SHOPP Asset Management Pilot Request Form

SHOPPCPR: Ver 3 11/14

Submittal Date 08/14/2015

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

Project Manager Deena Matagulay

Phone

Dist	County	Route	Prefix	PM	Prefix	PM	EA	PPNO	Project ID
02	Plumas	70		32.9		33.3	4G390	3541	02-1400-0008

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

MPO: Non-MPO

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

In Plumas County near Keddie at 2.2 miles west of Spanish Creek Bridge.

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

The existing deficient assets at the SR-70/SR-89 junction and Indian Creek Bridge include: 1) Existing paved shoulders on the bridge and SR-70 east of the bridge are 2 ft wide. 2) The 61-year old Indian Creek Bridge is fracture critical. 3) The existing bridge rail has not been crash tested. 4) The intersection lacks a left turn lane from eastbound SR-70 to northbound SR-89. 5) The intersection lacks a right turn lane from westbound SR-70 to northbound SR-89. 6) The bridge rail results in poor intersection corner sight distance. 7) ITS elements are in need of upgrades.
The project will replace the bridge on a new alignment using two-stage construction. In addition, left and right turn lanes will be added to the stop controlled "T" intersection, ITS elements will be upgraded, and the pavement structural section replaced.

PA&ED / M200	01/01/2021	R/W Cert / M410	01/01/2022	CCA / M600	01/01/2025
PS&E / M380	11/01/2021	RTL / M460	02/01/2022	END Project / M800	01/01/2027

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

	FY	Cost
R/W	2021/22	$80
Construction	2021/22	$13,900
	Total Capital	$13,980

Support ($1,000)

	FY	Cost
PA & ED	2020/21	$2,210
PS & E	2021/22	$2,030
R/W	2021/22	$180
Construction	2024/25	$2,440
	Total Support	$6,860

Legislative District Numbers
(Separate multiple Districts with a comma)

State Assembly	Brain Dahle
State Senate	Ted Gaines
Congressional	Doug LaMalfa

☐ Approved ☐ Denied

CAPITAL CONSTRUCTION COST ESCALATION RATE 3.5%

District SFP (Print)	Phil Baker, P.E.	District SFP (Sign)	Phil Baker	Phone	530-225-3181
District Director (Print)	Dave Moore, P.E.	District Director (Sign)	Dave Moore	Phone	530-225-3477
SHOPP Exec. (Print)		SHOPP Exec. (Sign)		Phone	

SHOPP Long Lead Request Form Attachment

02 -	Plumas	- 70
EA: 4G390	PPNO: 3541	
EFIS: 02-1400-0008		

Multiple Locations Listing

Location	Perf Measure #	Performance Measure	County	Route	Prefix	PM	Prefix	PM	Bridge Number If Applicable
1	1	Bridges	Plumas	70		32.9		33.3	09-0014
2	1	Collisions Reduced							.015 Prog
3	2	Structures							.110 Prog
4	540	Linear Feet							.112 Prog
5	0.8	Lane Miles							.120 Prog
6	2	Signs							.170 Prog
7	1	1.000 Vehicle Hours							.310 Prog
8	6	Field Elements							.315 Prog
9	0	Drainage Systems							
10									
11									
12									
13									
14									
15									
16									
17									
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2018 Asset Management Pilot Nomination

Indian Creek Bridge Replacement

EA 02-4G390
EFIS ID 02-1400-0008
Bridge # 09-0014
PPNO 3541
02-PLU-70-PM-32.9/33.3

