

**2018 Trade Corridor Enhancement Program
Caltrans Project Nominations
Application Submittal Instructions**

1. Submit one electronic copy of each District project nomination application to Scott Sauer at scott.sauer@dot.ca.gov by January 5, 2018. *Note that this application packet is for Caltrans use. Local agencies have independent discretion on how to submit project nominations to the California Transportation Commission (CTC).*
2. Upon review and determination of all statewide Caltrans nominations received, Headquarters management will make a determination on the most viable projects to submit to the CTC. If your District project nomination is selected for CTC submittal then you will be contacted with further instruction.
3. Each project nomination must include a cover letter with the District Directors signature authorizing and approving the application. Where the project is to be implemented by an agency other than the nominator, documentation of the agreement between the project nominator and implementing agency must be submitted with the application. Jointly nominated projects must include the signatures of each agency nominating the project.
4. When completing the application be certain to thoroughly review the CTC 2018 Trade Corridor Enhancement Guidelines and address all necessary program requirements. The Guidelines are available at: [http://www.catc.ca.gov/programs/SB_1/101817_Final_TCEP_Guidelines\(2\).pdf](http://www.catc.ca.gov/programs/SB_1/101817_Final_TCEP_Guidelines(2).pdf)
5. Do not delete or modify any of the existing nomination application questions.
6. For additional clarifications or questions please contact Scott Sauer at 916-653-4680 or scott.sauer@dot.ca.gov .

2018 TRADE CORRIDOR ENHANCEMENT PROGRAM
Caltrans Project Nomination Application

Each project application with an explanation of the project and its proposed benefits should be limited to 25 pages (excluding the Project Programming Request form). Adhere to all program requirements as detailed in the *2018 Trade Corridor Enhancement Program Guidelines* (Guidelines):

http://www.catc.ca.gov/programs/SB_1/101817_Final_TCEP_Guidelines.pdf

(Do not delete or modify any of the existing nomination application questions.)

Part 1 - Applicant Information

Applicant Agency Name:

Department of Transportation District 2/Shasta Regional Transportation Agency

Primary Applicant Contact:

Title:

Dave Moore/Dan Little	District 2 Director/SRTA Executive Director
-----------------------	---

Applicant Phone No.:

Applicant Email Address:

530-225-3477/530-262-6190	Dave.moore@dot.ca.gov/dlittle@sрта.ca.gov
---------------------------	---

Applicant Street Address:

City:

ZIP Code:

1657 Riverside Dr./1255 East Street	Redding	CA	96001
-------------------------------------	---------	----	-------

Implementing Agency Name: (If different from the above)

--

Agency Primary Contact:

Title:

--	--

Agency Contact Phone No.: **Agency Contact Email Address:**

--	--

Agency Address:

City:

ZIP Code:

		CA	
--	--	----	--

Project Location Information:

Caltrans District:

Assembly District:

Senate District:

2	1	1
---	---	---

County	Route	Post Mile (to)	Post Mile (from)	-or-	Latitude	Longitude
SHASTA	5	3.8	11.7			

Part 2 - Project Application

(Refer to Guidelines Section 17)

- A. Confirm that any new terminal project will not have significant environmental impacts, as described in related environmental documents as a result of the storage, handling, or transport of coal in bulk pursuant to Government Code Section 14525.3. In evaluating each new terminal, if related environmental documents are not yet complete, provide written confirmation as appropriate:

No

Provide response if necessary.

- B. Confirm that any capacity-increasing project or a major street or highway lane realignment project was considered for reversible lanes pursuant to Streets and Highways Code Section 100.15:

No

Programming of the project, specifically PA & ED predates the Streets and Highway Code Section 100.15 (*Added by Stats. 2016, Ch. 525, Sec. 1. (AB 2542) Effective January 1, 2017*) for a capacity increasing project or major street or highway realignment project considered reversible lanes.

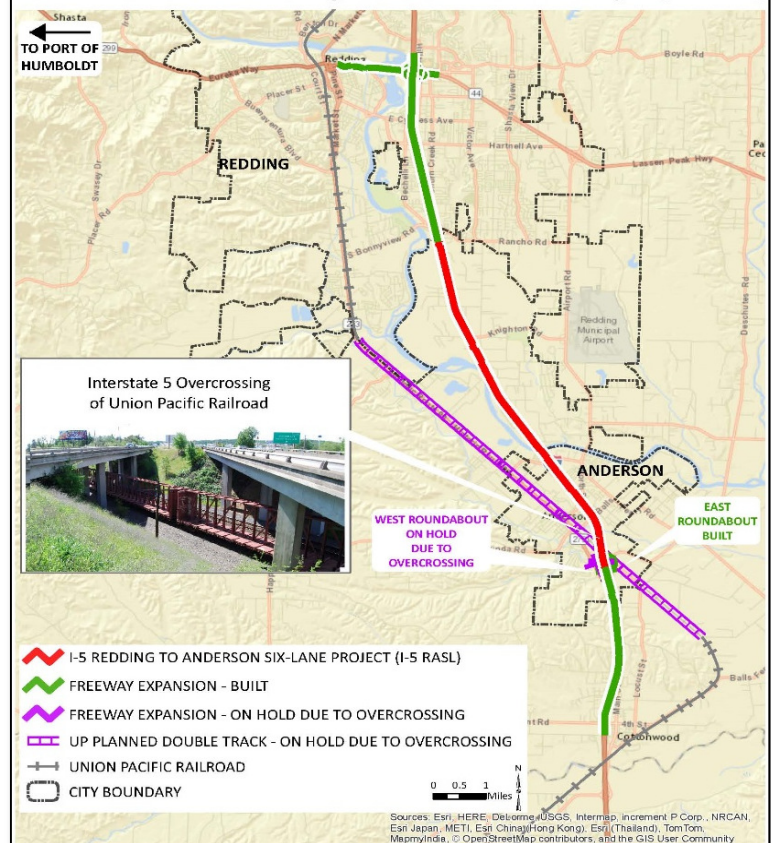
1. Project title:

The Interstate 5 Union Pacific Redding-to-Anderson Six-Lane (I-5 UP RASL) Project preserves freight throughput, velocity, and reliability on Interstate 5 by filling a gap between the cities of Anderson and Redding and replacing or improving several structures.

The scope of work includes the following elements:

- Replace the sub-standard South Anderson Overhead (Bridge # 06 0098 L&R, where the Union Pacific Railroad passes under I-5);
- Widen ten I-5 bridge decks and one culvert;
- Add an additional northbound and southbound lane on I-5, within the existing median right of way, for 7.5 miles between the cities of Redding and Anderson in Shasta County.
- Add CCTV at the I-5 Deschutes Interchange for enhanced real-time system data and operations management; and
- Install fiber optic cable in the median to allow for future technology such as vehicle to infrastructure communications.

PROJECT: Interstate 5 Redding to Anderson Six-Lane Project (I-5 RASL)



I-5 UP RASL Project Coordinates:

- The southern project terminus: Post Mile R3.8 in the City of Anderson
- Northern project terminus: Post Mile R11.7 southern portion of the City of Redding
- South Anderson Overhead structure: 40.441507 Latitude and - 122.287842 Longitude

The Shasta Region has a **long history of partnering** and a **proven ability to deliver** large transportation projects that support state mobility goals and policy priorities. Over the last decade, Caltrans District 2, the Shasta Regional Transportation Agency (SRTA), and local jurisdictions have worked together to successfully plan and complete eleven State Highway System projects worth \$275 million. To date, SRTA has programmed approximately \$65 million in regional funds to the State Highway System and has committed another \$4.2 million in regional STIP dollars for 2018.

The I-5 UP RASL project builds upon this legacy and commitment to the State Highway System with a **comprehensive project that benefits all regions, states, and countries that rely on the I-5 corridor for reliable goods movement and economic development**. The I-5 UP RASL Project is the region's shared top priority and all partners are fully committed to its delivery, as demonstrated by the following activities:

- Coordinated interagency efforts to secure gap funding – Caltrans District 2, SRTA, and local agencies have collaborated to submit TIGER applications in 2014, 2015, 2016, and 2017 and FASTLANE applications in 2016 and 2017.
- Coordinated regional investments in project development – Project design has been completed, including plans, specifications and cost estimates. Planning and environmental phases were completed with local funds. Regional State Transportation Improvement Program funds were used for design and right of way. For construction, TCEP funds will be combined with City of Anderson and Shasta County traffic impact fees, State Transportation Improvement Program-Regional Improvement Program (STIP-RIP), and State Highway Operation and Protection Program (SHOPP) funding.

2. Project priority:

Leave blank.

3. Project background and a purpose and need statement:

As part of the US DOT Primary Freight Network and one of six federally-designated Corridors of the Future, I-5 is paramount to local, state, and national economies. It links the nation's west coast seaports, urban centers of commerce and industry, rural agriculture and natural resource areas, and two international borders. The I-5 UP RASL Project, located in the county of Shasta between the cities of Anderson and Redding, is the region's longstanding top priority and essential to protecting against existing and future threats to I-5 freight velocity, and reliability. Project needs – and how the I-5 UP RASL Project will address each need – include the following:

NEED #1: THE REGION HAS COMPLETED SURROUNDING NETWORK IMPROVEMENTS, BUT THE I-5 UP RASL PROJECT WILL REMAIN OUTSIDE OF THE REGION'S CAPACITY TO DELIVER – Caltrans District 2, Shasta Regional Transportation Agency, and local agencies have collaborated on numerous corridor improvements in recent years. As illustrated in Exhibit A, the following network improvements have been completed:

