment to reduce the anticipated amount of net greenhouse gas emissions during the life cycle of the project, reducing project contribution to climate change.		
18	GHG	Based on a life-cycle carbon assessment, will the project be designed in a way that substantially reduces carbon emissions?	yes	local borrow site adjacent to the proposed r/w will reduce trucking costs and related traffic control delays
		Assess Climate Threat *(Envision CR 2.1)*		
		Intent: Develop a comprehensive Climate Vulnerability Assessment and Adaptation Plan.		
19	Resiliency	Will the project address potential risks or vulnerability deficiencies identifed in state, regional, local or site specific plans?	no	
		Manage Heat Island Effects *(Envision CR 2.5)*		
		Intent: Minimize surfaces with a high solar reflectance index (SRI) to reduce localized heat accumulation and manage microclimates.		
20	Green Infrastructure	Will the project be designed to include green infrastructure such as reducing heat island effects by reducing the percentage of low solar reflectance index (SRI) surfaces?	no	