Transit and Intercity Rail Capital Program

grant application for

Prototype Fuel Cell Motorcoaches

for the North State Intercity Bus System: Phase 2.0

January 16, 2020

SHASTA REGIONAL TRANSPORTATION AGENCY

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Daniel S. Little, Executive Director

January 16, 2020

David S. Kim, Secretary
California State Transportation Agency
915 Capitol Mall, Suite 350B
Sacramento, CA 95814

Dear Secretary Kim:

In 2018, the Transit and Intercity Rail Capital Program (TIRCP) funded the "Salmon Runner" to provide zero-emission bus service between Redding and Sacramento with stops and feeder routes to serve all communities in the Sacramento Valley. The Salmon Runner was born out of a coordinated effort by the North State Super Region (NSSR) which represents California's 16 northernmost counties. The NSSR covers over one-quarter of California. The dispersed communities and steep terrain make providing intercity bus service a challenge. This is particularly true for deployment of zero-emission technology. An exhaustive procurement process by SRTA revealed that no zero-emission motorcoach exists that can reliably travel the 175 miles between Redding and Sacramento.

The Salmon Runner, as currently funded, falls short of the vision in two major ways: First, the service will require a passenger transfer to a freshly charged bus midway down the I-5 corridor making the service more expensive and inconvenient. Second, the ultimate NSSR vision includes feeder services to the NSSR's coastal and mountain communities — a component not funded in the prior TIRCP effort.

This TIRCP application addresses these challenges through development and demonstration of two fuel cell electric coaches (FCECs) and fueling infrastructure. When complete, the Redding to Sacramento backbone service will be faster and more reliable. Once the FCECs are in use on the I-5 backbone service, the battery-electric coaches purchased under the prior grant can provide new feeder services.

The need for a fuel cell motor coach is not unique to the NSSR. This project will benefit TIRCP goals throughout California by shattering the range and power ceiling of battery-electric buses. SRTA will lead this effort on behalf of all areas of the state so that results can be quickly replicated. The long-term savings and benefits across the state will more than recoup this initial TIRCP investment.

The NSSR is excited about the Salmon Runner concept and its potential to meaningfully connect the northern quarter of California to the substantial train and bus investments in the balance of the state. The 2018 California State Rail Plan calls for a doubling of intercity bus service between Redding and Sacramento. Unfortunately, we are moving in the wrong direction. State-supported services between Redding and Chico were cut in half last year. This TIRCP grant will reverse that by strengthening and expanding the Salmon Runner concept. The best chance for coordinated intercity bus service that effectively connects the NSSR to the balance of the state is to empower the NSSR to develop a system by the regions for the communities which they serve.

Sincerely,

Daniel S. Little, AICP, Executive Director

2. Project Narrative

Contents

Project Narrative

2.1 Project Title Page

Project Title	North State Intercity Bus System: Phase 2.0, Prototype Fuel Cell Motorcoaches
Project Description	The Shasta Regional Transportation Agency (SRTA) is seeking Transit and Intercity Rail Capital Program (TIRCP) funds to partner with a manufacturer for the design, engineering, and building of one or more prototype fuel cell motorcoaches, and for development of the related hydrogen fueling infrastructure and production in Redding and Sacramento. Once the fuel cell motorcoaches are in service, SRTA plans to utilize older zero-emission buses purchased with 2018 TIRCP funds for new, or improved, feeder route services connecting to the Interstate 5 corridor. Development of a fuel cell motorcoach would be a long-term solution to the range and power challenges of long-range intercity bus service, while also implementing state goals related to fuel cell vehicles and hydrogen fueling infrastructure.
Project Purpose and Need	The goal of this project is to build the first ever Fuel Cell Electric Coaches (FCEC), leading to their commercialization. Specific objectives include successfully demonstrating the capability to replace conventional coaches one for one, as reflected by vehicle in-service performance, fuel efficiency, and overall operational efficiencies associated with vehicle availability and fueling station operations. In 2018, SRTA was awarded over $8.6 million in TIRCP capital funding for a zero-emission intercity bus service (North State Intercity Bus System: Phase 1) between Redding and Sacramento, a distance of 175 miles with traveling speeds of 70 mph. Ideally, backbone buses need to travel at interstate speeds and reliably complete the 175-mile one-way trip: on a single charge or a single fueling in the case of hydrogen; under strenuous loads (max passenger load, HVAC); and over the expected life of the vehicle. Battery-Electric (BE) and Fuel Cell Electric (FCE) options are proving to be the two pathways toward achieving a zero-emission goal. Both technologies are needed, but Fuel Cell Electric Vehicles in the heavy-duty sector are demonstrating extended operating ranges at higher speeds, significant reductions in vehicle curb weight to carry more passengers and freight, and fast refueling times to quickly re-deploy vehicles in service.
Project Location	Redding, Sacramento, Lake County, Sacramento Valley and Interstate 5 corridor (I-5) in Northern California
Project Mode	Intercity bus/feeder bus associated with intercity rail
Project Priority	N/A; SRTA has only submitted one project for TIRCP consideration
Lead Applicant	Shasta Regional Transportation Agency (SRTA)
Co-applicant	N/A
Transit Intercity Rail Capital Program (TIRCP) Funding Requested	$ 25,601,423
Proposed Non-TIRCP Match Funding	N/A
GHG Emission Reduction	15,943 MTCO2 from the Project Life Ending at 2023 0.000655 Total MTCO2 per TIRCP Funds Request ($1)
Point of Contact	Jennifer Pollom, MS, AICP, GISP Senior Transportation Planner Shasta Regional Transportation Agency 1255 East Street, Suite 202, Redding, CA 96001 530-262-6195, jpollom@srta.ca.gov

2.2 Project Costs

Project Cost information is also provided in Section 3: Statement of Work – Section 3.2: Project Costs.

The total capital costs for the North State Intercity Bus System is $25,601,423 based on 2020/2021 implementation, with program launch planned in July 2020. This includes the following capital costs:

CAPITAL COSTS					
Budget Item	Prototype Development (I-5 Backbone)	H2 Fueling - Redding	H2 Fueling - Sacramento	Feeder Charging and Support	Total
Task 1: Vehicle Design and Manufacturing	$ 5,250,000	$ -	$ -	$ -	$ 5,250,000
Task 1.1 Model Duty Cycle and Prepare Vehicle Performance Specifications	$ 100,000				
Task 1.2 Vehicle Procurement Support	$ 50,000				
Task 1.3 Vehicle Manufacturing	$ 5,000,000				
Task 1.4 Vehicle Inspection and Commissioning	$ 100,000				
Task 2: Fueling Stations	$ -	$ 8,235,000	$ 7,235,000	$ -	$ 15,470,000
Task 2.1 Fueling Stations Specifications		$ 100,000	$ 100,000		
Task 2.2 Fueling Stations Procurement Support		$ 35,000	$ 35,000		
Task 2.3 Fueling Stations Construction/Improvements		$ 6,000,000	$ 5,000,000		
Task 2.4 Fueling Stations Maintenance		$ 2,000,000	$ 2,000,000		
Task 2.5 Fueling Stations Commissioning		$ 100,000	$ 100,000		
Task 3: Charging Stations and Stop Improvements	$ -	$ -	$ -	$ 2,305,000	$ 2,305,000
Task 3.1 Charging Stations Specifications				$ 10,000	
Task 3.2 Charging Stations Procurement Support				$ 10,000	
Task 3.3 Charging Stations Construction/Improvements				$ 2,250,000	
Task 3.4 Stop Improvement Construction/Improvements				$ 25,000	
Task 3.5 Charging Station Commissioning				$ 10,000	
Task 4: Maintenance Facility Upgrades	$ 1,050,000	$ -	$ -	$ -	$ 1,050,000
Task 4.1 Maintenance Facility Specifications	$ 100,000				
Task 4.2 Maintenance Facility Procurement Support	$ 50,000				
Task 4.3 Maintenance Facility Design and Construction	$ 800,000				
Task 4.4 Maintenance Facility Commissioning	$ 100,000				
Task 5: Performance Monitoring, Data Collection, and Evaluation	$ 189,000	$ 82,350	$ 72,350	$ 23,050	$ 366,750
Task 6: Job and Workforce Development	$ 300,000	$ -	$ -	$ -	$ 300,000
Task 7: Community Outreach and Marketing	$ 60,000	$ 2,000	$ 2,000	$ 50,000	$ 114,000
Task 7.1 Launch Marketing	$ 50,000			$ 40,000	
Task 7.2 Outreach to DACs and LICs	$ 10,000	$ 2,000	$ 2,000	$ 10,000	
Task 8: Project Management and Administration	$ 205,470	$ 249,581	$ 219,281	$ 71,342	$ 745,673
Total Capital Costs	$ 7,054,470	$ 8,568,931	$ 7,528,631	$ 2,449,392	$ 25,601,423

Annual operating costs are projected to be $2,391,508 annually. See the following operating cost summary:

Funding	I-5 Backbone	Feeder Fare Integration #1 (Shasta)	Feeder Fare Integration #1 (North Valley)	Feeder Fare Integration #1 (Lake)	System Wide Total
OPERATING REVENUE-COMMITTED					
TDA --> Loan Fund	$ 273,376				$ 273,376
TDA --> Local		$ 150,000			$ 150,000
State Intercity Rail Funding	$ 200,000				
Fare Revenue (based on $20 for Backbone and $25 for other routes	$ 624,360	$ 3,125	$ 545,760	$ 366,888	$ 1,540,133
LCTOP-Shasta		$ 200,000			$ 200,000
LCTOP-Modoc		$ 8,000			$ 8,000
LCTOP-NV Feeder (provided from Glenn and Lake)			$ 10,000	$ 10,000	$ 20,000
Total Operating Revenue - Committed	**$ 1,097,736**	**$ 361,125**	**$ 555,760**	**$ 376,888**	$ 2,391,509
PREFERRED OPERATING REVENUE-UNDER DEVELOPMENT - NOT YET COMMITTED					
Rail Ticket Sales	$ 182,500				$ 182,500
Block Ticket Sales (govt., social services, and business)	$ 85,000				$ 85,000
Advertising	$ 170,000				$ 170,000
5311 (f)	$ 300,000	$ 100,000		$ 100,000	$ 500,000
CMAQ Contribution to North Valley Feeder Line	$ 100,000				$ 100,000
Total Operating Revenue - Uncommitted	**$ 837,500**	**$ 100,000**	**$ -**	**$ 100,000**	$ 1,037,500
Projected Operating Revenue-Committed	**$ 1,097,736**	**$ 361,125**	**$ 555,760**	**$ 376,888**	$ 2,391,509
Annual Operating Cost	$ 968,220	$ 550,056	$ 552,615	$ 320,617	$ 2,391,508
Revenue minus Cost	$ 129,516	$ (188,931)	$ 3,145	$ 56,270	$ 0

The project recognizes a fully funded annual operations budget ($2,391,508) based on the Interstate 5 (I-5) Backbone system and the feeder lines being implemented/adding riders to the system, and was developed using current cost estimates for equipment and operations. The system functions best as a whole for budgetary purposes and for GHG reduction efficiencies. Any reduction in these projections will be compensated with a Transportation Development Act (TDA) Loan Fund held by the Shasta Regional Transportation Agency, as well as local (TDA) funds (or other) for the feeder services.

2.3 Eligibility

SRTA is a Metropolitan Planning Organization (MPO) and is an eligible applicant for this TIRCP grant opportunity.

2.4 Project Benefits

2.4.1 Brief Summary

In 2018, SRTA was awarded over $8.6 million in TIRCP capital funding for a zero-emission intercity bus service (North State Intercity Bus System: Phase 1) between Redding and Sacramento, with a one-way distance of 175 miles and traveling speeds of 70 mph, as well as a valley feeder service connecting to I-5. In January 2019, SRTA released a request for proposals (RFP) for the manufacture and delivery of battery-electric motorcoach buses and charging equipment; however, independent modeling showed that the proposed vehicles from vendor responses would not be able to meet the service requirements. For the TIRCP 2020 Cycle SRTA is seeking funds for the North State Intercity Bus System: Phase 2 to partner with a manufacturer for the design, engineering, and building of one or more prototype fuel cell motorcoaches, and for development of the related hydrogen fueling infrastructure and production in Redding and Sacramento. Once the fuel cell motorcoaches are in service, SRTA plans to utilize older zero-emission buses purchased with 2018 TIRCP funds for new, or improved, feeder route services connecting to the I-5 corridor. Development of a fuel cell motorcoach would be a long-term solution to the range and power challenges of long-range intercity bus service, while also implementing state goals related to fuel cell vehicles and hydrogen fueling infrastructure.

2.4.2 Detailed Project Description

North State Intercity Bus System: Phase 1: In 2018, SRTA was awarded over $8.6 million in TIRCP capital funding for a zero-emission intercity bus service (North State Intercity Bus System: Phase 1) between Redding and Sacramento – the backbone service – including a valley feeder that connects the cities of Corning, Orland, Willows, and Chico. Ideally, backbone buses need to travel at interstate speeds and reliably complete the 175-mile one-way trip: on a single charge or a single fueling in the case of hydrogen; under strenuous loads (max passenger load, HVAC); and over the expected life of the vehicle. In January 2019, SRTA released an RFP for the buses, but independent modeling showed that the proposed vehicles would not reliably meet the range and power needs. Moving forward, SRTA plans to use the 2018 TIRCP award to purchase zero-emission buses through a new Department of General Services Procurement for Zero-Emission Transit Buses. SRTA will work with project partners to modify the backbone service if the purchased buses do not meet backbone requirements to include on-route charging or splitting the route into two segments.

The required KML files for the North State Intercity Bus System are provided as an attachment; the North State Intercity Bus System Phase 2 Schematic Transit Map is included below.

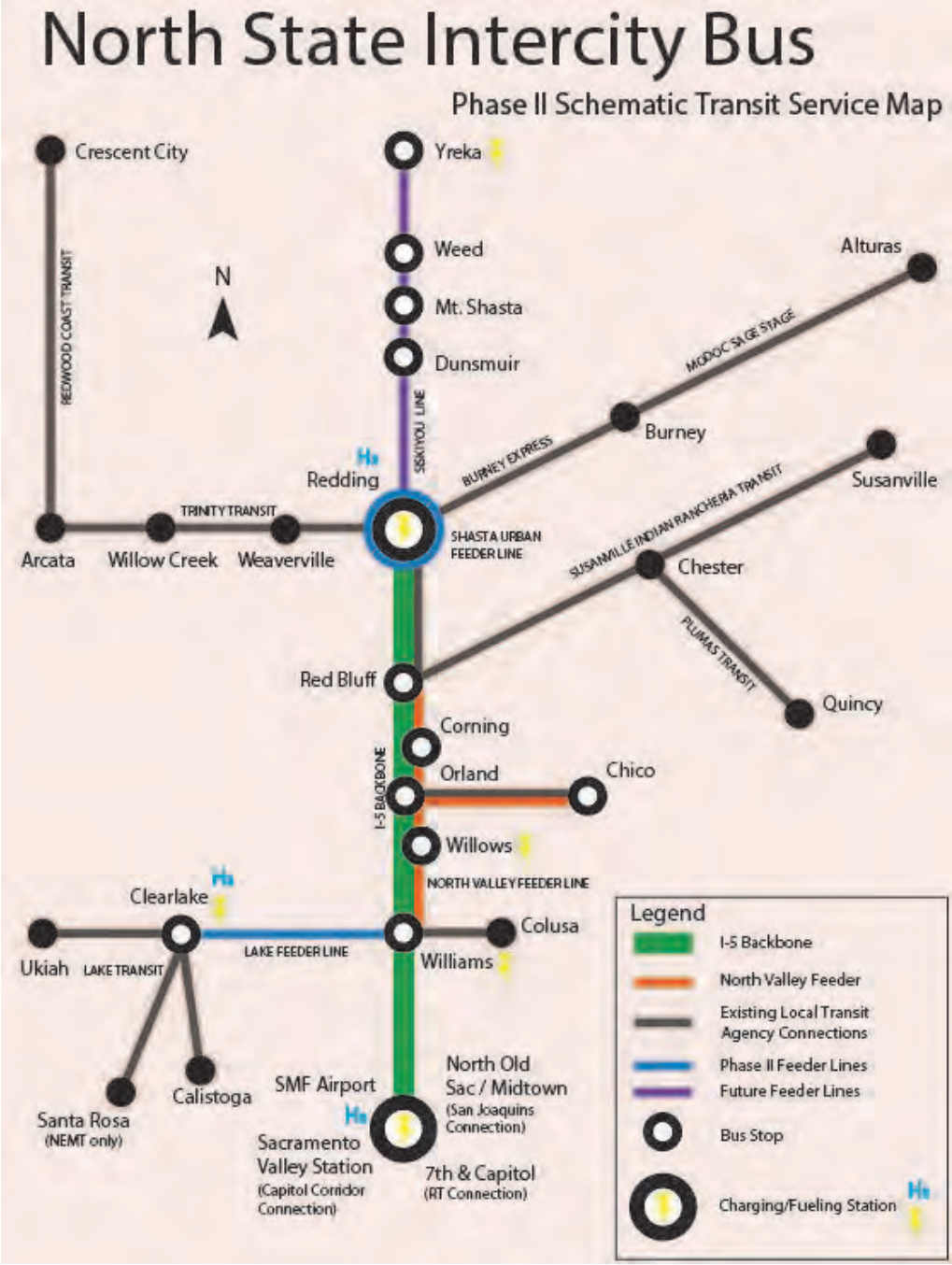


Figure 1. North State Intercity Bus System Phase 2 Schematic Transit Map

North State Intercity Bus System: Phase 2: California is transitioning to a zero-emission future in the transport industry, in part driven by a new regulation that will require transit agencies to operate all zero-emission fleets by 2040, and a forthcoming zero-emission truck regulation that will likely be adopted in 2020. It is critical to advance and commercialize more robust zero-emission propulsion technologies to meet range and propulsion needs. Battery-Electric and Fuel Cell Electric options are proving to be the two pathways toward achieving a zero-emission goal. Both technologies are needed, but Fuel Cell Electric

Vehicles in the heavy-duty sector are demonstrating extended operating ranges at higher speeds, significant reductions in vehicle curb weight to carry more passengers and freight, and fast refueling times to quickly re-deploy vehicles in service.

Fuel Cell Electric Buses with over 300 miles of range have been successfully deployed in public transit service in northern and southern California, operating on urban and suburban transit routes. These buses are powered with an 85 kW fuel cell system, but yet to be developed is a zero-emission over-the-road, intercity coach that can operate express service at highway speeds—as far as 50 miles or greater between stops. Such a vehicle at a gross vehicle weight of nearly 50,000 lbs., will require a fuel cell system with a power rating of 180 kW or more, similar to Class 8 trucks (semi-trucks). The potential market for a Fuel Cell Electric Coach (FCEC) is considerable among transit fleets and coach operators who operate long-haul commuter and intercity services and employee shuttles. The goal of this project is to build the first ever FCECs, leading to their commercialization. Specific objectives include successfully demonstrating the capability to replace conventional coaches one for one, as reflected by vehicle in-service performance, fuel efficiency, and overall operational efficiencies associated with vehicle availability and fueling station operations.

SRTA is leading an effort to develop a FCEC that can operate between Redding and Sacramento, a distance of 175 miles, along the I-5 corridor. In order to maintain schedule with two roundtrips per day, the coach will need to reach speeds of 70 mph over long distances. SRTA is seeking TIRCP funds to implement a prototype development project. There are three major components to the proposed project: 1) partner with an Original Equipment Manufacturer (OEM) coach builder to design, engineer, and manufacture two prototype FCECs; 2) upgrade existing maintenance facilities to safely service hydrogen-fueled coaches; and 3) expand and/or build two hydrogen refueling stations, one in Redding and the other in Sacramento, each capable of dispensing up to 140 kilograms per day to each FCEC. The approximate fuel required to operate a FCEC between Redding and Sacramento is estimated to be as much as 70 kilograms (coaches will be designed with a capacity of 65 to 75 kilograms, stored at 350 bar pressure).

If awarded, the state is further committing to the intercity bus service in the North State and the research and development of long-range, higher-powered, fuel cell electric motorcoaches. This includes hydrogen fueling infrastructure along I-5 in the region with the added potential benefit to address heavy duty freight; agency fleet requirements; and other non-profit and private desires to transition to a less carbon intensive fuel. A TIRCP award could be a catalyst for further hydrogen investment, thereby meeting regional and state goals while creating added economic opportunity in the region. In pursuing the current TIRCP solicitation, SRTA is developing a long-term solution to the range and power challenges of the backbone bus service. Other agencies are interested in purchasing long-range, higher-powered, fuel cell electric motorcoaches once developed, including:

- Golden Gate Transit
- Caltrans (Amtrak)
- Santa Barbara County Association of Governments
- Additional national and international transit providers
- Private corporate companies

Building and delivery of a successful prototype fuel cell motorcoach would ensure ideal backbone service. The initial battery electric bus fleet could be replaced with the commercially available fuel cell motorcoaches, and the older zero-emission buses could be transitioned to shorter feeder routes connecting to the I-5 corridor.

Once the FCECs are in service, SRTA plans to utilize its fleet of Battery-Electric Buses, purchased with 2018 TIRCP funds, on shorter feeder routes connecting local communities along the I-5 corridor with SRTA's backbone FCEC service; associated charging infrastructure would be installed to meet feeder route needs. Feeder routes would include the Shasta Urban Feeder, a Lake County feeder route from Clearlake to Williams, and may include an expansion of service on the Phase 1 North Valley Feeder Line. Lake Transit Authority (LTA) is currently applying for TIRCP funding for a new transit hub facility, including electric vehicle charging and hydrogen fueling infrastructure, which can also be used to power SRTA's zero-emission buses. An additional component of LTA's project is to purchase its own fleet of zero-emission buses to extend regular interregional service to Santa Rosa, ultimately connecting the North State Intercity Bus System on the I-5 corridor to the SMART and/or Golden Gate Transit system on the 101 corridor. Both the I-5 and US 101 corridors feed into the state's Intercity Rail system.

2.4.3 Primary Evaluation Criteria

Primary evaluation criteria as they pertain to Phase 1 and Phase 2 of the North State Intercity Bus System project are outlined below.

2.4.3.1 Reduce Greenhouse Gas Emissions

This information is repeated in Section 3: Statement of Work – Section 3.4: Funding Sources – Section 3.4.3: Reduce GHG Emissions.

Phase 1 of the North State Intercity Bus System project demonstrated a substantial reduction in greenhouse gas emissions by providing a comprehensive transit system between Sacramento and rural Northern California, reducing the number of single-occupancy vehicle trips on the I-5 corridor north of Sacramento, and thereby reducing GHG emissions and improving air quality for surrounding communities.

Phase 2 of the North State Intercity Bus System project demonstrates less of a reduction in greenhouse gas emissions, as new services are limited to the Shasta Urban Feeder, the Lake Feeder, and potential expansion of the North Valley Feeder. However, less greenhouse gas reduction is offset by the benefit of developing a prototype fuel cell motorcoach, which will greatly benefit air quality conditions and greenhouse gas emission reduction efforts in the long-term and throughout the state, as other agencies and private corporations have a similar need, such as:

- Golden Gate Transit
- Caltrans (Amtrak)
- Santa Barbara County Association of Governments
- Additional national and international transit providers
- Private corporate companies

The North State Intercity Bus System Phase 2 will effectively displace Annual Average Vehicle Miles Traveled by automobiles and reduce GHG emissions by 15,943 MTCO2e over the 3-year life of the project. Additional details are included in the GHG Quantification Tool included with the project grant application.

2.4.3.2 Increase Ridership Through Expanded and Improved Rail and Transit Service

For the purposes of this grant application and GHG Quantification Tool, increased ridership on new services is limited to the Lake Feeder Line. Lake Feeder Line ridership was estimated based on an average of existing Lake Transit Authority's 5311(f) intercity services, and is estimated to be 14,675 riders a year.

While some ridership increases are expected for the Shasta Urban Feeder line - due to increased service hours outside of existing transit operator hours - for the purposes of this grant application and GHG Quantification Tool, the Shasta Urban Feeder has been quantified as the replacement of existing vehicles with cleaner vehicles, rather than increasing ridership.

Dependent on rider demand, and coordinated scheduling with the I-5 Backbone service, previously purchased battery electric buses may be transitioned to the Phase 1 North Valley Feeder Line to expand upon already funded routes and service hours; this would lead to an increase in ridership for the North Valley Feeder Line and additional GHG emission reductions.

Overall, ridership throughout the Northstate is expected to increase with the implementation of the North State Intercity Bus System, as evidenced throughout this application. System-wide ridership is expected to exceed 65,000 riders per year.

2.4.3.3 Integrate Services of State's Rail and Transit Operations

Introduction of a fuel cell option to the backbone service will provide a reliable connection to intercity passenger rail lines serving Sacramento. The North State Intercity Bus System was designed to integrate with two Amtrak intercity passenger rail lines: the San Joaquins, serving the San Joaquin Valley from Sacramento to Bakersfield; and the Capitol Corridor, serving the San Francisco Bay Area from Sacramento. These major train corridors currently utilize the Sacramento Valley Station, where the backbone will connect with coordinated train connection times. Additionally, the North State Intercity Bus System will connect to the future California High Speed Rail in Sacramento at Sacramento Valley Station as identified in the High-Speed Rail Plan. Should the future Sacramento High Speed Rail station location be in an alternative location, the I-5 backbone will connect through existing, planned, or new methods. The following schedule (Figure 2) demonstrates the integration of the North State Intercity Bus System into existing transportation systems.

Please see list of interconnected transit systems resulting from the North State Intercity Bus System in Section 2.4.4.1.4: Expanding Existing Rail and Public Transit Systems.

