Zero Emission Bus Rollout Plan

Marin County Transit District

711 Grand Ave, Ste 110, San Rafael, CA

September 2025

Contents

Executive Summary

This rollout plan is a living document and guide to the implementation of Marin Transit's zero emission bus fleet. The plan provides estimated timelines based on Marin Transit's fleet replacement plan.

Marin County Transit District (Marin Transit) is the local transit provider in Marin County. Marin Transit has a fleet of 68 buses that are operated in fixed route service which include six battery electric buses, 38 diesel-hybrid buses, 11 diesel narrow-bodied and high-floor buses, and 12 medium duty cutaways. The paratransit and demand-response fleet is made up of 29 vans and cutaways. Marin Transit serves 3.05 million local passengers each year on 19 bus and shuttle routes, paratransit services, and innovative community-based transportation programs.

Marin Transit plans to convert its fleet entirely to Battery Electric Buses. The key challenges to accomplishing that goal are the costs of infrastructure as well as the range requirements and difficult terrain of the rural routes. Land availability was historically also a challenge and is discussed below.

This plan focuses largely on Marin Transit's Fixed Route Fleet, which is covered by the ICT. Marin Transit also plans to electrify its light-duty paratransit and demand-response fleet but is still evaluating technologies and waiting for prices in lighter-duty vehicles to decrease before making large investments. Marin Transit is purchasing two electric accessible vans to test in paratransit service in FY2026/27. This will help guide Marin Transit's decisions moving forward. This plan includes references to planning for infrastructure required to electrify the paratransit and demand-response fleet in the facilities section.

Infrastructure Improvements and Land Availability

Marin Transit owns all its vehicles but has historically relied on purchased contract operators to operate fixed route and demand-response services. Until recently, Marin Transit owned no facilities which drove the need for many small contracts with requirements to provide associated transit vehicle parking and maintenance facilities. It's difficult to justify large capital investment in infrastructure on property that is not directly owned by Marin Transit, and this was Marin Transit's largest obstacle in converting to a zero-emission fleet.

In 2024, Marin Transit acquired property at 1075 Francisco Blvd E. in San Rafael. This property, along with the Rush Landing property in Novato, will allow all vehicles to be parked on Marin Transit-owned property and provide space for investment in the electrical infrastructure. Marin has federal grant funding for the development of a maintenance facility at 1075 Francisco and is working to develop the site by 2030 to meet the vehicle charging requirements of the ZEB Rollout plan. Additional funding is needed to pay for the electrical infrastructure investments that will be required at Rush Landing and at 1075 Francisco.

Range Requirements

Marin Transit operates several rural routes in West Marin which will be the most difficult routes to electrify. Vehicle blocks on these routes travel over 300 miles on terrain that is hilly, long, and remote. Current electric bus ranges do not meet those service requirements. Marin Transit plans to investigate opportunities to install on-route charging in West Marin, the need for additional vehicles to meet service operation requirements, and may investigate hydrogen fuel cell buses if technology has not improved by the year 2030, when conversion of that fleet begins.

Section A: Transit Agency Information

Marin County Transit District (Marin Transit) provides local public transit service in Marin County, just north of the Golden Gate Bridge. The current zero emission fleet includes six (6) battery-electric buses, which comprises about 8% of Marin Transit's fixed route fleet. Marin Transit is committed to transitioning its entire bus fleet to zero-emission in accordance with the California Air Resource Board (CARB) Innovative Clean Transit (ICT) Regulation.

Marin Transit operates fixed-route and paratransit service, and contracts with three different providers for those services as follows:

- Marin Airporter: Operates Local Big Bus, Shuttle Services, Rural, and Supplemental School Services (Fixed Route)
- Golden Gate Transit: Operates Local Big Bus service (Fixed Route)
- Transdev: Operates Paratransit and Demand Response services (Demand Response)

Marin Transit provides 3.05 million trips each year to a population of approximately 258,765 residents in the 828 square miles of Marin County.

