



SHOPP Asset Management Pilot Request Form

SHOPPCPR: Ver 3 11/14
 Submittal Date

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

Project Manager
 Phone

Dist	County	Route	Prefix	PM	Prefix	PM	EA	PPNO	Project ID
<input type="text" value="02"/>	<input type="text" value="Shasta"/>	<input type="text" value="151"/>	<input type="text"/>	<input type="text" value="0.0"/>	<input type="text"/>	<input type="text" value="5.8"/>	<input type="text" value="1H560"/>	<input type="text"/>	<input type="text"/>

Includes Multiple Locations (Complete Page 2 of this Form)

MPO:

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

In Shasta County in and near Shasta Lake City from Shasta Dam to 0.3 miles east of Coram railroad underpass.

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

The existing railroad underpass at PM-5.5 is one of only seven bridges on the state highway system that have vertical clearances less than 14-ft. The 13-ft 9-in vertical clearance has an impact to permit traffic. The highway shoulders lack sufficient paved width for bicyclists and pedestrians. Drainage rehabilitation is required on all existing facilities, and new drainage is needed for ADA compliance. The project includes 11.6 triggered lane miles based on the 2013 Pavement Summary. Deficiencies include: • High ABC cracking • Open cracks • Ride

The proposed improvements include a 3R Rehab from PM 0.0 to PM 5.8, shoulder widening, replace railroad underpass, culvert replacement, and ADA compliance.

PA&ED / M200 <input type="text" value="01/01/2020"/>	R/W Cert / M410 <input type="text" value="01/01/2022"/>	CCA / M600 <input type="text" value="01/01/2025"/>
PS&E / M380 <input type="text" value="11/01/2021"/>	RTL / M460 <input type="text" value="02/01/2022"/>	END Project / M800 <input type="text" value="01/01/2027"/>

	Capital (\$1,000) (Escalated to FY of Programming)		Support (\$1,000)		Legislative District Numbers (Separate multiple Districts with a comma)		
	FY	Cost	FY	Cost			
R/W	2021/22	\$1,400	PA & ED	2019/20	\$2,380	State Assembly	<input type="text" value="Brian Dahle"/>
Construction	2021/22	\$25,500	PS & E	2021/22	\$2,200	State Senate	<input type="text" value="Ted Gaines"/>
	Total Capital	\$26,900	R/W	2021/22	\$1,210	Congressional	<input type="text" value="Doug LaMalfa"/>
			Construction	2024/25	\$3,210		
			Total Support		\$9,000		

Approved Denied

CAPITAL CONSTRUCTION COST ESCALATION RATE

District SFP (Print) <input type="text" value="Phil Baker, P.E."/>	District SFP (Sign) <input type="text" value="Phil Baker"/>	Phone <input type="text" value="530-225-3181"/>
District Director (Print) <input type="text" value="Dave Moore, P.E."/>	District Director (Sign) <input type="text" value="Dave Moore"/>	Phone <input type="text" value="530-705-3477"/>
SHOPP Exec. (Print) <input type="text"/>	SHOPP Exec. (Sign) <input type="text"/>	Phone <input type="text"/>

**18 Asset Management
Pilot Nomination**

Shasta Lake Rehab

EA 02-1H560
 EFIS ID xx-xxxx-xxxx
 Bridge # 06-0094
 PPNO xxxx
 02-SHA-151-PM-0.0/5.8



Figure 1 – The clearance at this 76 year old railroad bridge has long been targeted for upgrades. The 3R project will replace the bridge, lower the highway to provide standard clearance, and widen shoulders as required.

1. INTRODUCTION

This pilot project proposes the use of asset management principles to address the overall transportation needs of State Route (SR)-151 from Shasta Dam to Shasta Lake City, in Shasta County, in District 2. This summary will quantify the safety, stewardship, rehabilitation needs, sustainability, and organizational excellence with this 3R project.