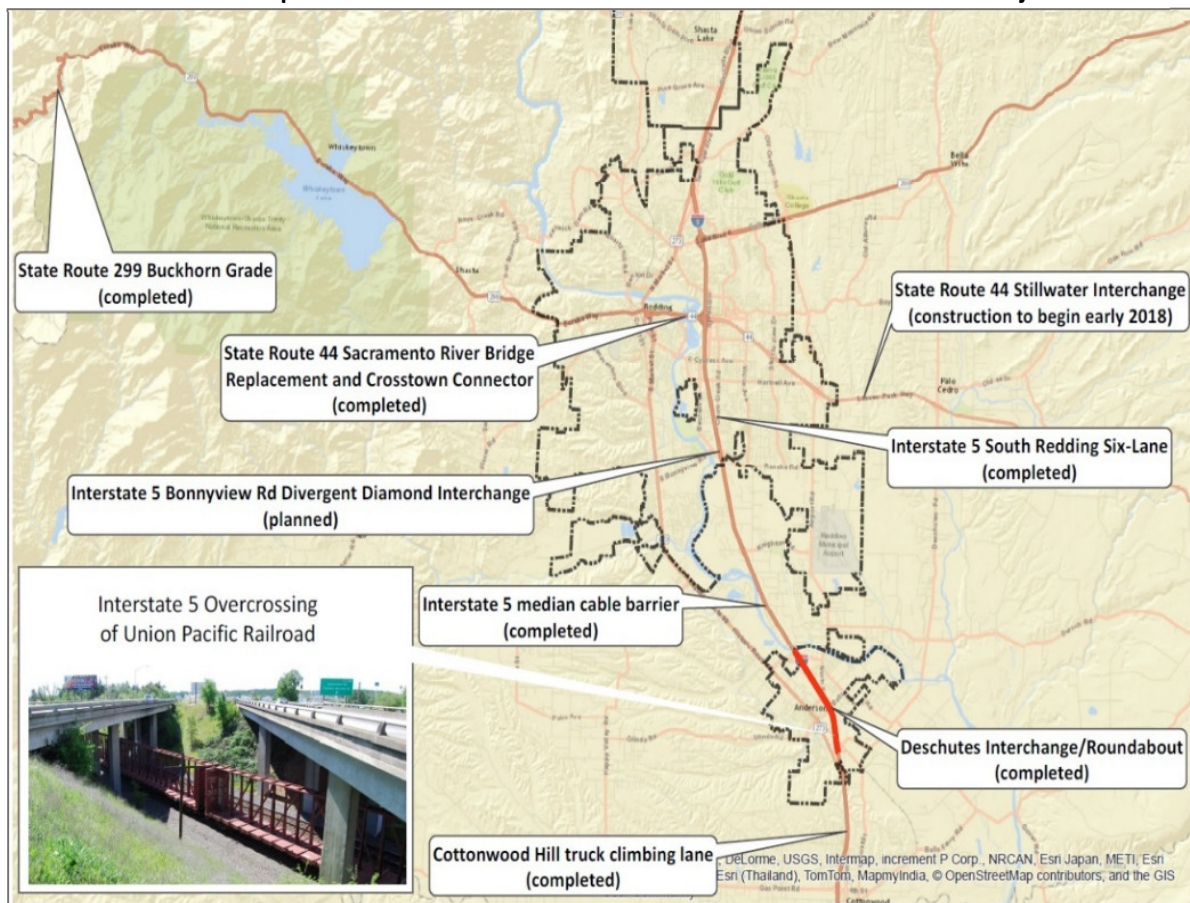
- I-5 South Redding Six Lane Project (located just north of the project site);
- I-5 Deschutes Road off-ramp and roundabout (located within the project limits); and
- I-5 Cottonwood Hills Truck Climbing Lane (located at the southern terminus of the project);
- State Route 299 Buckhorn Grade realignment (now open to STAA trucks); and
- State Route 44/Stillwater Road Interchange (construction to begin early 2018).

Together, regional partners have done everything within their resources to maintain and strategically improve the network, yet the four-lane bottleneck between the cities of Redding and Anderson will remain out of reach due to its complexity. Here, I-5 intersects the Union Pacific Railroad at the South

Anderson Overhead, which must be replaced to allow for additional travel lanes and expand freight rail capacity. Ten additional structures must also be improved.

It is important to note that a TCEP award for the I-5 UP RASL Project will not supplant other funds, nor is it a need created by past neglect. Rather, the I-5 UP RASL Project is part of a proactive and comprehensive corridor management approach detailed in Section 5 of this application. A TCEP award, in concert with adjacent network improvements and travel demand reduction strategies, will ensure the corridor's long-term operation and a state of good repair. Without a TCEP award, the I-5 UP RASL Project will continue to be outside of the region's financial capacity to deliver.

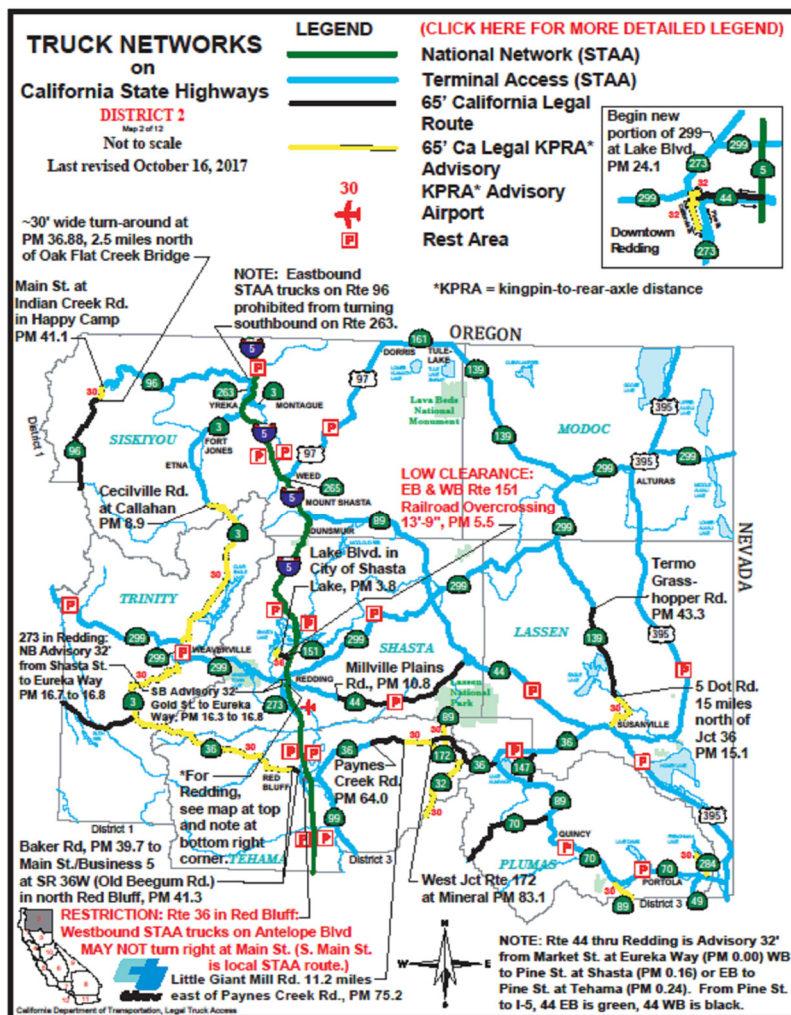
EXHIBIT A: Recent transportation network enhancements located near the I-5 UP RASL Project



NEED #2: I-5 THROUGH THE SHASTA REGION IS VULNERABLE AND WITHOUT PRACTICAL ALTERNATIVE ROUTES – I-5 serves as both freight conduit and local arterial in the Shasta Region, carrying the highest average daily trips along any segment of I-5 for 315 miles to the north (Eugene, OR) and 150 miles to the south (Interstate 5/State Route 99 Junction). It is also where I-5 is intersected by freight rail and State Route 299/44. Despite the strategic importance of I-5 in the Shasta Region to state and national economies, there are no practical alternate STAA routes.

EXHIBIT B: The sole alternate route for STAA trucks through the Shasta Region is directly through the Downtown Redding Central Business District (right). The next and only option is through Sacramento and Reno, Nevada via I-80 and SR 395.

The nearest alternate route for freight rail is through Salt Lake City, Utah (below)



Should the flow of freight on the I-5 corridor be interrupted between the cities of Redding and Anderson for any reason, the only STAA compliant alternate route travels directly through the Downtown Redding central business district. The next and only alternative for north-south truck freight is through Sacramento and Reno, Nevada via I-80 and State Route 395. Should Union Pacific freight rail lines be compromised for any reason, freight trains would need to be redirected through Salt Lake City, UT. Either option would send ripple effects throughout the economy. The I-5 UP RASL Project will safeguard against extended closure by addressing the following known vulnerabilities:

- Vulnerability #1: Winter weather-related closures** – Just north of Redding, I-5 leaves the Sacramento River Valley Floor and into the Cascade Mountains. Heavy snow is common 1,000 feet above sea level, requiring regular winter closures at Exit 685 (Shasta Dam Boulevard). **Closures back-up northbound I-5 for miles and snarl local communities and roads.** During winter closures, I-5 through Redding is effectively closed to local traffic and freight trucks spill onto local streets and roads. Local mobility and business operations are severely impacted during these occurrences.

The I-5 UP RASL Project addresses these impacts in several ways. First, ITS elements will enable Caltrans District 2 Maintenance and Traffic Operations Division to improve advance warnings of closures and delays, helping freight truck operators make more informed travel choices. Operators may choose to park farther south, select an alternate route, or delay the trip. Secondly, a continuous third lane on I-5 will provide additional space for traffic queuing through urban areas and reduce freight spillover onto local streets and roads.



Exhibit C: Freight trucks back up to south Redding during winter closures, effectively closing I-5 to local traffic. Freight trucks also spill over to local streets and roads, affecting local businesses



- **Vulnerability #2: Freight train derailments – The Union Pacific Railroad/I-5 South Anderson Overhead does not meet current vertical and horizontal safety clearance standards between rail lines and I-5 bridge supports which are not protected.** In the event of derailment, environmental impacts, injuries and/or fatalities, and extended corridor delays or closure may occur. Serious damage to the South Anderson Overhead would require a temporary structure, which would take at least four months to complete.

These concerns are heightened by a history of actual derailments in proximity to the project. **Since 1975, there have been 56 derailments in Shasta County, six which occurred within three miles of the overhead.** In 2014, a Union Pacific train derailed just north of the project site and struck an Interstate-5 structure support. This structure is a more modern design and damage was minor; however, the incident served as a wakeup call and warning for the older South Anderson Overhead Structure. The risk can be averted with a new overhead that is compliant with minimum vertical and horizontal clearance standards for passing trains.