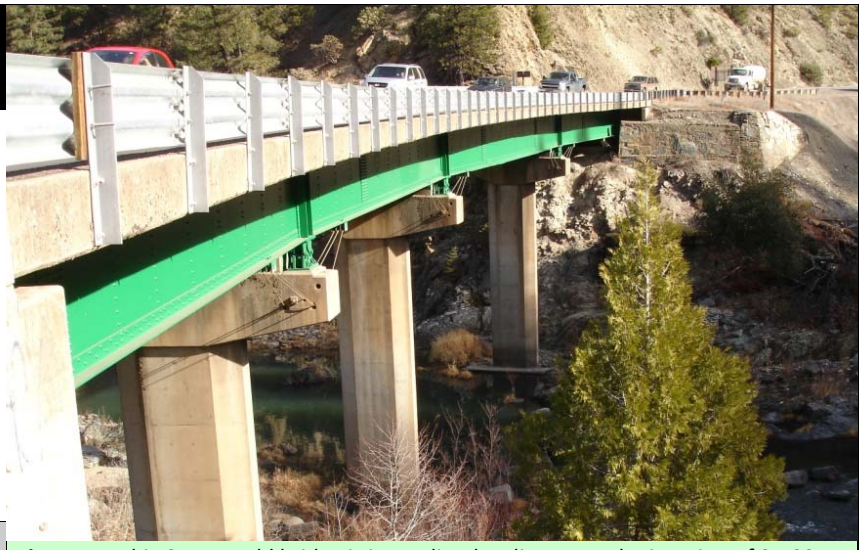

Figure 1 – This 61-year old bridge is immediately adjacent to the junction of SR-89. There is no room on the bridge for a right turn lane or left turn lane taper for vehicles turning onto SR-89. The shoulder is narrow, and the bridge rail is not standard.

1. INTRODUCTION

This pilot project proposes the use of asset management principles to address the overall transportation needs of State Route 70 (SR-70) at the State Route 89 (SR-89) junction at the Indian Creek Bridge in Plumas County in District 2. This summary will quantify the safety, stewardship, rehabilitation needs, sustainability, and innovation proposed with this bridge replacement project.

Capital Outlay Construction Estimate:	Current (2015): $10.9 million	Escalated @ 3.5% to 2022: $13.9 million
Capital Outlay Right of Way Estimate:	Current (2015): $55,000	Escalated @ 5.0% to 2022: $80,000
Goal 1 - Safety and Health:	• Replace fracture critical bridge w/narrow shoulders and non-standard rail • Improve corner sight distance at SR-89 junction • Provide refuge for vehicles turning onto northbound SR-89	
Goal 2 - Stewardship and Efficiency:	• 1 Bridge replaced • 540 LF bridge rails replaced • 0.8 lane miles of new pavement • 0.8 lane miles of added shoulder	• 1 left turn lane added • 1 right turn lane added • 1 ITS elements upgraded • 650 LF guardrail upgraded
Goal 3 - Sustainability, Livability, and Economy:	• 15 yes answers on the SHOPP Sustainability Worksheet • Incorporate aesthetic retaining wall treatment and open bridge rail	
Goal 4 - System Performance:	• Replace non-functional or obsolete bridge • Add left and right turn lanes to benefit goods movement	
Goal 5 - Organizational Excellence:	• Morale booster – doing the "right thing" - good for employees, our local partners, and the public • Combine multiple asset improvements into one project to make efficient use of resources and capital.	
Project Limits:	02-PLU-70-PM-32.9/33.3	
Legal Description:	In Plumas County near Keddie at 2.2 miles west of Spanish Creek Bridge.	

2. BACKGROUND

The Indian Creek Bridge is located on 02-PLU-70 in the Feather River Canyon. This is an alternate route whenever inclement weather or fire issues close I-80 in the Sierras. Travelers choose the Feather River Canyon route as a lower elevation alternative (meaning less snow) to the 7,056-ft elevation of Donner Pass on I-80. The minor arterial route (Maintenance Service Level = 2) connects SR-99 near Oroville and Chico (via SR-149), in Butte County, to US-395 at Hallelujah Junction, in Lassen County.

This portion of SR-70 is part of the 130-mile Feather River National Scenic Byway.

The existing deficient assets at the SR-70/SR-89 junction and Indian Creek Bridge include:

1) Existing paved shoulders on the bridge and SR-70 east of the bridge are 2 ft wide.
2) The 61-year old Indian Creek Bridge is fracture critical.
3) The existing bridge rail has not been crash tested.
4) The intersection lacks a left turn lane from eastbound SR-70 to northbound SR-89.
5) The intersection lacks a right turn lane from westbound SR-70 to northbound SR-89.
6) The bridge rail results in poor intersection corner sight distance.
7) ITS elements are in need of upgrades.
8) Pavement is in fair condition.

