

STAFF REPORT



MEETING DATE:	June 22, 2023
SUBJECT:	Approve Zero-Emission Fleet Transition Rollout Plan for ShastaConnect Services
AGENDA ITEM:	14
STAFF CONTACT:	Mehdi Moeinaddini, Associate Transportation Planner

SUMMARY:

SRTA has a contractual agreement with Dignity Health Connected Living (DHCL) for specialized public transit services. To address both state and federal requirements related to transitioning public transit fleets to zero-emission vehicles, SRTA contracted with Energetics to prepare a Zero-Emission Fleet Transition Rollout Plan.

STAFF RECOMMENDATION:

It is recommended that the board of directors:

1. Approve the Zero-Emission Fleet Transition Rollout Plan for ShastaConnect Services pursuant to Resolution 23-07; and
2. Direct the executive director to submit the plan to the California Air Resources Board and make minor administrative amendments as needed in response to agency feedback.

DISCUSSION:

SRTA has partnered with Dignity Health Connected Living (DHCL) to provide specialized public transit services through the ShastaConnect brand. To comply with California's Innovative Clean Transit (ICT) regulations, a zero-emission bus rollout plan for ShastaConnect services must be developed, adopted, and submitted to the California Air Resources Board (CARB) by June 30, 2023. Additionally, the Federal Transit Administration (FTA) now requires transit agencies have a zero-emission fleet transition plan in order to qualify for certain federal transit funds. To meet these requirements, SRTA contracted with Energetics to create the attached plan for adoption.

The plan considers different options for transitioning the fleet:

- **Option 1** – Convert to a fully battery electric vehicle fleet. This option would require the installation of multiple electric vehicle (EV) charging stations strategically located within the ShastaConnect service area. Electricity is expected to be cheaper and locally producible, but grid costs may vary. Current mileage range of EV buses can only meet 40% of daily trip distances, without mid-day charging or vehicle swaps. Vehicle technology development is needed for ShastaConnect.
- **Option 2** – Convert to a fully hydrogen fleet. This option assumes that one or more hydrogen fueling stations would be available for use in the future. While hydrogen technology is anticipated to meet operational needs, no vehicles are available commercially in the cutaway bus or van categories. The absence of nearby hydrogen generation may also result in higher costs unless closer options or competitive pricing is secured.

- **Option 3** – Convert to a mixed battery electric and hydrogen fleet. This option is a combination of battery and hydrogen fuel-cell electrification, where vehicles would be assigned based on daily route mileage needs to complete assigned trips. This scenario allows for the most flexibility in terms of operational mileage needs but comes with higher operating costs and the need for charging and hydrogen stations. This scenario allows for adaptability to technology changes and funding variations, enabling adjustments in vehicle ratios.

Plan Recommendations – In the short term, it's recommended that SRTA and DHCL procure gasoline powered vehicles as they need to be replaced between now and 2028, while pursuing a battery electric pilot project. The pilot project will allow SRTA and DHCL to acquire lessons learned in how to incorporate battery electric vehicles into fleet operations, with real local data, and update this plan accordingly. As a long-term strategy, it's recommended SRTA consider Option 3, first focusing on replacing the fleet's gasoline powered vehicles with battery-electric vehicles and then including hydrogen fuel cell vehicles, if and when such models become available. Over time, cost modeling shows that battery EVs become more cost-efficient to operate than internal combustion engine (ICE) vehicles within three years of operation, even in worst-case scenarios for EV pricing (See the attached plan: section C, pages 16-18).

Additional plan recommendations include:

1. Transition to zero-emission fleet by 2039 or later. Start with battery electric vehicles, then add hydrogen fuel cell vehicles when viable.
2. Secure funds for a pilot zero-emission project at DHCL's property between 2025 and 2028. This includes a battery electric bus or van and supporting infrastructure.
3. Collaborate with RABA and regional partners to build a hydrogen station for early transit and local government zero-emission vehicles.
4. Monitor and pursue competitive grants for zero-emission projects to optimize limited formula funds for vehicles, infrastructure, operations, and training.
5. Assist ShastaConnect operators in qualifying for various FTA grants beyond the FTA 5310 program.
6. Discuss workforce training needs with RABA, local government partners, transit agencies, and education partners. Seek partnerships where possible.