Capital Outlay Construction Estimate:	Current (2015): \$20.0 million	Escalated @ 3.5% to 2022: \$25.5 million
Capital Outlay Right of Way Estimate:	Current (2015): \$1,000,000	Escalated @ 5.0% to 2022: \$1.4 million
Goal 1 - Safety and Health:	<ul style="list-style-type: none"> • Widen shoulders for bikes and peds for most of the project limits • Crash reduction of 30% • Improve clear recovery 	
Goal 2 - Stewardship and Efficiency:	<ul style="list-style-type: none"> • 1 permit restricted bridge replaced • 11.6 lane miles of new pavement • 4.1 lane miles of added shoulder • 27 culverts replaced • 1 left turn lane added • 1.5 lineal miles guardrail upgraded • 90 signs replaced/upgraded 	
Goal 3 - Sustainability, Livability, and Economy:	<ul style="list-style-type: none"> • 15 yes answers on the SHOPP Sustainability Worksheet • Widen shoulders for bikes and peds for most of the project limits 	
Goal 4 - System Performance:	<ul style="list-style-type: none"> • Replace 13 ft 9 in vertical clearance railroad bridge • Add left turn lane into community parks 	
Goal 5 - Organizational Excellence:	<ul style="list-style-type: none"> • Morale booster – doing the “right thing” good for employees, our local partners, and the public • Combine rehab with bridge replacement and other multiple asset improvements into one project makes efficient use of resources and capital. 	
Project Limits:	02-SHA-151-PM-0.0/5.8	
Legal Description:	In Shasta County in and near Shasta Lake City from Shasta Dam to 0.3 miles east of Coram railroad underpass.	

2. BACKGROUND

SR 151 begins at Shasta Dam and was built to construct the dam in the 1930s. The first 3.8 miles serves recreation and tourist traffic. The designated scenic highway is also well used by bicyclists heading to and from Shasta Dam. The route also provides utility and fire control access to the area southwest of the dam. From PM 3.8 to the end of the project limits at PM-5.8 at Montana Avenue in Shasta Lake City the highway serves business, residential, and commuters to Shasta Lake.

Union Pacific Railroad crosses over SR-151 at the Coram Underpass (# 6-94) at PM-5.5. The 1990 Route Concept Report noted Shasta Regional Transportation Agency felt the Route is important enough to warrant replacement of the Coram Railroad Underpass due to vertical clearance issue and roadway opening width. Shasta County viewed the underpass as an impediment.

Existing paved shoulders on SR-151 are as follows:

- PM-0.0/3.8 = 0 ft
- PM-3.8/5.8 = 5 ft

There are two parks and a school adjacent to SR-151 within the project limits:

- Mountain Lakes Alternative High School at PM-3.9 (north side).
- Margaret Polf Regional Park at PM-4.0 (south side).
- Bizz Johnson Park (home of Shasta Dam Area Little League) at PM-4.1 (south side).

Both parks are heavily used and have regularly scheduled youth baseball games, soccer games, plus motocross bike races. Access to the parks from SR-151 is at the Sacramento Street intersection, which runs between the two parks.

A proposed project, EA 02-4F790, on SR-151 from PM 5.5 to PM 5.83 is scheduled to go to construction in the summer of 2018. The scope of the project is to construct and modify curb ramps and sidewalk. Approximately 0.46 miles of new sidewalk will be constructed. Also, driveways will be reconstructed and will conform to adjacent facilities as required. Pavement will have to be adjusted to match ADA compliant facilities. Drainage work will be required for the removal of surface water due to installation of new ADA facilities.

Project Scope:

The two season construction project has two distinct strategies based on traffic volumes:

3R Strategy

- Segment 1 – PM-0.0/3.8
 - East end of Shasta Dam to Lake Boulevard
 - 2014 AADT – 240
 - Widen shoulder from 0 ft existing to 2 ft
 - 28-ft total paved width
 - Many bicyclists use this route to and from Shasta Dam
 - Full Depth Reclamation

- Segment 2 – PM-3.8/4.7,
 - Lake Boulevard to Hilltop Drive/Shasta Park Drive
 - 2014 AADT – 1550-2250
 - 5 ft existing shoulders remain
 - 34 ft total paved width
 - Add westbound left turn lane at Sacramento Street PM-4.05
 - Reconstruction of pavement by removing and replacing 0.3' AC

- Segment 3 – PM-4.7/5.8
 - Hilltop Drive/Shasta Park Drive to Montana Avenue
 - 2014 AADT – 4600
 - Widen shoulder from 5-ft existing to 8-ft
 - 40-ft total paved width
 - Reconstruction of pavement by removing and replacing 0.3' AC
 - Replace Coram railroad underpass at PM-5.5 (Bridge #6-94)
 - Construct 0.46 miles of sidewalk under project number 4F790 in 2018.