Exhibit D: Substandard South Anderson – Interstate-5 Overhead



The South Anderson Overhead has substandard vertical and horizontal clearances and no protection from a train derailment



A recent derailment just north of the I-5 UP RASL Project served as a warning to the much more vulnerable South Anderson Overhead

UPRR Clearances	Existing	Absolute Minimum	Standard	New Clearances
Vertical	22'8"	23'4"	23'4"	23'4"
Horizontal	17'8"	18'	25'	25'

- Vulnerability #3: Traffic collisions caused by speed differential and merge movements** – Delays created by motor vehicle and truck accidents on I-5 in the Shasta Region are frequent and will increase as local and through freight volumes continue to increase. I-5 is elevated through the city of Anderson to allow for grade separation with the Union Pacific rail line. **On and off-ramps have short uphill acceleration zones before merging with high-speed traffic.** The I-5 UP RASL Project will reduce collisions, injuries, and deaths and generally improve traffic operations by addressing the speed differential of merging vehicles – particularly of freight trucks. **Of the 116 accidents resulting in fatality or injury within the I-5 UP RASL Project area between the years 2010-2016, 50% involved a truck trailer.** An additional 27 property damage only collisions occurred on this segment during the same time period.



Exhibit E: I-5 is elevated through the city of Anderson. On ramps have short and steep uphill acceleration zones before merging with high-speed, two-lane interstate traffic.



**Southbound Deschutes
Road on-ramp**



**Southbound Balls Ferry
Road on-ramp**

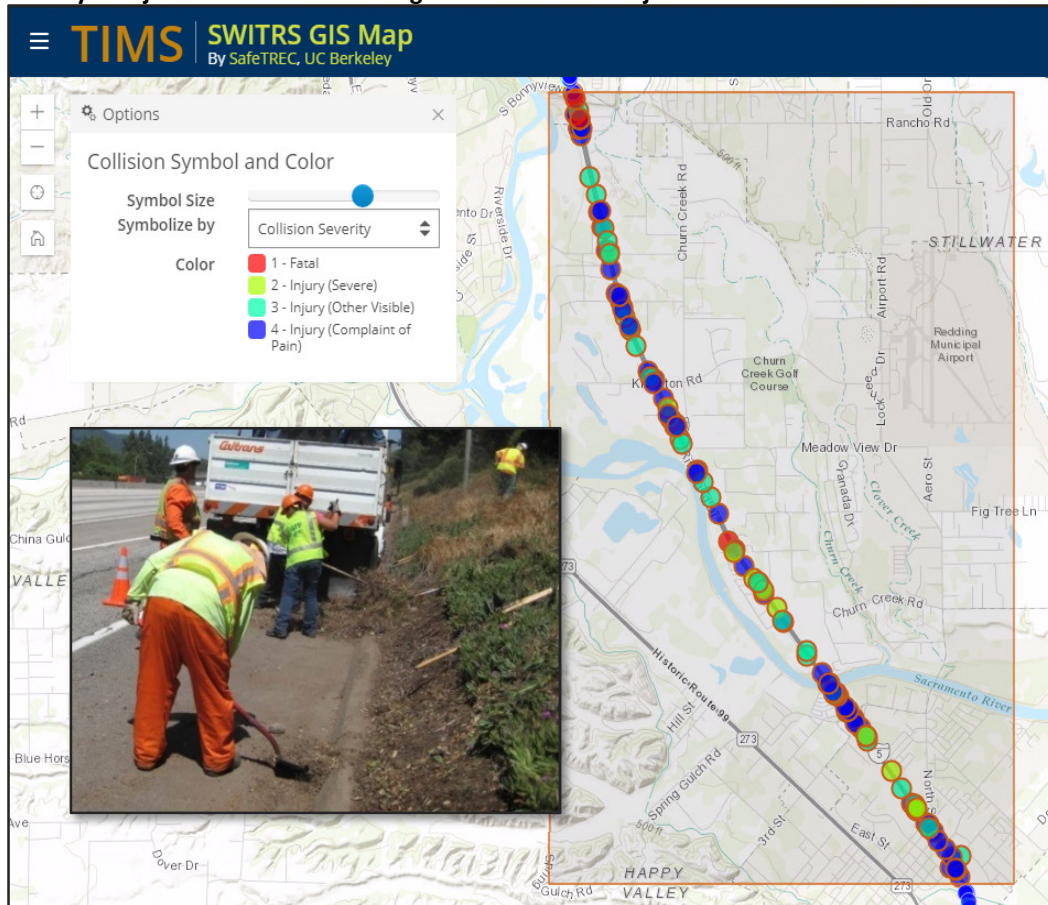


**Northbound Balls Ferry
Road on-ramp**

NEED #3: SAFETY FOR ROAD WORKERS – According to Transportation Injury Mapping System (TIMS) data there were a total of 116 collisions resulting in injury or fatality along the RASL Project (South Bonnyview to Deschutes) corridor between 2010 and 2016 (see Exhibit F). Given the present reduction of travel lanes (from six to four) and the increasing volume of heavy trucks entering I-5 from Deschutes Road, it is anticipated that the frequency and severity of collisions will increase within the I-5 UP RASL Project limits without proposed improvements.

The I-5 UP RASL Project will provide more room for maintenance workers and first responders to stay out of harm's way. The project will widen median shoulders and add a concrete barrier where the median space between northbound and southbound lanes is presently narrow. The additional area will also allow maintenance work to be completed using day-time closures rather than night crews when visibility is reduced. Long life pavement will also be used to limit the exposure experienced by road crews and the traveling public during maintenance and construction activities.

Exhibit F: I-5 Corridor Transportation Injury Mapping System (TIMS) output, showing recent history of injuries and fatalities along the I-5 UP RASL Project location.



NEED #4: ACCESS TO MULTIMODAL FREIGHT FACILITIES IS LIMITED AND RAIL SWITCHING CAPACITY IS CONSTRAINED BY INCOMPATIBLE URBAN DEVELOPMENT – Intermodal freight capacity in the Shasta

Region is limited to one location in Downtown Redding. This site has several constraints:

- It is boxed in by urban development and is incompatible with surroundings conditions. It is in a highly congested and growing urban area with no railroad grade separations. Freight rail switching results in extended vehicle delays and operational impacts at nearby intersections. These delays cause increased vehicle emissions and impact emergency response times.
- It is a 'Strategic Growth Area' in the region's adopted Sustainable Communities Strategy (SCS). The area has several CalEnviroScreen-documented public health and welfare threats, including: cleanup sites (87th percentile); asthma (87th percentile); poverty (91st percentile); unemployment (95th percentile); and housing burden (94th percentile). The region has a target of 577 additional housing units in this area, of which 79 are currently in development.

Given local traffic impacts, SCS-related growth and development, and the impacts to disadvantaged residents, expanding freight rail operations in Downtown Redding is not practical or desirable. An alternate site has been identified at the city of Anderson industrial park. Replacing the South Anderson Overhead will simultaneously address two major freight issues:

1. Limited freight rail access to Anderson industrial site – Public and private sector partners cannot develop the city of Anderson industrial park into an active intermodal freight facility due to the short rail spur. With the additional right-of-way, the existing rail spur under the South Anderson Overhead can be converted to a double track, and new freight rail siding can be constructed to allow adequate freight loading and offloading capacity at the Anderson industrial site. The 2015 RTP, the North State Transportation for Economic Development Study, and the Shasta Consolidated

Freight Hub Study have all identified the city of Anderson industrial park as the ideal location for a multimodal freight hub serving the North State, pending completion of the I-5 UP RASL Project.

2. Physical constraints at Downtown Redding freight rail switching site – The I-5 UP RASL Project will, for the first time, provide a viable alternative to freight rail switching in the urban core and dramatically increase the capacity to load and offload freight between trucks and rail cars.

NEED #5: FREIGHT AND PASSENGER RAIL THROUGH CAPACITY IS CONSTRAINED AT THE SOUTH ANDERSON OVERHEAD BOTTLENECK

—Union Pacific Railroad plans to double-track the corridor to meet future freight rail demand. As noted in Exhibit O, rail volume-to-capacity will soon be at capacity. The South Anderson Overhead currently has one track and a rail siding that is too short for freight rail switching and insufficient to support development of the intermodal freight hub at the Anderson industrial park. This rail siding through the South Anderson Overhead will be converted for use as a mainline double track. Alongside the Anderson industrial park, the existing 1,700 rail spur will be extended, and a new rail spur will be constructed. Together these improvements will provide two through tracks for freight and passenger rail, as well as adequate side track space for freight rail switching operations and freight loading and unloading between rail and trucks at the Anderson industrial park.

Removal of this freight rail bottleneck will enable passenger rail expansion to be considered for the first time. Currently, only one passenger train serves Redding at 2:21am. Because freight rail always has priority right of way, Amtrak passenger train service is often delayed. The service has been so inconsistent and unpredictable that early ticket sales have been discontinued at the Redding station. Double tracking of the Union Pacific corridor will provide the capacity needed to alleviate this freight-passenger rail conflict, making additional passenger rail service possible with greater schedule reliability and at more reasonable hours of the day.



Exhibit G: Adjacent transportation infrastructure investments that have been tabled pending replacement of the South Anderson Overhead

4. Concisely describe the project scope and anticipated benefits (outcomes and outputs) proposed for funding:

The project's major components are as follows:

- Replace the sub-standard South Anderson Overhead (Bridge # 06 0098 L&R, where the Union Pacific Railroad passes under I-5);
- Widen ten I-5 bridge decks and one culvert;
- Add an additional northbound and southbound lane on I-5, within the existing median right of way, for 7.5 miles between the cities of Redding and Anderson in Shasta County.
- Add CCTV at the I-5 Deschutes Interchange for enhanced real-time system data and operations management; and
- Install fiber optic in the median to allow for future technologies that improve operations.