North State Intercity Bus Schedule

Incorporating Phase 2

All times given are departures unless otherwise noted

Southbound Bus Stop Locations

	To Sacramento	Trip 1	Trip 2	Trip 3	Trip 4
Shasta Urban Feeder Line					
Redding	Downtown Transit Center	5:30 AM	8:00 AM	12:30 PM	5:57 PM
Red Bluff	Hampton Inn & Suites/Holiday Inn	5:55 AM	8:25 AM	12:55 PM	6:22 PM
Lake Feeder Line					
North Valley Feeder Line					
Williams	SR 20 or E Street Site	7:03 AM	9:33 AM	2:03 PM	7:30 PM
Sacramento	Sacramento International Airport	7:50 AM	10:20 AM	2:50 PM	8:17 PM
	7th & Capitol Stop	8:10 AM	10:40 AM	3:10 PM	8:37 PM
	Sacramento Valley Station	8:20 AM	10:50 AM	3:20 PM	8:47 PM

Connection to Southbound Amtrak

Connection to Northbound Amtrak

San Joaquins	Southbound	6:26 AM		4:26 PM	
	Northbound		11:49 AM	–	11:35 PM

Source: San Joaquins Schedule Effective October 28, 2019

Capitol Corridor	Westbound	4:34 AM	10:15 AM	2:10 PM	7:00 PM
		5:35 AM	12:14 PM	3:38 PM	9:10 PM
		6:22 AM		4:45 PM	10:30 PM
		7:05 AM		5:52 PM	
		7:33 AM			
		8:46 AM			
	Eastbound	7:18 AM	9:46 AM	3:24 PM	6:48 PM
		8:23 AM	12:17 PM	4:48 PM	7:21 PM
			2:13 PM	5:20 PM	8:14 PM
				6:17 PM	8:50 PM
					10:24 PM
					12:12 AM

Source: Capitol Corridor Schedule Effective October 28, 2019

Northbound Bus Stop Locations

	From Sacramento	Trip 1	Trip 2	Trip 3	Trip 4
Sacramento	Sacramento Valley Station	8:30 AM	12:30 PM	3:45 PM	7:45 PM
	7th & Capitol Stop	8:40 AM	12:40 PM	3:55 PM	7:55 PM
	Sacramento International Airport	9:00 AM	1:00 PM	4:15 PM	8:15 PM
Williams	SR 20 or E Street Site	9:47 AM	1:47 PM	5:02 PM	9:02 PM
North Valley Feeder Line					
Lake Feeder Line					
Red Bluff	Hampton Inn & Suites/Holiday Inn	10:55 AM	2:55 PM	6:10 PM	10:10 PM
Redding	Downtown Transit Center	11:25 AM	3:25 PM	6:40 PM	10:40 PM
Shasta Urban Feeder Line					

	Trip 1	Trip 2	Trip 3	Trip 4
Downtown TC	6:20 AM	10:50 AM	4:17 PM	-
Masonic TC	6:33 AM	11:03 AM	4:30 PM	-
Shasta College	6:47 AM	11:17 AM	4:44 PM	-
Redding Airport	7:07 AM	11:37 AM	5:04 PM	-
Hilltop Dr Hotels	7:23 AM	11:53 AM	5:20 PM	-
Canby TC	7:32 AM	12:02 PM	5:29 PM	-
Turtle Bay	7:44 AM	12:14 PM	5:41 PM	-
Downtown TC	7:55 AM	12:25 PM	5:52 PM	-
Clearlake	6:04 AM	8:34 AM	1:04 PM	6:31 PM
Williams (arrives)	6:58 AM	9:28 AM	1:58 PM	7:25 PM

	Trip 1	Trip 2	Trip 3	Trip 4
Red Bluff	7:11 AM	12:28 PM	4:01 PM	8:18 PM
Corning	7:34 AM	12:51 PM	4:24 PM	8:41 PM
Orland	7:51 AM	1:08 PM	4:41 PM	8:58 PM
Chico	8:26 AM	–	5:16 PM	-
Orland	9:01 AM	–	5:51 PM	-
Willows	9:22 AM	–	6:12 PM	-
Williams	9:51 AM	–	6:41 PM	-
Willows (arrives at	10:15 AM	1:29 PM	7:05 PM	9:19 PM

	Trip 1	Trip 2	Trip 3	Trip 4
Willows	6:10 AM	9:10 AM	3:00 PM	5:00 PM
Williams	–	9:39 AM	–	5:29 PM
Willows	–	10:03 AM	–	5:53 PM
Orland	6:31 AM	10:38 AM	3:21 PM	6:28 PM
Chico	–	11:13 AM	–	7:03 PM
Orland	–	11:48 AM	–	7:38 PM
Corning	6:48 AM	12:05 PM	3:38 PM	7:55 PM
Red Bluff (arrives)	7:06 AM	12:23 PM	3:56 PM	8:13 PM

	Trip 1	Trip 2	Trip 3	Trip 4
Williams	9:47 AM	1:47 PM	5:02 PM	9:02 PM
Clearlake (arrives)	10:41 AM	2:41 PM	5:56 PM	9:56 PM

	Trip 1	Trip 2	Trip 3	Trip 4
Downtown TC	11:30 AM	3:25 PM	6:40 PM	-
Turtle Bay	11:41 AM	3:36 PM	6:51 PM	-
Canby TC	11:53 AM	3:48 PM	7:03 PM	-
Hilltop Dr Hotels	12:02 PM	3:57 PM	7:12 PM	-
Redding Airport	12:18 PM	4:13 PM	7:28 PM	-
Shasta College	12:38 PM	4:33 PM	7:48 PM	-
Masonic TC	12:52 PM	4:47 PM	8:02 PM	-
Downtown TC (arriv	1:00 PM	4:55 PM	8:10 PM	-

Figure 2. North State Intercity Bus Schedule

2.4.3.4 Improve Safety

2.4.3.1 Traveler Safety

As previously noted, single occupancy vehicles on I-5 is a predominant cause for traffic congestion that contributes to accidents and associated delays. For the I-5 corridor within the North State Intercity Bus System region (excluding Sacramento County), the following table notes the number of injuries and fatal collisions during calendar years 2011 to 2016.

Table 1. Injuries and Fatal Collisions by County, 2008-2018

County	Injury Accidents	Fatalities
Shasta	12,323	283
Tehama	4,146	154
Glenn	1,768	85
Colusa	1,936	92
Yolo	12,014	246

2008-2018 data from the Transportation Injury Mapping System, SafeTREC/UC Berkeley. https://tims.berkeley.edu/

Intercity bus transportation is one of the safest methods of travel according to data from the Federal Highway Administration and American Public Transportation Association. In fact, as shown in the Figure 3 below, intercity bus is the safest way to travel among on-road options, showing a reduction of as much as 80% for automobile travelers and that number could be even higher factoring in the amount of heavy truck traffic on the majority of routes proposed by this project. The North State Intercity project will reduce traffic congestion on I-5 by replacing single-occupancy vehicles with transit buses thereby improving safety for transit users and nonusers.

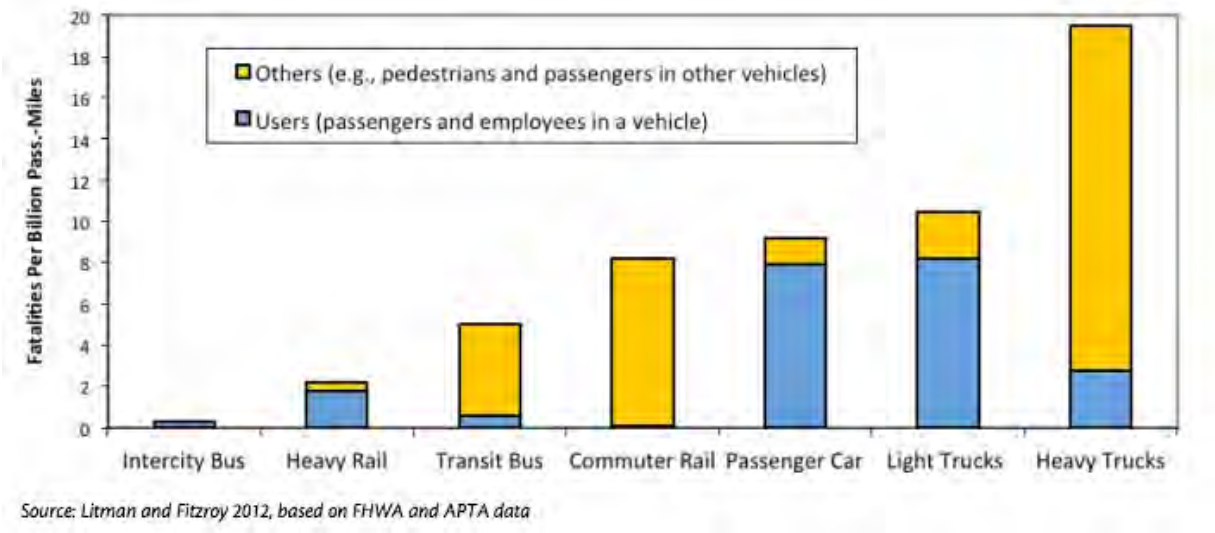


Figure 3. Fatalities Compared to Travel Mode

2.4.3.2 Access Safety

Although the project will often times use existing infrastructure, all new hydrogen fueling and charging stations, bus stops and bus storage facilities will be designed with circulation patterns and improvements

that are compliant with Americans with Disabilities Act (ADA) regulations including intersections of access lanes with adjoining roadways, parking areas, pedestrian crossings, and sidewalks. Circulation design of all facilities will require review and compliance of appropriate site distance criteria as implemented by the local planning and building permit authorities prior to issuance of building permits to ensure safe turning movements that reduce the potential for vehicle collisions and provide safe pedestrian crossings.

Bus Stops

Parking lots and sidewalks will be illuminated with appropriate light fixtures for safety and security. Buses will be equipped with current safety features for riders, and accommodations for handicap users such as wheelchair lifts, designated seating sections, and bus drivers trained in serving disabled riders.

Hydrogen Fueling and Charging Stations

Circulation design of all new facilities will require review and compliance of appropriate site distance criteria as implemented by the local planning and building permit authorities prior to issuance of building permits to ensure safe turning movements that reduce the potential for vehicle collisions and safe pedestrian crossings. All hydrogen fueling and charging stations will include appropriate lighting for security and circulation.

Bus Storage Stations

Similar to hydrogen fueling and charging stations, facility design will require compliance of appropriate site distance criteria. All bus storage stations will include appropriate lighting for security and circulation.

2.4.3.3 Rider Safety

Overall passenger and employee safety will be achieved by implementation of the Federal Transit Administration Transit Bus Safety and Security Program. The program is a voluntary partnership between federal, state, and local governments, and industry to promote continuous improvement and safety, security, and emergency preparedness. Advantages to the program are particularly tailored to grant recipients of rural (5311) transit bus operators.

2.4.4 Secondary Evaluation Criteria

Secondary evaluation criteria as they pertain to Phase 1 and Phase 2 of the North State Intercity Bus System project are outlined below.

2.4.4.1 Contribution to the Implementation of Sustainable Communities Strategies

Details with regard to how the North State Intercity Bus System project contributes to the implementation of sustainable communities strategies are included in this section.

Greenhouse gas reduction opportunities along the North State Intercity Bus System route are shown in Figure 4. GHG Reduction Opportunities Along Intercity Bus Route. Figure 4 demonstrates Phase 2's proximity to rail stations, major transit centers, existing and planned future housing, North State Intercity Bus System planned stops and charging and proposed hydrogen fueling stations, parks and forests, government offices and destinations, Class 1, 2, and 3 Bikeways. This proximity to attractive and vital services will lead to increased use of the North State Intercity Bus System overall.

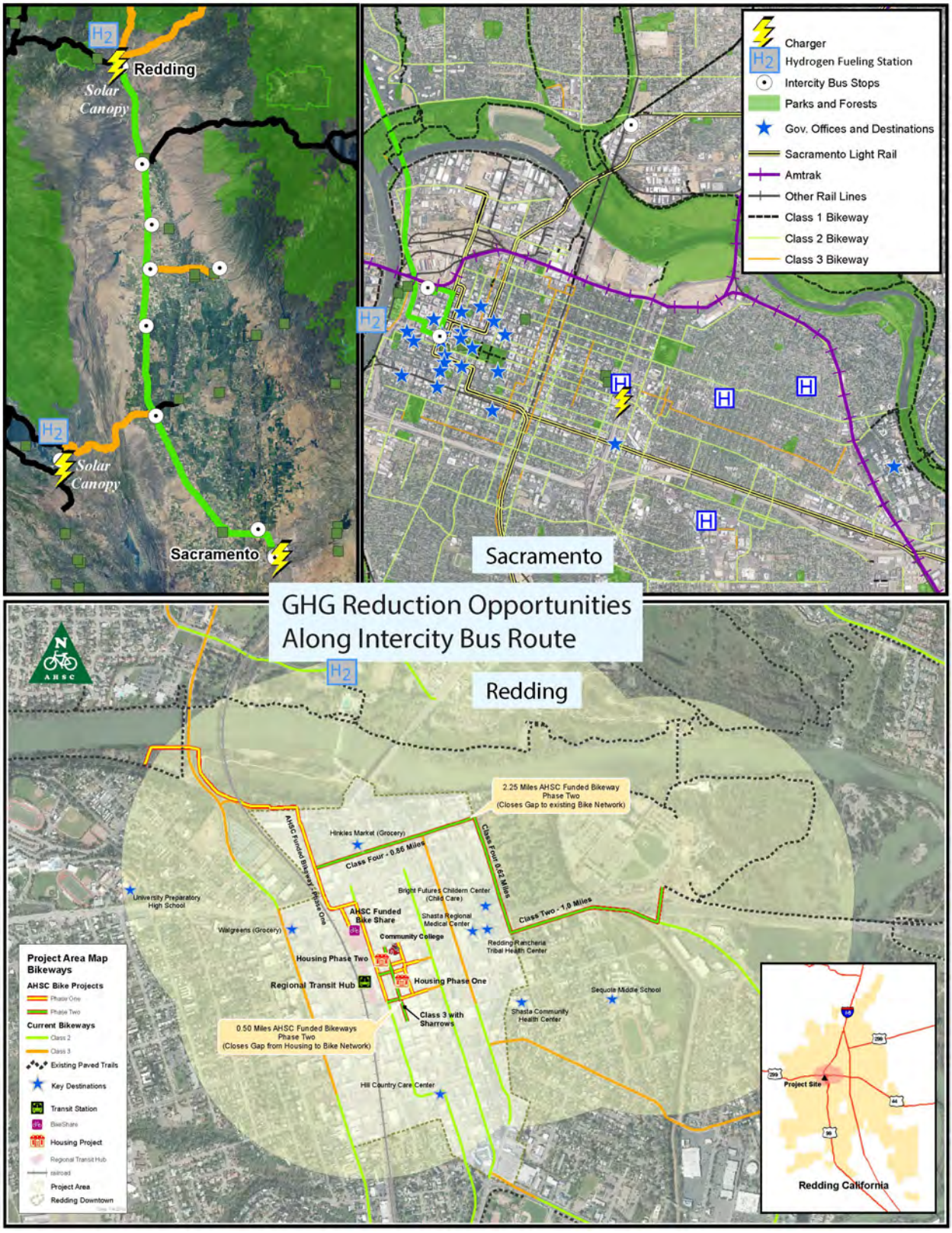


Figure 4. GHG Reduction Opportunities Along Intercity Bus Route

2.4.4.1.1 Significantly Reduce Vehicle Miles Traveled

The North State Intercity System, Phase 1 and 2, will effectively displace 5,206,196 Annual Average Vehicle Miles Traveled by automobiles. Passenger miles at full project implementation are projected to be 6,496,867 annually on average, based on annual ridership projections. Annual VMT displacement was calculated by multiplying average annual passenger miles by the 81.28% of North State Express Questionnaire survey respondents who stated they do not already take transit methods besides cars to Sacramento, and removing the 1.41% who stated they never travel to Sacramento. All non-transit survey responses were assumed to be single-occupancy vehicle trips.

2.4.4.1.2 Promoting Housing Development

Downtown Redding is a Strategic Growth Area identified in SRTA's Regional Transportation Plan/Sustainable Communities Strategy (RTP/SCS). It is currently undergoing a revitalization that includes housing developments immediately adjacent to the Downtown Transit Center which is the northern terminus of the North State Intercity I-5 Backbone, hub for the Shasta Urban Feeder, and the southern connection for the future Siskiyou Feeder Line. Please see Figure 4. GHG Reduction Opportunities Along Intercity Bus Route.

On October 11, 2016, the Strategic Growth Council formally awarded $20,000,000 for the Redding Downtown Loop and Affordable Housing Project. It was the largest AHSC grant in California and the only one north of Sacramento and the Bay Area. K2 Development and the City of Redding are investing an additional $20,000,000.

The project features: a total of 79 housing units (59 affordable and 23 market rate); over 21,500 square feet of ground-floor commercial space; new and enhanced bicycle and pedestrian connections to the Downtown Transit Center; new complete streets on the Market Street Promenade, Yuba Street and Butte Street; and a portion of the new Downtown Redding Bicycle Loop that will ultimately connect Downtown Redding to the Sacramento River Trail at both the Diestelhorst Bridge and Turtle Bay Exploration Park/Sundial Bridge. These features are central to implementing the recently completed Downtown Redding Transportation Plan.

Figure 5. Architectural Rendering of 1551 Market Street Redevelopment Project

In addition to the awarded 2016 AHSC funding and concurrent with the development of SRTA's 2018 TIRCP grant application, a second $20,000,000 AHSC grant and a $4,000,000 Infill Infrastructure Grant (IIG) were awarded to The McConnell Foundation; the project is also adjacent to the Downtown Transit Center. This second affordable housing and active transportation project will feature 82 residential units; 15,000 square feet of commercial; and two miles of high-quality bicycle and pedestrian improvements connecting directly to the residential units. The McConnell Foundation, K2 Development, and the City of Redding are investing an additional $20,000,000.

2.4.4.1.3 Increasing Attractiveness for Jobs and Housing

People and businesses will be attracted to a fuel cell motorcoach; the concept is compelling and provocative. This attraction will lead to even more increased transit-oriented development than the revitalization that is described in Section 2.4.4.1.2. Access to high-quality transportation within the statewide transit network has largely been absent for much of the North State, while surveys indicate a strong desire to be near these types of services.

2.4.4.1.4 Expanding Existing Rail and Public Transit Systems

The North State Intercity Bus System in and of itself expands the reach and access of existing public transit systems by connecting disparate local transit systems that do not extend beyond county boundaries. Also, the addition of a reliable fuel cell motorcoach that can connect the north state to the greater intercity rail system further enhances the expansion efforts.

San Joaquin Joint Powers Authority (SJJPA) – as part of their intercity rail service – administers an intercity bus service between Stockton and Redding along California State Routes 70 and 99 for rail passengers only. SJJPA intends to stop their existing thruway bus service north of Chico, and the North State Intercity I-5 Backbone service will pick up the former Redding and Red Bluff stops. The expansion comes from added service along the I-5 corridor and the feeder lines that connect disparate local transit systems, including:

- Redding Area Bus Authority, with existing connections to
    - Trinity Transit, which itself has existing connections to Humboldt and Del Norte Counties
    - Sage Stage of Modoc County
    - Susanville Indian Rancheria Bus (SIR Bus) of Lassen and Plumas Counties
- Siskiyou Transit and General Express (STAGE)
- Tehama Rural Area eXpress (TRAX)
- Glenn Ride
- Colusa County Transit
- Lake Transit

Furthermore, the North State Intercity Bus System connects these Northern California local transit systems to the statewide intercity rail network and large urban transit network, including:

- The San Joaquins, including increased frequencies on the Sacramento Subdivision UPRR line
- The Capital Corridor, with existing connections to
    - Bay Area Rapid Transit (BART)
    - All other San Francisco Bay Area public transportation options
- Sacramento Regional Transit (SacRT)
- Yolobus

- Future California High Speed Rail

The North State Intercity Bus System is expected to bring attention to the value of improving connectivity to the North State and even explore future passenger rail service on an under-utilized rail line along I-5 running from Oakland to Tehama County.

2.4.4.1.5 Project Acceleration and Integration

Each of the transit authorities participating in the North State Intercity project use different ticketing options, presenting a disincentive or obstacle to ridership and creating the impetus for a coordinated single ticketing program (integrated ticketing) that is attractive to riders and easy to use. In order to assess integrated ticketing of the North State Intercity Bus System with other county transit authorities, including key origin and destination points in Sacramento, three tiers of ticketing and fare structures were analyzed for the North State Intercity Bus System:

1. North State Intercity Feeder Services
2. North State Intercity I-5 Backbone
3. Sacramento region services

Integrating service with each entity will require the North State Intercity project to broker simple transfer agreements with the providers such as a memorandum of agreement (MOA).

Integrated ticketing is particularly attractive for rural communities since multiple ticket transactions and forms of payment become necessary due to transfers which increase over longer travel distances. Similarly, because many of the communities are rural and lower income, integrated ticketing can reduce costs per ride, and offer a monthly or annual billing system.

With the planned launch of California High Speed Rail (HSR) in the coming decade, the California State Transportation Agency and the Capitol Corridor Joint Powers Authority have initiated an integrated ticketing study with particular focus on understanding how European public transport operators treat travel and ticketing transfers across multiple services. The study's purpose is to develop a set of best practices for how California might successfully implement a state-wide travel pass using a single payment mechanism. The North State Intercity Bus System could benefit by resulting policy recommendations. SRTA will continue to keep apprised of these developments and looks forward to partnering in solutions.

The North State Intercity Bus System will further accelerate several other North State intercity transportation projects, including:

- The 2018 California State Rail Plan includes in the 2022 plan for proposed passenger improvements and investments, there is a stated short-term goal to expand integrated bus service to Redding.
- Potential Butte County Association of Governments commuter bus service between Chico and Sacramento, replacing Amtrak Thruway Bus service along the SR 99/70 corridor
- San Joaquins intercity passenger rail extension and expansion on the Sac Sub line north of Sacramento to Marysville/Yuba City and further on into Oroville, thereby replacing the Chico commuter bus service mentioned previously

- High ridership numbers on the North State Intercity I-5 Backbone line will make the case to explore the use of an underused rail line that follows the I-5 corridor into Tehama County. This may be an option if UPRR continues to prohibit passenger rail expansion on its rail line to Redding.

2.4.4.1.6 Interconnection and Intermodal Enhancement

The North State Intercity Bus System Phase 2 feeder lines that reach into other North State Super Region counties come closer to creating a complete transit system throughout rural Northern California and connect to an existing airport, Amtrak railroad, light rail and bus systems in the Sacramento region and beyond, enhancing those transportation systems, as well.

For additional details, please refer to the list of interconnected transit systems resulting from the North State Intercity Bus System in above Section 2.4.4.1.4: Expanding Existing Rail and Public Transit Systems.

2.4.4.1.7 Clean Vehicle Technology

As provided by the United States Environmental Protection Agency (EPA), the goal of Clean Vehicle (Automotive) Technology is to increase fuel efficiency, reduce regulated criteria emissions such as nitrogen oxides (NOx) and particulate matter (PM), and cut greenhouse gas emissions by focusing on technologies that are clean, efficient and cost-effective for both the consumer and manufacturer. In concert with the same goals, the U.S. Department of Energy's Vehicle Technologies Office, development of clean vehicle technologies will enable America to use less petroleum. These technologies include advanced batteries and electric drive systems, lightweight materials, advanced combustion engines, alternative fuels, as well as energy efficient mobility systems. Phase 2 North State Intercity Bus System clean vehicle technology that will be implemented are two prototype fuel cell motorcoaches on the I-5 Backbone and battery electric feeder buses for the North Valley Feeder, Shasta Urban Feeder, and Lake Feeder Line.

2.4.4.1.8 Promotes Active Transportation

Transit projects, when coordinated with: land use (i.e. in walkable mixed-use urban cores and activity centers); high-quality active transportation facilities (i.e. Class I and IV bikeways, complete streets, enhanced intersections and crossings, etc.); amenities (i.e. bicycle parking, shade, traveler services, etc.); and complementary programs (i.e. bike share, safety training, informational/promotional programs, etc.) combine to reduce automobile dependency. The North State Intercity Bus System, both Phase 1 and Phase 2, further expand mobility options by adding an interregional travel option linked to these local active transportation systems. All the proposed stop locations are located near community cores such as Redding, Williams, and downtown Sacramento stops. These locations encourage people to take the bus and walk or bike to their destinations.

All the vehicles included in this project are proposed to be equipped with bike racks so users can make that first and last mile destination connection with an active transportation mode.

In addition to the awarded AHSC funding discussed previously, several other enhanced walking and bicycling facilities and services are being completed and designed for the Downtown Redding Strategic Growth Area. The construction projects are immediately adjacent to the Downtown Transit Center. Results to date of these efforts including the following:

- SRTA has currently invested over $1 million through the state transportation improvement program to connect The Civic Center, Turtle Bay Exploration Park, and the Sundial Bridge area to the Downtown Transit Center where intercity bus and Amtrak train services operate.
- A $2.4 million Active Transportation Program (ATP) grant was awarded to the city of Redding to connect the Sacramento River Trail to Downtown Redding. A SRTA commitment of $400,000 was instrumental in obtaining the ATP grant. Upon completion, users of the Sacramento River Trail will be able to access Downtown Redding jobs, retail, and community activities.
- California Street/southbound State Route 273 through Downtown Redding was reduced by one vehicle travel lane in order to make room for a new bicycle facility separated from vehicle traffic as part of the awarded 2016 AHSC funding.
- Caltrans awarded grant funds to complete: The Downtown Redding Transportation Plan; the Downtown Redding Specific Plan Update; and SRTA's Sustainable Shasta: A Bike and Walk Network for Downtowns.
- All of above facilities, in conjunction with other current and planned projects, are being systematically linked into a contiguous network of regional active transportation trunk lines that connect the region's communities and centers of business, employment, community services, education, and culture. This network and associated design standards are detailed in the GoShasta Regional Active Transportation Plan (link provided in Section 2.4.9: Studies and Planning Documents, and included on flash drive) developed by SRTA.

2.4.4.1.9 Improve Public Health

This project promises better health for residents and visitors to California. First, the reduction in emissions by utilizing renewable energy sources and zero-emission vehicles has proven to improve air quality. The by-product of improved air quality is a healthier society with reduced incidents of lung disease and other respiratory illnesses. Additionally, many low-income North State residents need affordable travel options to health care providers in Sacramento, UC Davis and the San Francisco Bay Area.

Exposure of particulate pollutants, especially PM2.5, has been linked to increased risk for adverse health effects including premature death in older adults with heart or lung diseases and reduced lung growth in children. Short term exposure has been linked to premature death, cardiovascular disease and chronic obstructive disease and asthma. By reducing emissions sources such as automobiles, the incidents of these associated health problems are reduced. The impacts of reducing pollution levels to targets identified by the California Air Resources Board would include:

- 7,200 reduced premature deaths annually
- 1,900 reduced hospital visits annually
- 5,200 emergency room visits annually

Other public health concerns that will be addressed by the project include a reduction in obesity and diabetes rates amongst populations utilizing the bus system. The North State Intercity Bus System will provide transportation for recreational users to travel from the urban areas into the natural areas of northern California for hiking, mountain biking, and other healthy outdoor activities. Each vehicle is equipped with bicycle racks to encourage recreational travel as well as active transportation access to and from the transit service.