The proposed construction to replace the railroad bridge is as follows:

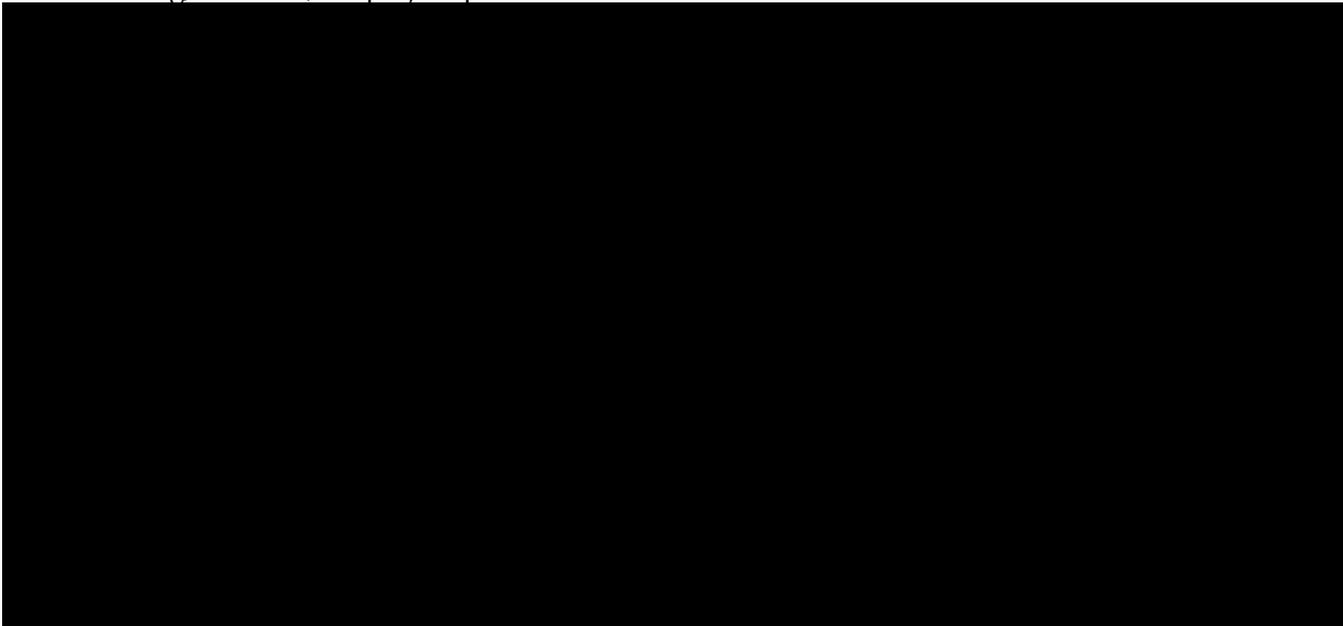
- Construct shoe fly structure to reroute railroad track.
 - Note bridge deck used for shoe fly structure will replace existing structure.
- Construct slide-in mechanism track to slide bridge into its final alignment.
- Remove existing bridge and abutments.
- Construct new bridge abutments.
- Final operation is to slide-in bridge deck on the shoe fly on the bridge alignment.

Goal 1 – Safety and Health:

Table 1 below has the existing and projected traffic data.