Transit Agency's Name: Marin County Transit District (Marin Transit)

Mailing Address: 711 Grand Ave, Ste 110, San Rafael, CA 94901

Transit Agency's Air District: Bay Area Air District

Transit Agency Air Basin(s): San Francisco Bay Area

Total Number of Buses in Annual Maximum Service: Fixed Route: 51, Demand Response: 24

Is your transit agency part of a Joint Group? No

Section B: Rollout Plan General Information

Innovative Clean Transit Regulation

The Innovative Clean Transit (ICT) regulation was adopted by the California Air Resources Board (CARB) in December 2018 and became effective on October 1, 2019. The regulation requires public transit agencies in California to gradually transition their fleets to zero-emission technologies. The rule requires a percentage of new bus purchases to be zero-emission buses (ZEBs) starting for small transit agencies like Marin Transit in 2026, when 25% of purchases need to be ZEBs. In 2029, 100% of purchases are required to be ZEBs. Each transit agency must adopt and submit a Zero Emission Bus Rollout Plan to CARB by June 30, 2023 describing how the agency will meet the targets.

Marin Transit Rollout Plan

Marin Transit's initial Rollout Plan was developed in 2019 by Marin Transit staff to transition the agency's fixed route bus fleet to 100% zero-emission by 2040 to meet the deadline set in the draft ICT Regulation. This plan was then updated in 2022 to meet requirements outlined in the ICT Regulation. Marin Transit is updating the plan again in 2025 to reflect changes in vehicle makeup and the acquisition of a new property which Marin Transit is developing for bus charging and maintenance.

For purposes of the Fleet Replacement Plan, staff assumed the following availability for all-electric vehicles:

- A narrow body bus or an alternative smaller bus eligible for FTA funding will not be available and this vehicle type will be discontinued; and
- The range of in-depot charged buses will increase to 300 miles by 2033; and
- Over the next five years, there will not be a significant infusion of capital funding for Marin Transit to construct infrastructure improvements that support in-route vehicle charging or hydrogen fueling stations.
- None of our local partner agencies are investing in hydrogen infrastructure which Marin Transit could also use.

To plan for technological uncertainty, Marin Transit staff has developed the following recommendations:

1) Develop a base plan that assumes the zero-emission technology is available to meet the minimum ICT requirements, without significant changes to routing or requiring in-route charging infrastructure;
2) Identify decision points that will allow time for developing route changes or infrastructure projects, if required; and
3) Identify decision points for purchasing additional zero-emission vehicles if technology exceeds expectations and/or there is significant additional capital to pursue in-route charging or other mitigations to deploy zero-emission buses.

To meet the replacement plan goals, Marin Transit first will concentrate efforts on converting the standard bus fleet to electric buses. The second priority will be the cutaway fleet used for local shuttle service. The additional price per vehicle to electrify at this time is three times the cost of a standard cutaway bus, which is a large investment for a vehicle with a useful life of only 7 years. Marin Transit expects the price to decrease on these vehicles as they are more widely adopted.

The narrow-bodied vehicles needed for rural and recreational services have vehicle work blocks of over 300 miles on steep, hilly terrain. This makes them the most challenging to convert. Marin Transit plans to start to replace those vehicles with zero-emission technology in FY 2031 to allow more time for the technology to improve.

Decision Points and Next Steps

Staff have identified points in the next ten years when Marin Transit will decide whether to make investments in Zero Emission Buses earlier or make other decisions regarding the future of the zero-emission fleet. Financial feasibility analyses will be needed at each of these milestones.

- 2026 – Update Infrastructure Plan – Design will take place for the Fixed Route Maintenance and Parking facility. This will inform and allow Marin Transit to finalize the plan for how many vehicles will be parked and charged at each facility.

- 2027 – Confirm Vehicle Types for FY 2029 Procurement - Determine whether battery range has improved enough to deliver the District's existing service profile. If not, the FY 2029 procurement allows time for Marin Transit to evaluate purchasing additional vehicles, cutting or re-designing service to match vehicle constraints, and/or negotiating with jurisdictions to install opportunity charging at strategic locations throughout the county.