2.4.4.2 Benefit to Priority Populations

The North State Intercity Bus System project will serve 39,435 residents of 11 disadvantaged communities in Butte County and Sacramento County, as determined by CalEnviroScreen 3.0. All disadvantaged census tracts counted are located in counties with existing or proposed bus connections to the North State Intercity Bus System project. Sacramento County contains more disadvantaged census tracts, but only 9 contain or are adjacent to proposed North State Intercity Bus System stops.

Access to the North State Intercity Bus System will allow residents of disadvantaged communities greater access to resources outside of their county of residence. Access to Sacramento's health services and travel connections is essential for residents of Butte County, and the North State Intercity Bus System project would increase options especially for residents who don't have access to cars. The project will connect residents of roughly one-third of northern California, a region which contains very few disadvantaged communities by CalEPA's standards, but has a very high concentration of low-income communities.

Additional discussion regarding priority populations is included in Section 2.6: Benefits to DAC and/or LIC Communities.

2.4.4.3 Multi-agency Collaboration

SRTA and the North State Super Region (16 northern California county alliance) cooperated during development of SRTA's 2020 TIRCP North State Intercity Bus System: Phase 2 grant application; the grant project is supported by the North State Super Region (support letter attached in Section 4: Support Documentation). Additionally, the project was developed in cooperation with Caltrans District 2 (hydrogen fueling infrastructure and vehicle storage) and Lake County/City Area Planning Council (Lake Feeder Line/Clearlake Transit Hub).

2.4.4.4 Geographic Equity

Geographic equity is a particularly positive benefit of this project because rural communities are traditionally underserved with public transportation. The area of California north of Sacramento is a vast, primarily rural area that comprises over one quarter of the state's land area. With their large service areas, transit systems in the counties of rural northern California lack the resources to adequately provide equitable and thorough service to their residents. As of 2016, over 950,000 people living in the counties potentially served by the North State Intercity Bus System lack meaningful connections to the state capitol. This large fragmented population currently has no reliable alternative to driving a personal vehicle for business, personal, recreational, educational or health related trips served by the Sacramento area.

In addition, another 1.5 million Sacramento County residents lack transit connection north and the many recreational destinations located in the region. Car ownership rates in cities of the Sacramento region and Bay Area are lower than in rural counties, according to the American Community Survey. Therefore, a significant population is inhibited from traveling to areas north of Sacramento and would benefit from a reliable intercity bus service. Increased tourism from urbanized regions would be a benefit to Northern California's economy and the state.

2.4.4.5 Consistency with Plan or Strategy Contained in Adopted Sustainable Communities Strategy

The North State Intercity Bus System: Phase 2 is consistent with SRTA's adopted 2018 RTP/SCS, the Sacramento Council of Governments' (SACOG's) 2020 Metropolitan Transportation Plan (MTP)/SCS, Lake

County Planning Council's 2017 Regional Transportation Plan, and the 2018 California State Rail Plan. Each plan is discussed in detail in this section. Links to all documents are provided in Section 2.4.9: Studies and Planning Documents, and complete documents have been submitted on a flash drive.

SRTA 2018 RTP/SCS

The northern terminus of the North State Intercity Bus System is located at the epicenter of coordinated efforts by SRTA, the city of Redding, The McConnell Foundation (a philanthropic organization), private sector developers, and other community partners to implement the region's adopted SCS. The location is within the Downtown Redding Strategic Growth Area, which includes ambitious goals for increasing housing and jobs supported by diverse multimodal transportation options. Recent major accomplishments, and their spatial relationship to the North State Intercity Bus System, are as follows:

1. Vacant department store currently being replaced by a four-story mixed-use project, featuring 79 residential units (¾ of which are affordable) and over 20,000 ft^2 of ground floor commercial space. This $40,000,000 project received a $20,000,000 Affordable Housing and Sustainable Communities (AHSC) grant.
2. An urban trail loop connecting Downtown Redding to the Sacramento River Trail and Turtle Bay Exploration Park/Sundial Bridge is being developed. Two of three phases have been fully funded.
3. Crosstown Express high frequency transit service was instituted, connecting the region's three main activity centers.
4. The historic transportation grid in the Downtown Redding Central Business District is being restored and recast as complete streets.
5. The multi-block Downtown Redding parking structure is being redeveloped into a mixed-use project. The project will add 82 residential units, ground floor commercial/employment space, a bike share station, transit station bicycle lockers, and add two mile of Class IV Cycletrack. This $44,000,000 project received a $20,000,000 AHSC grant award and a $4,000,000 Infill Infrastructure Grant (IIG).

As shown on Figure 4. GHG Reduction Opportunities Along Intercity Bus Route, all such efforts are directly connected to the Downtown Redding Transit Center/North State Intercity Bus System northern terminus. The North State Intercity Bus System will complement these efforts by enhancing mobility and reducing vehicle miles traveled for long distance trips.

SACOG MTP/SCS

The North State Intercity Bus System project directly supports two of the four policies of the 2020 Metropolitan Transportation Plan/Sustainable Communities Strategy (MTP/SCS) for the Sacramento region, as well as eight of the supporting policies. Consistent with the MTP/SCS, the North State Intercity Bus System project supports land use, air quality, and transportation needs by providing residents of under-served regions of the North State connecting commuter and destination travel service to the Sacramento region. This reduces air quality impacts and GHG emissions generated by individual vehicles, serves the transportation needs of these residents—as well as creating similar travel opportunities from residents of the Sacramento region to rural areas of the North State.

The North State Intercity Bus System supports the Sacramento Area Council of Governments (SACOG) 2020 MTP/SCS Policies # 2 - Foster the Next Generation of Mobility Solutions, and #4 - Build and Maintain

a Safe, Resilient and Multimodal Transportation System. The North State Intercity Bus System project upholds supporting sub-policies #4, 6, 7, 8, 19, 23, 24, and 25 of these two Policies #2 and 4.

For Policy #2, supporting sub-policies #4, 6, 7, and 8 address items like: funding flexibility for affordable, accessible and reduced GHG emissions; electric vehicle infrastructure and programs; increased coverage for productive public transit service; and the provision of seamless travel with coordination between transit operators.

The North State Intercity Bus System supports Policy #4, and its supporting sub-policies #19, 23, 24, and 25. These supporting sub-policies include the following investments: transit expansion in communities with supportive land use policies; to benefit environmental justice communities; to improve access to major economic assets and job centers; and ones that reduce GHG emissions and vehicle miles traveled (VMT).

Lake County

2017 Lake Area Planning Council Regional Transportation Plan:

Lake County is in rural Northern California, roughly bordered by Mendocino and Sonoma counties to the west, Colusa and Yolo counties to the east, Glenn County to the north, and Napa County to the south. State Routes 20, 29, 53, 175, and 281 are fully or partially included in Lake County. State Route 20 provides the primary access to neighboring Colusa County, located on the Interstate 5 corridor, and the city of Williams. Lake's RTP specifically calls out Interregional Public Transportation as an unresolved issue on page 13—specifically referencing the North State Intercity Bus System and the benefits of having feeder connecting routes providing access to the Sacramento International Airport and the Sacramento Capitol region.

Phase 2 of the North State Intercity Bus System would expand a new intercity transit feeder line from the I-5 Backbone service to a new transit hub in Clearlake (currently being proposed by Lake Area Planning Council in 2020 TIRCP Cycle). It is consistent with several Goals and Policies of the 2017 Lake County Regional Transportation Plan (RTP), which are listed as follows:

Overarching Issues Objective 3: Reduce Greenhouse Gas Emissions by promoting and facilitating transit use and increasing Active Transportation alternatives

- Overarching Issues Policy 3.1: Support increased frequency/expansion of transit service consistent with the local Unmet Transit Needs process
- Public Transit Objective 4: Improve the efficiency of the transit system
- Public Transit Policy 4.1: Reduce greenhouse gas emissions
- Public Transit Policy 4.2: Reduce fuel and utility costs
- Public Transit Objective 5: Support efforts to improve transit service to employment centers, educational institutions, public facilities and medical facilities
- Public Transit Policy 5.1: Promote connectivity and coordination with other transportation services
- Public Policy 5.3: Explore alternatives for increasing intercity connections to locations in other counties and to other transit services
- Public Transit Objective 6: Maximize funding for transit services and facilities

- Public Transit Policy 6.1: Support efforts to obtain funding through public and private funding sources for transit planning and transit services

2018 California State Rail Plan

The 2018 California State Rail Plan includes an objective of the project, to assist communities statewide in better connecting transit systems to rail, and enhancing station area functions, in both the 2022 short-term, as well as mid-term 2027, improvements within the plan. Additionally, the 2018 Rail Plan includes the following statewide goals which are relevant to the project:

- Conducting research and development and targeted investments in integrated ticketing and travel planning.
- Making significant progress in implementing alternative fuels or zero-emission technology on both rail and integrated express bus services

Finally, the 2018 California State Rail Plan, 2022 plan for proposed passenger improvements and investments, includes a stated short-term goal to expand integrated bus service to Redding.

2.4.4.6 Benefits to Freight Movement

The North State Intercity Bus System: Phase 2 includes development of hydrogen fueling infrastructure in both Redding and Sacramento; the intent of the fueling infrastructure is to serve heavy-duty vehicles such as motorcoaches and large freight trucks. This investment in the hydrogen fueling infrastructure, which is non-existent north of Sacramento, will be a key first step in implementing regional and state zer0-emission goals for goods movement.

Overall, the North State Intercity Bus System project will reduce traffic congestion by replacing automobile trips on I-5. The freeway system has or will very shortly reach its funding and lane capacity for expansion. As traffic volumes and congestion increase on I-5, the potential for accidents and associated delays increases. This can negatively affect the movement of agricultural goods from the North State to distribution centers in urban areas, as well as from various goods north on I-5 through the Pacific Northwest.

SRTA, Caltrans District 2, and regional partners are actively managing freight movement on the I-5 corridor, as outlined in the California Freight Mobility Plan 2020 and the California Sustainable Freight Action Plan (2016) (links provided in Section 2.4.9: Studies and Planning Documents, and complete documents included on flash drive). The North State Intercity Bus System project is one strategy. Other strategies include:

1. Strategies that maximize freight throughput on the I-5 corridor, including a more efficient means to aggregate and distribute commodities and moving to freight rail.
2. Strategies that reduce non-freight travel demand on the I-5 corridor, including the North State Intercity project and improving jobs-housing balance in the south-county area.
3. Strategies that optimize network operations and state-of-good-repair, including the application of transportation technology, including ITS elements, and use of design standards that minimize future maintenance and associated disruptions to traffic flow.

4. Strategies that strengthen communities, expand opportunity, and support public-private partnerships, including added job opportunities for disadvantaged and low-income populations in the south-county area, providing a suitable alternate location to Downtown Redding for freight rail switching, reducing the risk of hazardous materials release from a derailment, and remove obstacles to future development of an intermodal freight terminal.

2.4.4.7 Supplemental Funding Committed from Non-State Sources

Other than the substantial costs for operation of services, there is no supplemental funding committed from non-state sources.

2.4.4.8 Financial Viability of Proposed Service

Operations funds are guaranteed as shown in the table below. Local TDA and LCTOP funds can guarantee operations if other revenues such as fares fall short. However, SRTA is showing several other funding sources in the table as "Preferred Operating Under Development" that are more appropriate for intercity bus services but not yet guaranteed. To the extent these funds under development become committed, local TDA funds and LCTOP funds will shift to complementary transit needs and capital needs not in the TIRCP project scope.

Funding	I-5 Backbone	Feeder Fare Integration #1 (Shasta)	Feeder Fare Integration #1 (North Valley)	Feeder Fare Integration #1 (Lake)	System Wide Total
OPERATING REVENUE-COMMITTED					
TDA --> Loan Fund	$ 273,376				$ 273,376
TDA --> Local		$ 150,000			$ 150,000
State Intercity Rail Funding	$ 200,000				
Fare Revenue (based on $20 for Backbone and $25 for other routes	$ 624,360	$ 3,125	$ 545,760	$ 366,888	$ 1,540,133
LCTOP-Shasta		$ 200,000			$ 200,000
LCTOP-Modoc		$ 8,000			$ 8,000
LCTOP-NV Feeder (provided from Glenn and Lake)			$ 10,000	$ 10,000	$ 20,000
Total Operating Revenue - Committed	**$ 1,097,736**	**$ 361,125**	**$ 555,760**	**$ 376,888**	$ 2,391,509
PREFERRED OPERATING REVENUE-UNDER DEVELOPMENT - NOT YET COMMITTED					
Rail Ticket Sales	$ 182,500				$ 182,500
Block Ticket Sales (govt., social services, and business)	$ 85,000				$ 85,000
Advertising	$ 170,000				$ 170,000
5311 (f)	$ 300,000	$ 100,000		$ 100,000	$ 500,000
CMAQ Contribution to North Valley Feeder Line	$ 100,000				$ 100,000
Total Operating Revenue - Uncommitted	**$ 837,500**	**$ 100,000**	**$ -**	**$ 100,000**	$ 1,037,500
Projected Operating Revenue-Committed	**$ 1,097,736**	**$ 361,125**	**$ 555,760**	**$ 376,888**	$ 2,391,509
Annual Operating Cost	$ 968,220	$ 550,056	$ 552,615	$ 320,617	$ 2,391,508
Revenue minus Cost	$ 129,516	$ (188,931)	$ 3,145	$ 56,270	$ 0

The table shows that SRTA has the resources through the TDA loan fund to ensure that any remaining operational needs are funded once the fund resources in development are exhausted or if fare revenues fall short of expectations. Any funds needed from the loan fund would be repaid in subsequent years with fare revenue.

Longer term, SRTA hopes to work with state for a more direct and efficient state support funding mechanism for the North State Intercity Bus System. Direct funding would better encourage North State coordination with all intercity public transportation providers, not just the SJJPA. If the state can implement coordinating ticketing, a direct funding relationship maybe more likely. Also, longer term,

SRTA is also working with the Butte County Association of Governments (BCAG) to run all Sacramento Valley Thruway Bus Service which could likely be done for much less that current $1.482 million cost to the state. SSJPA has expressed an interest in relinquishing this responsibility to local regions.

2.4.5 Expected Benefits and Metrics

Following a TIRCP program award, a performance monitoring database will be developed to help track and foster efficient report generation. Prototype development and fueling infrastructure will have specific metrics established for performance monitoring on a quarterly basis. However, monthly monitoring may be required for certain transit metrics. The administering agency and all associated feeder route operators will prepare monthly progress reports. The performance monitoring database will be designed so that reports can be easily generated and included in the monthly progress reports.

In addition to count and budget data as a measurement of the system, annual surveys will be distributed for feedback on the convenience of the system and changes in travel behavior.

2.4.6 Useful Life of Project

The coaches will be operated a minimum of three years during the initial prototype testing period, with the expectation that SRTA will continue to operate them for an additional three to nine years, depending on vehicle reliability and available funding to support ongoing operations, maintenance, and major component upgrades.

Fueling infrastructure does not have an anticipated useful life; rather, any investments in fueling stations will continue to be valuable and able to be upgraded as need and the hydrogen market requires.

2.4.7 Public Benefit Commensurate with Public Investment

If TIRCP funds are awarded to the North State Intercity Bus System: Phase 2 project, some funding will be allocated to developing new hydrogen fueling infrastructure in Redding and adding to an existing hydrogen fuel station in Sacramento. While the Redding infrastructure would be on publicly owned property, the administration and maintenance of the facility would most likely be privately-owned. The existing hydrogen fuel station in Sacramento is entirely privately-owned.

Investment in private infrastructure will enable SRTA, the state of California, and the transit industry to validate the commercial potential for hydrogen fuel motorcoaches to serve public transit agencies on statewide basis. Further, the investment in private infrastructure expands the transformation of the transport industry from petroleum and carbon fuels to zero emission fuels, which is key to state goals of reducing greenhouse gases. As stated, California is transitioning to a zero-emission future in the transport industry, in part driven by a new regulation that will require transit agencies to operate all zero-emission fleets by 2040, and a forthcoming zero-emission truck regulation that will likely be adopted in 2020.

Finally, SRTA's expectation is that a privately-owned hydrogen fuel station may be interested in providing a discounted bulk fuel price, subject to a private/public contracting arrangement, or otherwise making an arrangement to compensate the state for the investment of public funds by offsetting fuel costs for the North State Intercity Bus System and other transit operators.

2.4.8 Project Benefits Change Based on Funding Source

LCTOP funding in the Shasta region is focused on benefiting Low-Income Communities and providing free rides/increasing ridership over proposed TIRCP ridership. However, if LCTOP funds could be used to purchase hydrogen fuel, offsetting operating costs, SRTA would also pursue this option.

2.4.9 Studies and Planning Documents

All studies and planning documents referenced in this application are attached to the application as an electronic link, and copies are provided on the flash drive submitted with the project application.

- 2018 TIRCP Grant Application -- Transit and Intercity Rail Capital Program (TIRCP) grant application for North State Intercity Bus System
    - https://www.srta.ca.gov/DocumentCenter/View/3934/North-State-Intercity-Bus-System-TIRCP-Grant-Application-January-2018
- North State Intercity Bus System Business Plan for Shasta Regional Transportation Agency
    - https://www.srta.ca.gov/DocumentCenter/View/4099/North-State-Intercity-Bus-System-Business-Plan-June-2018
- Shasta Intercity Transportation to Sacramento and Bay Area Feasibility Study and Action Plan
    - https://www.srta.ca.gov/DocumentCenter/View/3280/Shasta-Intercity-Transportation-Feasibility-Study-and-Action-Plan-December-2016
- 2018 Regional Transportation Plan for Shasta County, including Sustainable Communities Strategy (RTP/SCS)
    - https://www.srta.ca.gov/DocumentCenter/View/3280/Shasta-Intercity-Transportation-Feasibility-Study-and-Action-Plan-December-2016
- GoShasta Regional Active Transportation Plan
    - https://www.srta.ca.gov/DocumentCenter/View/4773/GoShasta_Regional_ATP_with_appendices_8-2019
- North State Express Questionnaire
    - https://www.srta.ca.gov/DocumentCenter/View/4960/North-State-Express-Questionnaire
- Sacramento Council of Governments' (SACOG's) 2020 Metropolitan Transportation Plan (MTP)/SCS
    - https://www.sacog.org/sites/main/files/file-attachments/2020_mtp-scs_final_draft_for_web.pdf?1578074075
- Lake County Planning Council's 2017 Regional Transportation Plan
    - https://www.lakeapc.org/wp-content/uploads/2018/06/2017-RTP-Final.pdf
- 2018 California State Rail Plan
    - https://www.srta.ca.gov/DocumentCenter/View/4961/2018-California-State-Rail-Plan
- California Freight Mobility Plan 2020
    - https://dot.ca.gov/programs/transportation-planning/freight-planning/ca-freight-advisory-committee/cfmp-2020
- California Sustainable Freight Action Plan (2016)
    - https://dot.ca.gov/programs/transportation-planning/freight-planning/california-sustainable-freight-action-plan

2.5 Project Impacts

2.5.1 Project Impacts as they relate to Evaluation Criteria

The North State Intercity Bus System: Phase 2 will connect transit services throughout Northern California, including Amtrak, High Speed Rail, and various rural bus transit systems using an innovative, transformative transit method; hydrogen fuel cell motorcoaches. Because the North State Intercity Bus System is anticipated to bring more commuters and destination travelers into Sacramento and surrounding regions, ridership of connecting services is expected to increase.

Bringing riders to the Sacramento Valley Station is anticipated to increase ridership on the Capitol Corridor and San Joaquin's Amtrak Lines. Mobile source data indicates a majority of persons traveling by individual cars through the Vacaville and San Joaquin Gateways can find traveling on the Capitol Corridor and San Joaquins Lines as an attractive alternative. The Capitol Corridor provides residents of Northern California access to the Bay Area and Silicon Valley without driving in traffic, and the North State Intercity Bus System project would allow residents of the Bay Area a way to reach rural Northern California for recreation. The San Joaquins connect Sacramento to the San Joaquin Valley and recreational opportunities in the Sierra Nevada, such as Yosemite, Sequoia, and Kings Canyon National Parks. Amtrak offers connecting thruway buses directly to Yosemite National Park from the San Joaquins route at the Amtrak station in Merced.

The North State Intercity Bus System project will allow for a future connection to High Speed Rail (HSR) in Sacramento. Phase 1 of HSR will connect San Francisco to Los Angeles by 2029, followed by a Phase 2 connection to Sacramento. When Phase 1 is complete, North State Intercity Bus System project travelers can connect to HSR in Merced by taking the San Joaquins train from Sacramento. HSR opens the possibility for fast connections from the North State to Los Angeles and the rest of Southern California.

The North State Intercity Bus System is coordinated with local transit agencies throughout Northern California to ensure efficient connections with existing transit systems. New North State Intercity Bus System project routes that are established will provide support connections within the North State Intercity Bus System project network (such as the Shasta Urban Feeder and Lake Feeder Line) or new routes to new destinations (such as to the Sacramento Airport). Negative impacts on existing transit systems are not anticipated. On the contrary, the North State Intercity Bus System project is anticipated to improve connecting transit systems by attracting new riders and related revenue. Any potential burdens on transit systems using smaller buses generated by increased ridership should be offset by increased revenues.

Sacramento Regional Transit (RT) serves 418 square-miles with a network of buses, light rail, and shuttle vans. The North State Intercity Bus System will connect directly to RT's 7th & Capitol Stop, where riders can easily transfer to several bus and light rail lines.

2.5.2 Project's Impacts on other Transit Service

There is currently very limited connectivity between existing north state transit services, the Sacramento area, and other areas in California served by the intercity rail system. North State Intercity Bus System impacts on other transit services in northern California are detailed in this section.

2.5.2.1 Trinity Transit

Trinity Transit's Redding Line connects Weaverville to Redding, allowing passengers from Humboldt and Trinity counties to access the North State Intercity Bus System project. The Redding Line makes two round trips daily, Monday through Friday.

A rider traveling from Weaverville to Sacramento would be able to board either eastbound bus from Weaverville and reach the Redding Downtown Transit Center in time to board the North State Intercity Bus System I-5 Backbone Trip 1 of the Redding Line reaches the Transit Center at 8:24 am, allowing 26 minutes to board the North State Intercity Bus System I-5 Backbone Trip 2. The Redding Line's second trip arrives at 12:09 pm, which leaves nearly two hours before the North State Intercity Bus System project's 2:05 pm departure.

Riders traveling from Sacramento to Weaverville would take the North State Intercity Bus System Trip 2, arrive in Redding at 2:30 pm, depart on the Redding Line at 3:45 pm, and arrive in Weaverville at 4:42 pm.

2.5.2.2 Humboldt Transit Authority

Riders departing from Arcata board Humboldt Transit Authority's Willow Creek - Arcata Route at the Arcata Transit Center on a weekday. From Willow Creek, passengers ride Trinity Transit's Willow Creek Line to Weaverville, where they connect to Trinity Transit's Redding Line. It is possible to travel from Arcata to Sacramento in one day by leaving Arcata at 8:20 am or Willow Creek at 9:15 am, arriving in Redding at 12:09 pm, and boarding the North State Intercity Bus System at 2:05 pm.

A trip from Sacramento to Arcata would have to be split up into two days, as the only through trip from Redding to Arcata leaves Redding at 10:30 am, before the first North State Intercity Bus System bus arrives from Sacramento.

2.5.2.3 Del Norte: Redwood Coast Transit Authority

Passengers from Del Norte County would first ride the Smith River / Arcata Bus operated by Redwood Coast Transit Authority to Arcata, transfer to Humboldt Transit Authority's Willow Creek - Arcata Route, travel to Weaverville on Trinity Transit's Willow Creek Line, and then connect to Trinity Transit's Redding Line. It is not currently possible to complete the entire trip from Del Norte County to Redding in one day. A rider would have to spend a night in Arcata, Willow Creek, or Weaverville if they intend to connect to the North State Intercity Bus System from Del Norte County.

Although traveling from Del Norte to Redding is not possible in one day, riders can reach all connections in one weekday on a trip from Redding to Del Norte County. However, under the current North State Intercity Bus System schedule, riders would have to spend a night in Redding before boarding the following day's Trinity Transit trip 1.

Ridership between Del Norte County and Sacramento is projected to be very low, but the North State Intercity Bus System will open this possibility.

2.5.2.4 Mendocino-Lake

The new Lake Feeder Line would connect passengers of the North State Intercity Bus System with Lake and Mendocino Counties. Riders who wish to travel to Mendocino County from Sacramento will arrive at Clearlake Walmart, then take Lake Transit Route 4 to Lakeport, where they can connect to Route 7. Route 7 travels between Lakeport in Lake County and Ukiah in Mendocino County. This connection with Lake County will ultimately connect the North State Intercity Bus System on the I-5 corridor to the SMART and/or Golden Gate Transit system on the 101 corridor. Both the I-5 and US 101 corridors feed into the Intercity Rail system.

2.5.2.5 Burney Express

The Redding Area Bus Authority operates the Burney Express, which serves rural Shasta County between Redding and Burney. The Burney Express runs three round trips each weekday; no weekend or holiday service is available. A fare from Redding to Burney is $5.

A rider traveling from Burney to Sacramento would need to take either the first or second trip on a weekday to connect to the North State Intercity I-5 Backbone. The first trip of the Burney Express leaves Burney Sporting Goods at 5:50 a.m. and arrives at the Redding Downtown Transit Center at 7:15 am, allowing over 1.5 hours before the North State Intercity I-5 Backbone's 8:50 departure. The second Burney express trip arrives in Redding at 1:15 pm, 50 minutes before the North State Intercity I-5 Backbone's 2:05 pm departure.

Riders returning to or visiting Burney from Sacramento would take the first or second North State Intercity I-5 Backbone trip and then board the Burney Express at 2:25 pm or 5:35 pm.

2.5.2.6 Modoc County

Modoc County operates the Sage Stage, connecting Alturas and Redding once each Tuesday. A passenger traveling to Sacramento from Alturas would depart at 7:30 am, arrive at the Redding Downtown Transit Center at 10:30 am, and take the third North State Intercity I-5 Backbone trip at 2:05 pm.

A trip from Sacramento to Alturas would require boarding the first North State Intercity I-5 Backbone bus from Sacramento on a Tuesday, arriving in Redding at 11:00 am. The Sage Stage departs Redding at 12:45 pm.

2.5.2.7 Lassen County

Susanville Indian Rancheria offers transportation services for the general public six days per week Monday through Saturday (excluding holidays) to Red Bluff. One round trip connecting Susanville and Chester to Red Bluff is completed each day of operation.