It's anticipated that the plan will serve as a "living document" for SRTA, with periodic updates as lessons are learned from initial projects, vehicle and infrastructure technology matures, and operational and funding situations change.

ALTERNATIVES:

The board of directors may request additional information or specific modifications to the plan.

OTHER AGENCY INVOLVEMENT:

SRTA and DHCL collaborated closely to develop this plan. SRTA consulted with the Redding Area Bus Authority (RABA) on existing conditions and future opportunities for partnership. SRTA, RABA, and Caltrans are exploring opportunities to bring hydrogen fueling to the region to support future intercity

and regional zero-emission transit needs. A presentation was provided to the Technical Advisory Committee (TAC) for input.

FISCAL & POLICY COMMITTEE REVIEW:

The Fiscal and Policy Committee met on June 13, 2023, to receive a presentation on the proposed report recommendations, provided input to staff, and concurs with the staff recommendation.

FISCAL IMPACT:

Consultant services and staff time for the plan were funded by Fiscal Year (FY) 2020/21 Senate Bill 1 (SB1) planning formula funds in the FY 2022/23 Overall Work Program. Adoption of the plan will allow SRTA and DHCL to be eligible to pursue various federal and state funding programs to offset the significant costs for transitioning ShastaConnect services to a zero-emission fleet.

Estimated vehicle costs – The plan projects estimated baseline and maximum vehicle acquisition and operation costs for Internal Combustion Engines (ICE), Electric Vehicle (EV), and Hydrogen Fuel Cell Vehicles (H2) between 2024 to 2040. It includes costs such as: upfront vehicle cost, upfront infrastructure cost, total capital expenditure costs, daily fuel costs, daily maintenance costs, and total 10-year cost per vehicle. The total estimated fleet costs for the entire timeline are:

- \$8,324,876 for conventional vehicles (“business as usual”),
- \$7,805,383 for electric vehicles,
- \$9,856,270 for hydrogen vehicles, and
- \$8,737,311 for the combined fleet of electric and hydrogen vehicles.

Estimated infrastructure costs – The all-electric fleet option is currently estimated to be the most cost-effective in transitioning to a zero-emission fleet, but the plan will be updated as technology, fuel/utility costs, and funding change. Converting the ShastaConnect fleet to battery-electric vehicles requires upgraded electrical service and could cost between \$500,000 and \$1.5 million to install the necessary charging infrastructure.

Converting the entire ShastaConnect fleet to hydrogen fuel would be more costly if space for a station on DHCL’s property was available. Stations are estimated to cost between \$2 - \$5 million depending on if a station has hydrogen delivered or created on-site. Different fueling options and estimated costs are provided in the table below:

Delivery	Costs (estimated)
Permanent hydrogen fueling stations with, or without, tube-trailer storage and gaseous hydrogen delivered	• Higher capital costs but lower operating costs over time; on-site storage also provides fuel reserves in emergencies. • \$9.00 to \$10.50 per kilogram; Estimated to use approx. 60-80 kg/day.
Mobile refuelers	• Leasing: \$15,000 to \$20,000 per month (\$180,000 - \$240,000 annually). • Immediate temporary solution.

The hydrogen infrastructure costs could be offset significantly by regional partnerships. SRTA was awarded just over \$9 million in state funds to support a hydrogen station for intercity bus services, which could also be utilized by SRTA and RABA for regional transit services. SRTA, RABA, and Caltrans staff have been in discussion about possibly locating the hydrogen station at RABA's maintenance yard. This would significantly lower the hydrogen infrastructure costs at DHCL's property.