- 2028 – Confirm Vehicle Types for FY 2031 Procurement of Rural Replacements - Decide whether there is a zero-emission bus capable of operating on the terrain and over distances required to serve West Marin. If not, Marin Transit will have to consider cutting these programs. If a vehicle with the required range is not available, the District will evaluate purchasing additional vehicles to provide the service and/or whether installing opportunity charging along the routes is feasible.

- 2029 – Update Initial Infrastructure Plan – Based on the current fleet status and the state of zero-emissions bus technology, Marin Transit will update the infrastructure plan in advance of the FY 2032 procurements that will bring the District's fleet to over 50 percent electric.

- 2029 – Evaluate the need to purchase expansion vehicles in order to electrify full fleet - Current industry estimates that transit agencies will require at least 20 percent additional vehicles to operate an all-electric fleet at the same service levels as their traditional counterparts. Marin Transit expects that by 2029, there will be a clearer understanding of Electric Bus range capacity and whether an expanded fleet will be needed. If an expanded fleet is required, Marin Transit will have to re-evaluate the infrastructure plan.

Electric bus technology is evolving rapidly. Marin Transit values the benefits of zero-emission buses. The District will recommend investments that take advantage of proven technologies while closely monitoring new developments. Marin Transit needs to be flexible as it develops the quickest, most reliable path toward a sustainable and completely zero-emission fleet. Staff will explore technology options as each of decision points nears and will evaluate the best investments that will move the District toward a battery electric fleet at a faster pace than the current vehicle replacement plan.

Section C: Technology Portfolio

Marin Transit plans to use battery electric buses (BEBs) to electrify its fleet.

An initial investment in battery electric buses was made in 2016 with the purchase of 2 BYD Battery Electric buses to be used in a pilot project allowing Marin Transit contractors to gain experience with the new technology. These buses required minimal infrastructure improvements to install overnight charging at a contractor-owned facility.

Further investment in overnight charging has been made at Marin Transit's facility located at 600 Rush Landing Rd in Novato, where four chargers have been installed, and future-proof electrical infrastructure was installed to charge up to 20 standard sized buses at this site.

Marin Transit is also in construction at its facility at 3010/3020 Kerner to make it ready for future overnight Electric Bus Charging. This project includes a solar canopy and battery storage to manage charging and increase resilience in the case of power outages. The facility is planned to park paratransit vehicles.

In 2024, Marin Transit purchased land at 1075 Francisco Blvd East and is currently planning development of the site for bus maintenance and depot-charging for the majority of its fixed route fleet. Marin Transit is currently in the environmental phase for this project and anticipates being able to park and charge up to 50 buses here.

Rural service will be the most difficult for Marin Transit to transition to battery electric due to the hilly terrain and long scheduled blocks. If range doesn't improve to meet the service requirements of these routes, Marin Transit will investigate eliminating service, increasing fleet size, , and the possibility for opportunity charging in rural West Marin. A final decision will be made in 2028, prior to the electrification of these vehicles which is planned to begin in 2031.

Fleet Transition Schedule and Cost

Marin Transit's replacement schedule is based on the agency's Transit Asset Management Plan mandated by the Federal Transit Administration and follows guidelines set by the ICT for purchasing Zero Emission Buses.

Using cost estimates from Marin Transit's two battery electric bus pilot project, and 2022 four battery electric bus purchase, the total cost to transition the rest of Marin Transit's fixed route fleet to 100% zero emission buses will be $112,050,000. This includes estimate to bring additional power to a site and install chargers and infrastructure. The estimate excludes the six buses that have already transitioned to battery electric as well as one vehicles that is retired-active and not eligible for replacement.

This estimate is based on Rough Order of Magnitude estimates developed from projects at facilities at Rush Landing, 3010/3020 Kerner, and initial estimates for work to be done at 1075 Andersen. Marin Transit estimates that it will take $1.9 Million to electrify each standard-sized bus and $750,000 to electrify each cutaway bus. Actual costs are expected to fluctuate with each purchase. This estimate is

significantly higher than our previous estimate, since we have received preliminary estimates for the large infrastructure projects we will need moving forward. Table 1 shows the summarized costs.