The bus stops at the Red Buff Transit Center downtown, which requires a 1.4 mile walk to the proposed North State Intercity I-5 Backbone project site, or a 0.8-mile bus ride followed by a 0.6-mile walk. A new or extended regional bus line could fill this gap, or Susanville Indian Rancheria could divert its route to drop North State Intercity I-5 Backbone passengers off as needed.

2.5.2.8 Plumas County

Plumas Transit offers a bus from Quincy and rural Plumas County to Chester, where passengers can connect to Susanville Indian Rancheria's bus to Red Bluff.

2.5.2.9 Butte County

Glenn Ride operates a bus between Chico and Orland with several daily routes. Passengers on the Glenn Ride will transfer to and from the North Valley Feeder Line at Stony Creek Mall in Orland.

2.5.2.10 Colusa

Colusa County provides bus service from the city of Colusa to Williams several times each day, allowing residents of Colusa County to easily connect with the North State Intercity I-5 Backbone or North Valley Feeder.

2.5.2.11 Sacramento Regional Transit

The North State Intercity I-5 Backbone will stop at Sacramento's 7th & Capitol Station, providing riders with access to regional transit options in Sacramento including light rail and buses.

2.5.2.12 Shasta Urban Feeder

Implementation of the Shasta Urban Feeder as part of the North State Intercity Bus System: Phase 2 will provide cleaner vehicles for Shasta area services, such as the Sunday Transit service, Burney Express, and Redding Area Bus Authority services. It is assumed that the Shasta Urban Feeder would operate outside of RABA business hours; therefore the addition of the Shasta Urban Feeder would result in an increase in service hours for the community. The Shasta Urban Feeder will be focused on a local origin/destination matrix and high volume destinations/generators, like local points of interest, transfer facilities, higher education, and churches. While ridership increases are expected for the Shasta Urban Feeder line - due to increased service hours outside of existing transit operator hours - for the purposes of this grant application and GHG Quantification Tool, the Shasta Urban Feeder has been quantified as the replacement of existing vehicles with cleaner vehicles, rather than increasing ridership.

2.6 Benefits to DAC and / or LIC Communities

The North State Intercity Bus System will serve eleven Disadvantaged Communities (DAC) and/or Low-Income Communities (LIC) within Sacramento County and two DACs within Butte County, totaling 39,435 residents. DACs and LICs served by the project were determined using CalEnviroScreen 3.0 and include all tracts within counties served by the North State Intercity Bus System and existing/proposed feeder lines, excepting Sacramento County, where only tracts containing or adjacent to a proposed bus stop were included. The two DACs located within Butte County are connected to the main I-5 Backbone by the North Valley Feeder Line route of the North State Intercity Bus System.

CalEPA determines disadvantaged communities based on environmental health and socioeconomic data. Rural Northern California contains a high percentage of low-income communities that don't meet the definition of disadvantaged based on environmental health, as shown in the following Low-Income Communities section.

Of the twelve northern California counties located within the service area of the proposed bus line, 69% of the census tracts have a median household income 80% or lower than the California median household income of $71,805. These census tracts contain approximately 70% of the population within the service area.

Communities Served	Total Population	Low income Population	
		Number	Percent
Existing Connections	634,670	452,908	71.4%
Phase1 - North Valley Feeder	102,140	65,070	63.7%
Phase2-Lake Feeder	7,986	7,986	100.0%
Phase2-Shasta Urban Feeder	36,175	22,690	62.7%
I-5 Backbone	168,269	114,802	68.2%
Total	**949,240**	**663,456**	**69.9%**

Communities Served	Total Census Tracts	Low income Census Tract	
		Number	Percent
Existing Connections	162	119	73.5%
Phase1 - North Valley Feeder	23	15	65.2%
Phase2-Lake Feeder	2	2	100.0%
Phase2-Shasta Urban Feeder	10	6	60.0%
I-5 Backbone	35	22	62.9%
Total	**232**	**164**	**70.7%**

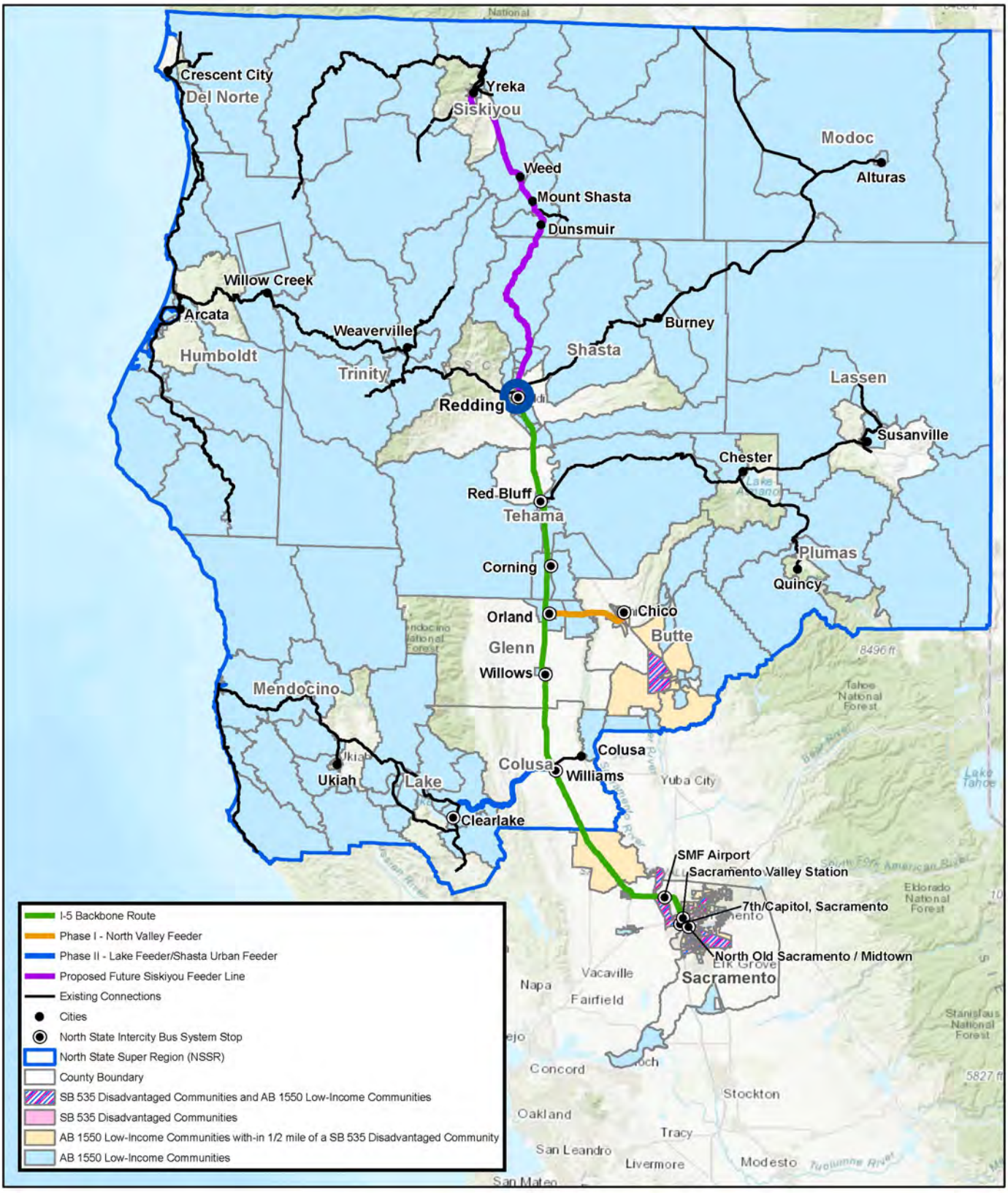


Figure 6. Project Proximity to Disadvantaged Communities and Low-income Communities

Outreach to enhance benefits of Phase 2 to DACs and LICs may include community outreach events, such as the successful Bus-Ta-Move event on April 20, 2019. The promotional flyer for the event is included below.

Figure 7. Promotional Flyer for Bus-ta-move Event

2.7 Employment and Workforce Development and Training Benefits

Based on 2018/2019 data with regard to Shasta College students, 67 students, or 0.6% of students, of Shasta College are from a Disadvantaged Community; 5,286, or 48.4%, of Shasta College students are from a Low-Income Community; and 3,881, or 35.6%, of Shasta College students are from a Low-Income Household. In addition, based on the 2019 Career and Technical Education (CTE) Outcomes Survey (an annual survey produced by Santa Rosa Junior College that surveys all CTE graduates from California's community colleges), 84% of CTE graduates from Shasta College were employed.

The above demographic information demonstrates an effective and robust CTE program currently established at Shasta College. SRTA has included in the project Scope of Work a task and corresponding budget line item, to reflect the level of effort anticipated, related to development of an alternative fuels vehicles service and maintenance program at Shasta College.

SRTA proposes a three-year pilot educational program at Shasta College that includes the service and maintenance of alternative fuels vehicles and fueling systems. The program would include both vehicle maintenance and fueling systems development and maintenance. Development of the educational program at Shasta College would include the following:

- Instructor recruitment and retention
- Curriculum development
- Curriculum training

- Equipment
- Travel and training at workforce development sites of a similar nature

Shasta College has confirmed interest in such a program, as demonstrated in the attached Letter of Interest. Pending award of 2020 TIRCP funds, SRTA and Shasta College will work together to develop an appropriate curriculum and educational program. Development of a local, community college-based alternative fuels vehicle educational program would provide direct employment and workforce development and training benefits to the community, which in and of itself directly benefits priority populations in Shasta County and the north state (See attached Evaluation Criteria for Providing Benefits for Priority Populations: Job Training & Workforce Development form).

2.8 Project Tracking and Reporting

SRTA will develop a detailed project tracking and reporting plan to describe the data collection and technical analysis work outlined in Section 3.1: Project Scope and Location, Task 5: Performance Monitoring, Data Collection, and Evaluation. SRTA will monitor selected buses by utilizing preinstalled data collection hardware or installing as necessary electronic data collection devices on each vehicle. These devices will enable a detailed analysis of (at minimum) miles traveled, usage patterns, charging patterns, and other factors. GHG emission data will be collected to gain a detailed understanding of the total GHG savings this project generates. The monitoring will continue on an ongoing basis for each vehicle, starting with the deployment of vehicles into revenue service. All vehicles will be tracked electronically. Fueling infrastructure will also be monitored, evaluated, and reported on, to determine performance.

SRTA will prepare Technical Evaluation Reports on an agreed-upon schedule that will capture all data collected, analysis conducted, and lessons learned from the testing period. The reports will show the analysis result for each vehicle type and each route that was selected. The reports will be shared with CalSTA, and the broader transit community.

2.9 Project Implementation and Management

Project implementation will proceed upon receipt of TIRCP funding. SRTA will serve as the prime contractor, with collaborating agencies as subcontractors. A SRTA staff member will be assigned as the Project Lead who is responsible for the project's delivery and day to day management of the project. The Project Lead will serve as contact for Caltrans, will coordinate project partners, will be the contract manager for consultants hired for the project and will manage budget, timelines and deliverables. It is SRTA's intent to work closely with:

- a transit consultant to assist with the bus procurement and development and implementation of the evaluation program for the project; and
- a marketing consultant for launch marketing of the North State Intercity Bus System Phase 2.

SRTA will use competitive procurement for prototype motorcoach development, fueling infrastructure design and construction, and the consulting services for transit, marketing and program evaluation.

Shasta Regional Transportation Agency Financial and Accounting Policies and Procedures will be used for procurement.

The following project management related description is also included in Section 3: Statement of Work - Section 3.1: Project Scope and Location – Task 8: Project Administration.

Project management activities for a zero-emission bus project can be complicated and extensive. SRTA plans to contract with a qualified consultant to help with the prototype development, fueling station implementation, charging station implementation, and maintenance facility upgrades. Consultant support will likely consist of:

- Overall project management
- Technical planning support
- Procurement support
- Development of technical specifications
- Bus inspection
- Address federal requirements if needed
- Infrastructure deployment
- Bus and infrastructure validation
- Risk management
- System safety planning
- Manuals and training administration
- Performance monitoring
- Modeling duty cycle and fueling requirements
- Data collection and analysis.

It is assumed that a qualified consultant would guide the entire project using a project management approach and methodology specifically designed for zero-emission bus deployments, augmented by a set of established project control and risk management procedures. The methodology includes best practices in procurement of zero-emission buses and charging infrastructure. Centralized management of the work program will enable team members to concentrate on exceeding project goals and ensure production of deliverables in a clear and well-coordinated manner. A qualified consultant would provide the team with collaboration tools, a communications plan, a project management plan, a schedule control plan, a risk management and mitigation plan, and a reporting plan for periodic Project Status Reports and Quarterly Management Reports that can be used for submission to TIRCP.

SRTA would be responsible for project management activities as they relate to TIRCP requirements and consultant management. Anticipated activities include preparing agreements with all project partners, overall project management, and preparation of TIRCP-required reporting deliverables (quarterly progress reports, invoicing, Project Delivery Report, etc.).

2.10 Project Readiness and Project Implementation Timeline

2.10.1 Project Environmental Readiness

The North State Intercity Bus System: Phase 2 is expected to have an environmental benefit, and required environmental clearance is minimal. Further, as fueling infrastructure (traditional fuels) are already

located at or near all proposed hydrogen fueling infrastructure locations, a California Environmental Quality Act Categorial Exemption is the expected level of environmental documentation. As there are no federal funds and/or nexus, there is no need for National Environmental Policy Act compliance/documentation. Required CEQA documentation will be performed in the early stages of project implementation, as outlined in Section 3.1: Project Scope and Location. This early preparation of environmental documentation will position the project for immediate implementation upon establishment of a TIRCP contract.

2.10.2 Project Collaboration

SRTA and the North State Super Region (16 northern California county alliance) cooperated during development of SRTA's 2020 TIRCP North State Intercity Bus System: Phase 2 grant application; the grant project is supported by the North State Super Region (support letter attached in Section 4: Support Documentation). Additionally, the project was developed in cooperation with Caltrans District 2 (hydrogen fueling infrastructure and vehicle storage) and the Lake Area Planning Council (Lake Feeder Line / Clearlake Transit Hub).

2.10.3 Scalability and Separability

Components of the North State Intercity Bus System: Phase 2 project are not scalable nor separable. Prototype hydrogen fuel cell motorcoach development and hydrogen fueling infrastructure are inseparably intertwined. SRTA needs to be able to fuel vehicles that are based in the North State. Proposed feeder services provide the project with needed greenhouse gas reductions. No project components would have independent utility if separated.

Two options are available for hydrogen fueling in Redding; utilizing an electrolyzer to produce fuel on site, or delivering hydrogen to the Redding station, either as a gas or a liquid. For the purposes of the GHG Quantification Tool, we have assumed the cost of the more expensive of the options; the electrolyzer.

The electrolyzer option will enable SRTA to produce hydrogen fuel as needed and avoids the transportation costs of delivering hydrogen from a considerable distance away. Hydrogen gas deliveries would be more frequent given the limited capacity of tube trailers. Hydrogen liquid deliveries are more affordable than gas because of liquid's higher density, but liquid requires daily consumption of fuel otherwise surface vaporization (boil off) will result in venting hydrogen to atmospheres and a loss of fuel. While coach performance is expected to be very good, given the progress already being demonstrated with fuel cell electric 40' buses, fuel cell electric coaches have not yet been built and demonstrated in service, and there is always the possibility of extended down time with these vehicles, which could lead to fuel venting. Additionally, transportation costs are likely to be higher than normal for gas or liquid, because there are very few hydrogen commercial accounts in the Redding area, so the cost of transport cannot be spread across multiple deliveries. The cost of hydrogen from the electrolyzer will depend on obtaining favorable power rates and reduced demand charges from the Redding Electric Utility, the City of Redding's utility provider.

However, while not particularly scalable nor separable, it is worth discussing that fuel station costs in Redding could be significantly less than what is proposed, solely based on prototype range. If the prototype motorcoach achieves a fuel economy of 4 miles/kg or more, and if up to 70 kilograms of fuel can be stored on board the motorcoach (which may be possible), then the motorcoach would have an extended range of 260 miles (4 mi/kg X 65 kg of useable fuel). Under this circumstance, the motorcoach

would leave Sacramento with a 260-mile range, to drive 175 miles. The return trip to Sacramento would only require "topping off" with approximately 25 kg of fuel in Redding. If this option proves itself to be realistic, a gaseous storage system, as proposed by some private fueling providers, would be more than sufficient to fully fill the motorcoach in Redding; thereby making capital expenditures related to the Redding station significantly less costly than other options, most especially using an electrolyzer. It is also possible that the motorcoach could have a range of greater than 300 miles, much like the existing 40' FCEC transit bus; however, this will be an unknown factor until the selection process for the OEM is completed and modeling of the fuel efficiency of the fuel cell and the storage capacity on the motorcoach has been completed.

3. Statement of Work

Statement of Work

3.1 Project Scope and Location

For the Transit and Intercity Rail Capital Program (TIRCP) 2020 Cycle, the Shasta Regional Transportation Agency (SRTA) is seeking funds to partner with a manufacturer for the design, engineering, and building of two prototype fuel cell motorcoaches, and for development of the related hydrogen fueling infrastructure in Redding and Sacramento. Once the fuel cell motorcoaches are in service, SRTA plans to utilize older zero-emission buses purchased with 2018 TIRCP funds for new, or improved, feeder route services connecting to the I-5 corridor.

The project location and greenhouse gas reducing (GHG) features are shown in Figure 1.

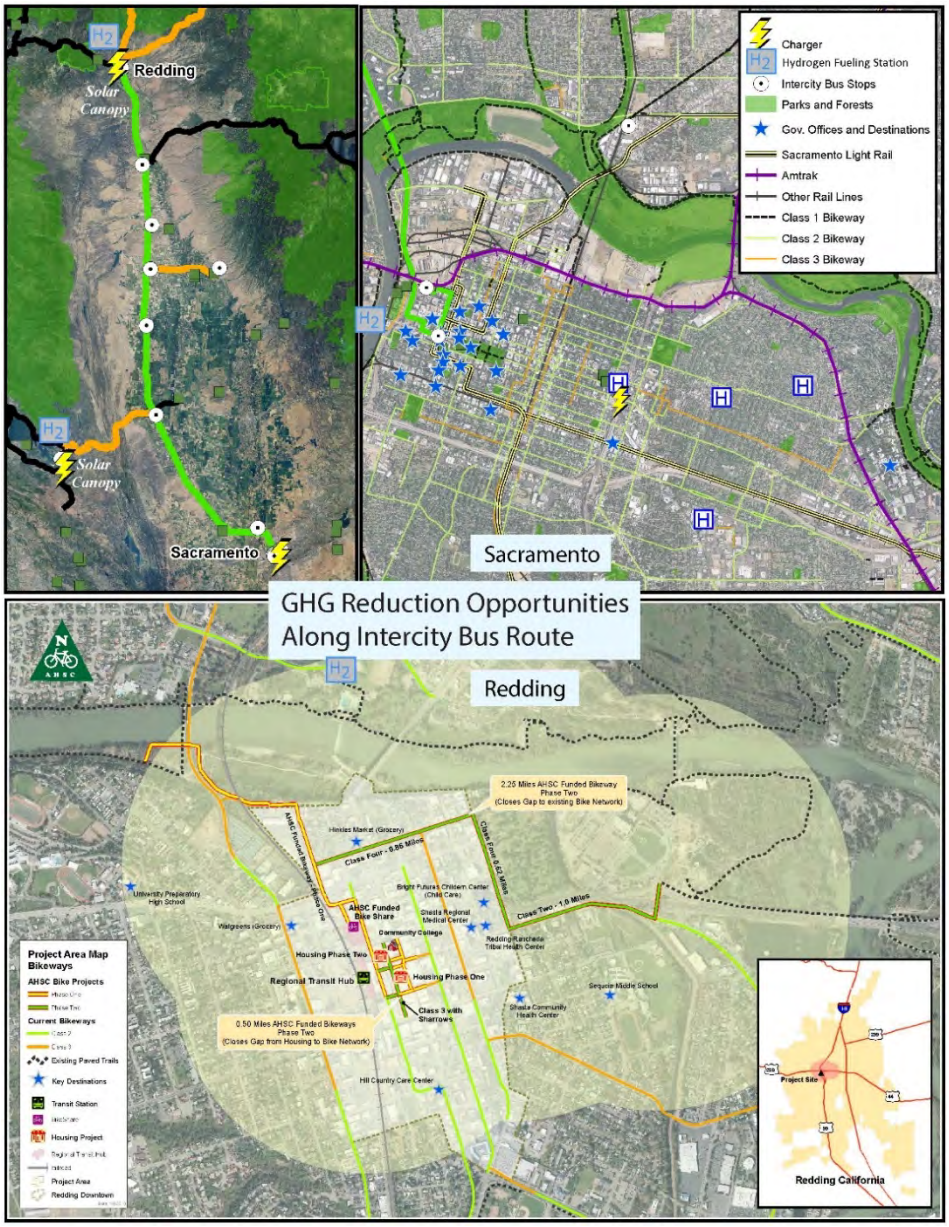


Figure 1: GHG Reduction Opportunities Along Intercity Bus Route

The project location denoting Disadvantaged Communities, Low-income Communities, and/or Low-income Households is shown in Figure 2.

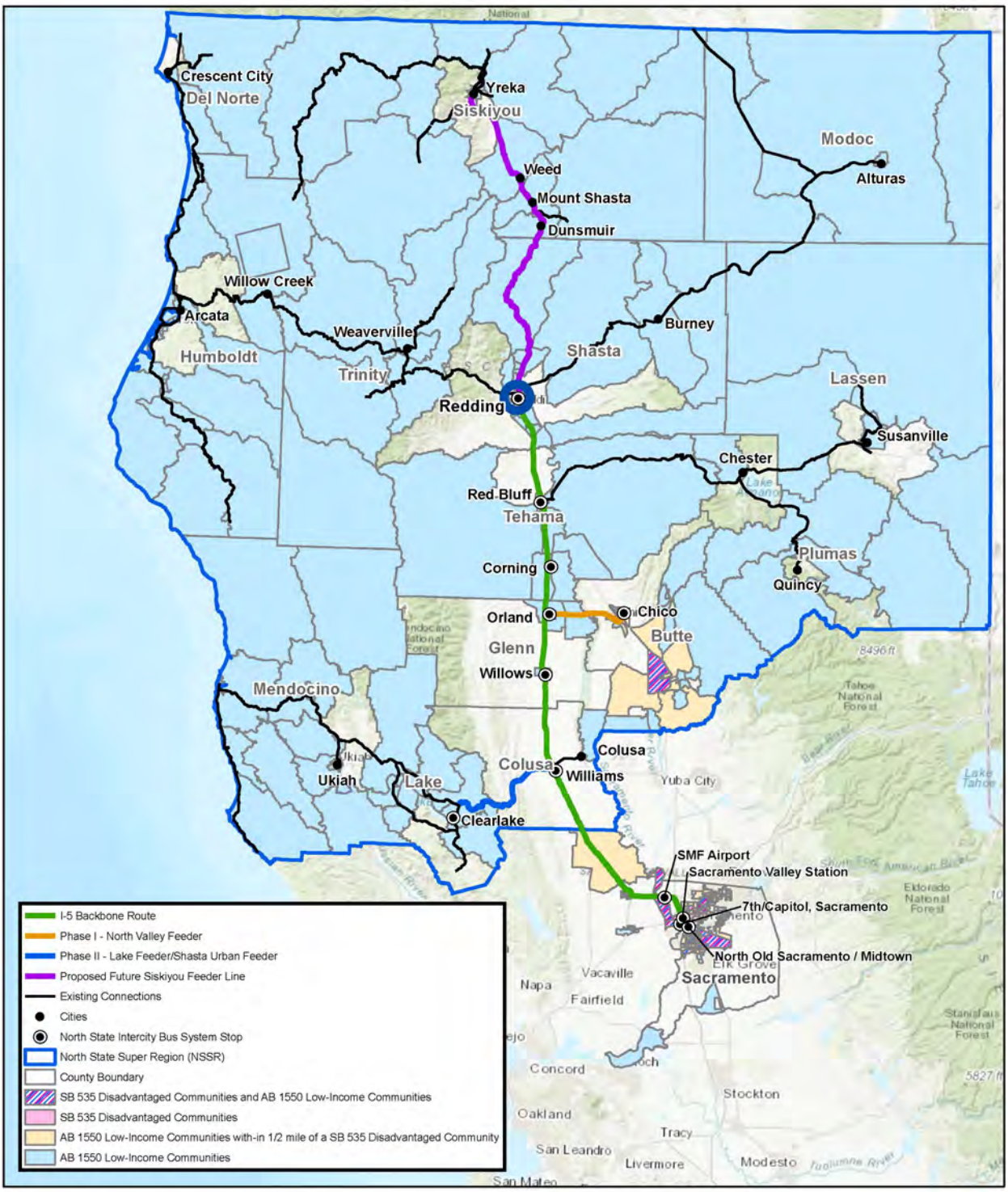


Figure 2: Project Location Denoting Disadvantaged Communities, Low-income Communities, and/or Low-income Households

SRTA's project proposal includes the following tasks:

- Task 1: Vehicle Design and Manufacturing
- Task 2: Fueling Stations
- Task 3: Charging Stations and Stop Improvements
- Task 4: Maintenance Facility Upgrades
- Task 5: Performance Monitoring, Data Collection, and Evaluation
- Task 6: Job and Workforce Development
- Task 7: Community Outreach and Marketing
- Task 8: Project Management and Administration

Project tasks are outlined below; the Project Budget and Project Schedule show these same tasks and anticipated time frame for completion.

Task 1 Vehicle Design and Manufacturing ($ 5,250,000)

SRTA will model route characteristics and prepare vehicle performance specifications prior to issuing a Request for Proposal (RFP) to select an Original Equipment Manufacturer (OEM) to engineer and build two prototype fuel cell coaches.

Task 1.1 Model Duty Cycle and Prepare Vehicle Performance Specifications

Initial vehicle specifications include:

- Zero emission fuel cell power
- Coach style
- Travel at interstate speeds over long distances (i.e. 75+ mph, as far as 45 to 50 miles before slowing down or stopping)
- Complete the one-way trip between Redding and Sacramento (i.e. 175 miles) on one fueling event to full vehicle fuel capacity
- Appropriate acceleration rates (to enter the freeway safely)
- Fuel economy of 1.5-2 times more efficient than diesel coaches that would otherwise operate on the I-5 Backbone route
- ADA compatible
- Secured luggage storage (significant storage needed considering stop at Sacramento International Airport)
- Bike storage
- Bathroom
- 35-40 passenger seated load (no standing passengers)

Task 1.2 Vehicle Procurement Support

- Develop Prototype Fuel Cell Electric Coach (FCEC) RFP Package, including schedule, overall RFP contents, procurement requirements, and applicable terms and conditions
- Issue RFP
- Execute Contract and Issue Notice to Proceed

Task 1.3 Vehicle Manufacturing

The OEM will develop design specifications with SRTA and manufacture two prototype buses.