Table 1: Traffic Data						
Segment 1	SHA-151-PM-0.0/3.8	Average Daily Traffic	DHV	TI	ESAL	Design Speed
	ADT ¹ (2014) =	240	70			
	ADT ⁴ (2042) =	270				
Segment 2	SHA-151-PM-3.8/4.7	Average Daily Traffic	DHV	TI	ESAL	Posted speed limit varies from 40 to 45 mph
	ADT ¹ (2014) =	1550 - 2250	230			
	ADT ⁴ (2042) =	2500				
Segment 3	SHA-151-PM-4.7/5.8	Average Daily Traffic	DHV	TI	ESAL	
	ADT ¹ (2014) =	4600	530			
	ADT ⁴ (2042) =	5200				
Where: ADT ¹ = Average Two-Way Daily Traffic (Data Year) ADT ⁴ = Average Two-Way Daily Traffic (End Construction Year + 20 years) DHV = Two-Way Design Hourly Volume (Peak Hour) TI = Traffic Index (20 year) ESAL = Equivalent Single Axel Loads % Trucks = 5% Trucks in 2013 Directional Split = 71% in 2013						

The District 2 Traffic Safety unit screened the project limits and found that it did not pass the screening, therefore, the project qualifies as a 3R.



Safety and health benefits from this rehabilitation project include:

- Reduce collisions with wider shoulders.
- Modernize highway with consistent horizontal and vertical alignment and clean clear recovery zone.
- 8-ft paved shoulders provide room for bikes and peds connection to the community park.
- Worker exposure reduced by providing 6:1 side slopes that are mower friendly.
- Existing 13-ft 9-in vertical clearance by 26-ft total width at the railroad underpass will be upgraded to 16-ft 6-in with a new structure.

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 can be bundled together as in this project.
- 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 project includes 11.6 triggered lane miles based on the 2013 Pavement Summary. Deficiencies include:

- High ABC cracking
- Open cracks
- Ride

The existing railroad underpass at PM-5.5 is one of only seven bridges on the state highway system that have vertical clearances less than 14-ft. The 13-ft 9-in vertical clearance has an impact to permit traffic.

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	11.6 lane miles	0	0	11.6	11.6	0	0
Bridge	1-Ea Bridge	0	0	1	1	0	0
Paved Shoulder 2ft	7.6-Linear miles	N/A	N/A	N/A	7.6	0	0
Paved Shoulder 5ft	4.0-Linear Miles	0	0	4.0	1.8	0	0
Paved Shoulder 8 ft	2.2-Linear Miles	N/A	N/A	N/A	2.2	0	0
Culverts	27 each	0	0	27	27	0	0
Left Turn Lane	2 each	0	0	1	2	0	0
Guardrail	1.5 lineal miles	0	0	1.5	1.5	0	0
Sidewalk (EA: 02-4F790)	0.46 lineal miles	N/A	N/A	N/A	0.46	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)	Xx Ea – collisions eliminated	Costs include: Portion of earthwork, structural section, right of way, and traffic control.	\$2,400,000
New Shoulders (015)	4.1 Linear miles of Shoulders	Costs include: Portion of earthwork, structural section, right of way, and traffic control.	\$2,500,000
Pavement (120)	11.6 Lane miles	Costs include: Full depth reclamation and reconstruction, right of way, and traffic control.	\$3,300,000
Culverts (151)	27 Ea – new culverts	Costs include: New culverts and traffic control.	\$1,200,000
Non – Capacity Operations (310)	1 Ea Turn lanes	Costs include: Portion of earthwork, structural section, right of way, and traffic control.	\$600,000
Bridge Permits (322)	1 EA - Bridge	Costs include: Railroad shoe fly, bridge removal, earthwork, new bridge, right of way, railroad flaggers, and traffic control.	\$10,000,000
Sidewalk (EA: 02-4F790) (378)	0.46 lineal miles of sidewalk	Costs include: Portion of earthwork, construction of ADA facilities, right of way, and traffic control.	\$1,200,000
TOTAL			\$20,000,000

Goal 3 - Sustainability, Livability and Economy:

See the attached worksheet which shows 15 yes answers for the 20 questions on the sustainability, livability, and economy worksheet.