Table 1 - Technology Cost

Bus Type	Fleet Quantity	Bus Cost	Infrastructure Cost	Total Technology Cost
Standard Battery Electric Bus	57	$79,800,000	$28,500,000	$108,300,000
Battery Electric Medium-Duty Cutaway	5	$1,250,000	$2,500,000	$3,750,000
Total	62*	$81,050,000	$31,000,000	$112,050,000

*Does not include 6 already electrified vehicles and 1 retired active vehicle currently in the fleet.

Battery Electric Bus Fuel Analysis

Marin Transit evaluated the cost of fuel for its six battery electric buses over Fiscal Year 2023/24. As the battery electric fleet expands, Marin Transit will have to invest in managed charging options to optimize fuel costs.

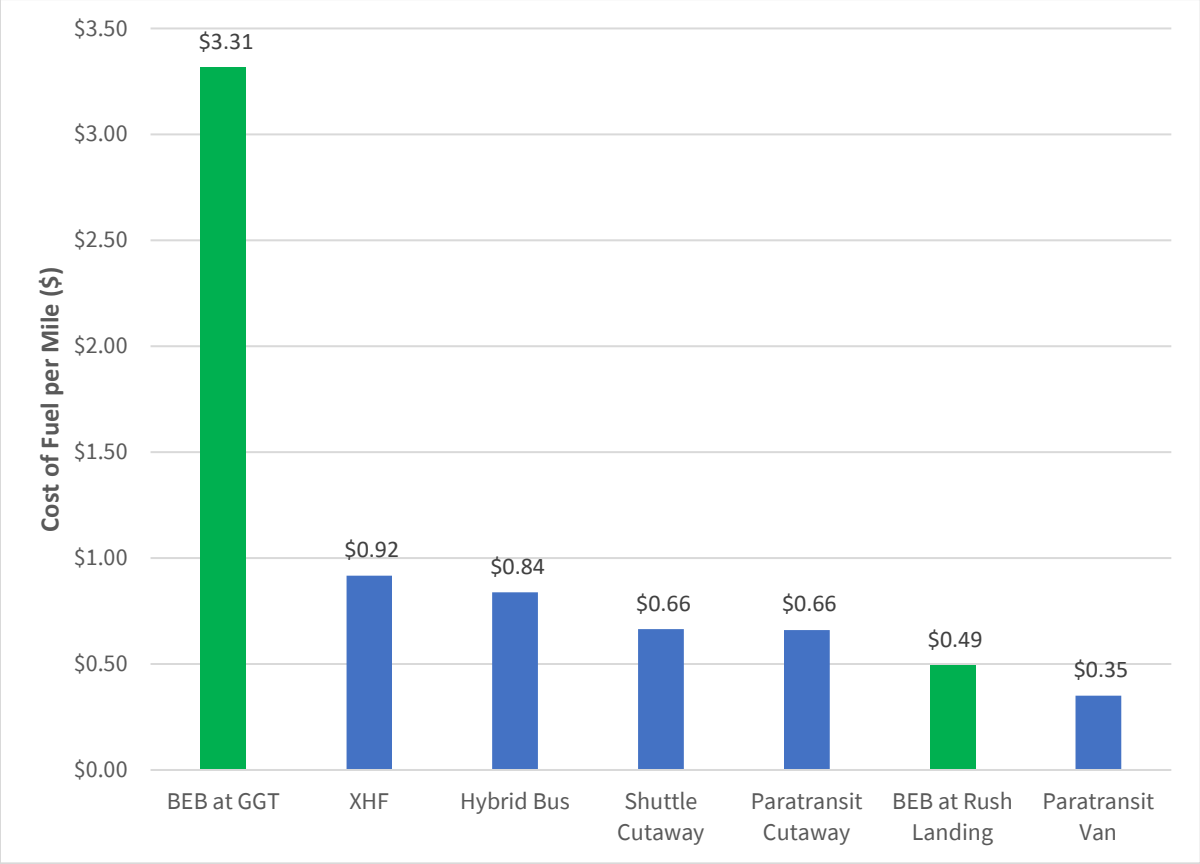
Marin Transit has two BYD electric buses that are operated by Golden Gate Transit (GGT) and fueled at their yard and four Gillig electric buses that are operated by Marin Airporter and fueled at Marin Transit's Rush Landing yard.