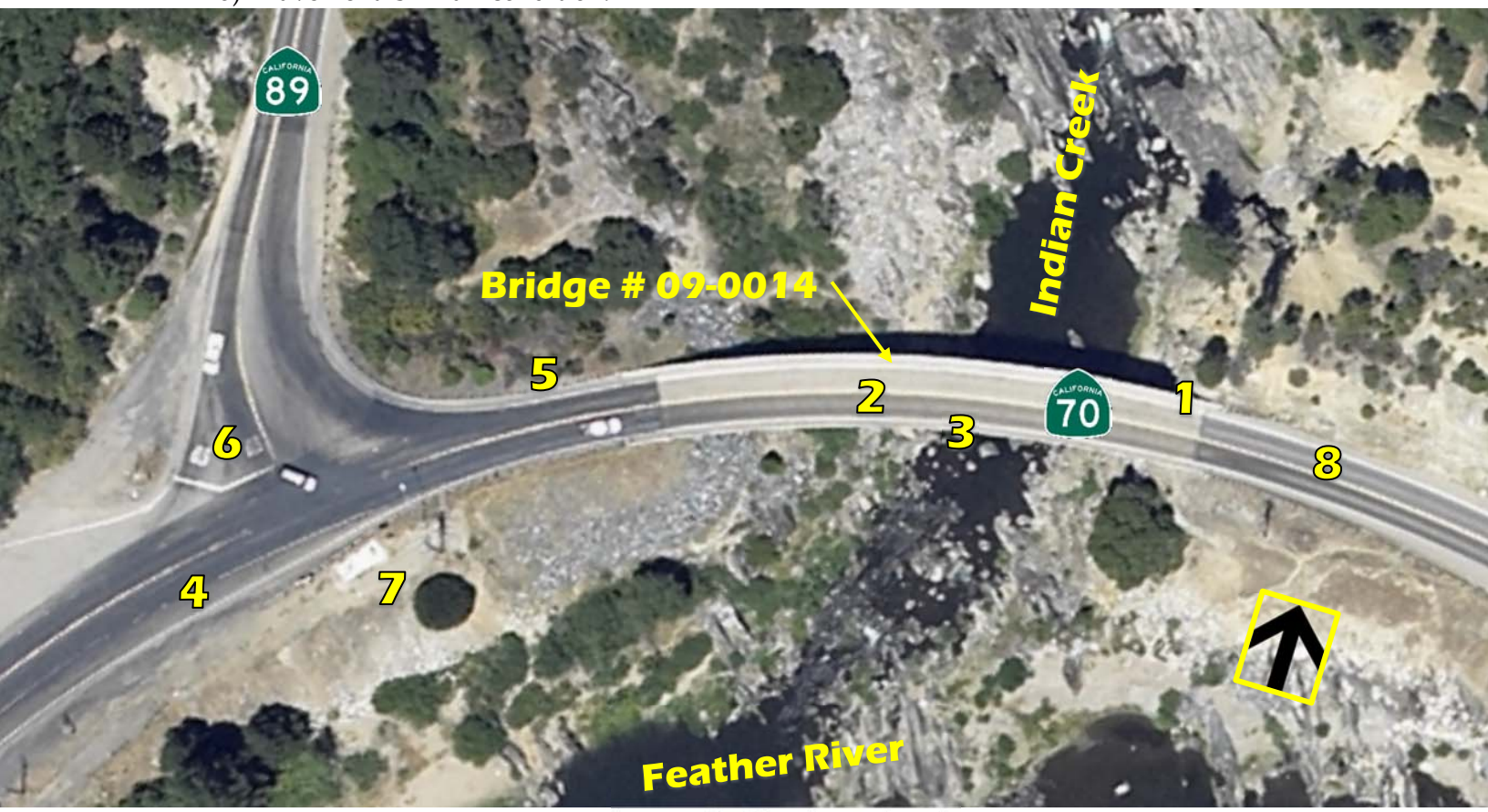

Figure 2 The bridge replacement project scope will address/upgrade each of the deficiencies listed above.

This location was first identified as a bridge rail upgrade. Upon further review, the District identified the issues listed on the previous page that also need to be addressed. All things considered, a bridge replacement is now being proposed.

Combining upgrades and replacements to multiple assets in one bridge replacement project reduces the construction related impacts to the traveling public, provides for significant, needed system upgrades (two added turn lanes plus a brand new bridge), and saves support resources by combining multiple improvements into one project.

Project Scope:

The two-season construction project will replace the bridge on a new alignment using two-stage construction. In addition, the project will add left and right turn lanes to the stop controlled "T" intersection, will upgrade ITS elements, and will replace the pavement structural section.

The project as scoped above was discussed with Nancy Bruton, SHOPP Program Advisor for Bridge Preservation, on August 12, 2015. During this discussion, she encouraged the District to submit this project for consideration in this asset management pilot. If the project is not selected for the asset pilot, it will remain as a 2018 SHOPP project under the Bridge Rail program (112) as previously scoped.

<u>Goal 1 – Safety and Health:</u>

Table 1 below has the existing and projected traffic data.