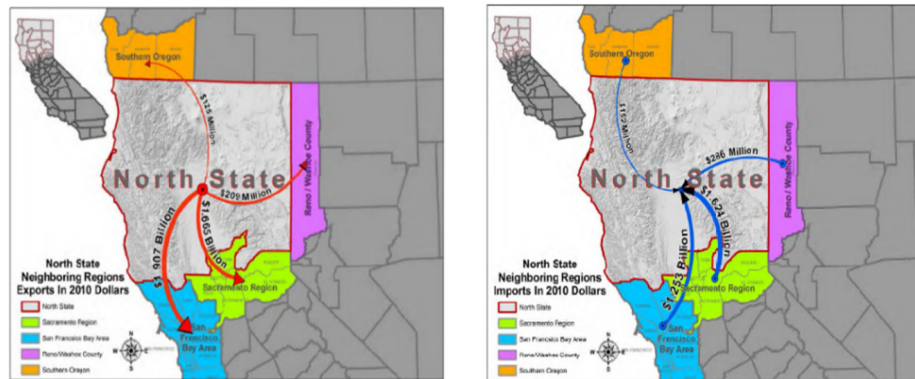
Benefits of the project include the following:

- Predictable and consistent freight movement – At the north and south ends of the project site, I-5 is reduced from 6 to 4 travel lanes. Heavy trucks entering from the short uphill Deschutes Road onramp must merge with vehicles traveling at interstate speeds. The additional lanes will alleviate this bottleneck and increase corridor reliability by reducing the number of collisions in this high-conflict zone. The north end southbound narrowing to four lanes results in regular stop-and-go traffic. Weather related closures also impact the corridor. The scope of work includes ITS elements to more effectively broadcast closures to through traffic. With this information, freight trucks and the traveling public may choose a different route or delay their trip. The additional lane will also provide more queuing space during backups. Caltrans District 2 Maintenance and Traffic Operations Division's response time to accidents and other disruptions will also be reduced.
- Eliminates a known freight network vulnerability and public safety risk – The South Anderson I-5/Union Pacific Railroad Overhead is over 50 years old and has substandard vertical and horizontal clearances for passing trains. Each day, approximately 52,000 vehicles, 8,200 freight trucks, 1,600 freight rail cars, and two Amtrak passenger trains intersect at this single crossing. A train derailment, cargo protruding from a railcar, or other incident at this location could compromise the overhead and close Interstate 5 for a minimum of four months until a temporary structure could be built. UPRR operations would also be compromised. I-5 has no practical alternative routes in the Shasta Region. Rerouting interstate traffic onto local arterials and through Downtown Redding would require assistance from Caltrans Field Maintenance and law enforcement; permit loads would need to be suspended; and maintenance costs would increase for local roads.

From an operational safety perspective, I-5 UP RASL Project will provide more room for maintenance workers and first responders to stay out of harm's way. Long life pavement will also help limit the exposure experienced by road crews and the traveling public during maintenance and construction activities.

- Removes obstacles to rural economic development – Current and emerging industry in California's North State rely on I-5 for reliable and cost-effective goods movement to grow and prosper. As shown in Exhibit H, the region annually imports and exports freight worth several billion dollars.

Exhibit H: North State's Regional Exports and Imports



Several major economic development initiatives and local circulation infrastructure projects cannot be carried out without the I-5 UP RASL Project. As shown in Exhibit G, phase two of local circulation improvements needed to better connect Downtown Anderson (west side of I-5) and the city's industrial park (east side of I-5) cannot be completed because they do not align with the configuration of current on- and off-ramps. The adjacent underutilized industrial park cannot be developed into a multimodal freight hub because of insufficient usable rail right of way due to bridge encroachment of the South Anderson Overhead. Furthermore, these transportation-related obstacles are hindering regional efforts to rebalance jobs and housing in the south Shasta County, creating unnecessary travel demand on the corridor.

- Preserves long-term freight rail volume-to-capacity – Without double-tracking, the Union Pacific Railroad corridor will be at capacity (LOS E) by 2035.
- Provides rail corridor capacity needed to increase passenger rail frequency and reliability – Current services are inadequate and unreliable because freight rail trains take priority. With I-5 UP RASL Project will permit double-tracking of the corridor, freeing up capacity needed to add daytime service.

5. Describe how the project furthers the goals of the California Freight Mobility Plan and the guiding principles of the California Sustainable Freight Action Plan:

An effective goods movement program must do more than react to bottlenecks, deteriorating pavement, and collision rates. It should work toward a system of networked facilities and services supported by information and communication technology. It should be broadly accessible and reliable. It should include options for priority express service for time-sensitive commodities as well as lower-cost options for non-perishables. It should be adaptive and resilient in the face of changing economic trends, emergency response efforts, and climate change. It should include strategies that capitalize on new and emerging technology and cultivate public-private partnerships that maximize efficiency and productivity. It should include performance metrics for tracking progress toward objectives. It should minimize environmental impacts and alleviate social, healthy, and economic inequalities. And it should purposefully and systematically move the region toward greater economic diversity, sustainability, and self-sufficiency over time. Regional partners understand that all these factors together are what constitutes a comprehensive freight program and are working systematically and deliberately to support the full spectrum of state policy objectives.

The I-5 UP RASL Project is balanced with a larger set of complementary investments and initiatives that address the travel demand-side of the equation and that help realize a broad range of co-benefits. The following specific strategies illustrate this holistic approach:

1. Innovative strategies that maximize freight throughput on the I-5 corridor:

- Freight movement in a rural economy is dispersed over a large area. Natural resource and agriculture commodities, for example, are extracted or produced throughout Shasta County and the greater North State region. Many of these rural commodities, such hay, livestock, and timber, are high in volume/tonnage with concentrated seasons of transport demand.

Individually, most producers do not have the volume or capital resources to economize the goods movement component of their business.

A more efficient and accessible means to aggregate and distribute commodities is needed to maximize productivity and minimize stress on the interregional network. On the heels of the recently completed Shasta Consolidated Freight Study, public and private sector partners are evaluating freight logistics technology to support industry clustering among the many hundreds of smaller producers known as 'ag of the middle'. Freight consolidation among these producers will increase throughput by reducing inefficiencies that are commonplace among rural economies, including deadheading, partial loads, and many small loads.

- The absence of intermodal freight facilities between southern Oregon and the Sacramento area puts North State industry at a competitive disadvantage. Additional freight options are needed for importing raw materials and industry inputs, as well as for exporting raw materials and commodities to external markets. Presently, the Shasta Region and surrounding rural counties are almost entirely dependent upon trucking for these needs. A large portion of this incoming and outgoing freight could be moved to freight rail. An intermodal freight hub location has been identified adjacent to the I-5 UP RASL Project site where I-5 and freight rail intersect; however, this initiative cannot be pursued further without additional freight rail right of way at the South Anderson Overhead.

2. Innovative strategies that reduce non-freight travel demand on the I-5 corridor:

- The Shasta Regional Transportation Agency is spearheading a multi-region effort to introduce intercity bus on the I-5 corridor between Redding and Sacramento, with feeder service from other surrounding rural counties. With planning support from Caltrans, a preliminary study has been completed and a comprehensive business plan is in development. A Transit and Intercity Rail Capital Program (TIRCP) application was recently submitted for this purpose. The project scope includes park and ride lots along the I-5 corridor. Destinations include the Sacramento International Airport, Sacramento Valley Transit Station, and Downtown Sacramento. Annual ridership is anticipated to be in excess of 95,785, greatly helping reduce non-freight travel along the entire Sacramento Valley I-5 corridor.
- Roughly one-half of average daily trips on Interstate 5 between the cities of Anderson and Redding are local trips. A large share of these local trips are work commute trips from south-county communities to the city of Redding. To minimize peak hour travel demand on I-5, a better jobs-housing balance is needed in the south-county area. The city of Anderson recently annexed underutilized industrial property adjacent to the I-5/Deschutes Road/Union Pacific intersect. The I-5 UP RASL Project will help restore jobs at this location by eliminating major transportation-related barriers and enabling local east-west circulation improvements to proceed. Resultant job growth in the south-county area will help minimize local commute trips to preserve peak hour capacity for freight on the I-5 corridor.

3. Innovative strategies that optimize network operations and state-of-good-repair:

- As documented in the Integrated Traffic Data Collection & Management Plan for the Shasta County South Central Urban Region (Oct 2013), the region will be installing new permanent mainline vehicle count stations and on and off-ramp vehicle count stations to the north and south. This is in addition to existing count locations as shown (see Exhibit J). The I-5 UP RASL Project scope includes a new CCTV installed near the new South Anderson Overhead and new fiber optic in the median in preparation for impending technology (e.g. vehicle-to-infrastructure communication). All improvements will be connected to the network for real-time data collection and processing to allow for enhanced traffic management and incident response and better utilization of changeable message signs.
- Custom information relay software collects CCTV and Roadway Weather Information System (RWIS) data over a TCP/IP network, then sends the data automatically to the Caltrans

Commercial Web Portal (CWWP). Partner agencies and the general public utilize this information for current conditions.

Together, these systems aid in weather related closures – a common occurrence in the area due to mountainous terrain just north the project site. Freight operators and motorists will benefit from more informed pre-trip and in-route decisions when an incident does occur. Freight truck operators may choose to park farther south, select another route, or delay the trip.

- The I-5 UP RASL Project includes design standards that minimize future maintenance and associated disruptions to traffic flow. For example, long lasting pavement has been specified.

4. Innovative strategies that strengthen communities, expand opportunity and support public-private partnership:

- The I-5 UP RASL Project is central to regional and local economic initiatives (described in Section 4 of this application) that will add job opportunities for disadvantaged and low-income populations in the south-county area. Jobs will be accessible through a variety of transportation modes, as noted in the region's SCS.
- The I-5 UP RASL Project will provide a suitable alternate location to Downtown Redding for freight rail switching – discussions of which cannot proceed without the I-5 UP RASL Project. This longer-term objective is a high priority because: 1) the traffic congestion and delayed emergency response time caused by freight rail switching in Redding's central business district; 2) the impact of PM 2.5 and other freight rail emissions in proximity to disadvantaged communities in Downtown Redding; and 3) freight rail switching is not compatible with current and anticipated land use in the Downtown Redding Strategic Growth Areas as described in the region's adopted SCS.
- The I-5 UP RASL Project will reduce the risk of hazardous materials release from a derailment.
- The I-5 UP RASL Project will remove obstacles to future development of an intermodal freight terminal at the adjacent industrial site, needed to consolidated truck freight and enable freight rail usage for high volume/tonnage non-perishables (timber, agriculture, minerals, etc.). Combined, these strategies will reduce freight trips on I-5 and accompanying emissions and wear and tear on the I-5 corridor.