The cost of electricity depends largely on rate structure. Due to this structure, the electric bus cost per mile is more variable than for the traditional-fuel buses. Electricity is subject to demand charges which are incurred based on the highest amount of energy pulled at a given moment during the billing period. If the buses are charged once a month, there is demand charge fee placed on the utility bill no matter how many miles the vehicles traveled during that period. This charge accounts for most of the cost for electricity for the BYD buses parked at GGT's yard; over FY2023/24, it was about 90% of each month's utility cost. Marin Transit deliberately chose vehicles that can charge slowly overnight when demand charges are lower to decrease the impact of this charge. Due to this rate structure, when buses are traveling more miles in a month, the demand charges are spread across more miles and the cost per mile decreases.

Over the period (FY 2023/24), there was some variation in the electric vehicle miles the BYD buses, charged at Golden Gate Transit's yard, traveled per month since Vehicle 1802 was out of service for the first half of the year. Despite this, the cost per mile was relatively stable averaging $2.92 per mile. This is because the demand charge was halved when only one vehicle is charging overnight and operating. The exception to this is in October 2023, when vehicle 1802 was plugged in for a short period. This resulted in double the demand charge for that month with miles for only one vehicle associated with

it. The cost per mile this month was $6.31 and raised the yearly average up to $3.31. Figure 5 shows the average cost of fuel per mile of all the vehicle types.

Figure 1 - FY2023/24 Average Cost of Fuel Per Mile for Vehicle Types



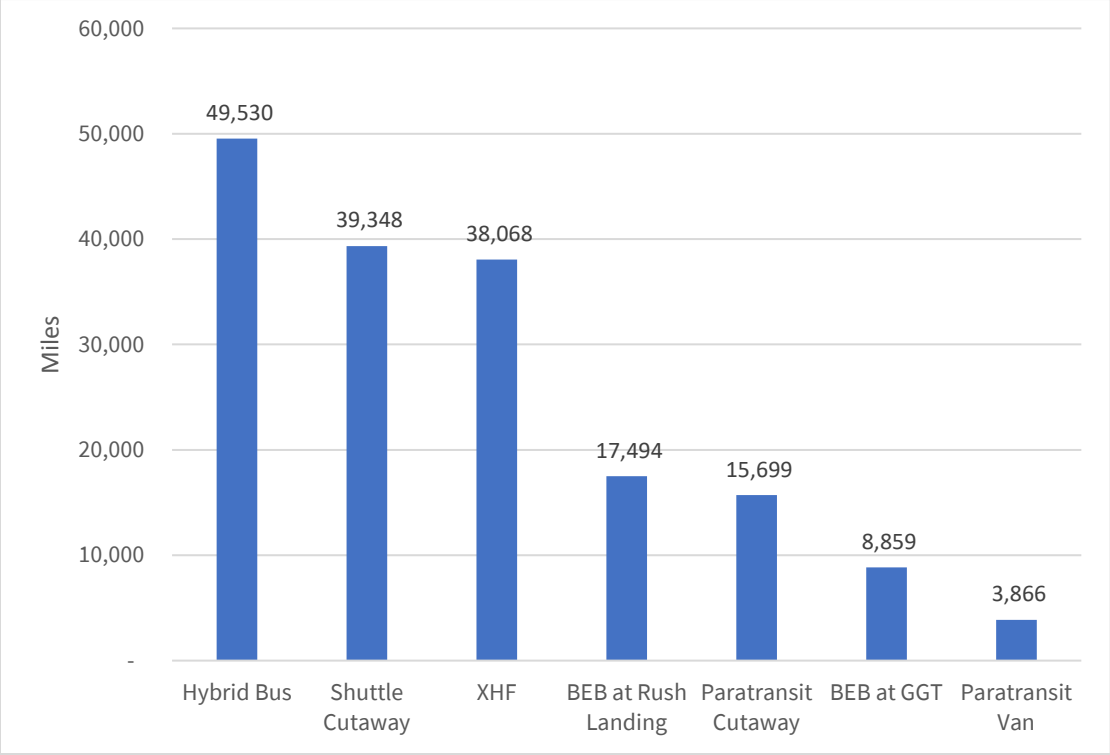
Marin Transit is dependent on GGT's electric rates for charging the BYD buses and is not separately metered from their yard. Prior to 2021, Marin Transit benefitted from this by only paying demand charges based on the difference between peak usage at the Golden Gate Facility and peak usage with the BYD buses are plugged in, up to 160 kW (the maximum potential pull from the chargers). Unfortunately, Golden Gate Transit's other power usage at night has decreased since the BYD electric vehicles were initially put into service and Marin Transit has paid the full price of the demand charges since FY 2021/22. Since the last analysis done in FY2021/22, electricity rates have also increased and the average cost per mile has increased by more than double.