Table 1: Traffic Data

PLU-70-PM-33.07		Average Daily Traffic	DHV	TI	ESAL	Design Speed
ADT[1] (2012)	=	2800				45 MPH (Advisory)
ADT[2] (2019)	=	2807	291			
ADT[3] (2029)	=	2817	292	8.5	765,000	
ADT[4] (2039)	=	2827	293	9.5	1,564,700	

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	=	7% Trucks in 2012
Directional Split	=	71% in 2012

[redacted]

Indian Creek Bridge is 61 year old. It is fracture critical. This means that the structural design lacks engineering redundancy. Therefore, the failure of any single major member of the structure would result in the collapse of the entire structure. A new Indian Creek Bridge will incorporate safety features including structural redundancy, standard shoulder widths, and approved bridge rails.

Safety and operational benefits from this bridge replacement project include:

- Standard 8-ft shoulders on the bridge and highway,
- Improved recovery opportunity for errant vehicles,
- Modern bridge and bridge rail,
- Improved corner sight distance, and
- Refuge for turning vehicles in new left turn and right turn lanes.

Goal 2 - Stewardship and Efficiency:

The following SHOPP related needs exist within the project limits of 02-PLU-70-PM-32.9/33.3:

- Paved shoulders on the bridge are 2 ft wide.
- Indian Creek Bridge is fracture critical.
- Existing bridge rail that has not been crash tested.
- The intersection provides no refuge for turning vehicles.
- The intersection has poor corner sight distance.
- Pavement condition is in need of repair.
- ITS elements are in need of upgrades.

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
Bridge	1 each	0	0	1	1	0	0
Bridge rail	540 LF	0	0	540	540	0	0
Pavement	0.8 lane miles	0	0.8	0	0.8	0	0
Paved Shoulder Added	0.8 lane miles	0	0	0	0.8	0	0
ITS Elements	1 each	0	0	0	1	0	0
Left Turn Lane	1 each	0	0	0	1	0	0
Right Turn Lane	1 each	0	0	0	1	0	0
Existing Luminaires	2 each	0	2	0	2	0	0
Existing loop detectors	5 each	0	5	0	5	0	0
Guard Rail	650 LF	0	650	0	650	0	0
Retaining Wall	460 LF	0	0	0	460	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**
New Shoulders (015)	0.8 Linear Miles of Shoulders	Costs include proportional shares of earthwork, structural section, right of way, contingencies, and traffic control.	$380,000
Guardrail (015)	0.12 Linear Miles of Guardrail	Costs include existing guardrail removal, new guardrail, and proportional shares of contingencies and traffic control.	$175,000
Replace Bridge (110)	1 Each – Bridges	Costs include demolition of old bridge, new bridge, and proportional shares of contingencies, traffic control, and right of way.	$6,860,000
Retaining Walls (110)	2 Each - Retaining Walls	Costs include new retaining walls, structure backfill, barrier rails, and proportional shares of traffic control, contingencies, and right of way.	$1,970,000
Bridge Rail (112)	540 LF - of Bridge Rail	Costs include existing bridge rail removal, new bridge rail, and proportional shares of contingencies and traffic control.	$300,000
Pavement Rehab (120)	0.8 - Lane Miles	Costs include proportional shares of earthwork, structural section, contingencies, and traffic control.	$550,000
Signs and Lighting (170)	2 Each – Luminaires	Costs include existing pole removals, new poles, luminaires, and proportional shares of contingencies and traffic control.	$150,000
Non - Capacity Operations (310)	2 Each - Turn Lane	Costs include proportional shares of earthwork, structural section, right of way, contingencies, and traffic control.	$265,000
Non - Capacity Operations (310)	5 Each – loop detectors	Costs include proportional shares of earthwork, structural section, right of way, contingencies, and traffic control.	$30,000
CCTV (315)	1 Each – Camera	Costs include new CCTV, service drop, and proportional shares of right of way, contingencies, and traffic control.	$220,000
		TOTAL	$10,900,000

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.

Goal 3 - Sustainability, Livability, and Economy:

The attached Sustainability Worksheet identifies 15 yes answers on sustainability, livability, and economy.

The five sustainability goal measures associated with this project include:

- Quality of life –
  - Standard 8-ft paved shoulders will accommodate bicyclists and pedestrians.
  - Turn lanes will provide refuge for eastbound and westbound traffic turning onto SR-89 and will improve the operations of the intersection.
- Leadership –
  - Open bridge rails and aesthetic treatment for the retaining walls will compliment and highlight the natural beauty of the Feather River National Scenic Byway.
  - Freight mobility will be improved with the addition of turn lanes.
- Resource allocation –
  - Lighting upgrades to LED will save energy usage.
  - Guardrail will be stockpiled for future re-use.
- Natural world –
  - New bridge piers, placed outside of the water, will improve existing conditions at Indian Creek.
  - Retaining walls, located above the 100-yr and natural floodplain, will protect North Fork of the Feather River.
- 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.