Task 1.4 Vehicle Inspection and Commissioning

- Initial acceptance of bus against a list of required criteria
- 40 hours of road testing, completed without any defects, before final acceptance
- Operator Training
- First-Responder Training
- In-service Deployment

Task 2 Fueling Stations ($ 15,470,000)

SRTA will develop station performance specifications based on FCEC requirements and fuel cell supply needs, prior to issuing an RFP to select a one or more fuel suppliers to provide hydrogen fueling at the terminal locations in Redding and Sacramento. The successful vendor(s) will build and maintain fueling stations. Both stations will be commissioned in time to provide fuel for the prototype FCECs when they are ready to begin their initial acceptance testing. Each of the two stations will likely have different system configurations and ownership/operating plans.

It is anticipated that the Redding station will utilize an electrolyzer to produce hydrogen. It is anticipated that the station will be built on property owned by Caltrans, District 2, or the Redding Area Bus Authority. The equipment would be owned by SRTA, and the station would be maintained by the station equipment supplier under a multi-year maintenance agreement.

The Sacramento station would either be an existing station that will be upgraded to fuel heavy-duty vehicles or a new station in the vicinity of the Sacramento Amtrak Station. The fueling station is likely to be owned and operated by a private entity providing fuel to SRTA under a long-term contract and a discounted price based on the capital investment at the station.

Task 2.1 Fueling Stations Specifications

Coordinate with the coach OEM on the fueling station requirements, considering vehicle onboard fuel storage capacity, vehicle storage configurations and storage pressures, fuel efficiency of the coaches, daily fuel demand, station capacity, and throughput requirements. Identify station locations and secure agreements with site owners and local jurisdictions the suitability and feasibility of potential sites. Determine ownership arrangements, land leases, safety and security requirements, and operating scenarios for stations.

Task 2.2 Fueling Stations Procurement Support

- Develop H2 Station RFP Package(s)
- Issue RFP(s)
- Select Vendor(s)
- Execute Contract(s) and NTP(s)

Task 2.3 Fueling Stations Construction/Improvements

- Design
- Environmental review
- Procurement
- Buy/Lease option analysis
- Site prep
- Construction

Task 2.4 Fueling Stations Maintenance

Preventive and corrective maintenance of the following system components:

- Dispensers
- Pumps and compressors
- Valves and Piping
- Modifications to the software that runs the Programmable Logic Controller (the control system for the stations)
- Remote monitoring of station functions
- Validating emergency systems, detection equipment and alarms
- Ensuring fuel purity on a periodic basis

Task 2.5 Fueling Stations Commissioning

- Confirm all piping and electrical connections
- Pressure checks on system
- Load system with fuel
- Startup of major components systems, including compressors, storage vessels, and dispensers
- Software adjustments to PLC Logic Controllers
- Fuel purity tests
- First vehicle fueling
- Multiple fueling of vehicles to refine station controller
- Test emergency shutdown devices and valving
- Operator training
- First-responder training
- In-service startup

Task 3 Charging Stations and Stop Improvements ($ 2,305,000)

This task includes development of three on-route charging station that will allow for extended range operation of the battery electric buses. This task also includes passenger amenities and improvements at one transit stop location.

Task 3.1 Charging Stations Specifications

Development of specifications for on-route charging equipment, as well as the requirements for each charging station. Each charging station is expected to house an overhead pantograph charger interface, a pole and mast to support the pantograph, a 400 – 500 kW charger, and the transformers, switchgear, and conduit needed to supply power to the charger. The location of charging stations will be such to ensure that stations are positioned to most effectively meet SRTA route and operating requirements.

Task 3.2 Charging Stations Procurement Support

Procure charging equipment and engineering design services for the charging stations. Activities include:

- Develop & Issue a Request for Proposal (RFP) for charging equipment
- Evaluate charging equipment proposals
- Select a charging equipment vendor, obtain Board approval, and issue a purchase order
- Develop & Issue a Request for Proposal (RFP) for engineering design and construction management services for the charging stations
- Evaluate engineering design proposals

- Select an engineering design firm, obtain Board approval, execute a contract, and issue a Notice-to-Proceed (NTP)

Task 3.3 Charging Stations Construction/Improvements

Generate construction design documents for each charging station. The design documents will be used obtain bids and select a firm to provide all the electrical, civil, and construction services to build-out the charging station sites and install and commission the equipment. Activities include

- Site design and approval
- Environmental review, including any necessary environmental impact studies or NEPA questionnaires
- Develop & Issue an Invitation to Bid (IFB) for construction services for the charging stations
- Evaluate construction bids
- Select a construction firm, obtain Board approval, execute a contract, and issue a Notice-to-Proceed (NTP)
- Obtain Permits
- Mobilize and Site preparation
- Deliver/Receive charging equipment
- Station construction and equipment installation
- Inspections
- Power-up and charger commissioning

Task 3.4 Stop Improvements Construction/Improvements

Improvements in Williams will include a stop improvement to accommodate the I-5 Backbone and the Lake Feeder Line. Optional locations are 5th Street or Marguerite Avenue and E Street – Three opportunities include an upcoming development with Holiday Inn Express at Marguerite Street and State Route 20; partnership with the Colusa County Campus of Woodland Community College; or the Williams Unified School District at 499 Marguerite Street near E Street. These locations offer nearby existing gas stations, restaurants, and hotels within walking distance and excellent access to I-5.

The stop improvement would involve the following subtasks:

- Design
- Environmental review
- Procurement
- Buy/Lease option analysis
- Site prep
- Construction

Task 3.5 Charging Stations Commissioning

- Confirm all electrical connections
- Startup of major components systems
- First vehicle charging
- Operator training
- First-responder training
- In-service startup

Task 4 Maintenance Facility Upgrades ($ 1,050,000)

SRTA will contract with an independent coach operator to operate the FCECs; however, maintenance of the coaches will be the responsibility of the OEM. This will require modifications to the maintenance facilities used by the OEM, which will likely require the conversion of existing facilities to safely work on hydrogen fueled

vehicles. Facility upgrades could include mechanical and electrical modifications to meet code requirements, and the addition of hydrogen detection and alarm systems. If the facility is currently servicing CNG buses, then there may not be a need for mechanical and electrical upgrades.

Task 4.1 Maintenance Facility Specifications

Develop maintenance facility specifications to accommodate the addition of hydrogen fueled vehicles, including safety and security requirements.

Task 4.2 Maintenance Facility Procurement Support

- Issue RFP for Design and Engineering Services
- Select an engineering firm with experience in hydrogen codes and standards and designing maintenance facilities

Task 4.3 Maintenance Facility Design and Construction

Facilities will be designed to accommodate hydrogen fuel cell vehicles stationed in Redding and Sacramento; design and construction will include the following subtasks:

- Design
- Environmental review
- Procurement
- Site prep
- Construction

Task 4.5 Maintenance Facility Commissioning

- Test system
- Staff training

Task 5 Performance Monitoring, Data Collection, and Evaluation ($ 366,750)

The prototype coaches will operate in revenue service between Redding and Sacramento. Each coach will complete two roundtrips per day, operating 15 hours per day with a total daily mileage of approximately 800 miles. Service will be seven days per week. Total annual miles per coach, taking into account preventive and corrective maintenance and warranty service, is estimated to be 250,000 miles and 4,600 hours.

The coaches will be operated a minimum of three years during the initial prototype testing period, with the expectation that SRTA will continue to operate them for an additional three to nine years, depending on vehicle reliability and available funding to support ongoing operations, maintenance, and major component upgrades.

During the three-year demonstration phase, it is estimated each coach will consume approximately 60,000 kg of fuel annually (assumes a conservative estimate of 4 miles/kg). Fuel Costs are assumed to be $8/kg, resulting in an annual fuel cost of approximately $500,000 per coach, or $1 million per year for both coaches. This is a rough estimate that will be refined once the coach design has been modeled and in-service fuel economy has been measured.

Performance monitoring, data collection, and evaluation subtasks include:

- Development of a performance monitoring system and key metrics as described in the Performance Monitoring and Tracking section, including establishing baseline comparisons and setting performance goals
- Data collection during testing and throughout the project, for both vehicle and fueling station

performance, to provide to Caltrans and Bus Transport Industry

- Revenue service operation
    - Operator training
    - In-service deployment
- Vehicle analysis, including validation of fuel efficiency and comparison of vehicle performance and operating cost of FCEC to conventional diesel and CNG coaches
- Fuel station analysis with regard to performance
- Monthly data summaries
- Technical evaluation @ 3 mo., 6 mo., 1 yr., 3 yr., and then every 6 months for at least 9 years
- Final project performance evaluation

Task 6 Job and Workforce Development ($ 300,000)

SRTA proposes a three-year pilot educational program at Shasta College that includes the service and maintenance of alternative fuels vehicles and fueling systems. The program would include both vehicle maintenance and fueling systems development and maintenance. Development of the educational program at Shasta College would include the following:

- Instructor recruitment and retention
- Curriculum development
- Curriculum training
- Equipment
- Travel and training at workforce development sites of a similar nature

Task 7 Community Outreach and Marketing ($ 114,000)

Task 7.1 Launch Marketing

Marketing for the prototype fuel cell motorcoaches and new feeder services will include procurement of a marketing consultant and the following sub-tasks.

- Marketing plan
- Branding/Graphics
- Marketing materials
- Media

Task 7.2 Outreach to DACs and LICs

Additional outreach to enhanced benefits of Phase 2 to DACs and LICs may include community outreach events, such as the successful Bus-Ta-Move event on April 20, 2019. The event outreach flyer is below.

Task 8 Project Management and Administration (($ 745,673)

The following project management related description is also included in Section 2: Project Narrative - Section 2.9: Project Implementation and Management.

Project management activities for a Zero Emission Bus (ZEB) project can be complicated and extensive. SRTA plans to contract with a qualified consultant to help with the prototype development, fueling station implementation, charging station implementation, and maintenance facility upgrades. Consultant support will likely consist of:

- Overall project management
- Technical planning support
- Procurement support
- Development of technical specifications
- Bus inspection
- Address federal requirements if needed
- Infrastructure deployment
- Bus and infrastructure validation
- Risk management
- System safety planning
- Manuals and training administration
- Performance monitoring
- Modeling duty cycle and fueling requirements
- Data collection and analysis.

It is assumed that a qualified consultant would guide the entire project using a project management approach and methodology specifically designed for zero-emission bus deployments, augmented by a set of established project control and risk management procedures. The methodology includes best practices in procurement of ZEB's and charging infrastructure. Centralized management of the work program will enable team members to concentrate on exceeding project goals and ensure production of deliverables in a clear and well-coordinated manner. A qualified consultant would provide the team with collaboration tools, a communications plan, a project management plan, a schedule control plan, a risk management and mitigation plan, and a reporting plan for periodic Project Status Reports and Quarterly Management Reports that can be used for submission to TIRCP.

SRTA would be responsible for project management activities as they relate to TIRCP requirements and consultant management. Anticipated activities include preparing agreements with all project partners, overall project management, and preparation of TIRCP-required reporting deliverables (quarterly progress reports, invoicing, Project Delivery Report, etc.).

3.2 Project Costs

Project Cost information is also provided in Section 2: Project Narrative – Section 2.2: Project Costs.

The total capital costs for the North State Intercity Bus System is $25,601,423 based on 2020/2021 implementation, with program launch planned in July 2020. This includes the following capital costs:

CAPITAL COSTS					
Budget Item	Prototype Development (I-5 Backbone)	H2 Fueling - Redding	H2 Fueling - Sacramento	Feeder Charging and Support	Total
Task 1: Vehicle Design and Manufacturing	$ 5,250,000	$ -	$ -	$ -	$ 5,250,000
Task 1.1 Model Duty Cycle and Prepare Vehicle Performance Specifications	$ 100,000				
Task 1.2 Vehicle Procurement Support	$ 50,000				
Task 1.3 Vehicle Manufacturing	$ 5,000,000				
Task 1.4 Vehicle Inspection and Commissioning	$ 100,000				
Task 2: Fueling Stations	$ -	$ 8,235,000	$ 7,235,000	$ -	$ 15,470,000
Task 2.1 Fueling Stations Specifications		$ 100,000	$ 100,000		
Task 2.2 Fueling Stations Procurement Support		$ 35,000	$ 35,000		
Task 2.3 Fueling Stations Construction/Improvements		$ 6,000,000	$ 5,000,000		
Task 2.4 Fueling Stations Maintenance		$ 2,000,000	$ 2,000,000		
Task 2.5 Fueling Stations Commissioning		$ 100,000	$ 100,000		
Task 3: Charging Stations and Stop Improvements	$ -	$ -	$ -	$ 2,305,000	$ 2,305,000
Task 3.1 Charging Stations Specifications				$ 10,000	
Task 3.2 Charging Stations Procurement Support				$ 10,000	
Task 3.3 Charging Stations Construction/Improvements				$ 2,250,000	
Task 3.4 Stop Improvement Construction/Improvements				$ 25,000	
Task 3.5 Charging Station Commissioning				$ 10,000	
Task 4: Maintenance Facility Upgrades	$ 1,050,000	$ -	$ -	$ -	$ 1,050,000
Task 4.1 Maintenance Facility Specifications	$ 100,000				
Task 4.2 Maintenance Facility Procurement Support	$ 50,000				
Task 4.3 Maintenance Facility Design and Construction	$ 800,000				
Task 4.4 Maintenance Facility Commissioning	$ 100,000				
Task 5: Performance Monitoring, Data Collection, and Evaluation	$ 189,000	$ 82,350	$ 72,350	$ 23,050	$ 366,750
Task 6: Job and Workforce Development	$ 300,000	$ -	$ -	$ -	$ 300,000
Task 7: Community Outreach and Marketing	$ 60,000	$ 2,000	$ 2,000	$ 50,000	$ 114,000
Task 7.1 Launch Marketing	$ 50,000			$ 40,000	
Task 7.2 Outreach to DACs and LICs	$ 10,000	$ 2,000	$ 2,000	$ 10,000	
Task 8: Project Management and Administration	$ 205,470	$ 249,581	$ 219,281	$ 71,342	$ 745,673
Total Capital Costs	$ 7,054,470	$ 8,568,931	$ 7,528,631	$ 2,449,392	$ 25,601,423

Annual operating costs are projected to be $2,391,508 annually. See the following operating cost summary:

Funding	I-5 Backbone	Feeder Fare Integration #1 (Shasta)	Feeder Fare Integration #1 (North Valley)	Feeder Fare Integration #1 (Lake)	System Wide Total
OPERATING REVENUE-COMMITTED					
TDA --> Loan Fund	$ 273,376				$ 273,376
TDA --> Local		$ 150,000			$ 150,000
State Intercity Rail Funding	$ 200,000				
Fare Revenue (based on $20 for Backbone and $25 for other routes	$ 624,360	$ 3,125	$ 545,760	$ 366,888	$ 1,540,133
LCTOP-Shasta		$ 200,000			$ 200,000
LCTOP-Modoc		$ 8,000			$ 8,000
LCTOP-NV Feeder (provided from Glenn and Lake)			$ 10,000	$ 10,000	$ 20,000
Total Operating Revenue - Committed	**$ 1,097,736**	**$ 361,125**	**$ 555,760**	**$ 376,888**	$ 2,391,509
PREFERRED OPERATING REVENUE-UNDER DEVELOPMENT - NOT YET COMMITTED					
Rail Ticket Sales	$ 182,500				$ 182,500
Block Ticket Sales (govt., social services, and business)	$ 85,000				$ 85,000
Advertising	$ 170,000				$ 170,000
5311 (f)	$ 300,000	$ 100,000		$ 100,000	$ 500,000
CMAQ Contribution to North Valley Feeder Line	$ 100,000				$ 100,000
Total Operating Revenue - Uncommitted	**$ 837,500**	**$ 100,000**	**$ -**	**$ 100,000**	$ 1,037,500
Projected Operating Revenue-Committed	**$ 1,097,736**	**$ 361,125**	**$ 555,760**	**$ 376,888**	$ 2,391,509
Annual Operating Cost	$ 968,220	$ 550,056	$ 552,615	$ 320,617	$ 2,391,508
Revenue minus Cost	$ 129,516	$ (188,931)	$ 3,145	$ 56,270	$ 0

The project recognizes a fully funded annual operations budget ($2,391,508) based on the Interstate 5 (I-5) Backbone system and the feeder lines being implemented/adding riders to the system, and was developed using current cost estimates for equipment and operations. The system functions best as a whole for budgetary purposes and for GHG reduction efficiencies. Any reduction in these projections will be compensated with a Transportation Development Act (TDA) Loan Fund held by the Shasta Regional Transportation Agency, as well as local (TDA) funds (or other) for the feeder services.

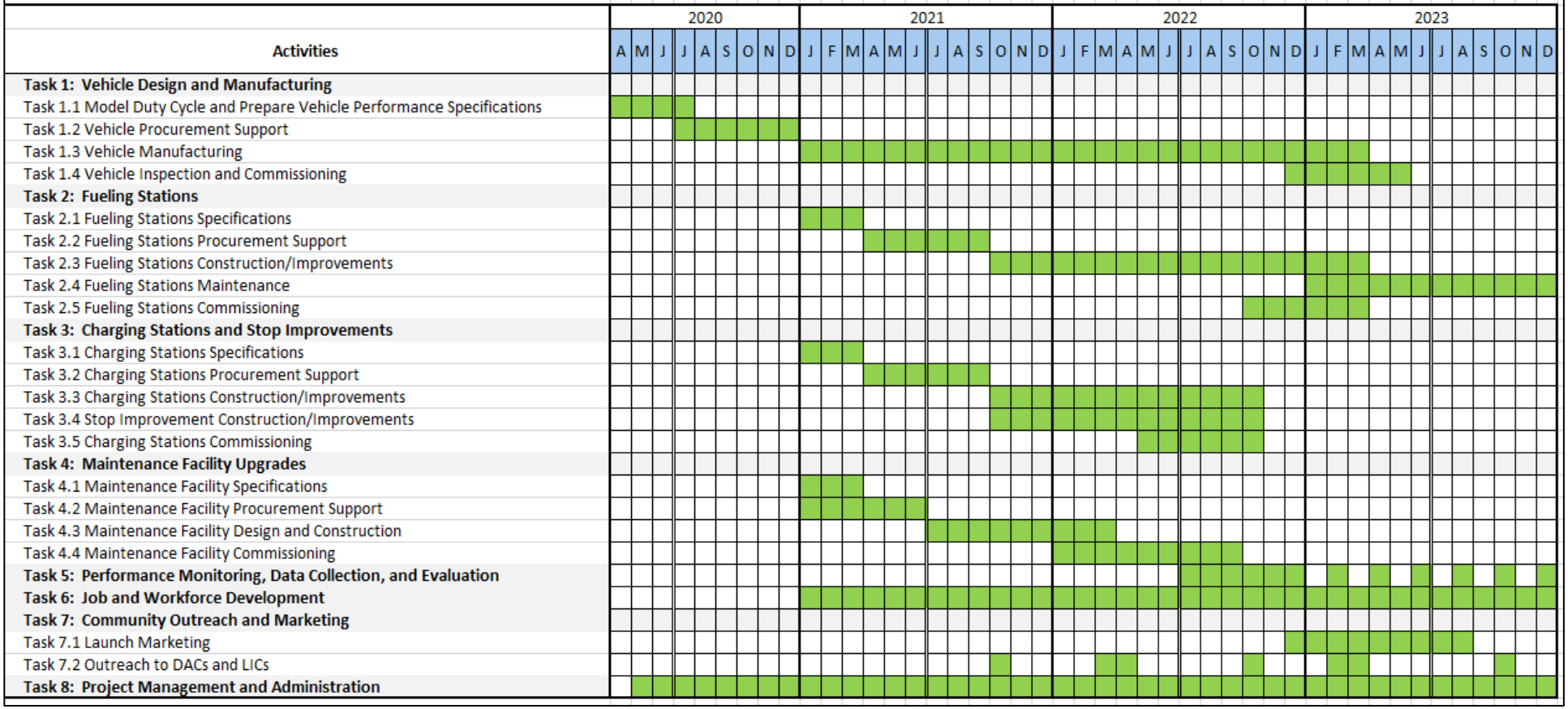
3.3 Project Schedule

The requested implementation of TIRCP funding schedule is included as a snapshot in this section, and is also included as an attachment.

Agency: Shasta Regional Transportation Agency

Project: North State Intercity Bus System: Phase 2.0, Prototype Fuel Cell Motorcoaches

PROJECT DEVELOPMENT SCHEDULE



3.4 Funding Sources

This financial plan includes both the currently funded TIRCP services and the expanded feeder services to Lake County and Shasta County. Operating funds for the Backbone services and new expanded service under this grant request are currently guaranteed; however, alternate discretionary funding sources will be pursued as appropriate for an intercity bus service of this magnitude. Appropriate funds to the service include Federal Transit Administration Section 5311(f) and State support for feeder buses associated with intercity rail.

Fare revenue, combined with the low operation costs associated with the electric bus component of the 2018 TIRCP grant, would support the vast majority of operating needs as shown in in the tables in this section. The North State Intercity Bus System would not be possible without the capital support for start-up costs provided by the TIRCP program.

3.4.1 Amtrak Thruway Bus Route Truncated/Expanded I-5 Backbone Service Provided

The entire project concept would reconfigure and expand the Amtrak thruway bus service to Red Bluff and Redding by replacing the current SJJPA service with a new backbone service along the I-5 corridor that serves additional communities in the corridor and provides shorter and faster headways.

3.4.1.1 Background

The San Joaquin Joint Powers Authority (SJJPA) maintains a financial plan and receives state operating assistance to contract with Amtrak to run the thruway buses (through another subcontractor). The SJJPA spent $1.482 million for the bus service to Redding prior to recent service cuts in Redding and Red Bluff. Following this service cut, presumably the SJJPA would no longer need to provide 108,000 service miles annually. SJJPA has agreed that the savings could be transferred to SRTA for operation of the new service under terms yet to be negotiated.

3.4.1.2 Operations

Operations funds are guaranteed as shown in the table below. Local TDA and LCTOP funds can guarantee operations if other revenues such as fares fall short. However, SRTA is showing several other funding sources in the table as "Preferred Operating Under Development" that are more appropriate for intercity bus services but not yet guaranteed. To the extent these funds under development become committed, local TDA funds and LCTOP funds will shift to complementary transit needs and capital needs not in the TIRCP project scope.

Funding	I-5 Backbone	Feeder Fare Integration #1 (Shasta)	Feeder Fare Integration #1 (North Valley)	Feeder Fare Integration #1 (Lake)	System Wide Total
OPERATING REVENUE-COMMITTED					
TDA --> Loan Fund	$ 273,376				$ 273,376
TDA --> Local		$ 150,000			$ 150,000
State Intercity Rail Funding	$ 200,000				
Fare Revenue (based on $20 for Backbone and $25 for other routes	$ 624,360	$ 3,125	$ 545,760	$ 366,888	$ 1,540,133
LCTOP-Shasta		$ 200,000			$ 200,000
LCTOP-Modoc		$ 8,000			$ 8,000
LCTOP-NV Feeder (provided from Glenn and Lake)			$ 10,000	$ 10,000	$ 20,000
Total Operating Revenue - Committed	**$ 1,097,736**	**$ 361,125**	**$ 555,760**	**$ 376,888**	$ 2,391,509
PREFERRED OPERATING REVENUE-UNDER DEVELOPMENT - NOT YET COMMITTED					
Rail Ticket Sales	$ 182,500				$ 182,500
Block Ticket Sales (govt., social services, and business)	$ 85,000				$ 85,000
Advertising	$ 170,000				$ 170,000
5311 (f)	$ 300,000	$ 100,000		$ 100,000	$ 500,000
CMAQ Contribution to North Valley Feeder Line	$ 100,000				$ 100,000
Total Operating Revenue - Uncommitted	**$ 837,500**	**$ 100,000**	**$ -**	**$ 100,000**	$ 1,037,500
Projected Operating Revenue-Committed	**$ 1,097,736**	**$ 361,125**	**$ 555,760**	**$ 376,888**	$ 2,391,509
Annual Operating Cost	$ 968,220	$ 550,056	$ 552,615	$ 320,617	$ 2,391,508
Revenue minus Cost	$ 129,516	$ (188,931)	$ 3,145	$ 56,270	$ 0

The table shows that SRTA has the resources through the TDA loan fund to ensure that any remaining

operational needs are funded once the fund resources in development are exhausted or if fare revenues fall short of expectations. Any funds needed from the loan fund would be repaid in subsequent years with fare revenue.

Longer term, SRTA hopes to work with state for a more direct and efficient state support funding mechanism for the North State Intercity Bus System. Direct funding would better encourage North State coordination with all intercity public transportation providers, not just the SJJPA. If the state can implement coordinating ticketing, a direct funding relationship maybe more likely. Also, longer term, SRTA is also working with the Butte County Association of Governments (BCAG) to run all Sacramento Valley Thruway Bus Service which could likely be done for much less that current $1.482 million cost to the state. SSJPA has expressed an interest in relinquishing this responsibility to local regions.

3.4.2 Rural Bus Services Expanded with Feeder Bus Service

The project would also reconfigure and expand existing FTA 5311(f) and TDA funded services, by connecting the existing services to each other and to the I-5 Backbone line.

3.4.2.1 Background

Regions in the project service area currently receive about $1.3 million in FTA 5311(f) funds. Each region has their own financial plans. These existing services provide critical rural lifeline services but are not connected.

3.4.2.2 Operations

The project would seek to realign 5311(f) funds to still meet certain critical needs but also support the project's rural feeder routes that would connect all current 5311(f) routes to each other and the I-5 backbone creating a single unified watershed system. To the extent 5311(f) funds are approved as part of the state's program realignment, local TDA funds and LCTOP funds will shift to complementary transit needs and capital needs not in the TIRCP project scope.