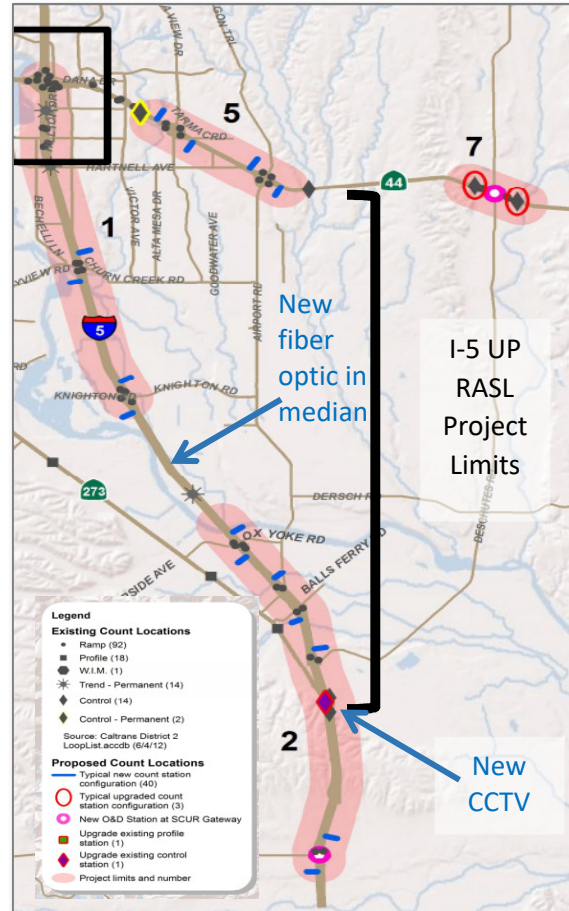


Exhibit J: ITS and technology-ready infrastructure is key to avoiding long backups on I- 5

As outlined above, the I-5 UP RASL Project will provide value-added outcomes in the areas of sustainability; climate change resiliency; social, environmental, and economic equity; job growth and regional prosperity; and public health and well-being. By pairing the I-5 UP RASL Project with innovative travel demand management strategies, the region is effectively furthering the goals of the California Freight Mobility Plan and the guiding principles of the California Sustainable Freight Action Plan.

6. Describe how local residents and community-based organizations were engaged in developing the project:

Considering completed I-5 corridor studies, plans, and programs; the longstanding priority status of the I-5 UP RASL Project; and numerous grant applications submitted over the years, the I-5 UP RASL Project is arguably the most widely circulated and scrutinized project in the region. In 2006, the Shasta Regional Transportation Agency spearheaded the 'Fix 5' initiative, which included the following public and stakeholder engagement and coordination among jurisdictions touching a 62-mile stretch of I-5 in the counties of Shasta and Tehama:

- 11 City Council Meetings
- 4 Board of Supervisors Meetings
- 6 SRTA Board Meetings
- 5 Public Hearings
- 7 Business Group Meetings
- Joint Televised Forum



The I-5 UP RASL Project has been included in past and current Regional Transportation Plans and accompanying environmental impact reviews. The project is likewise reviewed as part of the RTIP development and approval process. Specific outreach activities have included local community open houses, a community survey, public meetings, and extensive media coverage.

Past grant seeking efforts include TIGER grant applications in 2014, 2015, 2016 and 2017 and FASTLANE applications in 2016 and 2017. With each grant application, the project has been the subject of interagency consultation, the collection of letters of support, and deliberation by local elected official via agenda items on local and regional governing councils/boards.

As a result of comprehensive public and stakeholder engagement efforts, the project has received greater than 100 letters of support over the years and has no known opposition. Letters of support for a TCEP grant are provided by attachment, and include the following entities:

- Metropolitan Planning Organization (MPO)
 - Shasta Regional Transportation Agency (SRTA)
- City/County/State Agencies
 - City of Anderson
 - City of Redding
 - City of Shasta Lake
 - Shasta County Department of Public Works
 - California Department of Transportation
- U.S. Congress and California Legislature
 - U.S. Congressman Doug LaMalfa, 1st District
 - California State Assemblyman Brian Dahle, 1st District
 - United States Senator Barbara Boxer
- North State Regional Transportation Agencies
 - North State Super Region (Sixteen California Counties)
- Private Industry
 - Union Pacific Railroad
 - Roseburg Forest Products, Inc.
 - Wheelabrator Shasta Energy Company, Inc.
- Economic Development/Jobs Interests
 - Anderson Chamber of Commerce
 - Central Valley AgPLUS: Food and Beverage Manufacturing Consortium
 - Shasta County Economic Development Corporation
 - Center for Economic Development at California State University, Chico
 - Associated General Contractors of America
 - Growing Local Shasta
 - Shasta Voices

7. Describe how the final project will address community-identified needs along with a description and quantification of the benefits the project will provide for disadvantaged and low-income communities within the specified defined area:

State and national needs and project benefits – The benefits of I-5 UP RASL Project extend far beyond local community and regional needs. It is indispensable to state and national economies because it preserves interregional freight reliability and fixes a known vulnerability in the freight network with potentially catastrophic effects. Should the north-south freight truck and rail conduit be severed at the South Anderson Overhead, the economic affects would ripple across California and the nation. The I-5 UP RASL Project safeguards against this vulnerability.

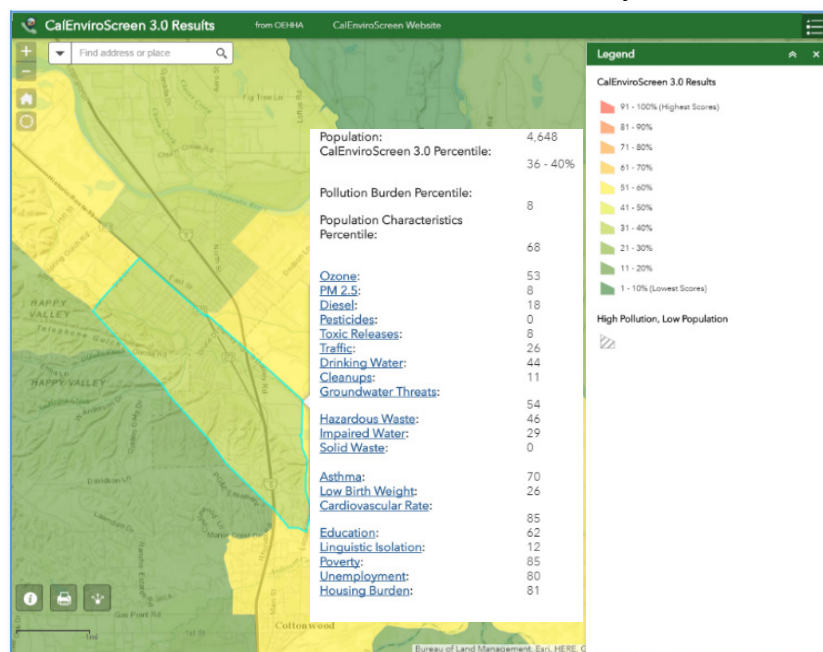
Local needs and project benefits – In addition to the overall functionality of freight system, the I-5 UP RASL Project addresses an economic imbalance identified through community outreach and statistical analyses. Shasta's south county includes many of the lowest income and most disadvantaged Census tracts in the region. Much of the region's affordable housing stock is located in and around the city of Anderson and Cottonwood, while higher-wage jobs are concentrated in the city of Redding. The I-5 UP RASL Project will lead to greater economic activity, jobs, and prosperity where it is needed most by removing obstacle to local economic development that will also help the state meet sustainability goals.

Disadvantaged and low-income status – The I-5 UP RASL Project location (Census Tract 6089012000) score is in the 36 – 40 percentile range of CalEnviroScreen disadvantaged communities (100 being the highest and most disadvantaged areas) and is surrounded by areas have a CalEnviroScreen score of 51 – 60 percentile range (see Exhibit K). According to CalEnviroScreen 3.0, the project area ranks in the 85th percentile of California Census Tracts for poverty, the 80th percentile for unemployment, and the 81st percentile for housing burden.

The project location is also an AB 1550 Low-income Community (see Exhibit F). If selected for TCEP funding, the I-5 UP RASL Project may also impact disadvantaged and low-income areas in the city of Redding. More specifically, I-5 UP RASL Project is necessary to continued discussions with Union Pacific to relocate freight rail switching away from Downtown Redding, which is an AB 1550 Low-income Community with CalEnviroScreen score of 51 – 55%. The relocation of freight rail switching is important because Downtown Redding is identified as a Strategic Growth Area in the region's adopted Sustainable Communities Strategy (SCS) and the subject of intensive efforts increase affordable housing and multi-modal transportation accessibility. A \$20 million Affordable Housing Sustainable Communities (AHSC) grant was recently award for 79 new residential units, commercial development, and sustainable transportation infrastructure.

A second AHSC program grant application of comparable magnitude has been submitted for the 2017 cycle. Because current and future land use in the Downtown Redding Strategic Growth Area are not compatible with freight rail switching operations, an alternative site has been identified at the city of Anderson's industrial park and future intermodal hub. Unfortunately, neither the

Exhibit K: CalEnviroScreen Score of the I-5 UP RASL Project Location



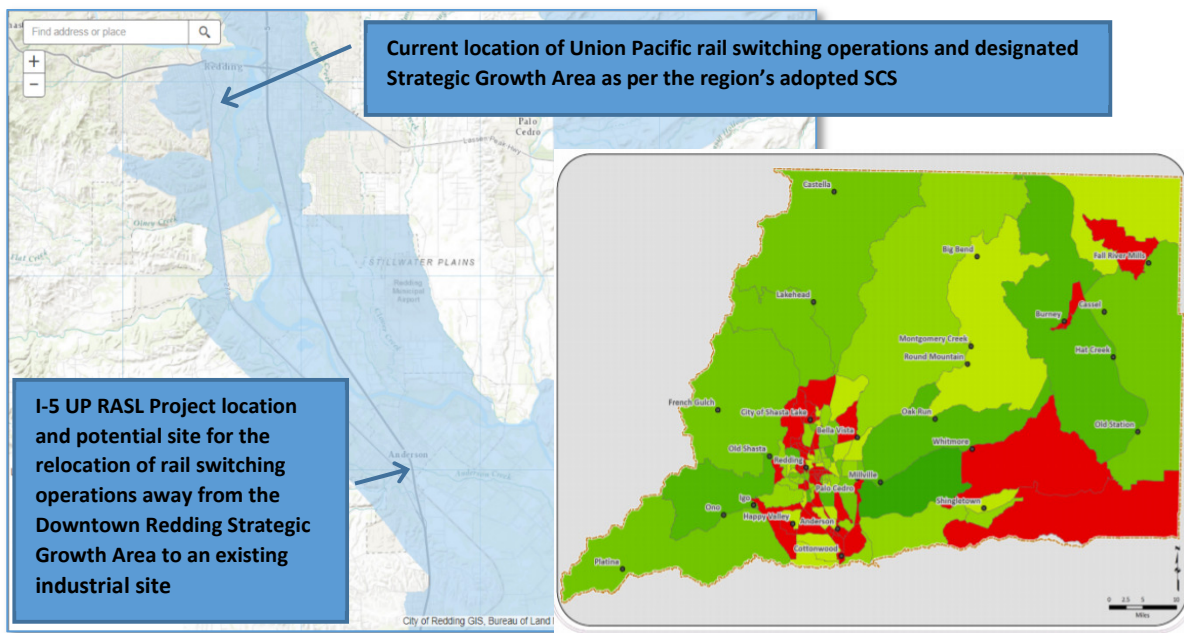
intermodal hub concept nor discussions regarding the relocation of rail switching can be pursued until the South Anderson Overhead is expanded to allow for an extended freight rail spur.