The addition of a left turn lane and a right turn lane for trucks and other vehicles turning from SR-70 onto northbound SR-89 improves goods movement, safety, and operations of this intersection.

The addition of 8-ft paved shoulders improves opportunities for errant drivers to recover without incident. It also provides a facility for non-motorized travel.

A modern structure, instead of the existing fracture critical structure with two-girder construction, will improve the reliability of the highway system. Modern safety features like standard bridge rail and shoulders will improve safety and operations of the facility.

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, upgrading the bridge rail 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.

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	**$10,900,000**	**$10,900,000**	**$13,900,000**
Structures	$9,000,000	$9,000,000	
Roadway	$1,900,000	$1,900,000	
Right of Way Capital	$55,000	$55,000	$80,000
Support	$5,600,000	$5,600,000	$6,860,000
TOTAL	$16,555,000	$16,555,000	$20,840,000

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 Engineer	Dale Widner	(530) 225-3546

4. ATTACHMENTS

A. Location/Vicinity Map
B. Layouts – Stage 1 and Stage 2
C. Sustainability Worksheet

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Attachments

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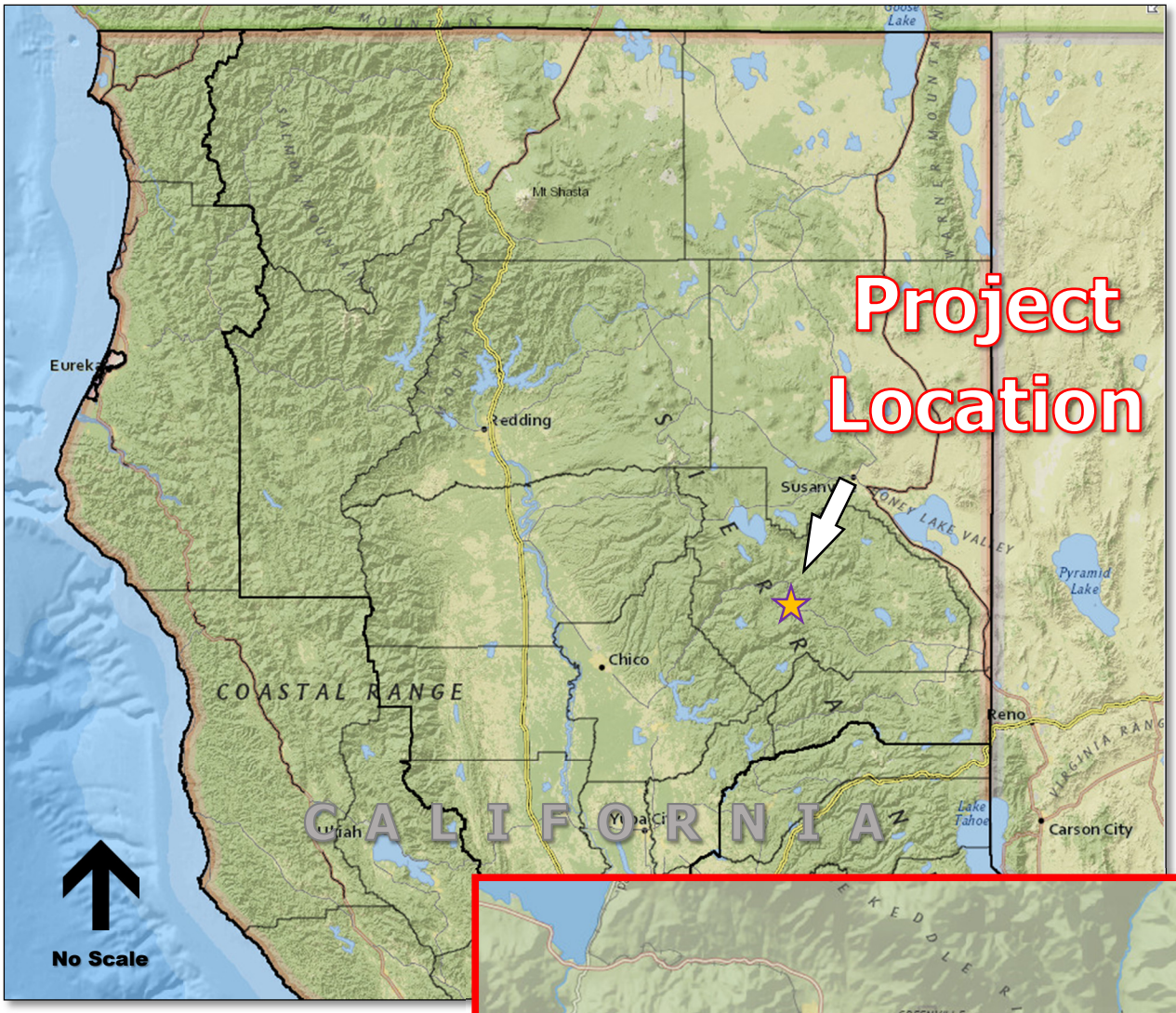
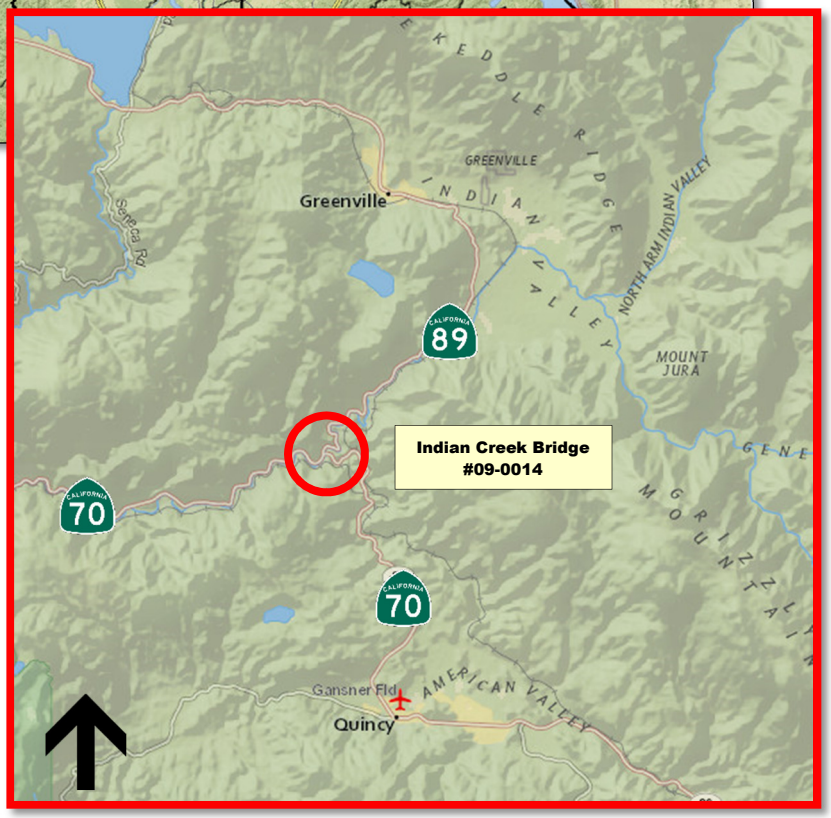
August 2015