Jessica Carlson, Chief Fiscal Officer

Attachments:

A: Zero-Emission Fleet Transition Rollout Plan for ShastaConnect Services is available online at:

<https://srta.ca.gov/DocumentCenter/View/8974/SRTA-ICT-Plan-6152023>

B: Resolution 23-07

RESOLUTION 23-07

A RESOLUTION OF THE SHASTA REGIONAL TRANSPORTATION AGENCY APPROVING A ZERO-EMISSION FLEET TRANSITION ROLLOUT PLAN FOR SHASTACONNECT SERVICES



WHEREAS, the Innovative Clean Transit Rule (ICT) is a California regulatory policy administered by the California Air Resources Board, which mandates that public transit agencies operating in California must transition their bus fleets to utilize zero-emission buses (ZEB), including electric buses or fuel cell buses; and

WHEREAS, California Code of Regulations Title 13, Division 3, Chapter 1, Article 4.3, Part 2023.1(d) ZEB Rollout Plan Requirements requires that a transit agency's Zero-Emission Bus Rollout Plan must be approved by its governing Board; and

WHEREAS, the ZEB Rollout Plan for contracted public transit services sets forth the Shasta Regional Transportation Agency's (SRTA) plan which meets the following requirements:

- A goal of full transition to zero-emission buses by 2040 with careful planning that avoids early retirement of conventional internal combustion engine buses;
- Identification of the types of zero-emission bus technologies Shasta Regional Transportation Agency is planning to deploy;
- An estimated schedule for zero-emission and conventional internal combustion engine bus purchases and lease options;
- An estimated schedule for conversion of conventional internal combustion engine buses to zero-emission technologies, if applicable;
- An estimated schedule for construction of facilities and infrastructure modifications or upgrades, including charging, fueling, and maintenance facilities, to deploy and maintain zero-emission buses;
- Explanation of how Shasta Regional Transportation Agency plans to deploy zero-emission buses in Disadvantaged Communities;
- A training plan and schedule for zero-emission bus operators and maintenance and repair staff;
- Identification of potential funding sources; and

WHEREAS, the Bipartisan Infrastructure Law (BIL), Pub. L. 117-58, signed by the President on November 15, 2021, amended the statutory provisions for the Federal Transit Administration's (FTA) implementation of the Grants for Buses and Bus Facilities Competitive Program (49 U.S.C. § 5339(b)) and the Low or No Emission Program (49 U.S.C. § 5339(c)) to include the requirement that any application for projects related to zero-emission vehicles include a Zero-Emission Transition Plan; and

WHEREAS, to maximize funding opportunities, the Shasta Regional Transportation Agency addressed both state requirements and federal guidelines in one consolidated document, known as the Zero-Emission Fleet Transition Rollout Plan; and

WHEREAS, SRTA has considered all current and relevant information available today, including the state and federal requirements and regulations; availability of vehicles and technologies; and all relevant verbal and written comments which have been submitted in a timely manner; and

WHEREAS, all interested agencies, organizations, and persons have been given the opportunity to be heard with respect to any matters relating to the proposed Zero-Emission Fleet Transition Rollout Plan; and

WHEREAS, the transition to a zero-emission public transit fleet will be a significant investment that may be challenging to meet without federal and state financial support, environmental streamlining, and technological support; and

WHEREAS, the proposed Zero-Emission Fleet Transition Rollout Plan meets or exceeds the requirements of federal and state regulations; and

NOW, THEREFORE, BE IT RESOLVED that the Board of the Directors of the Shasta Regional Transportation Agency approves and adopts the Zero-Emission Fleet Transition Rollout Plan.

NOW, THEREFORE, BE IT FURTHER RESOLVED that the Board of Directors of the Shasta Regional Transportation Agency authorize the executive director to submit the plan to the California Air Resources Board and to make minor administrative amendments to the plan in response to federal and state review and approval processes.

PASSED AND ADOPTED this 22nd day of June 2023, by the Board of Directors of the Shasta Regional Transportation Agency.

Mark Mezzano, Chair
Shasta Regional Transportation Agency

ATTEST:

Sean Tiedgen, Executive Director
Shasta Regional Transportation Agency