In addition to CalEnviroScreen results and AB 1550 low-income status, the project location is in a regionally-defined disadvantaged community. As documented in the adopted 2015 Regional Transportation Plan for the Shasta Region (Exhibit G), locations with higher concentrations of residents with the population having the following characteristics:

- Minority status (>20% Hispanic or non-White)
- Single-parent households (>20% single parent households)
- Elderly (>10% over 75)
- Children (>20% under 18)
- Educational attainment (>15% age 25 and older with less than high school diploma)
- Linguistic isolation (>5% of households with no one over age 14 who speak proficient English)
- Vehicle mobility (>40% households with vehicle)
- Active transportation mobility (Census block groups without bike and pedestrian facilities)
- Transit mobility (block groups without public transportation services)
- Housing cost burden (>20% of households pay >50% of household income for housing)
- Median household income (<80% statewide median household income)

Quantifiable benefits to disadvantaged communities include new jobs. Based on average square feet per employee within targeted industries (approximately 1 employee per 450 square feet) and one-third of the available 95 acres of industrial land being developed, as much as 1,080 additional jobs will be added at industrial park over the next 20 years. Daily vehicle miles traveled per household will be reduced by an average of 21.4 miles (45% reduction) as a result of improved jobs-housing balance. Alternative mode share in the Anderson Strategic Growth Area will increase, reducing single occupancy vehicle trips by 3 to 5% within the 20-year Regional Transportation Plan/Sustainable Communities Strategy planning horizon (ShastaSIM Travel Demand Model, 2015). In conjunction with other regional strategies, per capital greenhouse gas and other emissions will be reduced by 4.5% by 2035

Exhibit L: AB 1550 Low-income Communities (left) and Disadvantaged Community Analysis from the 2015 RTP/SCS for the Shasta Region (right)



8. Provide a description and map (or maps) of how the final project will address community-identified needs along with a description and quantification of the benefits the project will provide for other communities not falling under the above definitions:

The most severely disadvantaged communities in the Shasta Region surround the I-5 UP RASL Project area. The greatest economic asset in the south county area is the convergence of I-5 and the Union Pacific rail line at the city of Anderson's industrial park. This site cannot be fully developed into a sustainable intermodal freight and employment center until the I-5 UP RASL Project provides additional right of way necessary for freight rail expansion. In addition, local circulation improvements that better connect the industrial site to the community cannot be completed until the southbound Deschutes Rd/Factory Outlets Drive off ramp (Exit 667) is realigned.

Outside of the immediate project area, finding an alternative to freight rail switching operations in Downtown Redding has been a longstanding community need. Currently, only one grade-separated crossing exists at State Route 299 on the north end of downtown Redding. Every time rail switching occurs, trains block local arterials. Union Pacific Railroad is not limited to what time of day or how long trains may block roadways. At times, traffic may back up several blocks, affecting other major arterial crossroads. Rail switching affects system reliability, increases hours of delay, contributes to greenhouse gas emissions from idling vehicles, and delays emergency response times.

The Downtown Redding Strategic Growth Area (the primary focus of SCS-related efforts to increase affordable housing by over 577 housing units) encompasses the current rail switching operations. This location is the focus of two Affordable Housing Sustainable Communities (AHSC) projects (one funded, one pending) that will add over 160 mostly affordable housing units over the next few years. An alternate rail switching location is needed with more compatible surrounding land uses in order to reduce impacts to local traffic circulation and disadvantaged communities. The only logical option for relocating rail switching is adjacent to the I-5 UP RASL Project location. Not only are surrounding land uses more compatible (an industrial park with an existing rail spur), but only one minor local roadway would be impacted by rail switching operations. Rail switching at Anderson's industrial park is aligned with the goal of an intermodal freight hub at this site. Discussions with Union Pacific Railroad have been tabled until the South Anderson Overhead clearances are increased to allow for an additional rail line and to meet minimum safety clearances.

This effort will reduce PM 2.5 and Diesel emission in the Downtown Redding Strategic Growth Area, where instances of asthma are in the 87th percentile of California Census Tracts (CalEnviroScreen 3.0). See Exhibit L for current and proposed location of rail switching operations.

9. Provide a project cost estimate which includes the amount and source of all funds committed to the project and the basis for concluding that the funding is expected to be available (Box A). If uncommitted funding is identified, the requirements as outlined in Section 21 of the Guidelines must be included. Cost estimates should be escalated to the year of proposed implementation and be approved by the District Director (Box B):

Box A	REDDING TO ANDERSON SIX LANE (RASL) PROJECT (PM SHA 5 R3.8 to R11.7) (X \$1,000)						*PPR Attached
	PHASE	SHOPP	Local	STIP	TCEP Corridor	TCEP State	
	PA&ED		333				
	PS&E	3,000		3,140			
	R/W Sup	220		60			
	Con Sup	6,100				8,700	
	R/W Cap	1,221		81			
	Con Cap	31,981	700	13,722	24,000	33,000	
	Total	42,522	1,033	17,003	24,000	41,700	

TCEP Corridor match = 14,422
minimum 30%= 7,200

Box B

Refer to Guidelines Section 21 “Committed/Uncommitted Funds” and provide explanation if applicable.

10. When proposing to fund only preconstruction project components, demonstrate the means by which the construction of a useable segment will be funded, consistent with the Regional Transportation Plan or the Interregional Transportation Strategic Plan for projects implemented by Caltrans:

N/A – Caltrans District 2 in partnership on this project are requesting construction funding.

11. Provide a description that demonstrates the ability to absorb any cost overruns and deliver the proposed project with no additional funding from this program, except as noted in Section 9 of the Guidelines:

Caltrans District 2 and SRTA have partnered on many projects throughout the years and have agreed upon project financing and solutions for potential of project cost overruns on the I-5 UP RASL Project. SHOPP funding components would use G12 for initial project overruns. SRTA is in possession of adequate RIP reserves to cover their proportional RIP or TCEP regional share of any overruns. Furthermore, Caltrans District 2 and SRTA have been working in tandem on this project as evidenced in the attached board resolution from the SRTA Board of Directors on 12/13/2017. Concurrently in the works is an agreement/Memorandum of Understanding between the agencies addressing additional project cost overruns and how those will be handled if they do materialize. This agreement/MOU will be recognized by Caltrans and the SRTA Board of Directors at a future Board meeting scheduled in early 2018.

12. Provide a description of the project delivery plan, including a description of the known risks that could impact the successful implementation of the project and the response plan of the known risks. The risks considered should include, but not be limited to, risks associated with deliverability and engineering issues, community involvement, and funding commitments:

Risk: If the project does not receive TCEP funds, then it will be delayed and concurrent SHOPP funding will be delayed. - Note: The SHOPP project “EA 02-3H730” is an asset management project that will fund S HOPP eligible components within the limits of the RASL project.

Response strategy: The SHOPP project cannot be delivered independently of the RASL project.

Risk: The railroad may not approve of the Construction & Maintenance (C&M) agreement for the replacement of the South Anderson Overhead in time for delivery in 17/18.

Response strategy: Keep communications open between the railroad and the project team to ensure delivery. The railroad has the draft C&M agreement currently under review.

Risk: The utility relocation agreements may not be completed for delivery in 17/18.

Response strategy: Keep communications open between the utilities and the project team to ensure delivery. The utility’s relocation plans are due late January 2018.

Risk: Needed right of way (R/W) parcels and easements may not be obtained for delivery in 17/18.

Response strategy accept or mitigate: Use R/W Cert3w or retaining walls to prevent need of easements. Note: Negotiations have begun with property owners.

Risk: Approved environmental permits may not be received for delivery in 17/18.

Response strategy: Keep communications open between the resource agencies and the project team to ensure delivery. Preliminary consultations/field reviews have been done, and the permit applications will be submitted in January 2018.

Risk: The project plans, specifications and estimate may not be completed for delivery in 17/18

Response strategy mitigate: Additional staff and consultants have been added to the project team. Ensure any delivery issues/decisions are quickly handled.

I-5 UP RASL Delivery Plan

<u>PA & ED</u>	<u>8/11/2017</u>
<u>R/W CERT</u>	<u>5/1/2018</u>
<u>RTL</u>	<u>5/4/2018</u>
<u>HQ ADVERT</u>	<u>7/16/2018</u>
<u>AWARD</u>	<u>10/2/2018</u>
<u>APPROVE CONTRACT</u>	<u>10/30/2018</u>

13. Provide a description of the transportation corridor and the function of the proposed project within the corridor:

The I-5 UP RASL Project is located at the transect of two key freight corridors:

- Interstate 5 Corridor – The I-5 corridor spans the entire west coast of the continental United States and connects two international borders. I-5 is a high emphasis route and part of the National Highway System (NHS) and the Interregional Road System (IRRS). It serves as the main north-south route in the western United States, connects all west coast maritime ports, and functions as a principal arterial for intra-regional travel.