Indian Creek Bridge Replacement

Bridge #09-0014

02-PLU-70-PM-32.9/33.3

EA 02-4G390

EFIS 02-1400-0008

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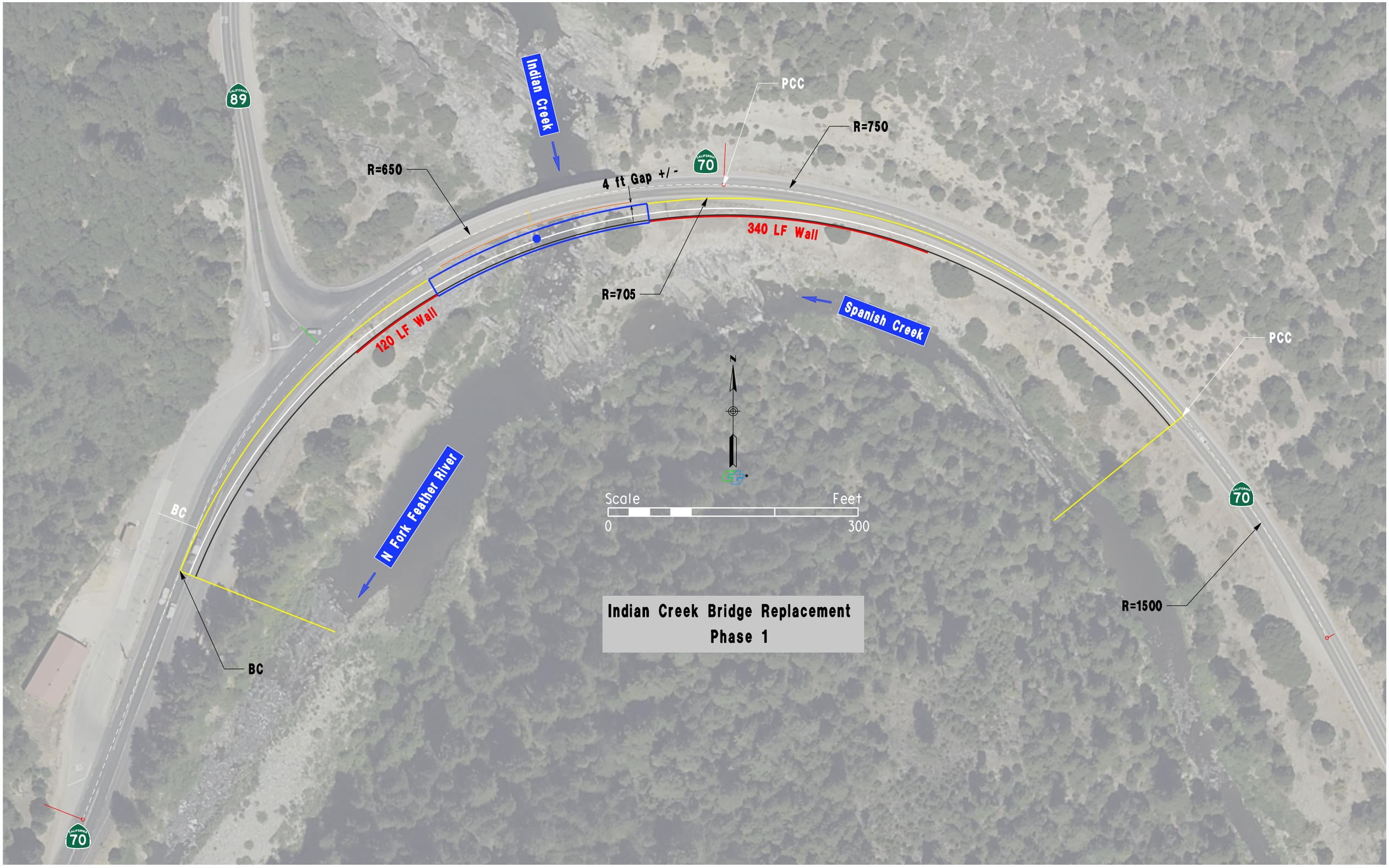
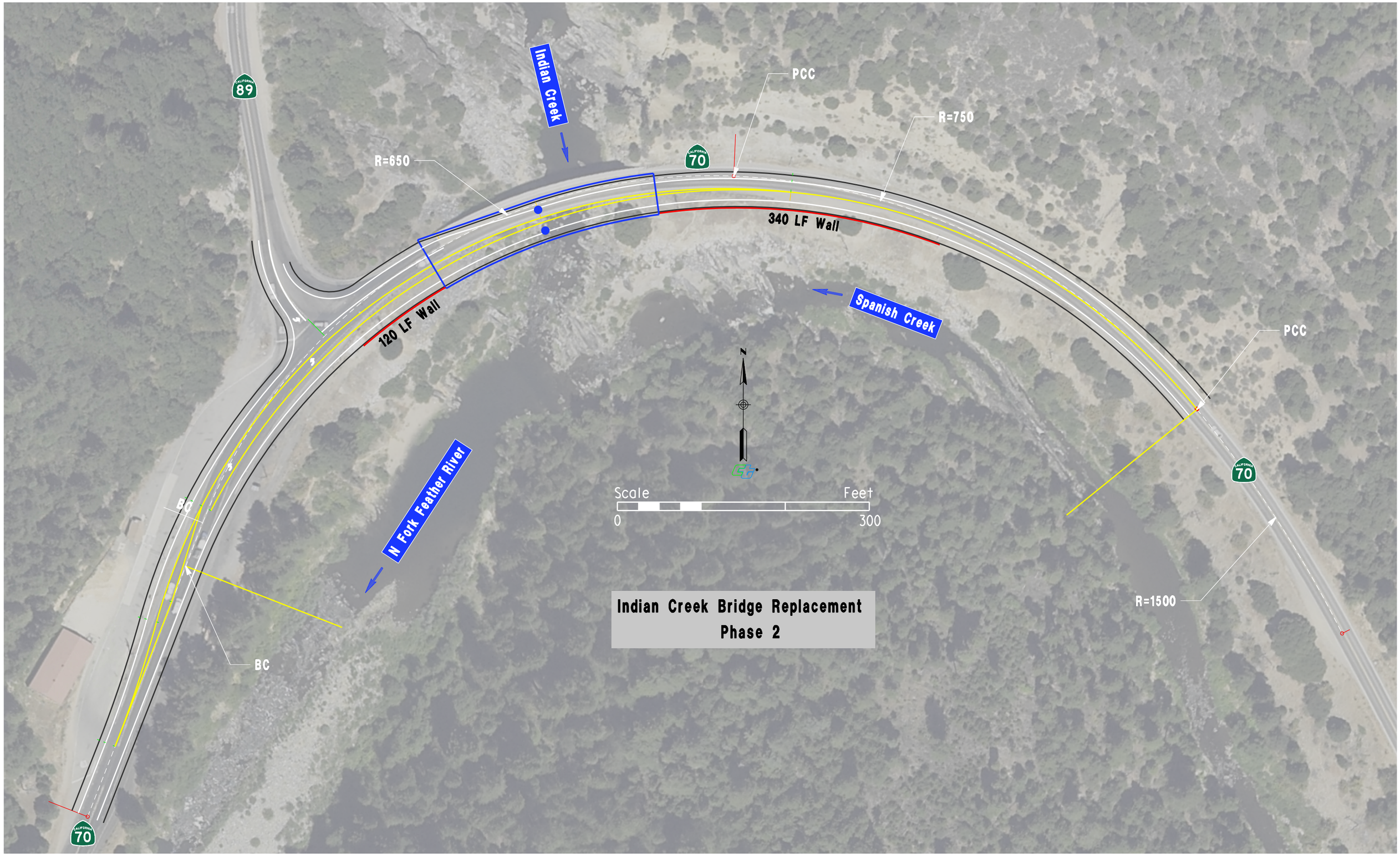