The four buses at Marin Transit's yard at Rush Landing are under PG&E's EV Fleet Rate Structure for Buses, which differs from traditional electric rate structures. Demand charges, described above, are replaced by a subscription fee for the amount of energy you intend to pull at any given moment in a period. For Marin Transit in FY2023/04, the subscription fee accounted for about 27% of the cost when the vehicles weren't being used much to only 7% when the vehicles were used and charged more. Then, you are charged for the amount of energy used. To balance the reduced subscription fee, the cost of the energy is more expensive than it would be under a traditional rate structure. However, when we compare the cost of charging buses between Rush Landing and Golden Gate Transit's yard, the cost per mile to charge at Rush Landing is about $0.49 while the cost per mile for vehicles charged

at Golden Gate Transit's yard is about $3.31. Assuming this rate structure continues to be available, Marin Transit will only use an EV Rate structure to charge Battery Electric Buses moving forward.

While the cost per mile of the electric buses charged at GGT is significantly higher than the rest of the fleet, there are only two buses and their ranges are limited. Figure 2, below, shows how many annual miles a vehicle of each type made in FY2023/24. Figure 2 also shows that BEB buses are not operating the same number of annual miles as the Marin Transit's Hybrid Buses. This is a concerning pattern and needs to be evaluated as part of the 2027 decision point for the next fleet purchase.

Figure 2 - Annual Miles per Vehicle by Type



Section D: Current Bus Fleet Composition and Future Bus Purchases

Table 2: Individual Bus Fleet Composition (Fixed Route Only)

Number of Buses	Engine Model Year	Bus Model Year	Fuel Type	Bus Type
1	2013	2013	Unleaded Gasoline	Cutaway (retired active)
4	2015	2015	Hybrid-Diesel	Standard 30' Low Floor
7	2015	2015	Hybrid-Diesel	Standard 40' Low Floor
1	2015	2015	Diesel	Standard, Narrow-Body 30' High Floor
1	2016	2016	Unleaded Gasoline	Cutaway
9	2017	2017	Hybrid-Diesel	Standard 40' Low Floor
2	2017	2017	Diesel	Standard, Narrow-Body 30' High Floor
2	2018	2018	Battery Electric- Depot Charging	Standard 35' Low Floor
2	2018	2018	Diesel	Standard, Narrow-Body 35' High Floor
1	2018	2018	Unleaded Gasoline	Cutaway
1	2019	2019	Unleaded Gasoline	Cutaway
11	2019	2019	Hybrid-Diesel	Standard 40' Low Floor
4	2021	2021	Diesel	Standard, Narrow-Body 30' High Floor
2	2021	2021	Diesel	Standard, Narrow-Body 35' High Floor
9	2021	2021	Unleaded Gasoline	Cutaway
4	2021	2021	Battery Electric- Depot Charging	Standard 40' Low Floor
4	2023	2023	Hybrid-Diesel	Standard 35' Low Floor
3	2023	2023	Hybrid-Diesel	Standard 40' Low Floor