Exhibit M: Freight Tonnage

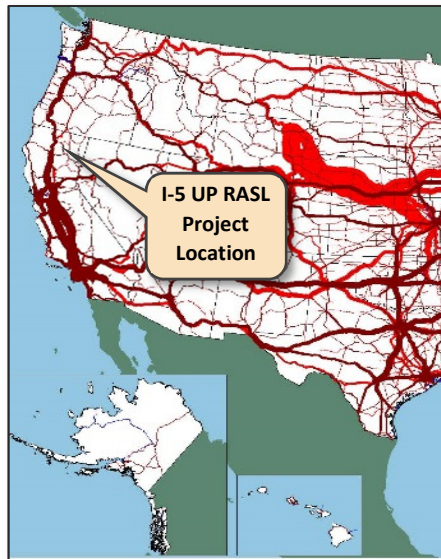


Exhibit N: Freight Railroad Corridors



- Union Pacific Railroad Corridor – Operating parallel to I-5, the Union Pacific Railroad corridor is the most significant freight and passenger rail corridor in the west coast states. The UP Railroad intersects I-5 at the project site.

The function of the I-5 UP RASL Project is to protect the functionality and expand the capacity of both the I-5 and Union Pacific freight corridors. More specifically, the I-5 UP RASL Project removes several vulnerabilities that could result in the temporary or extended loss of the freight truck and freight rail corridor. The project also helps to mitigate the impact of temporary shut downs or restrictions as a result of winter weather events and collisions. Lastly, the project removes several obstacles to sustainable economic development initiatives that complement the region's adopted SCS.

14. Provide a description of the projected quantification and qualitative measures of the proposed improvements:

Other measurable benefits of the I-5 UP RASL Project include:

- Multi-Modal Strategy: A multi-region intercity bus is planned for the I-5 corridor between Redding and Sacramento, with feeder service from surrounding rural regions. Ridership is anticipated to be in excess of 95,785, greatly reducing non-freight travel on the I-5 corridor. Double tracking of the UP-railroad line enables future expansion of passing rail consistent with the recently completed State rail plan.

	Without I-5 UP RASL	With I-5 UP RASL
Throughput:		
Maximum vehicle/hour throughput	2,400	3,600
Number of bottlenecks	2	0
Number of merge conflicts	3	0
Reliability:		
Miles of freeway LOS E/F (2035)	16.1	0.9
Annual vehicle hours of delay (2035)	155,883	25,212
Velocity:		
Average speed	54	64

- **Interregional Benefits:** Provides freight connection between major ports of Long Beach, Oakland (south) and Tacoma Washington and Humboldt (north), intersects with the North States major east west freight connector of State Route 299 and State Route 44.
- **Advanced Technology:** A new CCTV will be installed near the new South Anderson Overhead and new fiber optic in the median. The I-5 UP RASL Project will use existing changeable message signs and readiness for impending technology to provide more accurate and timely traveler data. Freight operators and motorists will be able to make more informed pre-trip and in-route decisions when an incident does occur. ITS elements will enable the district to operate, maintain, and optimize corridor efficiency, while reducing environmental and community impacts. In the future, new permanent mainline vehicle count stations and on/off-ramp vehicle count stations will be added.
- **Air Quality Impact:** Local and state partners are working together to complete a system of fast chargers along the I-5 corridor for vehicles, public transit, and freight trucks. A public fast charger was recently installed along the I-5 UP RASL Project alignment well as the region's first plug-in electric transit bus and charging station. Plans for implementing long-range electric intercity bus coaches and charging infrastructure to serve the I-5 corridor between Redding and Sacramento are in the works.
- **Community Impacts & Economic/Jobs:** The I-5 UP RASL project is estimated to provide between \$1.1 billion and \$2.0 billion in additional economic output, between \$500 million and \$900 million in value added and approximately between \$300 million and \$600 million in wages. According to Caltrans' Economic Analysis Branch will also create or support 201 jobs per year and add roughly \$16.8 million per year to the economy (gross state product) during construction years. An estimated secondary economic benefit totaling \$1.6 billion per The North State Transportation for Economic Development Study are predicted over a thirty-year timeframe.

Partnerships with the local MPO SRTA has been prosperous for both Caltrans District 2 and SRTA. Over the last decade SRTA and local jurisdictions have partnered with Caltrans on 11 projects approximately worth \$275 million on the State Highway System. To date SRTA has also programmed approximately \$65 million of their regional money on the State Highway and is committed another \$4.2 million of their STIP dollars for 2018. The I-5 UP RASL project brings Caltrans District 2 in partnership with the Shasta Region, Shasta County, City of Anderson and SRTA together once again for a comprehensive project benefitting all regions, states, and countries that rely in I-5 for goods movement and economic growth.

Deliverability of the I-5 UP RASL project, accountability and timely use of Senate Bill 1 dollars is most crucial as the project is anticipated for FY 17/18 delivery. The project will be Ready to List (RTL) by May 2018, with construction to begin as early as October 2018. SRTA's STIP/RIP resources have laid the groundwork for the I-5 UP RASL project, to continue forward immediately upon approval of a TCEP grant. The tax-paying public will see the benefits within the first year of the new SB 1 passage.

- 15. Provide a description and quantification of the local and corridor effects of the project on diesel particulate (PM 10 and PM 2.5), nitrogen oxides, greenhouse gases and other pollutant emissions using the Caltrans' Life-Cycle Benefit-Cost Analysis Model 6.0, the SB 1 Intermodal Tool, or the SB 1 Other Projects Tool. Report emissions saved in both tons and dollars (Box A). If another model is more applicable the application should describe why and provide the analysis based on the alternate model in addition to one of the tools identified above (Box B):**

Box A

A Benefit-to-Cost Co2 savings of -2,803 over 20-years was calculated (top table); however, this does not account for the impact of exceptional acute events that shut down the corridor or severely limit its throughput.

A second Benefit to Cost model was run (bottom table) to simulate a weather- or collision-related event causing a reduction of capacity by 50%. This is roughly equivalent to the loss of one I-5 through-lane or a diversion to SR 273. The true value of the overall project is better reflected in this manner. Additional benefits are described further under Section 19 of this application.

Exhibit O: Emissions B/C Calculations

INVESTMENT ANALYSIS SUMMARY RESULTS	
Life-Cycle Costs (mil. \$)	\$133.1
Life-Cycle Benefits (mil. \$)	\$62.4
Net Present Value (mil. \$)	-\$70.7
Benefit / Cost Ratio:	0.5
Rate of Return on Investment:	-2.2%
Payback Period:	20+ years

ITEMIZED BENEFITS (mil. \$)	Passenger Benefits	Freight Benefits	Total Over 20 Years	Average Annual
Travel Time Savings	\$7.5	\$0.0	\$7.5	\$0.4
Veh. Op. Cost Savings	-\$0.4	\$0.0	-\$0.4	-\$0.0
Accident Cost Savings	\$46.5	\$8.9	\$55.4	\$2.8
Emission Cost Savings	-\$0.1	\$0.0	-\$0.1	-\$0.0
TOTAL BENEFITS	\$53.5	\$8.9	\$62.4	\$3.1
Person-Hours of Time Saved			1,029,671	51,484

EMISSIONS REDUCTION	Total Over 20 Years		Average Annual	
	Total Over 20 Years	Average Annual	Total Over 20 Years	Average Annual
CO Emissions Saved	-1	0	-\$0.0	-\$0.0
CO ₂ Emissions Saved	-2,803	-140	-\$0.1	-\$0.0
NO _x Emissions Saved	0	0	\$0.0	\$0.0
PM ₁₀ Emissions Saved	0	0	\$0.0	\$0.0
PM _{2.5} Emissions Saved	0	0	\$0.0	\$0.0
SO _x Emissions Saved	0	0	-\$0.0	-\$0.0
VOC Emissions Saved	0	0	-\$0.0	-\$0.0

Should benefit-cost results include:	
1) Induced Travel? (y/n)	Y
2) Vehicle Operating Costs? (y/n)	Y
3) Accident Costs? (y/n)	Y
4) Vehicle Emissions? (y/n)	Y

INVESTMENT ANALYSIS SUMMARY RESULTS	
Life-Cycle Costs (mil. \$)	\$155.1
Life-Cycle Benefits (mil. \$)	\$4,375.6
Net Present Value (mil. \$)	\$4,242.6
Benefit / Cost Ratio:	32.9
Rate of Return on Investment:	84.6%
Payback Period:	1 year

ITEMIZED BENEFITS (mil. \$)	Benefit	Benefit	20 Years	Annual
Travel Time Savings	\$2,954.1	\$1,078.2	\$4,032.3	\$201.6
Veh. Op. Cost Savings	\$156.2	\$63.0	\$219.2	\$11.0
Accident Cost Savings	\$47.1	\$9.0	\$56.1	\$2.8
Emission Cost Savings	\$29.4	\$38.7	\$68.0	\$3.4
TOTAL BENEFITS	\$3,186.7	\$1,188.9	\$4,375.6	\$218.8
Person-Hours of Time Saved			428,773,287	21,438,664

EMISSIONS REDUCTION	Total Over 20 Years		Average Annual	
	Total Over 20 Years	Average Annual	Total Over 20 Years	Average Annual
CO Emissions Saved	3,510	175	\$0.2	\$0.0
CO ₂ Emissions Saved	1,390,819	69,541	\$40.5	\$2.0
NO _x Emissions Saved	3,344	167	\$25.6	\$1.3
PM ₁₀ Emissions Saved	17	1	\$1.1	\$0.1
PM _{2.5} Emissions Saved	16	1	\$0.4	\$0.0
SO _x Emissions Saved	13	1	\$0.4	\$0.0
VOC Emissions Saved	452	23	\$0.3	\$0.0

Should benefit-cost results include:	
1) Induced Travel? (y/n)	Y
2) Vehicle Operating Costs? (y/n)	Y
3) Accident Costs? (y/n)	Y
4) Vehicle Emissions? (y/n)	Y

Box B

16. Provide a description of how the project furthers the goals, performance measures, and targets of the region's Regional Transportation Plan, and if applicable, it's associated Sustainable Communities Strategy and freight plan:

The I-5 UP RASL Project supports the realization of the following regional goals and objectives documented in the 2015 Regional Transportation Plan and Sustainable Communities Strategy for the Shasta Region:

Goal 1: Optimize the use of existing interregional and regionally significant roadways to prolong functionality and maximize return-on-investment.

The I-5 UP RASL project will proactively maintain interregional facilities and increase the throughput of people and freight on interregional facilities.