Table 1. Operating and Maintenance Costs Fund Sources for Project Lifespan

FUND SOURCES
TDA --> Loan Fund
TDA --> Local
Fare Revenue (based on $20 for Backbone and $30 for other routes)
LCTOP
Low Carbon Fuel Standard Electricity Program
State Support for Feeder Buses Associated with Intercity Rail
Rail Provider Reimbursements
Block Ticket Sales (govt., social services, and business)
Advertising
5311 (f)
CMAQ Contribution to North Valley Feeder Line
Additional State Support for Rail Connections

Table 1 shows all fund sources. It's important to note that North State Super Region agencies can guarantee operational funding without state or federal operational support through discretionary programs. However, such support is appropriate and desirable. The project would not be possible without TIRCP funding of the

start-up costs.

Guaranteed fund sources noted in the table are described as follows:

- **TDA Loan Fund.** SRTA maintains a Transportation Development Act (TDA) Loan Fund which has been pledged as a fail-safe source for the I-5 Backbone should any other funding sources, such as fare revenue, fall short. This source will also help bridge the gap in the first year when the rail support dollars cannot be used. This funding source would need to be paid back in future years with fare revenue.
- **TDA Local.** Local Transportation Development Act funds will be used as needed for feeder services. Again, this is a backstop funding measure should other more appropriate funds sources for intercity bus service not materialize. To the extent certain existing feeder services already use TDA funds, they will continue to do so at the same levels.
- **Fare Revenue.** Fare revenue is based on ridership estimates and an average one-way fare of $20 for riders using the I-5 Backbone line only, and $30 for riders with origins or destinations on the feeder services. Fare revenue is the most unpredictable funding source which is why the Transportation Development Act backstops are in place.
- **LCTOP.** Low Carbon Transit Operation Program funds are available by formula in small amounts to each of the regions served by the project. Over time and particularly after the first year of operations, LCTOP funds will be tapered back to the extent other resources become available and reallocated to complementary services and the capital needs.
- **Low Carbon Fuel Standard (LCFS) Electricity Program.** By opting into the LCFS program and providing electricity as transportation fuel, the electricity providers can earn an LCFS credit for each metric ton of CO2 equivalent emissions avoided using electricity. The credits will have a monetary value and may be sold to regulated parties who must offset deficits created by their supply of fuels with Carbon Intensity scores that exceed the LCFS standards. It is anticipated that these funds will be available in small amounts to help offset operational costs of the North State Intercity Bus System.
- **State Support for Feeder Buses Associated with Intercity Rail.** Because the proposed project is primarily intended to support intercity rail services, associated funding programs through the SJJPA will be available to help offset operating cost starting in the second year of operations. $200,000 annually is currently pledged. This is a minimum and the actual amounts will be established through agreements. There is also an effort to partner directly with the state or other rail providers for support funding.

Although these sources alone could support the service if required in the long-term, this would max out local capabilities making it difficult to address other transit needs. Several other operational revenue sources will be pursued. To the extent these are successful, local resources can provide for other import support and expansion needs. These are as follows.

- **Rail Provider Reimbursements.** Another form of real support in development could be fare revenue sharing agreements either directly with rail providers or brokered by the state through a seamless universal integrated ticketing system.
- **Block Ticket Sales.** SRTA intends to work with major trip generators to sell discounted or guaranteed blocks of tickets or passes to incentivize ridership. Target groups will be large employers such as public agencies — including state agencies, medical providers, educational institutions, and social service agencies.
- **Advertising.** Limited revenue may be derived from advertising. This will not be a major focus area, particularly since the outside of buses represent a strong potential to market and brand the service itself, rather than cover the outside of the bus with additional advertising.
- **FTA 5311(f).** Federal Transit Administration 5311(f) funds are particularly well-suited for this service because they are designed for rural intercity connections. However, funds are limited and currently

committed to other rural needs. Caltrans and FTA are interested in realigning the program to encourage a better coordination and efficiency with the limited funds available. The project aligns well with these goals and the North State Super Region agencies intend to work with the state and FTA to improve the funding program.

- **CMAQ.** Tehama County is the only region along the I-5 Backbone service that receives Congestion Mitigation Air Quality funds. SRTA is working with Tehama County to determine if these funds can help with operational needs within the first year when state support for rail connections will not be available.
- **Additional State Support for Rail Connections.** The state is desirous of realigning the old mechanisms for intercity bus service support to rail. Promising new delivery methods include broader partnerships and universal ticketing and revenue sharing. Due to the geographic scale of the proposed project, the North State Super Region is desirous of developing a direct partnership with the state as it makes little sense to pin the new service to a single JPA rail provider that does not represent or include members of the North State. The potential for rail partnerships in the North State extend far beyond the San Joaquin trains.

3.4.3 Reduce GHG emissions

This information is repeated in Section 2: Project Narrative – Section 2.4: Project Benefits – Section 2.4.3: Primary Evaluation Criteria – Section 2.4.3.1: Reduce Greenhouse Emissions.

Phase 1 of the North State Intercity Bus System project demonstrated a substantial reduction in greenhouse gas emissions by providing a comprehensive transit system between Sacramento and rural Northern California, reducing the number of single-occupancy vehicle trips on the I-5 corridor north of Sacramento, and thereby reducing GHG emissions and improving air quality for surrounding communities.

Phase 2 of the North State Intercity Bus System project demonstrates less of a reduction in greenhouse gas emissions, as new services are limited to the Shasta Urban Feeder, the Lake Feeder, and potential expansion of the North Valley Feeder. However, less greenhouse gas reduction is offset by the benefit of developing a prototype fuel cell motorcoach, which will greatly benefit air quality conditions and greenhouse gas emission reduction efforts in the long-term and throughout the state, as other agencies and private corporations have a similar need, such as:

- Golden Gate Transit
- Caltrans (Amtrak)
- Santa Barbara County Association of Governments
- Additional national and international transit providers
- Private corporate companies

The North State Intercity Bus System Phase 2 will effectively displace Annual Average Vehicle Miles Traveled by automobiles and reduce GHG emissions by 15,943 MTCO2e over the 3-year life of the project. Additional details are included in the GHG Quantification Tool included with the project grant application.

3.4.4 Match Funding / Leverage Funding

The Shasta region has been aggressively implementing the Sustainable Communities Strategy for the last six years, specifically projects that reduce greenhouse gas emissions and improve/promote opportunities for active transportation as an alternative to driving. Below is a list of the projects we are using as leveraged funding.

Table 2. Capital Projects and Operating Projects

Project	Source	Amount	Match	Year
North State Intercity Bus System: Phase I, I-5 Backbone Service and the North Valley Feeder	Transit and Intercity Rail Capital Program (TIRCP)	$8,641,000	$875,000 Hybrid and Zero-Emission Truck and Bus Voucher Incentive Program (HVIP)	2018 (award)
Redding Area Bus Authority Zero-Emission Bus Program – Phase 1	Federal Transit Administration Low/No Program	$1,056,456	$30,000 (vendor) $105,000 (HVIP vouchers) $100,000 (local electric utility match) $80,000 (Prop 1B)	2017 (award)
Crosstown Express	Low Carbon Transit Operations Program	$310,000	N/A	2017 (in operation)
Beach Bus	Dignity Health and Redding Rancheria grants awarded to the National Park Service	$19,300	$9,700	Summers-2016 & 2017 (planned operation 2019)
Sunday Transit	Local Transportation Fund LCTOP LCTOP	$68,309 $231,865 $232,000 (estimated)	N/A N/A N/A	2019/20 2017/18 2019/20
Redding to Anderson Six Lane (RASL)	Transportation Corridor Enhancement Program	$24,000,000 (TCEP Corridor) $41,700,000 (TCEP State)	$17,000,003 (STIP) $61,322,000 (SHOPP)	2018 award
Turtle Bay to Downtown	Active Transportation Program	$5,600,000	$1,400,000 (STIP)	In development
Block 7 Net Zero Housing & Downtown Activation Project	Affordable Housing and Sustainable Communities	$20,000,000	$19,000,000	2018 award
West Street Area	Active Transportation	$2,538,000	$658,000	2017

School Safety Improvements	Program			(augmented award)
Bechelli Lane & Loma Vista Active Transportation Corridor Improvements	Active Transportation Program	$6,740,000	$1,681,000	2017 (augmented award)
Redding Downtown Loop and Affordable Housing Project	Affordable Housing and Sustainable Communities	$20,000,000	$18,000,000	2016 (award)
Diestelhorst (Sacramento River Trail) to Downtown Non-mortorized Improvement Project	Active Transportation Program	$2,138,000	$400,000 (STIP) $100,000 (local)	2016 (award)
Quartz Hill Road Active Transportation Project	Active Transportation Program	$3,177,000	$351,000	2016 (award)
Placer Street Improvement Project	Active Transportation Program	$2,296,000	$2,708,000	2017 (built)
California Street Road Diet	Caltrans District 2 Maintenance Project	$3,860,000	N/A	2014 (built)

Table 3. Planning Projects

North State Express Connect Business Plan	Caltrans Sustainable Transportation Planning Grant	$223,203	$115,172	2017 (award)
Sustainable Shasta: A Walk and Bike Network for Downtowns	Caltrans Sustainable Transportation Planning Grant	$447,890	$128,752	2017 (award)
GoShasta	Active Transportation Program	$250,000	$63,000	2016 (award)
SRTA Sustainable Development Incentive Program (former Infill and Redevelopment)	Federal Highway Administration Planning Funds	$75,000	N/A	2017 (programmed)
SRTA Infill and Redevelopment Pilot	Prop 84 Sustainable Communities Program	$122,020	N/A	2015 (programmed)
Downtown Redding Specific Plan Update	Department of Conservation Sustainable	$275,000	$35,000	2015 (award)

	Transportation Planning Grant			
Downtown Redding Transportation Plan	Caltrans Planning Grant	$215,000	$44,000	2013 (award)

3.4.5 Project Management

In accordance with the 2020 Transit and Intercity Rail Capital Program Call for Projects, a Project Programming Request (PPR) form has been included with this application.

Shasta Regional Transportation Agency Financial and Accounting Policies and Procedures will be used for a contracting approach, and in accordance with all applicable state regulations and procedures.

Scalability and Separability. The following information is also included in Section 2: Project Narrative – Section 2.10: Project Readiness and Project Implementation – 2.10.3: Scalability and Separability.

Components of the North State Intercity Bus System: Phase 2 project are not scalable nor separable. Prototype hydrogen fuel cell motorcoach development and hydrogen fueling infrastructure are inseparably intertwined. SRTA needs to be able to fuel vehicles that are based in the North State. Proposed feeder services provide the project with needed greenhouse gas reductions. No project components would have independent utility if separated.

Two options are available for hydrogen fueling in Redding; utilizing an electrolyzer, or bringing hydrogen fuel to the Redding station on a mobile fueling station truck. For the purposes of the GHG Quantification Tool, we have assumed the cost of the more expensive of the options; the electrolyzer.

However, while not particularly scalable nor separable, it is worth discussing that fuel station costs in Redding could be significantly less than what is proposed, solely based on prototype range. If the prototype motorcoach achieves a fuel economy of 4 miles/kg or more, and if up to 70 kilograms of fuel can be stored on board the motorcoach (which may be possible), then the motorcoach would have an extended range of 260 miles (4 mi/kg X 65 kg of useable fuel). Under this circumstance, the motorcoach would leave Sacramento with a 260 mile range, to drive 175 miles. The return trip to Sacramento would only require "topping off" with approximately 25 kg of fuel in Redding. If this option proves itself to be realistic, a gaseous storage system, as proposed by some private fueling providers, would be more than sufficient to fully fill the motorcoach in Redding; thereby making capital expenditures related to the Redding station significantly less costly than other options, most especially using an electrolyzer. It is also possible that the motorcoach could have a range of greater than 300 miles, much like the existing 40' FCEC transit bus; however, this will be an unknown factor until the selection process for the OEM is completed and modeling of the fuel efficiency of the fuel cell and the storage capacity on the motorcoach has been completed.

4. Support Documentation

1255 East Street, Suite 202 • Redding, CA 96001 • (530) 262-6190 • Fax: (530) 262-6189
E-mail: srta@srta.ca.gov • Website: www.srta.ca.gov

Daniel S. Little, Executive Director

January 15, 2020

David S. Kim, Secretary
California State Transportation Agency
915 Capitol Mall, Suite 350B
Sacramento, CA 95814

Subject: North State Intercity Bus System: Phase 2.0, Prototype Fuel Cell Motorcoaches – Cost Estimates

Dear Secretary Kim:

Please accept this letter as certification that I have reviewed the cost estimates and approve the amounts requested in the grant application for North State Intercity Bus System: Phase 2.0, Prototype Fuel Cell Motorcoaches.

Sincerely,

Daniel S. Little, AICP, Executive Director
Shasta Regional Transportation Agency (MPO)

Letters of Interest from Regional Partners

DEPARTMENT OF TRANSPORTATION
OFFICE OF THE DISTRICT 2 DIRECTOR
1657 RIVERSIDE DRIVE
REDDING, CA 96001
PHONE (530) 225-3477
FAX (530) 225-2459
TTY 711
www.dot.ca.gov

Making Conservation a California Way of Life.

January 15, 2020

Mr. Daniel S. Little
Executive Director
Shasta Regional Transportation Agency
1255 East Street, suite 202
Redding, CA 96001

RE: Shasta Regional Transportation Agency Proposal (SRTA) for the procurement and deployment of a Fuel Cell Electric Coach and the required relative infrastructure on the Salmon Runner Route

Dear Executive Director of SRTA,

I am writing on behalf of Caltrans District 2 to express our support for Shasta Regional Transportation Agency's (SRTA) project proposal to the Caltrans Transit and Intercity Rail Capital Program (TIRCP) to fund the design, engineering, building and deployment of a prototype fuel-cell motor coach(es) on the Salmon Runner service from Redding, California to Sacramento, California and the relative infrastructure required to fuel this prototype. The intent of this initiative is to demonstrate a viable zero-emission coach and create a platform to commercialize zero-emission coach vehicles. The availability of a zero-emission coach will further the goals of reducing greenhouse gas emissions and local criteria pollutants on routes with duty cycles previously unable to convert to zero-emission technology.

Caltrans District 2 is particularly interested in the hydrogen fueling opportunities that SRTA is proposing and would like to open discussions to co-locate some of the infrastructure on Caltrans property in Redding, if no other options are available. Caltrans District 2 is also interested in discussing and configuring the hydrogen fueling station to accommodate both motorcoaches and light-duty vehicles. Hydrogen fuel cell vehicles would be a feasible zero emission consideration to the long driving distances and remote areas for Caltrans personnel within District 2.

Sincerely,

JEANIE WARD-WALLER
District 2 Director Acting

Shasta College
Shasta-Tehama-Trinity Joint Community College District
11555 Old Oregon Trail • P.O. Box 496006 • Redding, CA 96049-6006
Phone: (530) 242-7500 • Fax: (530) 225-4990
www.shastacollege.edu

Monday, January 13, 2020

Daniel S. Little
Executive Director
Shasta Regional Transportation Agency

RE: Shasta Regional Transportation Agency Proposal (SRTA) for the procurement and deployment of a Fuel Cell Electric Coach on the Salmon Runner Route

Dear Executive Director of SRTA,

I am writing on behalf of Shasta College to express our support for Shasta Regional Transportation Agency's (SRTA) project proposal to the Caltrans Transit and Intercity Rail Capital Program (TIRCP) to fund the design, engineering, building and deployment of a prototype fuel-cell motor coach(es) on the Salmon Runner service from Redding, California to Sacramento, California and the relative infrastructure required to fuel this prototype. The intent of this initiative is to demonstrate a viable zero-emission coach and create a platform to commercialize zero-emission coach vehicles. The availability of a zero-emission coach will further the goals of reducing greenhouse gas emissions and local criteria pollutants on routes with duty cycles previously unable to convert to zero-emission technology.

To promote the success of zero-emission bus deployments, adequate education surrounding the operation and maintenance of these new technologies is required. The success of these buses lies in the creation of a work force dedicated to their operation. Being that the technology is relatively new, education programs to support this workforce development are integral to operations. Shasta College is writing to support the potential development of a curriculum designed to train and prepare maintenance and operations professionals for zero-emissions vehicles. Shasta College will leverage industry relationships to seek out support from existing FTA sponsored workforce development as a foundation for the expansion of this curriculum.

Dan Bryant
Automotive Technology
Shasta College
Office Rm - 2409
530-242-2211 (office)
530-223-4060 (cell)
dbryant@shastacollege.edu

REDDING ELECTRIC UTILITY
P.O. Box 496701 • 3611 Avtech Parkway, Redding, California 96049-6071 • 530.339.7300 • Fax 530.339.7389

January 3, 2020

Daniel S. Little
Executive Director
Shasta Regional Transportation Agency
1255 East Street, Suite 202
Redding, CA 96001

Subject: North State Intercity Bus System – Redding to Sacramento – and Related Hydrogen Fueling Infrastructure

Dear Mr. Little,

I am writing on behalf of the Redding Electric Utility (REU) in support of the North State Intercity Bus System, development of a prototype hydrogen fuel cell motor coach(es), and related hydrogen fueling infrastructure.

This project promises to provide an essential connection between rural northern California and the urbanized Sacramento region and critical transportation connections such as the Sacramento International Airport and Amtrak rail services. Hydrogen fueling infrastructure along Interstate 5 (I-5) in the region would be beneficial with regard to regional economic opportunity, for heavy-duty freight and agency fleet requirements, and for other non-profit and private desires to transition to a less carbon-intensive fuel.

In August 2017, REU launched its Transportation Electrification Program to promote the adoption of electricity-based transportation systems. This hydrogen fueling infrastructure project will utilize electricity provided by REU to create a very low carbon-intensity fuel, where REU will provide the energy and the utility distribution infrastructure to accommodate this new electric service.

REU is pleased to work with the Shasta Regional Transportation Agency (SRTA) to support the North State Intercity Bus System. We have resources to provide assistance in the following ways:

- Participate in the SRTA effort, including designating a staff person to attend meetings throughout this project
- Provide input and general feedback regarding the development of the hydrogen fueling infrastructure for the buses

REDDING ELECTRIC UTILITY
P.O. Box 496701 • 3611 Avtech Parkway, Redding, California 96049-6071 • 530.339.7300 • Fax 530.339.7389

- Engage in discussions about permitting requirements, codes, and procedures that would accommodate the installation of a hydrogen fueling station in Redding
- Provide input regarding the development of an education and outreach plan and/or promotional programs for the North State Inner-City bus system

The estimated value of our in-kind staff time contribution for this project is $5,000.

We look forward to participating with SRTA's team in this important collaborative project. Please contact me if any additional information is needed.

Good luck with the grant application.

Regards,

Dan Beans
Electric Utility Director
Phone: (530) 339-7350
dbeans@ci.redding.ca.us

OFFICE OF THE MAYOR

Darrell Steinberg
Mayor

CITY HALL
915 I STREET, Fifth Floor
SACRAMENTO, CA
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MayorSteinberg@cityofsacramento.org

CITY OF SACRAMENTO
CALIFORNIA

January 13, 2020

Daniel Little, AICP
Executive Director
Shasta Regional Transportation Agency
1255 East Street, Suite 202
Redding, CA 96001

SUBJECT: Shasta Regional Transportation Agency Proposal (SRTA) for the procurement and deployment of a Fuel Cell Electric Coach on the Salmon Runner Route

Executive Director Little,

I am writing on behalf of the City of Sacramento and the Sacramento Valley Station (SVS) Transit Center team to express our support for Shasta Regional Transportation Agency's (SRTA) project proposal to the Caltrans Transit and Intercity Rail Capital Program (TIRCP) to fund the design, engineering, building and deployment of a prototype fuel-cell motor coach(es) on the Salmon Runner service from Redding, California to Sacramento, California and the relative infrastructure required to fuel this prototype.

The intent of this initiative is to demonstrate a viable zero-emission passenger coach and create a platform to commercialize zero-emission coach vehicles. The availability of a zero-emission coach will further the goals of reducing greenhouse gas emissions and local criteria pollutants on routes with duty cycles previously unable to convert to zero-emission technology.

This application is in alignment with the goals of our SVS Transit Center application which seeks to transform the way bus and rail transportation is delivered in Sacramento. The need for regional and intercity bus layover and zero-emission fueling is imperative to supporting the state's mandate for a zero-emission bus fleet by 2040, and that new technologies in electric and hydrogen fuel cells be advanced rapidly. The TIRCP application for the SVS Transit Center includes funding to identify a bus layover and charging facility location in the City of Sacramento that will best support the regional network.

SRTA's need for long distance zero-emission buses for express commutes from Redding will be started with this prototype funding. Our region will benefit by providing clean, efficient mobility options to North State residents who travel for services found only in the City of Sacramento such as medical care, mental health access, and other services. These critical connections can be made stronger with transportation that best serves our residents and reduces environmental impact.

I wholeheartedly support this application that will provide clean-air mobility options to connect Sacramento with our Northern California communities.

Sincerely,

Darrell Steinberg
Mayor

Letters of Interest from Vehicle Manufacturers, Fuel Cell Providers, and Fueling Infrastructure Providers

Bus and Trailer Manufacturers

TRANSMITTED BY E-MAIL AND ORIGINAL BY MAIL

Shasta Regional Transportation Agency

1255 East Street, Suite 202
Redding, CA 96001
USA

F.a.o.: Mr. Daniel S. Little
Executive Director

Department: *B&C Export USA*
Extension: *2194/2173*
Contact: *H.DE ROO/vr*
Our reference: *LetterN° 20/006*

January 9, 2020

Re: Shasta Regional Transportation Agency (SRTA) Proposal for the procurement and deployment of Fuel Cell Electric Coach(es) on the Salmon Runner Service

Dear Executive Director of SRTA,

I am writing on behalf of Van Hool NV to express our support for Shasta Regional Transportation Agency's (SRTA) project proposal to the Caltrans Transit and Intercity Rail Capital Program (TIRCP) to fund the design, engineering, building and deployment of one or more prototype hydrogen fuel-cell electric motor coach(es) to be used on the Salmon Runner service from Redding, California to Sacramento, California.

The intent of this initiative is to demonstrate a viable zero-emission coach and create a platform to commercialize zero-emission heavy duty, over the road coach vehicles.

Van Hool truly believes that the adoption of zero-emission coaches will further the goals of reducing greenhouse gas emissions and local criteria pollutants on routes with duty cycles previously impossible to convert to zero-emission technology. We are certain that hydrogen fuel cell propulsion is the most appropriate choice for long range / high volume over the road coach (and other heavy duty vehicle) operations going into the future on a global scale.

Van Hool NV has the expertise and experience to put forth a successful design for the aforementioned coach.

- Van Hool has constructed hundreds of vehicles powered by various kinds of electrical and hybrid propulsion over many decades and will display a 45ft full battery electric over the road coach specifically constructed for the US market , model CX45E at the UMA Motorcoach Expo 2020 (from January 19 to 23, 2020) in Nashville (TN)
- Van Hool is recognized as one of the global leaders in the development and commercialization of Hydrogen Fuel Cell Electric Vehicles. We believe in this technology and have manufactured more than 130 units worldwide since 2005, of which 21 40ft Fuel Cell transit buses have been shipped to the US. More recently Van Hool has supplied 18m (60ft) articulated fuel cell electric transit buses to the city of Pau, France. See also attached reference list dd. December 20, 2019.

Van Hool NV
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B-2500 Lier Koningshooikt
Belgium
Tel. : +32-3-420 20 20
Fax : +32-3-482 30 68
Site : www.vanhool.be
VAT BE 0404.060.032
RPR Mechelen

TIRCP has released a Grant Funding Opportunity (GFO) with responses due January 16, 2020. Van Hool NV may be interested in providing a proposal to participate as the manufacturer of the zero-emission motor coach vehicle(s). As part of Van Hool NV's participation, Van Hool NV will try and acknowledge the partial provision of cost share and it will be reflected in their proposal to SRTA. This project holds promise to deploy a prototype fuel-cell motor coach and hydrogen fueling station system that will act as an example of successful commercial deployment of this technology to meet typical coach vehicle duty cycles.

Van Hool will try and work with SRTA to generate a not-to-exceed budget for this prototype project. Upon award for this project proposal, Van Hool may have an interest to submit a proposal to SRTA to design, engineer, build and after sales support a coach of the order specified above, and supply the coach(es) for revenue passenger service.

In Van Hool's product roadmap the development of a fuel cell powered coach is planned for 2023-2024.

Should you require any further information, please do not hesitate to contact us.

Sincerely,

Jan Van Hool
CTO

January 14, 2020

Mr. Daniel S. Little
Executive Director
Shasta Regional Transportation Agency
1255 East Street
Suite 202
Redding, CA 96001

RE: Shasta Regional Transportation Agency (SRTA) Proposal for the procurement and deployment of a Fuel Cell Electric Coach on the Salmon Runner Service

Dear Mr. Little,

I am writing on behalf of Motor Coach Industries (MCI) to express our support for Shasta Regional Transportation Agency's (SRTA) grant application to the Caltrans Transit and Intercity Rail Capital Program (TIRCP) to fund the design, engineering, manufacture, deployment and support of two prototype fuel-cell electric motor coach(es) on the Salmon Runner service from Redding, California to Sacramento, California. The intent of this initiative is to demonstrate a viable zero-emission fuel cell electric coach and create a platform to commercialize zero-emission coach vehicles. The availability of a zero-emission fuel cell electric coach will further the goals of reducing greenhouse gas emissions and local criteria pollutants on routes with duty cycles previously unable to deploy zero-emission technology and expand the range of these coaches versus their 100% battery electric zero emissions counterparts. The enhanced range and speed of refueling should have the benefit of significantly expanding potential pool of users for these vehicles.

MCI possesses the expertise and experience to design and manufacture a fuel cell coach. We are the industry leader in over the road motor coaches operating in the USA in both private and public sectors. We are part of the NFI Group of companies that includes the New Flyer brand, the leader in transit buses and our partner in electric vehicle development that already offers both 100% battery electric and fuel cell buses. As an automotive OEM coach builder, we are experienced in the design, engineering manufacturing and support of our vehicles in fleets across the country. We recently opened a service facility in the San Francisco Bay area to support this region. We have similar development experience in bringing CNG and hybrid coaches to market, where we were the sole provider of either powertrain, and have partnered on these developments with large transit agencies and supplier partners. We have built our reputation for being a workhorse product, highly reliable in our customer fleets and plan to bring this commitment and expertise to bear on this program. We are commencing production of our 100% battery electric coaches this year and have both our J4500e and D45 CRTe LE in customer testing in various markets including the Bay Area. As such, our engineering resources have been exclusively focused on this program launch. To introduce fuel cell electric to our

development plan will require significant additional resources which we have included in our proposal outline.