The five sustainability goal measures associated with this project include:

- Quality of life –
 - Shoulders widened for bikes and peds with connections to Shasta Dam, the school, and both parks
 - Left turn lane added at Sacramento Street
- Leadership –
 - Shoulders widening for bikes and peds is context sensitive
 - Project scope was developed with the following partners: City of Shasta Lake, Shasta County, Union Pacific Rail Road, and Caltrans
 - Project will eliminate 0.9 miles of kingpin to rear axle restrictions
- Resource allocation –
 - Use full depth reclamation to recycle the old structural section
 - Grindings generated will be stockpiled and reused by maintenance
- Natural world –
 - Upgrade cross culverts for intermittent streams
 - Bio-strips and bio-swales added to handle increase in impervious areas
 - 6:1 side slopes are maintenance friendly
- Climate and Risk –
 - N/A

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.

Goods movement is improved by replacing the permit load restriction (the 13 ft 9 in vertical clearance) at the Coram railroad underpass. A new west bound left turn lane at Sacramento Street serving the two parks is a non-capacity increasing operational improvement. Also access to the dam is improved for both economic and security reasons.

Trucks/goods movement are improved with replacing UP railroad overhead structure. By meeting vertical clearance requirement with the new structure we are increasing safety and reliability of railroad movement.

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.” In this case, replacing the bridge only would not address the other identified needs for the route.

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.

Replacing the Coram railroad underpass will require the state highway to be lowered by approximately 4-ft or so at the structure to obtain standard vertical clearance of 16-ft 6-in. It takes approximately 1,000-ft to lower the profile on SR-151 to maintain a 45 mph design speed. Therefore, it is essential to combine the bridge replacement with the rehab to make effective use of capital construction and support resources.

Funding Plan:

This project is eligible for federal funds.

Table 5 includes the project funding summary.

Table 5: Funding Summary			
	Total Need (2015)	Proposed SHOPP Pilot Program Contribution	Proposed SHOPP Pilot Program Contribution Escalated to 2022
Construction Capital	\$20,000,000	\$20,000,000	\$25,500,000
Structures	\$10,000,000	\$10,000,000	
Roadway	\$10,000,000	\$10,000,000	
Right of Way Capital	\$1,000,000	\$1,000,000	\$1,400,000
Support	\$9,000,000	\$9,000,000	\$9,000,000
TOTAL	\$30,000,000	\$30,000,000	\$35,900,000

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	Derek Willis	(530) 225-3466
Project Engineer	Oscar Cervantes	(530) 225-3236