Goal 2: Strategically increase capacity on interregional and regionally significant roadways to keep people and freight moving effectively and efficiently.

The I-5 UP RASL project will maximize funding available for transportation and mobility improvements and maintain adequate traffic capacity on the core interregional network.

Goal 3: Provide and integrated, context appropriate range of practical transportation choices.

The I-5 UP RASL project will provide an integrated, context-appropriate range of interregional transportation choices.

Goal 4: Create vibrant, people-centered communities.

The I-5 UP RASL project supports local governments in implementing the Sustainable Communities Strategy by encouraging greater jobs-housing balance and economic self-sufficiency. In the future, Downtown Redding may also benefit from the relocation for freight rail switching and associated emissions to a more context appropriate location.

Goal 5: Strengthen regional economic competitiveness for long-term prosperity.

The I-5 UP RASL project will facilitate sustainable economic development initiatives and resolve transportation-related barriers to increased economic activity and productivity, including the South Anderson Overhead and I-5 bottleneck.

Goal 7: Practice and promote environmental and natural resource stewardship.

The I-5 UP RASL project has no substantial adverse impacts on the environment and will lead to a more resilient transportation systems and services in the face of increasing environmental change, new technology, and societal shifts in mobility.

Recent studies and plans, including the North State Transportation for Economic Development Study (2013), the Regional Transportation Plan for the Shasta Region (2015), and the Agricultural Cluster Assessment for Shasta and Butte Counties (2017), independently identified the I-5 UP RASL Project as a primary transportation-related obstacle to regional economic development. Findings took into consideration the freight needs of existing and emerging regional industry, current and future land use, regional economic initiatives, and the fiscal impact should the corridor be compromised for any reason.

Though invaluable to local, state, and national economies, these studies have attempted to quantify its financial impact. For example, the 'North State Transportation for Economic Development Study' (2013) estimated the fiscal impact of planned state highway expansions in the North State to be between \$1.1 billion and \$2.0 billion in economic output, between \$500 million and \$900 million in value added benefits, and between \$300 million and \$600 million in increased wages. This study also noted the higher than average freight costs for regional businesses and the absence of intermodal facilities to more efficiently aggregate and distribute rural commodities as two key economic disadvantages that should be addressed with urgency. This study specifically identified the intersect between I-5 and the Union Pacific Railroad in the City of Anderson as the optimal location for the intermodal freight hub. Similarly, the North State Consolidated Freight Study (2017) pointed to the I-5 UP RASL Project as a key obstacle in developing adjacent industrial properties into a multimodal freight hub serving a multi-county area rich in natural resources and agriculture production. The intermodal hub is central to coordinated public- and private-sector efforts to bring down freight costs by eliminating deadheading, partial loads, and other inefficient freight practices that are commonplace in the North State's rural, decentralized industries

For these reasons, the I-5 UP RASL Project location has been identified as a 'Strategic Freight Node' of highest priority in the draft Regional Transportation Plan with the intent of aligning public- and private-sector investments. The City of Anderson also annexed these industrial lands with broad industry support led by the Shasta Economic Development Corporation and Superior California Economic Development. The I-5 UP RASL Project will enable the public-private sector discussions with the intermodal hub to move forward. In so doing, the I-5 UP RASL Project will be the impetus for a larger, more diverse, and more sustainable economy.

17. Provide a description of the corridor plan or other coordinated management strategy being implemented by the nominator and other jurisdictions within the corridor to preserve corridor mobility:

Caltrans District 2 and Shasta Regional Transportation Agency partnered to co-develop a North State I-5 Corridor Management Plan. The plan pulled together a wide range of existing and new capacity increasing projects, travel demand management, technology-based solutions, operational improvements, and maintenance activities that will be used collectively to maximize the long-term utility and of the corridor for freight and the traveling public. Within these projects the I-5 UP RASL projects was elevated to the region and District's top priority. These activities are described in detail under application item "5" of this application and not repeated here.

18. Provide a description of how the project uses advanced, clean, or innovated technologies to support the freight transportation system. Also include a description of any associated supporting infrastructure that is included in the project:

A combination of volatile fuel prices, California incentive programs, and continuous advancements in battery technology are opening the doors to plug-in electric vehicles and development of I-5 as a Hydrogen Highway. Shasta Regional Transportation Agency is a member of the Upstate North Plug-in Electric Vehicle Coordinating Council and is working with Redding Electric Utility and state partners to

complete a system of fast chargers along the I-5 corridor for vehicles, public transit, and freight trucks. For example, a public fast charger was recently installed along the I-5 UP RASL Project alignment (North Street exit, city of Anderson) with funding support from the California Energy Commission; the Redding Area Bus Authority was recently awarded an FTA grant for the region's first plug-in electric transit bus and charging station; and the Shasta Regional Transportation Agency is applying for Transit and Intercity Rail Capital Program (TIRCP) for long-range electric intercity bus coaches and charging infrastructure to serve the I-5 corridor between Redding and Sacramento. In the future, this growing charging infrastructure network will support the migration from diesel to electric and hydrogen-powered freight.

19. Provide documentation that the expected benefits of the proposed project justify its costs, recognizing that some costs and benefits can be difficult to quantify. Each application should include analysis utilizing Caltrans' Life-Cycle Benefit-Cost Analysis Model 6.0. If another model is more applicable, describe why and provide the analysis based on the alternate model:

The project costs have been prepared using the Caltrans standards for preparing engineering cost estimates for transportation projects. The project traffic operations benefits have been evaluated using modern traffic modeling and operations tools that have been reviewed and approved by Caltrans.

A Benefit Cost Analysis has been completed for the project (See Exhibit O), resulting in a Benefit-to-Cost ratio of 0.5, providing a -2.2% return on investment over 20 years. These ratios are results from the most up-to-date B/C model provided by Caltrans Transportation Economic Branch.

Though the benefit-cost analysis demonstrates multiple benefits that the project would bring, it is important to note the benefits are understated because the benefit-cost model currently has no methodology to factor in "other" beneficial scenarios related to the interstate structure being replaced to meet new standards, or the value of addressing the inevitable replacement of a 50-year old substandard structure. To more accurately show the benefit of the I-5 UP RASL project, a second model run reduced mainline I-5 to one lane. This model simulates a weather-related closures or collision-related lane restrictions. This scenario has a B/C ratio of 32.9, providing 84.6% Rate of return on investment and saving millions of dollars in travel time, vehicle operation, and accident and emission cost savings. This model also provides an annual reduction in emissions of CO of 175; CO₂ of 69,541; NO_x of 167; PM 10 of 1; PM 2.5 of 1; SO_x of 1 and VOC of 23 tons.

The benefit-cost analysis does not consider how the I-5 UP RASL Project effectively opens the door to economic development, catalyzing investment and growth within the vicinity of the City of Anderson, in southern Shasta County. While not factored into the benefit-cost calculations, the North State Transportation for Economic Development Study projects an economic impact of state highway expansion, including increased output, value added and wages, to be between \$2.7 billion and \$10.2 billion between 2010 and 2040.

20. Where investment of Trade Corridor Enhancement Program funding is proposed to improve private infrastructure, include an assessment of public and private benefits to show that the share of public benefit is commensurate with the share of public funding:

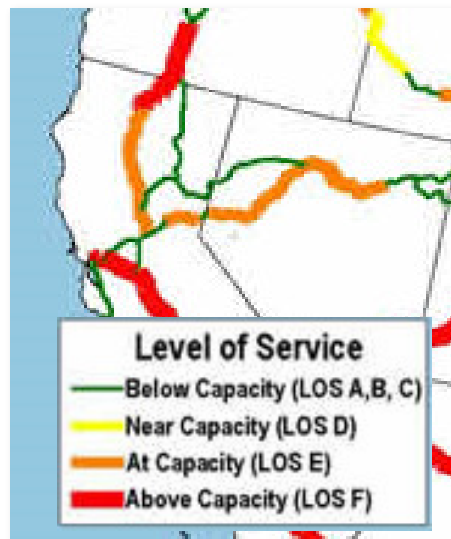
N/A

21. For rail investments acknowledge and describe how the private railroads, regional agencies and appropriate state agencies will come to agreement on public and private investment levels and resulting benefits:

A Construction & Maintenance (C&M) agreement between Caltrans and Union Pacific Railroad is in place that outlines roles and responsibilities of each entity, including minimum standards which Caltrans must meet with its structure for vertical and horizontal clearance distances from UP tracks. The agreement also outlines maintenance responsibilities for structures that occupy the Union Pacific right-of-way. With the South Anderson Overhead structure's replacement, a new agreement with Caltrans and Union Pacific is being structured. The agreement changes the vertical and horizontal clearances to accommodate the anticipated future expansion of the railroad to double track. UP is not financially participating in the I-5 UP RASL project, but project partners will nevertheless meet the standards of the new agreement with UP.

The I-5 UP RASL Project benefits freight by replacing the existing overcrossing structure that is a barrier to double tracking the Union Pacific Railroad. This section of rail is identified as a Tier 1 rail corridor in the California Freight Mobility Plan (CFMP) given its importance to interstate commerce. The north-south Union Pacific Railroad UPRR Freight corridor has the largest geographic reach in the State, connecting to Mexico, Oregon, Washington and Canada. It also provides freight connection between the major ports of Long Beach, Oakland, and Tacoma, WA. As rail demand increases, addition of mainline track to accommodate freight is a supported strategy in the CFMP.

Exhibit O: 2035 freight rail V/C



22. If necessary, provide any additional project detail supporting the Guideline requirements:

To support the rapid implementation of SB1, the region has pulled out all the stops to make the project shovel ready for 2018/19. The Shasta Region has a **long history of partnering** and a **proven ability to deliver** large transportation projects that support state mobility goals and policy priorities. Over the last decade, Caltrans District 2, the Shasta Regional Transportation Agency (SRTA), and local jurisdictions have worked together to successfully plan and complete eleven State Highway System projects worth \$275 million. To date, SRTA has programmed approximately \$65 million in regional funds to the State Highway System and has committed another \$4.2 million in regional STIP dollars for 2018. The I-5 UP RASL project builds upon this legacy and commitment to the State Highway System with a **comprehensive project that benefits all regions, states, and countries that rely on the I-5 corridor for reliable goods movement and economic development.**