We are aware that TIRCP has released a Grant Funding Opportunity (GFO) with responses due January 16, 2020. This project proposes to deploy two prototype fuel cell motor coaches and two hydrogen fueling stations, which will act as an example for the successful commercial deployment of this technology to meet typical coach vehicle duty cycles. MCI is interested in submitting a proposal to SRTA to participate with them in this opportunity as the manufacturer of the zero-emission fuel cell motor coaches. As part of MCI's proposal, we acknowledge the requirement of a probable cost share arrangement with SRTA, and this item will be reflected in our proposal.

We anticipate that from time of NTP to delivery of the first vehicle will not exceed 24 months.

MCI eagerly anticipates working with SRTA and Caltrans on this exciting endeavor and we look forward to the next step(s) in the process.

Sincerely,

Patrick J Scully
Executive Vice President Sales, Marketing & Customer Service

Ballard Power Systems
9000 Glenlyon Parkway
Burnaby, BC V5J 5J8
Canada

Tel: 604-454-0900
Fax: 604-412-4700
www.ballard.com

December 16, 2019

Daniel S. Little
Executive Director
Shasta Regional Transportation Agency

RE: Shasta Regional Transportation Agency Proposal (SRTA) for the procurement and deployment of a Fuel Cell Electric Coach on the Salmon Runner Route

Dear Executive Director of SRTA,

I am writing on behalf of Ballard Power Systems to express our support for Shasta Regional Transportation Agency's (SRTA) project proposal to the Caltrans Transit and Intercity Rail Capital Program (TIRCP) to fund the design, engineering, building and deployment of one or two prototype fuel cell electric motor coach(es) on the Salmon Runner route from Redding, California to Sacramento, California. The intent of this initiative is to demonstrate a viable zero-emission coach and create a platform to commercialize zero-emission coach vehicles. The availability of a zero-emission coach will further the goals of reducing greenhouse gas emissions and local criteria pollutants on routes with duty cycles previously unable to convert to zero-emission technology.

Ballard has the expertise and experience to put forth a successful fuel cell design for the aforementioned coach type and to work with a major coach OEM to successfully integrate our fuel cell system into the vehicle. For the North American market, both New Flyer Industries and El Dorado National offer Altoona-tested fuel cell electric buses equipped with Ballard fuel cell modules. There are currently 44 fuel cell electric buses powered by Ballard in operation with several transit agencies in the United States, some with many years of revenue service. Globally, Ballard fuel cell modules power more than 500 fuel cell electric buses. These buses operate reliably on long routes with demanding duty cycles under extreme weather conditions. Our engineering and service teams support customer success through the entire system design, integration and operation of the bus.

TIRCP has released a Grant Funding Opportunity (GFO) with responses due January 16, 2020. If SRTA succeeds at obtaining a grant from the TIRCP program, Ballard desires to work with a coach OEM to prepare a proposal to SRTA to participate as the manufacturer of the fuel cell. This project holds promise to deploy a prototype motor coach and hydrogen fueling station system that will act as an example of successful commercial deployment of this technology to meet typical coach vehicle duty cycles.

We look forward to working with SRTA and Caltrans on this exciting endeavor.

Sincerely,

Rob Campbell
Chief Commercial Officer

Telephone: 604.412.7945
Email: rob.campbell@ballard.com

January 7, 2020

General Motors LLC
850 North Glenwood Ave.
Pontiac, Michigan 48340

Daniel S. Little
Executive Director
Shasta Regional Transportation Agency

RE: Shasta Regional Transportation Agency Proposal (SRTA) for the procurement and deployment of a Fuel Cell Electric Coach on the Salmon Runner Route

Dear Executive Director of SRTA,

I am writing on behalf of General Motors LLC (GM) to express our support for Shasta Regional Transportation Agency's (SRTA) project proposal to the Caltrans Transit and Intercity Rail Capital Program (TIRCP) to fund the design, engineering, building and deployment of one or two prototype fuel-cell electric motor coach(es) on the Salmon Runner route from Redding, California to Sacramento, California. The intent of this initiative is to demonstrate a viable zero-emission coach and create a platform to commercialize zero-emission coach vehicles. The availability of a zero-emission coach will further the goals of reducing greenhouse gas emissions and local criteria pollutants on routes with duty cycles previously unable to convert to zero-emission technology.

General Motors can provide both the fuel cell technology and vehicle integration expertise to a motor coach manufacturer to produce vehicles, which meet SRTA's requirements for performance, driving range and comfort. GM has been developing fuel cell technology and vehicles since the early 1960s. The 1966 GM Electrovan is the world's first fuel cell automobile. The Electrovan utilized fuel cell technology that was developed for the Apollo space program. After the Electrovan program, GM started an extensive effort to develop automotive specific fuel cell technology. To date, GM vehicles with internally developed fuel cell technology have accumulated over 3.3 Million real world miles. GM operates a large-scale fuel cell development laboratory in Pontiac, Michigan with capability to produce, test and analyze new fuel cell designs. The laboratory also serves as a development center for fuel cell manufacturing systems including automated roll-to-roll coaters and robotic assembly stations. GM and Honda partnered in 2013 to jointly develop a next generation fuel cell system. Plans are established to mass produce fuel cell systems in Brownstown, Michigan, in a highly automated facility. The fuel cell systems will be used by both GM and Honda, as well as for non-automotive products including buses, commercial trucks, military vehicles, and airplanes.

TIRCP has released a Grant Funding Opportunity (GFO) with responses due January 16, 2020. If SRTA succeeds at obtaining a grant from the TIRCP program, GM is interested in continued discussions to work with a coach OEM to prepare a proposal to SRTA to participate in the project as the manufacturer of the fuel cell system. This project holds promise to deploy a prototype motor coach and hydrogen fueling station system that will act as an example of successful commercial deployment of this technology to meet typical coach vehicle duty cycles.

We look forward to exploring this exciting opportunity with SRTA and Caltrans.

Sincerely,

Charles E. Freese, V.
Executive Director, Global Fuel Cell Business

Corporate Headquarters
968 Albany Shaker Road
Latham, NY 12110
518.782.4004

West Coast
15913 E. Euclid Ave.
Spokane, WA 99216
509.228.6500

January 3, 2020

Daniel S. Little
Executive Director
Shasta Regional Transportation Agency

RE: Shasta Regional Transportation Agency Proposal (SRTA) for the procurement and deployment of a Fuel Cell Electric Coach on the Salmon Runner Route

Dear Executive Director of SRTA,

We are pleased to provide this letter of support for Shasta Regional Transportation Agency's (SRTA) project proposal to the Caltrans Transit and Intercity Rail Capital Program (TIRCP) to fund the design, engineering, building and deployment of one or two prototype fuel-cell electric motor coach(es) on the Salmon Runner route from Redding, California to Sacramento, California. The intent of this initiative is to demonstrate a viable zero-emission coach and create a platform to commercialize zero-emission coach vehicles. The availability of a zero-emission coach will further the goals of reducing greenhouse gas emissions and local criteria pollutants on routes with duty cycles previously unable to convert to zero-emission technology.

Plug Power has the expertise and experience to put forth a successful fuel cell system design for the aforementioned coach type and to work with a major coach OEM to successfully integrate our fuel cell system into the vehicle. We are the established leader in the commercially-viable hydrogen and fuel cell market with over 29,000 fuel cells in operation at over 100 locations around the globe, and over 80 Hydrogen fueling stations in operation. Major companies around the world such as Walmart, Amazon, BMW, FedEx, DHL, and Kroger depend on Plug Power fuel cells to power their operations 24/7. We are experts at tailoring the correct size fuel cell system and hydrogen storage solution to meet the needs of the end user. We have successfully teamed up with electric vehicle providers to seamlessly integrate fuel cell systems to enable electrification of applications and routes otherwise out of the reach of battery only architectures.

TIRCP has released a Grant Funding Opportunity (GFO) with responses due January 16, 2020. If SRTA succeeds at obtaining a grant from the TIRCP program, Plug Power desires to work with a coach OEM to prepare a proposal to SRTA to participate as the manufacturer of the fuel cell and hydrogen storage systems. This project holds promise to deploy a prototype motor coach and hydrogen fueling station system that will act as an example of successful commercial deployment of this technology to meet typical coach vehicle duty cycles.

We look forward to working with SRTA and Caltrans on this exciting endeavor.

Sincerely,

Keith Schmid
COO- Plug Power

Jon Taylor
President

NUVERA®
Making hydrogen make sense.

January 3, 2020

Mr. Daniel S. Little
Executive Director
Shasta Regional Transportation Agency

Re: SRTA Proposal for the procurement and deployment of a fuel cell electric coach on the Salmon Runner Route

Dear Mr. Little:

I am writing on behalf of Nuvera Fuel Cells to express our support for Shasta Regional Transportation Agency's project proposal to the Caltrans Transit and Intercity Rail Capital Program (TIRCP) to fund the design, engineering, building and deployment of one or two prototype fuel cell electric motor coaches on the Salmon Runner route from Redding to Sacramento. We understand the intent of this initiative is to demonstrate a viable zero-emission coach and to commercialize zero-emission coach vehicles. The availability of a fuel cell coach platform will further the goals of reducing greenhouse gas emissions and local criteria pollutants on routes with duty cycles previously unable to convert to zero-emission technology.

Nuvera has the expertise and experience to successfully design a fuel cell system for the proposed coach and to work with a major OEM to successfully integrate our fuel cell system into the vehicle. Over the course of its twenty-year history, Nuvera has engaged in fuel cell vehicle integration projects with major OEMs such as Renault and Fiat. Most recently, we have provided two Nuvera® E-45 fuel cell engines to our parent company, Hyster-Yale Group, for integration into a top loading container handler that will be in service at the Port of Los Angeles in early 2020. We have provided the same fuel ell engine to a Chinese partner for integration into a transit bus manufactured by King Long. The bus is currently undergoing on-road testing.

These projects, among many others undertaken by Nuvera, demonstrate our capability to assess vehicle duty cycles and determine the required power rating for the application in a hybrid configuration with batteries. We offer application engineering expertise to our system integrator and OEM partners.

The Grant Funding Opportunity released by TIRCP is due January 16, 2020. If SRTA succeeds at obtaining a grant from the TIRCP program, Nuvera desires to work with a coach OEM to prepare a proposal to SRTA to participate as the manufacturer of the fuel cell engine. This project holds promise to deploy a prototype motor coach and hydrogen fueling station system that will act as a model of successful commercial deployment of this technology to meet typical coach vehicle duty cycles.

We look forward to working with SRTA and Caltrans on this exciting endeavor.

Sincerely,

Jon C. Taylor
President

USA | Headquarters
Nuvera Fuel Cells, LLC | 129 Concord Road, Building 1 | Billerica, MA 01821 USA
Main: +1 617-245-7500 | Fax: +1 617-245-7511 | www.nuvera.com

January 11, 2020

Daniel S. Little
Executive Director
Shasta Regional Transportation Agency

RE: Shasta Regional Transportation Agency Proposal (SRTA) for the procurement and deployment of a Fuel Cell Electric Coach on the Salmon Runner Route

Dear Executive Director of SRTA,

I am writing on behalf of Cummins to express our support for Shasta Regional Transportation Agency's (SRTA) project proposal to the Caltrans Transit and Intercity Rail Capital Program (TIRCP) to fund the design, engineering, building and deployment of two prototype fuel-cell electric motor coaches on the Salmon Runner route from Redding, California to Sacramento, California. The intent of this initiative is to demonstrate a viable zero-emission coach and create a platform to commercialize zero-emission coach vehicles. The availability of a zero-emission coach will further the goals of reducing greenhouse gas emissions and local criteria pollutants on routes with duty cycles previously unable to convert to zero-emission technology.

Cummins has the expertise and experience to put forth a successful Fuel Cell design including bumper-to-bumper vehicle electrification, Hydrogen production and fueling systems for the aforementioned coach type and to work with a major coach OEM to successfully integrate our fuel cell and vehicle electrification system into the vehicle.

Cummins' market knowledge, long-standing customer relationships, global distribution network, scale and decades of experience in electrification, combined with the company's recent acquisition of the Hydrogenics with its advanced fuel cell and Hydrogen production technology and solutions positions Cummins as a significant and highly capable partner for this program. More than 2,000 fuel cell and 500 electrolyzer installations have already been completed around the world.

As a U.S. Fortune 150 company with over $24B of revenue, Cummins sells into 190 countries through 600 distributors and 6000 dealers and is supported by a workforce of over 60,000 employees worldwide. Cummins also maintains a California-based fuel cell and electrified drivetrain development and integration capability which is located in Silicon Valley along with an extensive nationwide service and support network. Cummins' long-standing business and technology relationships with the major truck and Bus OEMs combined with the company's deep resources and reach makes it an ideal partner for the SRTA Fuel Cell Electric Coach project.

For the current zero-emissions coach application, Cummins has the organization and experience that are needed to develop and provide solutions that meet application requirements and that can be rapidly integrated into an OEM coach. Technical objectives including duty cycle and power density and ratings will be established with the coach OEM and Cummins' existing technologies will be applied to meet those objectives. Cummins will leverage its large

Cummins Inc.
1181 Cadillac Court
Milpitas, Ca. 95037
Tel (408) 678-0816
cummins.com

service and support organization to support the program and can also provide Hydrogen production and fueling solutions where appropriate.

TIRCP has released a Grant Funding Opportunity (GFO) with responses due January 16, 2020. If SRTA succeeds at obtaining a grant from the TIRCP program, Cummins desires to work with a coach OEM to prepare a proposal to SRTA to: participate as the manufacturer of the fuel cell, support integration of the fuel cell and vehicle electrification technology into the vehicles, and to support Hydrogen fuel fueling and Hydrogen production systems and infrastructure. This project holds promise to deploy a prototype motor coach and hydrogen fueling station system that will act as an example of successful commercial deployment of this technology to meet typical coach vehicle duty cycles.

We look forward to working with SRTA and Caltrans on this exciting endeavor.

Sincerely,

Joerg Ferchau
Director, Cummins Business Development
joerg.ferchau@cummins.com

January 3, 2020

Jaimie Levin
Center for Transportation and the Environment
1960A University Avenue
Berkeley, CA 94704-1238

Subject: Letter of Interest - Shasta Regional Transportation Agency (SRTA) FCEC Project

Dear Jaimie and SRTA,

It is my pleasure to present this letter of interest for our involvement in the proposed Fuel Cell Electric Coach (FCEC) project being managed by SRTA. Our interest is in both the supply of the hydrogen required to fuel the coach as well as the necessary fueling infrastructure to support the operation.

Air Liquide is a global leader in the hydrogen energy market and has a strong commitment to supporting the energy transition in California and beyond. With our focus on safety and innovation, we are well positioned to support the initiatives of SRTA, CTE and the development of the FCEC network.

I look forward to continuing the project and working with you in the future.

Thank you,

Jordan D. Truitt
Business Development Manager

Air Products and Chemicals, Inc.
7201 Hamilton Boulevard, Allentown, PA 18195-1501
T 610-481-4911
www.airproducts.com

January 8, 2020

Daniel S. Little
Executive Director
Shasta Regional Transportation Agency

RE: Shasta Regional Transportation Agency Proposal for the procurement and deployment of a Fuel Cell Electric Coach on the Salmon Runner Route

Dear Executive Director of SRTA,

I am writing on behalf of Air Products and Chemicals to express our support for the Shasta Regional Transportation Agency's (SRTA) project proposal to the Caltrans Transit and Intercity Rail Capital Program (TIRCP) to fund the design, engineering, building and deployment of a prototype fuel-cell motor coach(es) on the Salmon Runner route from Redding, California to Sacramento, California, and supporting hydrogen fueling infrastructure. The intent of this initiative is to demonstrate a viable zero-emission coach and create a platform to commercialize zero-emission coach vehicles. The availability of a zero-emission coach will further the goals of reducing greenhouse gas emissions and local criteria pollutants on routes with duty cycles previously unable to convert to zero-emission technology.

Air Products has the expertise and experience to put forth a successful system for the storage and dispensing of hydrogen fuel for the aforementioned prototype motor coach. We have been involved in hundreds of fueling station projects across many vehicle applications including rail, transit, automotive, forklifts, ships, and trucks. Air Products is one of the most, if not the most, experienced hydrogen fueling station provider for similarly-sized larger vehicles such as buses and trucks. We also have the capability to bring differentiated on-site hydrogen generation options such as electrolysis or reformer technologies as well as delivered gaseous or liquid hydrogen for back-up or for entire station use. We provide turnkey hydrogen fueling solutions including design, engineering, build, operation, and maintenance. The exact equipment to be used would depend upon whether the project included one or two coaches, but the time to put the fueling station in place is most likely comparable to or less than the time to build the coach(es).

TIRCP has released a Grant Funding Opportunity (GFO) with responses due January 16, 2020. Air Products is interested in providing a proposal to participate as the hydrogen supplier to build one to two stations in Redding and/or Sacramento that could adequately fuel the one to two prototype coaches. This project holds promise to deploy a prototype motor coach and hydrogen fueling station system that will act as an example of successful commercial deployment of this technology to meet typical coach vehicle duty cycles and the required infrastructure to support it. In addition, stations of this order will help to address the statewide need for heavy-duty, freight, and transit agency hydrogen fueling infrastructure to meet zero-emission goals.

Air Products will work with SRTA to generate a not-to-exceed budget for this station(s) project. Upon award of SRTA's grant application to Caltrans, Air Products has a strong interest and intent to submit a proposal to SRTA to build and maintain a station. As part of Air Products' participation, Air Products acknowledges SRTA's interest in any possible cost shares and will consider this at the proposal stage. If successful in selection and upon management approval, Air Products would work with SRTA and CalTrans to execute the project. Upon notice to proceed we would begin assessment for station locations in cooperation with the selected OEM, CalTrans, and SRTA. We look forward to working with you on this exciting endeavor.

Sincerely,

Eric Guter
North America Hydrogen Energy Systems Director

Iwatani
Iwatani Corporation of America
3945 Freedom Circle, Suite 770, Santa Clara, CA 95054
Phone: 669-236-4450 • Fax: 669-236-4454

ITM POWER
Energy Storage | Clean Fuel

1/2/20

Daniel S. Little
Executive Director
Shasta Regional Transportation Agency

RE: Shasta Regional Transportation Agency Proposal for the procurement and deployment of a Fuel Cell Electric Coach on the Salmon Runner Route

Dear Executive Director of SRTA,

I am writing on behalf of Iwatani Corporation of America and ITM Power to express our support for Shasta Regional Transportation Agency's (SRTA) project proposal to the Caltrans Transit and Intercity Rail Capital Program (TIRCP) to fund the design, engineering, building and deployment of a prototype fuel-cell motor coach(es) on the Salmon Runner route from Redding, California to Sacramento, California, and supporting hydrogen fueling infrastructure. The intent of this initiative is to demonstrate a viable zero-emission coach and create a platform to commercialize zero-emission coach vehicles. The availability of a zero-emission coach will further the goals of reducing greenhouse gas emissions and local criteria pollutants on routes with duty cycles previously unable to convert to zero-emission technology.

Iwatani Corporation of America and ITM Power have the expertise and experience to put forth a successful system for the storage and dispensing of hydrogen fuel for the aforementioned prototype motor coach. Iwatani Corporation of America and ITM Power currently operate Hydrogen Refueling Stations both in California and abroad. Iwatani Corporation (Japan) has designed, engineered and built more than 25 Hydrogen Refueling Stations in Japan. Stations developed include both Light Duty and Heavy Duty (Bus). Iwatani Corporation is also the largest producer of Liquid Hydrogen in Japan. ITM Power has also developed several stations around the world. ITM Power provides Electrolyzer technology to be used for centralized or on-site Hydrogen production. Both Iwatani Corporation and ITM Power currently operate facilities in California with a daily throughput capacity in excess of 100 to 200 kilograms. In addition to the abovementioned, Iwatani Corporation of America would be looking at upgrading our existing Hydrogen Refueling facility in Sacramento. This upgrade, provided that a station would be developed in Redding, would increase the daily throughput capacity; in order to support the development of heavy-duty vehicles.

TIRCP has released a Grant Funding Opportunity (GFO) with responses due January 16, 2020. Iwatani Corporation of America and ITM Power are interested in providing a proposal to participate as the hydrogen supplier to build one to two stations in Redding and/or Sacramento that could adequately fuel the one to two prototype coaches. This project holds promise to deploy a prototype motor coach and hydrogen fueling station system that will act as an example of successful commercial deployment of this technology to meet typical coach vehicle duty cycles and the required infrastructure to support it. In addition, stations of this order will help to

address the statewide need for heavy-duty, freight, and transit agency hydrogen fueling infrastructure to meet zero-emission goals.

Iwatani Corporation of America and ITM Power will work with SRTA to generate a not-to-exceed budget for this station(s) project. Upon award of SRTA's grant application to Caltrans, Iwatani Corporation of America and ITM power have a strong interest and intent to submit a proposal to SRTA to build and maintain a station. As part of Iwatani Corporation of America and ITM Power's participation, Iwatani Corporation of America and ITM Power will acknowledge the provision of cost share and it will be reflected in their proposal to SRTA If successful in selection, Iwatani Corporation of America and ITM Power would work with SRTA and CalTrans to execute the project. Upon notice to proceed we would begin assessment for station locations in cooperation with the selected OEM, CalTrans, and SRTA. We look forward to working with you on this exciting endeavor.

Sincerely,

Joseph Cappello
Iwatani Corporation of America
CEO

Stephen Jones
ITM Power
Managing Director

Corporate Headquarters
968 Albany Shaker Road
Latham, NY 12110
518.782.4004

West Coast
15913 E. Euclid Ave.
Spokane, WA 99216
509.228.6500

January 10, 2020

Daniel S. Little
Executive Director
Shasta Regional Transportation Agency

RE: Shasta Regional Transportation Agency Proposal (SRTA) for the procurement and deployment of a Fuel Cell Electric Coach on the Salmon Runner Route

Dear Executive Director of SRTA,

We are pleased to provide this letter of support for Shasta Regional Transportation Agency's (SRTA) project proposal to the Caltrans Transit and Intercity Rail Capital Program (TIRCP) to fund the design, engineering, building and deployment of one or two prototype fuel-cell electric motor coach(es) on the Salmon Runner route from Redding, California to Sacramento, California and supporting hydrogen fueling infrastructure. The intent of this initiative is to demonstrate a viable zero-emission coach and create a platform to commercialize zero-emission coach vehicles. The availability of a zero-emission coach will further the goals of reducing greenhouse gas emissions and local criteria pollutants on routes with duty cycles previously unable to convert to zero-emission technology.

Plug Power has the expertise and experience to put forth a successful system for the storage and dispensing of hydrogen fuel for the aforementioned prototype motor coach. We are the established leader in the commercially-viable hydrogen and fuel cell market with over 29,000 fuel cells in operation at over 100 locations around the globe, and over **80 Hydrogen** fueling stations in operation that are of the exact size and scale required for Redding and Sacramento stations. Major companies around the world such as Walmart, Amazon, BMW, FedEx, DHL, and Kroger depend on Plug Power for mission critical hydrogen fueling stations to power their operations 24/7. We are experts at providing turn-key hydrogen fueling stations that include all equipment (gaseous and liquid hydrogen storage, electrolyzers, reformers, pumps, compressors, manifolds, dispensers, safety systems, etc.) site engineering, construction, and permitting, as well on-going service of the entire station.

TIRCP has released a Grant Funding Opportunity (GFO) with responses due January 16, 2020. Plug Power is interested in providing a proposal to participate as the hydrogen supplier to build one to two stations in Redding and/or Sacramento that could adequately fuel two prototype coaches. This project holds promise to deploy a prototype motor coach and hydrogen fueling station system that will act as an example of successful commercial deployment of this technology to meet typical coach vehicle duty cycles and the required infrastructure to support it. In addition, stations of this order will help to address the statewide need for heavy-duty, freight, and transit agency hydrogen fueling infrastructure to meet zero-emission goals.

Corporate Headquarters
968 Albany Shaker Road
Latham, NY 12110
518.782.4004

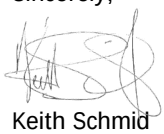
West Coast
15913 E. Euclid Ave.
Spokane, WA 99216
509.228.6500

Upon award of SRTA's grant application to Caltrans, we intend to submit a proposal to SRTA to build and maintain a station. As part of our participation, Plug Power will acknowledge the provision of cost share and it will be reflected in their proposal to SRTA.

If successful in selection, Plug Power would work with SRTA and CalTrans to execute the project. Upon notice to proceed we would begin assessment for Reading and Sacramento stations in cooperation with the selected OEM, CalTrans, and SRTA.

We look forward to working with SRTA and Caltrans on this exciting endeavor.

Sincerely,



Keith Schmid
COO- Plug Power

MESSER
Gases for Life

January 10, 2020

Daniel S. Little
Executive Director
Shasta Regional Transportation Agency

RE: Shasta Regional Transportation Agency Proposal for the Procurement and Deployment of a Fuel Cell Electric Coach on the Salmon Runner Route

Dear Executive Director of SRTA,

I am writing on behalf of Messer to express our support for Shasta Regional Transportation Agency's (SRTA) project proposal to the Caltrans Transit and Intercity Rail Capital Program (TIRCP) to fund the design, engineering, building and deployment of a prototype fuel-cell motor coach(es) on the Salmon Runner route from Redding, California to Sacramento, California, and supporting hydrogen fueling infrastructure. The intent of this initiative is to demonstrate a viable zero-emission coach and create a platform to commercialize zero-emission coach vehicles. The availability of a zero-emission coach will further the goals of reducing greenhouse gas emissions and local criteria pollutants on routes with duty cycles previously unable to convert to zero-emission technology.

Messer has the expertise and experience to put forth a successful system for the storage and dispensing of hydrogen fuel for the aforementioned prototype motor coach.

AC Transit – Emeryville : Messer (formerly Linde) has operated and maintained the H2 infrastructure at this facility since September 2011. In California, Messer has designed, constructed, and operated/maintained AC Transit's Hydrogen Bus Fueling infrastructure at Emeryville and Oakland since September 2012.