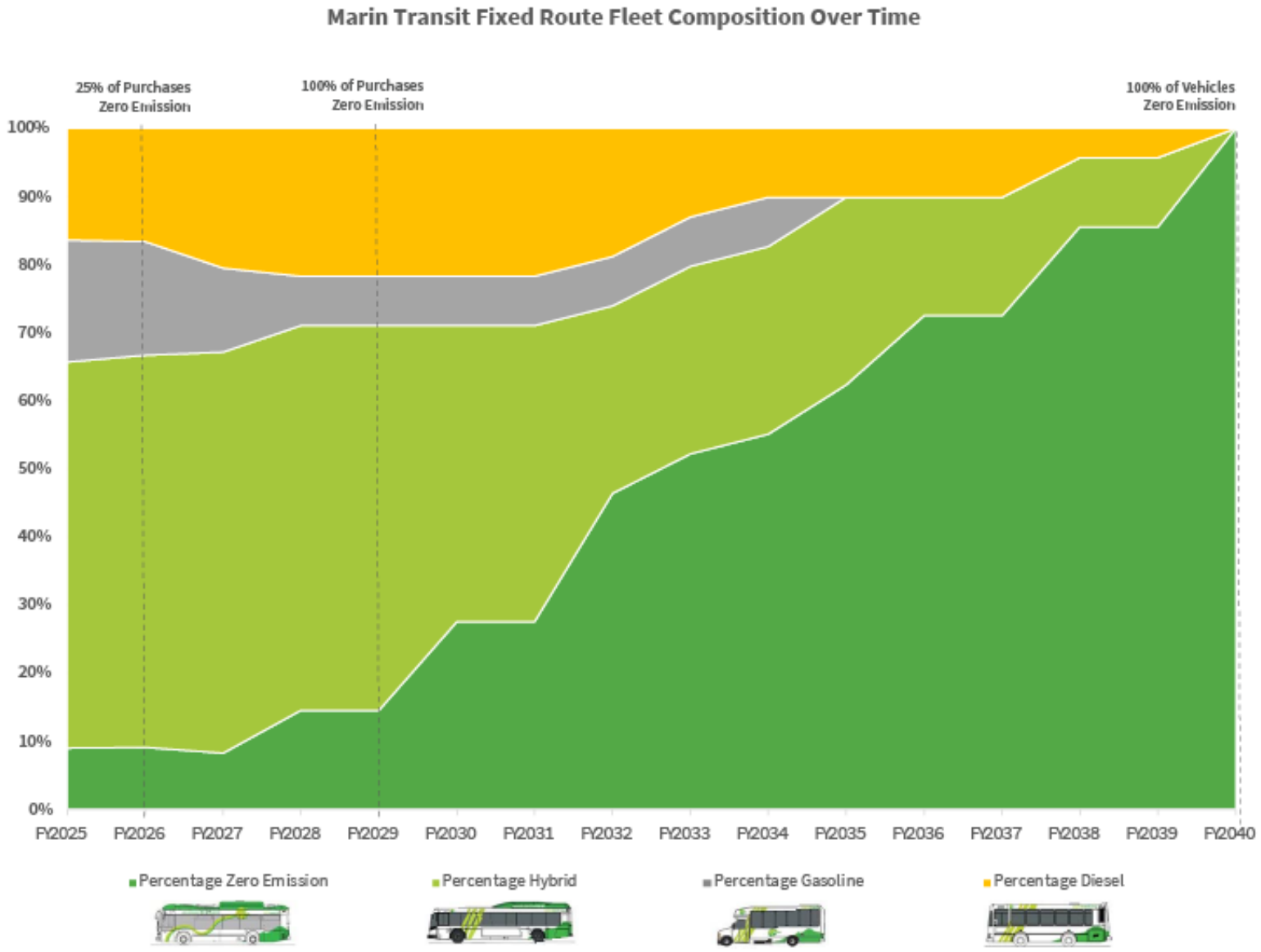
Source: Marin Transit.