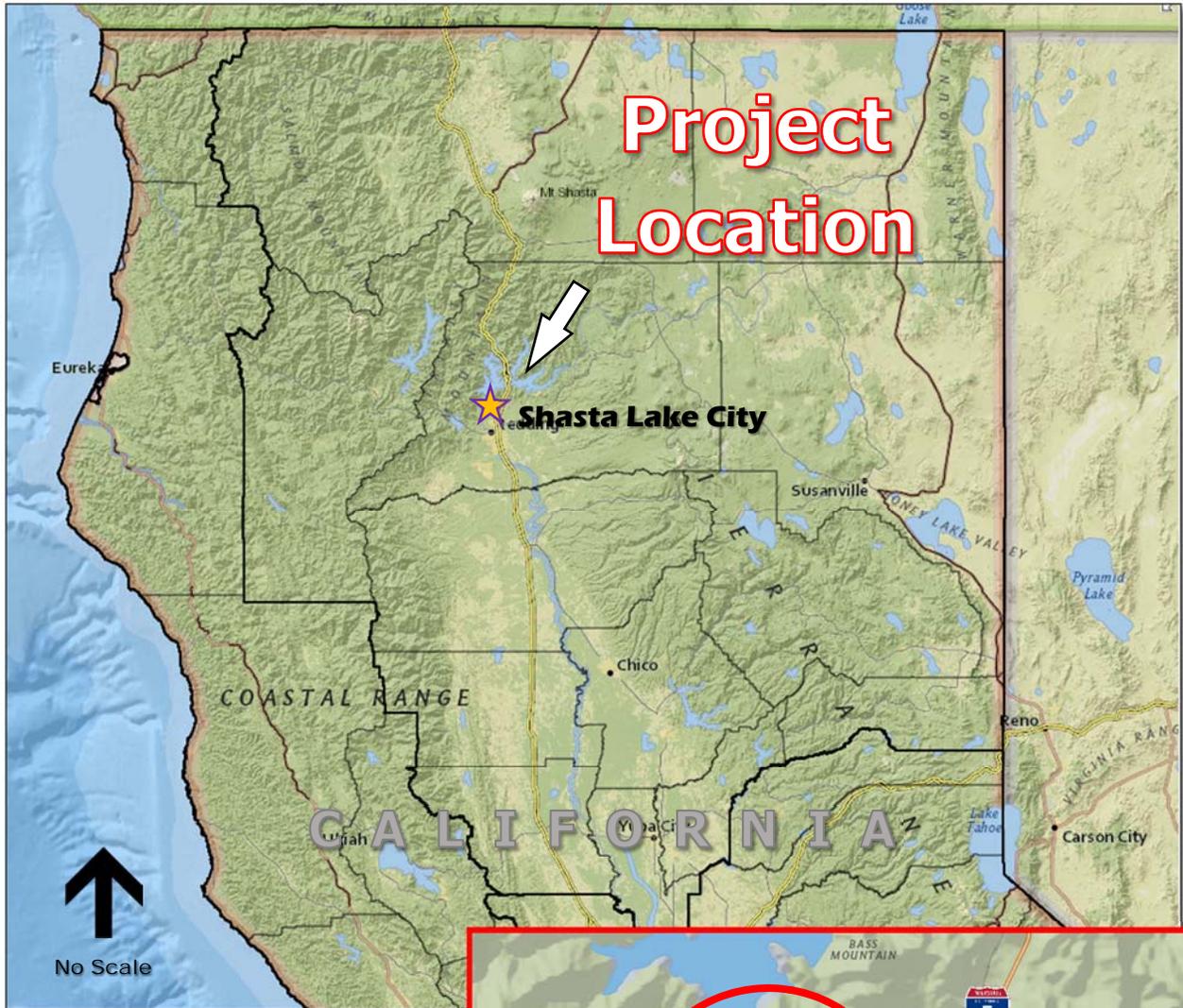
4. ATTACHMENTS

- A. Location/Vicinity Map
- B. Layout
- C. Sustainability Worksheet

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Attachments

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Shasta Lake Rehab
02-SHA-151-PM-0.0/5.8
EA 02-1H560



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SHASTA LAKE CITY

SR 151

SHASTA DAM

SR 151 ROADWAY REHABILITATION AND BRIDGE REPLACEMENT
PM 0.0 TO PM 5.8

PM 0.0
BEGIN PROJECT



SR 151 ROADWAY REHABILITATION AND BRIDGE REPLACEMENT
PM 0.0 TO PM 5.8

SHASTA DAM

SR 151

LAKE BLVD

PM 3.78

SHASTA LAKE CITY





SHASTA DAM

SR 151

REDDING

CORAM UP (6-94)

PM 5.8
END PROJECT

SR 151 ROADWAY REHABILITATION AND BRIDGE REPLACEMENT
PM 0.0 TO PM 5.8

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SHOPP Nomination Sustainability Contacts:

Complete 20 question below: Sections in Green

Please answer these 20 question to help develop sustainability 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 Sustainability, Livability and Economy (See Tab on Sustainability Goal for reference). For further background you can see the Envision Guidance tab.

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

Sustainability Goal measures		Project Title: Shasta Lake Rehab EA 02-1H560	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 plus replace low vertical clearance bridge
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	shoulders added between the community park and neighborhoods
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
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	8 ft shoulders added between the community park and neighborhoods
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	8 ft shoulders added between the community park and neighborhoods
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 Shasta Lake, Shasta County, Union Pacific Railroad, and Caltrans will partner on the project
9	Freight	Will the project address the needs on the priority freight network included in the Freight Mobility Plan?	yes	Low vertical clearance - 13 ft 9 in - bridge will be replaced with standard clearance
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	structural section will be reused by full depth reclamation
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: Shasta Lake Rehab EA 02-1H560	Yes/No	Description (of Yes responses)
11	Energy	Can the project incorporate reducing energy consumption or generating energy supply during the construction phase or after as a purpose for the project?	yes	structural section will be reused by full depth reclamation
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	
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 intermitten streams that cross the highway
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	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?	no	
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 identified 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	