ACT Emeryville Bus and Light Duty – Commissioned September 2012

- Delivered LH2 with supplemental on-site hydrogen from electrolysis, Ionic Compressor, GH2 Storage, 350 bar Bus Dispenser
- System Capacity – 10 buses/day (approx 300 kg/day)
- Approximately 22,000 safe bus fuelings since September 2012
- 700/350 bar retail (light duty) hydrogen dispenser

ACT Oakland Bus – Commissioned October 2014

- Delivered LH2 with supplemental on-site hydrogen from electrolysis, Ionic Compressor, GH2 Storage, 350 bar Bus Dispenser
- System Capacity – 10 buses/day (approx 300 kg/day)
- Approximately 13,000 safe bus fuelings since October 2014

ACT Emeryville Light Duty – Complete Station Overhaul / Re-commissioned November 2018

Messer North America, Inc.
200 Somerset Corporate Blvd, Suite 7000, Bridgewater, NJ 08807
Phone 1-800-755-9277, www.messer-us.com

- Delivered LH2 with supplemental on-site hydrogen from electrolysis, IC90 Ionic Compressor, GH2 Storage, 700/350 bar retail Dispenser

ACT Emeryville Bus – Complete Station Overhaul / Re-commissioned January 2020

- Delivered LH2, dual high capacity LH2 pumps, GH2 Storage, dual simultaneous 350 bar Bus Dispensers
- System Capacity – 20+ buses/day (approx 600+ kg/day) limited by amount high pressure GH2 storage

Othere relevant experience :

BMW Manufacturing Company – Greer SC

- Designed, constructed, operated/maintained by Messer since September 2010
- Over 1,300 fuelings/day to material handling equipment (1,500+ kg/day)
- Delivered LH2, Ionic Compressor, LH2 pumps, GH2 storage, 21 dispensers

TIRCP has released a Grant Funding Opportunity (GFO) with responses due January 16, 2020. Messer is interested in providing a proposal to participate as the hydrogen supplier to build one to two stations in Redding and/or Sacramento that could adequately fuel the one to two prototype coaches. This project holds promise to deploy a prototype motor coach and hydrogen fueling station system that will act as an example of successful commercial deployment of this technology to meet typical coach vehicle duty cycles and the required infrastructure to support it. In addition, stations of this order will help to address the statewide need for heavy-duty, freight, and transit agency hydrogen fueling infrastructure to meet zero-emission goals.

Messer will work with SRTA to generate a not-to-exceed budget for this station(s) project. Upon award of SRTA's grant application to Caltrans, Messer has a strong interest and intent to submit a proposal to SRTA to build and maintain a station. As part of Messer's participation, Messer will acknowledge the provision of cost share and it will be reflected in their proposal to SRTA If successful in selection, Messer would work with SRTA and CalTrans to execute the project. Upon notice to proceed we would begin assessment for station locations in cooperation with the selected OEM, CalTrans, and SRTA. We look forward to working with you on this exciting endeavor.

Sincerely,

Michael Iannelli
Director – Key Customer Management and Hydrogen Fueling

Messer North America, Inc.
200 Somerset Corporate Blvd, Suite 7000, Bridgewater, NJ 08807
Phone 1-800-755-9277, www.messer-us.com

MAXIMATOR® Hydrogen Inc.

January 9, 2020

Daniel S. Little
Executive Director
Shasta Regional Transportation Agency

RE: Shasta Regional Transportation Agency Proposal for the procurement and deployment of a Fuel Cell Electric Coach on the Salmon Runner Route

Dear Executive Director of SRTA,

I am writing on behalf of Maximator to express our support for Shasta Regional Transportation Agency's (SRTA) project proposal to the Caltrans Transit and Intercity Rail Capital Program (TIRCP) to fund the design, engineering, building and deployment of a prototype fuel-cell motor coach(es) on the Salmon Runner route from Redding, California to Sacramento, California, and supporting hydrogen fueling infrastructure. The intent of this initiative is to demonstrate a viable zero-emission coach and create a platform to commercialize zero-emission coach vehicles. The availability of a zero-emission coach will further the goals of reducing greenhouse gas emissions and local criteria pollutants on routes with duty cycles previously unable to convert to zero-emission technology.

Maximator has the expertise and experience to put forth a successful system for the compression, storage and dispensing equipment of hydrogen fuel for the aforementioned prototype motor coach. Maximator's hydrogen group is comprised of hydrogen fueling industry pioneers and veterans with combined decades of experience designing, building and operating hydrogen fueling stations in locations across the globe with innovative technology. Maximator is currently involved in several hydrogen fueling projects across the globe including a bus fueling project in Wuppertal, Germany which will be designed for fueling 20 buses with an electrolysis on-site hydrogen supply. In Switzerland, Maximator has recently won an order of seven (7) hydrogen fueling stations for a medium duty service application, the first of which will be in the commissioning phase in March 2020. In the United States, specifically in California, Maximator has recently won a contract to supply light duty hydrogen fueling station equipment to a large developer. The first of these units will be in operation by 2021. Utilizing our years of previous experience in the area of hydrogen fueling, Maximator has designed a fully integrated hydrogen fueling station with a specific focus on reliability improvement and related innovations in the compression process for throughput levels exceeding 400 kg/day. Our fabrication facilities in Germany are growing to handle a larger and larger volume of orders.

TIRCP has released a Grant Funding Opportunity (GFO) with responses due January 16, 2020. Maximator is interested in providing a proposal to participate as the hydrogen fueling compression, storage and dispensing equipment supplier to build one to two stations in Redding and/or Sacramento that could adequately fuel the one to two prototype coaches that the project is designed for and also be sufficient for subsequent expansion of the program post-demonstration. This project holds promise to deploy a prototype motor coach and hydrogen fueling station system that will act as an example of successful commercial deployment of this technology to meet typical coach vehicle duty cycles and the required infrastructure to support

it. In addition, stations of this order will help to address the statewide need for heavy-duty, freight, and transit agency hydrogen fueling infrastructure to meet zero-emission goals.

Maximator will work with fuel providers to generate a not-to-exceed budget for this station(s) project. Upon award of SRTA's grant application to Caltrans, Maximator has a strong interest and intent to submit a proposal to SRTA to supply equipment and maintain a station. As part of Maximator's participation, Maximator will acknowledge the provision of cost share and it will be reflected in the fuel provider's proposal to SRTA. If successful in selection, Maximator would work with the fuel provider, SRTA and CalTrans to execute the project. Upon notice to proceed we would begin assessment for station design in cooperation with the selected fuel provider, OEM, CalTrans, and SRTA. We look forward to working with you on this exciting endeavor.

Sincerely,

Nitin Natesan
Managing Director
Maximator Hydrogen Inc.

Trillium
A Love's Company
2929 Allen Parkway Suite 4100, Houston, TX 77019

January 10, 2020

Daniel S. Little
Executive Director
Shasta Regional Transportation Agency

RE: Shasta Regional Transportation Agency Proposal for the procurement and deployment of a Fuel Cell Electric Coach on the Salmon Runner Route

Dear Mr. Little,

I am writing on behalf of Trillium to express our support for Shasta Regional Transportation Agency's (SRTA) project proposal to the Caltrans Transit and Intercity Rail Capital Program (TIRCP) to fund the design, engineering, building and deployment of a prototype fuel-cell motor coach(es) on the Salmon Runner route from Redding, California to Sacramento, California, and supporting hydrogen fueling infrastructure. The intent of this initiative is to demonstrate a viable zero-emission coach and create a platform to commercialize zero-emission coach vehicles. The availability of a zero-emission coach will further the goals of reducing greenhouse gas emissions and local criteria pollutants on routes with duty cycles previously unable to convert to zero-emission technology.

Trillium has the expertise and experience to put forth a successful system for the storage and dispensing of hydrogen fuel for the aforementioned prototype motor coach. We have designed, built and are currently operating and maintaining Orange County Transit Authority's (OCTA) liquid hydrogen fueling station. OCTA's fueling infrastructure can support up to 50 fuel cell transit buses. Trillium is currently designing and is contracted to build, operate and maintain Champaign Urbana Mass Transit District's (CUMTD) onsite hydrogen production (via electrolysis) fueling station. CUMTD's station can support 15 transit buses. Both stations have been built with plans to expand station capacity in the future. Based on these experiences, and Trillium's vast compressed natural gas fueling station experience, Trillium is confident that we have the capability required to provide a fueling solution for the fuel cell coach prototypes.

TIRCP has released a Grant Funding Opportunity (GFO) with responses due January 16, 2020. Trillium is interested in providing a proposal to participate as the hydrogen fueling station infrastructure supplier to build one to two stations in Redding and/or Sacramento that could adequately fuel the one to two prototype coaches. This project holds promise to deploy a prototype motor coach and hydrogen fueling station system that will act as an example of successful commercial deployment of this technology to meet typical coach vehicle duty cycles and the required infrastructure to support it. In addition, stations of this order will help to address the statewide need for heavy-duty, freight, and transit agency hydrogen fueling infrastructure to meet zero-emission goals.

Trillium will work with SRTA to generate a not-to-exceed budget for this station(s) project. Upon award of SRTA's grant application to Caltrans, Trillium has a strong interest and intent to submit a proposal to SRTA to build and maintain a station. As part of Trillium's participation, Trillium would work with SRTA and Caltrans to execute the project. Upon notice to proceed we would

begin assessment for station locations in cooperation with the selected OEM, Caltrans, and SRTA. We look forward to working with you on this exciting endeavor.

Sincerely,

Jon P. Fjeld-Hansen
Trillium – Vice President

Letters of Support from Regional Partners

SACRAMENTO METROPOLITAN
AIR QUALITY
MANAGEMENT DISTRICT

Alberto Ayala, Ph.D., M.S.E.
EXECUTIVE DIRECTOR/AIR POLLUTION CONTROL OFFICER

January 14, 2020

Daniel S. Little
Executive Director
Shasta Regional Transportation Agency
1255 East Street, Suite 202
Redding, CA 96001

RE: Shasta Regional Transportation Agency Proposal for the Development and Deployment of a Fuel Cell Electric Coach on the Salmon Runner Route

Dear Mr. Little,

I am writing on behalf of the Sacramento Metropolitan Air Quality Management District (Sac Metro Air District) to express our support for Shasta Regional Transportation Agency's project proposal to the Caltrans Transit and Intercity Rail Capital Program to fund the design, engineering, building and deployment of a prototype fuel-cell motor coach. This project proposal would provide service for the Salmon Runner from Redding to Sacramento and the relative infrastructure required to fuel this prototype. The intent of this initiative is to demonstrate a viable zero-emission coach and create a platform for the production and sales of zero-emission coach vehicles. The availability of zero-emission coaches will further the goals of reducing greenhouse gas emissions and local criteria pollutants on routes with duty cycles previously unable to convert to zero-emission technology.

Your project to develop a prototype fuel cell electric coach is of considerable interest to the Sac Metro Air District. As commuter bus service into Sacramento continues to grow, we are pursuing several projects to help transform our region's transportation sector into an emissions-free network of vehicles. To achieve our goals, we will need both battery-electric and hydrogen fuel cell electric technologies. Our staff is working on developing both short- and long-range hydrogen fueling infrastructure to encourage the continuing growth and deployment of zero-emission fuel cell electric vehicles. We believe your project is very complementary to these efforts. This project also complements other efforts at the Sacramento Valley Station to promote more efficient and zero-emission transportation in Northern California.

We encourage the State Transportation Agency to consider funding this important application. We wish you success with your proposal and look forward to incorporating this project with our current efforts. If you have questions or comments, please do not hesitate to contact the Transportation and Climate Change Division Manager, Jaime R. Lemus, at 916-874-42911.

Sincerely,

Alberto Ayala, Ph.D., M.S.E.
Executive Director / Air Pollution Control Officer

777 12th Street, 3rd Floor ▮ Sacramento, CA 95814-1908
916/874-4800 ▮ 916/874-4899 fax
www.airquality.org

San Joaquin
Joint Powers Authority

January 13, 2020

Daniel S. Little
Executive Director
Shasta Regional Transportation Agency
1255 East Street, Suite 202
Redding, CA 96001

Subject: North State Intercity Bus System – Redding to Sacramento – and Related Hydrogen Fueling Infrastructure

Dear Mr. Little,

I am writing on behalf of the San Joaquin Joint Powers Authority (SJJPA) in support of Shasta Regional Transportation Agency's (SRTA) 2020 Transit and Intercity Rail Capital Program (TIRCP) Application for the North State Intercity Bus System, development of a prototype hydrogen fuel cell motor coaches, and related hydrogen fueling infrastructure. This project promises to provide a critical connection between rural northern California and the urbanized Sacramento region and critical transportation connections such as the Sacramento International Airport and Amtrak rail services. Hydrogen fueling infrastructure along Interstate 5 (I-5) in the region would be beneficial with regard to regional economic opportunity, and for heavy duty freight; agency fleet requirements; and other non-profit and private desires to transition to a less carbon intensive fuel.

SJJPA is pleased to support SRTA in its desire to reduce its environmental impacts in intercity and regional bus operations, through the operation of hydrogen buses throughout the North State region. In pursuing the current TIRCP solicitation, SRTA is developing a long-term solution to the range and power challenges of the North State Intercity Bus service, while also solidifying state support for hydrogen fueling infrastructure in the North State. SJJPA has committed to a partnership with SRTA for the North State Intercity Bus System to provide connections to the growing North State region to the San Joaquins intercity rail service with a connection in the Sacramento region.

Sincerely,

Vito Chiesa
Chair

North State Super Region

1255 East Street, Suite 202, Redding, CA 96001
(530) 265-3202 nssr16@gmail.com
www.superregion.org
Mike Woodman, Chair

Daniel S. Little
Executive Director
Shasta Regional Transportation Agency
1255 East Street, Suite 202
Redding, CA 96001

Subject: North State Intercity Bus System – Redding to Sacramento – and Related Hydrogen Fueling Infrastructure

Dear Mr. Little,

The North State Super Region (NSSR), formalized through a memorandum of agreement on October 20, 2010, represents a partnership between the sixteen northern California Regional Transportation Planning Agencies and Metropolitan Planning Organizations, to provide a unified voice when addressing state and federal transportation funding and policy decisions and establish coordination of transportation planning efforts. The NSSR has a unified goal to support transportation investments within this megaregion that improve the economy and environment, the efficiency of the movement of people and goods, and safety.

I am writing on behalf of the NSSR in support of the North State Intercity Bus System, development of a prototype hydrogen fuel cell motorcoach(es), and related hydrogen fueling infrastructure. This project promises to provide a critical connection between rural northern California and the urbanized Sacramento region and critical transportation connections such as the Sacramento International Airport and Amtrak rail services. The North State Intercity Bus project supports regional and statewide goals to reduce vehicle miles traveled and related greenhouse gas emissions.

Hydrogen fueling infrastructure along Interstate 5 (I-5) in the region would be beneficial with regard to providing regional economic opportunity, and assist in compliance for heavy duty freight and agency fleet requirements; as well as, address other non-profit and private desires to transition to a less carbon intensive fuel source. In pursuing the current TIRCP solicitation, SRTA intends to develop a long-term solution to the range and power challenges of the North State Intercity Bus service, while also solidifying state support for hydrogen fueling infrastructure in the North State. The NSSR is pleased to work with SRTA to support the North State Intercity Bus System project.

Sincerely,

Mike Woodman

Mike Woodman, Deputy Executive Director
Nevada County Transportation Commission
Chair, North State Super Region

CITY OF REDDING
CALIFORNIA

CITY OF REDDING
777 CYPRESS AVENUE, REDDING, CA 96001
P.O. BOX 496071, REDDING, CA 96049-6071

PUBLIC WORKS
ENGINEERING DIVISION
530.225.4170
530.245.7024

January 14, 2020

Daniel S. Little
Executive Director
Shasta Regional Transportation Agency
1255 East Street, Suite 202
Redding, CA 96001

SUBJECT: Shasta Regional Transportation Agency Proposal (SRTA) for the procurement and deployment of a Fuel Cell Electric Coach on the Salmon Runner Route

Dear Executive Director of SRTA:

I am writing on behalf of the City of Redding to express our support for Shasta Regional Transportation Agency's (SRTA) project proposal to the Caltrans Transit and Intercity Rail Capital Program (TIRCP) to fund the design, engineering, building and deployment of a prototype fuel-cell motor coach(es) on the Salmon Runner service from Redding, California to Sacramento, California and the relative infrastructure required to fuel this prototype. This project will provide an important connection between rural Northern California and the urbanized Sacramento region, as well as provide additional transportation connections to services such as the Sacramento International Airport and Amtrak rail services. Hydrogen fueling infrastructure along I-5 in the region would be beneficial with regard to regional economic opportunity, and for heavy-duty freight; agency fleet requirements; and other non-profit and private desires to transition to a less carbon intensive fuel.

The City of Redding supports SRTA's efforts in pursuing TIRCP funds to develop a long-term solution to the range and power issues of the North State Intercity Bus System, while also solidifying state support for hydrogen fueling infrastructure in the North State.

The City of Redding is pleased to support SRTA's efforts to implement the North State Intercity Bus System.

Sincerely,

John Abshier, P.E., MPA
Assistant Director of Public Works

CITY OF SHASTA LAKE California

PO BOX 777 | 4477 Main Street
Shasta Lake, CA 96019
(530) 275-7400

www.cityofshastalake.org

January 14, 2020

Daniel S. Little, AICP, Executive Director
Shasta Regional Transportation Agency (SRTA)
1255 East Street, Suite 202
Redding, CA 96001

Subject: North State Intercity Bus System – Redding to Sacramento – and Related Hydrogen Fueling Infrastructure

Dear Mr. Little,

I am writing on behalf of the City of Shasta Lake in support of the North State Intercity Bus System, development of a prototype hydrogen fuel cell motorcoach(es), and related hydrogen fueling infrastructure. This project promises to provide a critical connection between rural northern California and the urbanized Sacramento region and critical transportation connections such as the Sacramento International Airport and Amtrak rail services. Hydrogen fueling infrastructure along Interstate 5 (I-5) in the region would be beneficial with regard to regional economic opportunity, and for heavy duty freight; agency fleet requirements; and other non-profit and private desires to transition to a less carbon intensive fuel.

The City of Shasta Lake supports SRTA's efforts in pursuing the current TIRCP solicitation, we understand SRTA is developing a long-term solution to the range and power challenges of the North State Intercity Bus service, while also solidifying state support for hydrogen fueling infrastructure in the North State.

The City of Shasta Lake is pleased support SRTA's efforts to implement the North State Intercity Bus System.

If you have any questions or need further information, please contact Jessaca Lugo, Assistant City Manager at 530-275-7464 or at jlugo@cityofshastalake.org.

Sincerely,

John N. Duckett, Jr.
City Manager
City of Shasta Lake

Cc: City Engineer, Jeff Tedder

MTA
MODOC TRANSPORTATION AGENCY
SAGE STAGE

Modoc Transportation Agency
Sage Stage
108 S. Main Street
Alturas, CA 96101
(530) 233-6410 Phone

January 2, 2020

Daniel S. Little
Executive Director
Shasta Regional Transportation Agency
1255 East Street, Suite 202
Redding, CA 96001

Subject: North State Intercity Bus System – Redding to Sacramento – and Related Hydrogen Fueling Infrastructure

Dear Mr. Little,

I am writing on behalf of the Shasta Regional Transportation Agency in support of the North State Intercity Bus System, development of a prototype hydrogen fuel cell motorcoach(es), and related hydrogen fueling infrastructure. This project promises to provide a critical connection between rural northern California and the urbanized Sacramento region and critical transportation connections such as the Sacramento International Airport and Amtrak rail services. Hydrogen fueling infrastructure along Interstate 5 (I-5) in the region would be beneficial with regard to regional economic opportunity, and for heavy duty freight; agency fleet requirements; and other non-profit and private desires to transition to a less carbon intensive fuel.

Modoc Transportation Agency / Sage Stage public transit currently operates an intercity service from Alturas, CA to Redding, CA. every Tuesday. This service will provide numerous connections between Redding and Sacramento.

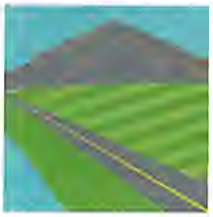
Modoc Transportation Agency / Sage Stage recognizes that a North State Intercity Bus System would provide a much-needed feeder system for commuters, employment, business, recreational and medical related travelers. Medical services are very limited in rural areas. Connections are vital to the overall health of our remote rural area, which would otherwise remain quite isolated in significate ways.

In pursuing the current TIRCP solicitation, SRTA is developing a long-term solution to the range and power challenges of the North State Intercity Bus service, while also solidifying state support for hydrogen fueling infrastructure in the North State.

Modoc Transportation Agency is pleased to work with SRTA to support the North State Intercity Bus System.

Sincerely,

Debbie Pedersen
Executive Director
Modoc Transportation Agency



TCTC
TEHAMA COUNTY
TRANSPORTATION COMMISSION

Red Bluff • Corning • Tehama • Tehama County
9380 San Benito Avenue, Gerber, CA 96035-9701 • (530) 385-1462

December 17, 2019

Daniel S. Little
Executive Director
Shasta Regional Transportation Agency
1255 East Street, Suite 202
Redding, CA 96001

Subject: North State Intercity Bus System – Redding to Sacramento – and Related Hydrogen Fueling Infrastructure

Dear Mr. Little,

I am writing on behalf of the Tehama County Transportation Commission (TCTC) in support of the North State Intercity Bus System, development of a prototype hydrogen fuel cell motorcoach(es), and related hydrogen fueling infrastructure. This project promises to provide a critical connection between rural northern California and the urbanized Sacramento region and critical transportation connections such as the Sacramento International Airport and Amtrak rail services. Hydrogen fueling infrastructure along Interstate 5 (I-5) in the region would be beneficial with regard to regional economic opportunity, heavy duty freight, agency fleet requirements, and other non-profit and private desires to transition to a less carbon intensive fuel.

TCTC needs a service like the North State Intercity Bus System, to assist commuters, employers, business/recreational/medical-related travelers, in reaching regional destinations. In pursuing the current Transit and Intercity Rail Capital Program (TIRCP) solicitation, SRTA is developing a long-term solution to the range and power challenges of the North State Intercity Bus service, while also solidifying State support of a hydrogen fueling infrastructure in the North State. TCTC is pleased to work with SRTA and excited to collaborate in support of the project in the future.

Sincerely,

Timothy J. McSorley
Executive Director
Tehama County Transportation Commission

9380 San Benito Avenue, Gerber, California 96035 • (530) 385-1462 • Fax (530) 385-1189
E-mail: jriskegomez@tcpw.ca.gov • Web Site: http://www.tehamacountypublicworks.ca.gov/transportation/

Trinity County Transportation Commission

P.O. BOX 2490, WEAVERVILLE, CALIFORNIA 96093
PHONE (530) 623-1365 FAX (530) 623-5312

17 December 2019

Daniel S. Little
Executive Director
Shasta Regional Transportation Agency
1255 East Street, Suite 202
Redding, CA 96001

Subject: North State Intercity Bus System – Redding to Sacramento – and Related Hydrogen Fueling Infrastructure

Dear Mr. Little,

I am writing on behalf of the Trinity County Transportation Commission in support of the North State Intercity Bus System, development of a prototype hydrogen fuel cell motorcoach(es), and related hydrogen fueling infrastructure. This project promises to provide a critical connection between rural northern California and the urbanized Sacramento region and critical transportation connections such as the Sacramento International Airport and Amtrak rail services. Hydrogen fueling infrastructure along Interstate 5 (I-5) in the region would be beneficial with regard to regional economic opportunity, and for heavy duty freight; agency fleet requirements; and other non-profit and private desires to transition to a less carbon intensive fuel. As a provider of intercity transit service, we connect with the transportations carriers who utilize the I-5 corridor.

Operating in a small, rural county, Trinity Transit currently has limited ability to pursue alternative fuels for its buses. The development of a long-range hydrogen fuel cell motorcoach would provide a future alternative to diesel or gasoline buses with alternative fuel buses capable of driving our mountainous, sometimes snowy and icy, and intercity routes. In pursuing the current TIRCP solicitation, SRTA is developing a long-term solution to the range and power challenges of the North State Intercity Bus service, while also solidifying state support for hydrogen fueling infrastructure in the North State.

The Trinity County Transportation Commission is pleased to work with SRTA to support the North State Intercity Bus System. We support development of the project and look forward to cooperating with SRTA as they develop the North State Intercity Bus System. We hope to further integrate our transit network with them, collaborate on workforce training, and share technological advances that decrease our greenhouse gas emissions. Our existing intercity routes serve an identified unmet need to connect Humboldt, Trinity, and Shasta counties with regular bus service. Adding additional transit services and improving the technology to deliver those services will improve the sustainability and reliability for the North State, directly benefitting its residents and visitors.

Sincerely,

RICHARD TIPPETT, P.E., T.E.
Executive Secretary

Studies and Planning Documents

Studies and Planning Documents

All studies and planning documents referenced in this application are attached to the application as an electronic link, and copies are provided on the flash drive submitted with the project application.

- 2018 TIRCP Grant Application -- Transit and Intercity Rail Capital Program (TIRCP) grant application for North State Intercity Bus System
    - https://www.srta.ca.gov/DocumentCenter/View/3934/North-State-Intercity-Bus-System-TIRCP-Grant-Application-January-2018
- North State Intercity Bus System Business Plan for Shasta Regional Transportation Agency
    - https://www.srta.ca.gov/DocumentCenter/View/4099/North-State-Intercity-Bus-System-Business-Plan-June-2018
- Shasta Intercity Transportation to Sacramento and Bay Area Feasibility Study and Action Plan
    - https://www.srta.ca.gov/DocumentCenter/View/3280/Shasta-Intercity-Transportation-Feasibility-Study-and-Action-Plan-December-2016
- 2018 Regional Transportation Plan for Shasta County, including Sustainable Communities Strategy (RTP/SCS)
    - https://www.srta.ca.gov/DocumentCenter/View/3280/Shasta-Intercity-Transportation-Feasibility-Study-and-Action-Plan-December-2016
- GoShasta Regional Active Transportation Plan
    - https://www.srta.ca.gov/DocumentCenter/View/4773/GoShasta_Regional_ATP_with_appendices_8-2019
- North State Express Questionnaire
    - https://www.srta.ca.gov/DocumentCenter/View/4960/North-State-Express-Questionnaire
- Sacramento Council of Governments' (SACOG's) 2020 Metropolitan Transportation Plan (MTP)/SCS
    - https://www.sacog.org/sites/main/files/file-attachments/2020_mtp-scs_final_draft_for_web.pdf?1578074075
- Lake County Planning Council's 2017 Regional Transportation Plan
    - https://www.lakeapc.org/wp-content/uploads/2018/06/2017-RTP-Final.pdf
- 2018 California State Rail Plan
    - https://www.srta.ca.gov/DocumentCenter/View/4961/2018-California-State-Rail-Plan
- California Freight Mobility Plan 2020
    - https://dot.ca.gov/programs/transportation-planning/freight-planning/ca-freight-advisory-committee/cfmp-2020
- California Sustainable Freight Action Plan (2016)
    - https://dot.ca.gov/programs/transportation-planning/freight-planning/california-sustainable-freight-action-plan