Indian Creek Bridge Replacement
Phase 1
Indian Creek
Spanish Creek
N Fork Feather River
PCC
PCC
R=750
R=650
R=705
R=1500
4 ft Gap +/-
340 LF Wall
120 LF Wall
BC
BC
N
Scale
Feet
0
300
89
70
70
70


Indian Creek Bridge Replacement
Phase 2
Indian Creek
Spanish Creek
N Fork Feather River
R=650
R=750
R=1500
PCC
PCC
BC
BC
340 LF Wall
120 LF Wall
89
70
70
N
Scale
Feet
0
300

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: Indian Creek Bridge Replacement EA 02-4G390**	**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	The project will improve the reliability of the highway facility.
		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	The project will add right turn and left turn lanes onto SR-89 to improve safety and operations of intersection.
3	Non-Auto Mode Share	Will the project encourage the use of transit and/or non-motorized transportation?	Yes	The project will construct 8-ft shoulders that may be used by bicyclists and pedestrians.
4	Non-Auto Mode Share	Has the project team coordinated the design with other infrastructure assets to improve walkability and livability?	No	
		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, at this time.
		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	This is a part of the Feather River National Scenic Byway. The project will include open bridge rail and aesthetic treatment of retaining walls.
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 processes.		
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	The project will include open bridge rail and aesthetic treatment of retaining walls.
		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	The team will get input from Plumas County officials.
9	Freight	Will the project address the needs on the priority freight network included in the Freight Mobility Plan?	Yes	The project will add right turn and left turn lanes onto SR-89 to improve safety and operations of intersection.
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	Old guardrail will be stockpiled for future use.
		Reduce Energy Consumption *(Envision RA 2.1)*		
		Intent: Conserve energy by reducing overall operation and maintenance energy consumption throughout the project life cycle.		
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	LED lights will be used.
Natural World				
		Preserve Prime Habitat and Species *(Envision NW 1.1)*		

	Sustainability Goal measures	Project Title: Indian Creek Bridge Replacement EA 02-4G390	Yes/No	Description (of Yes responses)
		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)?	Yes	The project will improve the existing condition of Indian Creek by locating columns out of the water. The project will avoid impacts to the North Fork of Feather River by using retaining walls located above the 100-year and natural floodplain.
		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	The project will improve the existing condition of Indian Creek by locating columns out of the water. The project will avoid impacts to the North Fork of Feather River by using retaining walls located above the 100-year and natural floodplain.
		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.)?	No	
		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	The project will improve the existing condition of Indian Creek by locating columns out of the water. The project will avoid impacts to the North Fork of Feather River by using retaining walls located above the 100-year and natural floodplain.
		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?	No	
		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	Currently, the roadside vegetation is natural and requires little to no maintenance. Future conditions will remain the same.
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 identifed in state, regional, local or site specific plans?	Yes	The existing Indian Creek bridge is fracture critical and will be replaced with a modern structure.
		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	