Table 3 - Future Bus Purchases (Fixed Route)

		ZEB Purchases				*Conventional Bus Purchases*		
Timeline (Purchase Year)	**Total Number of Buses**	**#**	**% of Total Purchases**	**Bus Type(s)**	**Fuel Type(s)**	**#**	**Type(s) of Buses**	**Fuel Type(s)**
2025	9	0	0%	N/A	N/A	9	Standard Low Floor	Diesel (4) Hybrid Diesel (5)
2026	0	0	N/A	N/A	N/A	0	N/A	N/A
2027	17	4	24%	Standard Low Floor	BEB	13	Standard Low Floor (8), Cutaway (5)	Hybrid Diesel (3), Diesel (5) Gasoline (5)
2028	2	0	0%	N/A	N/A	2	Standard High Floor (1)	Diesel (2)
2029	9	9	100%	Standard Low Floor	BEB	0	N/A	N/A
2030	0	0	N/A	N/A	N/A	0	N/A	N/A
2031	15	15	100%	Standard Low Floor	BEB	0	N/A	N/A
2032	6	6	100%	Standard Low Floor	BEB	0	N/A	N/A
2033	4	4	100%	Standard Low Floor	BEB	0	N/A	N/A
2034	5	5	100%	Cutaway	BEB	0	N/A	N/A
2035	7	7	100%	Standard Low Floor	BEB	0	N/A	N/A
2037	9	9	100%	Standard Low Floor	BEB	0	N/A	N/A
2038	0	0	N/A	N/A	N/A	0	N/A	N/A
2039	12	12	100%	Standard Low Floor	BEB	0	N/A	N/A
2040	2	2	100%	Standard Low Floor	BEB	0	N/A	N/A

Marin Transit will purchase new zero-emission buses and is not considering converting its conventional buses into zero-emission buses.

Figure 3 - Fixed Route Fleet Composition over Time



Section E: Facilities and Infrastructure Modifications

Facility Constraints:

Marin Transit owns four parcels of land on which infrastructure can be installed for the zero-emission bus fleet. Each site is constrained, however, making planning for parking and charging equipment challenging. The properties are:

Figure 4 - Aerial of 600 Rush Landing Rd

600 Rush Landing Road in Novato (Figure 4): Here, the site is constrained by Highway 101 to the west of the property, and train tracks on the east. While the property's shape makes parking layouts difficult, an additional challenge for electrification of the site is a major water pipeline which runs along the east side of the property. No infrastructure can be installed above this pipeline, resulting in the ability to install charging infrastructure only on the west side of the property. There are currently four bus chargers here and the switchgear and infrastructure have been future proofed to charge up to 20 battery electric buses at this site. Marin Transit is in the process of scoping the next electrification project here. According to our plan, we may have to upgrade the switchgear to accommodate another 4 buses in 2039.

3000 Kerner Blvd in San Rafael: This property has a Paratransit Maintenance facility and administration building. There is no opportunities for significant electrification

3010/3020 Kerner Blvd in San Rafael: This site is about an acre and is currently planned for demand response vehicle parking. The site is currently being paved with conduit laid for future charging. Estimated construction completion is in early 2026.

1075 Francisco Blvd E. in San Rafael: Marin Transit recently acquired this 3.5 acre site to develop a fixed route maintenance and operations facility. Based on preliminary designs the site may be able park and charge up to 50 buses, though we are currently planning for 45.

With the current sites there is space for future charging of 74 buses. If additional vehicles are needed to meet current service needs, Marin Transit would need to find additional parking and/or reduce service.

Table 4 - Marin Transit Facilities

Division/Facility Name	*Rush Landing*	*3000 Kerner*	*3010/3020 Kerner*	*1075 Francisco Blvd E*
Address	600 Rush Landing Rd, Novato	3000 Kerner Blvd, San Rafael	3010/3020 Kerner Blvd, San Rafael	1075 Francisco Blvd E, San Rafael
Main Function(s)	Bus Parking, Administration	Bus Maintenance, Administration	Bus Parking	Bus Maintenance, Bus Parking
Type(s) of Infrastructure	Overnight Charging Infrastructure	Charging infrastructure related to vehicle maintenance	Solar Canopy, Battery Energy Storage, Overnight Charging Infrastructure	Overnight Charging Infrastructure, Battery Energy Storage
Service Capacity	Level 3 Depot chargers to deploy 24 BEBs	Level 2 Depot charging for one bus	Level 2 Depot charging for 40 paratransit cutaway vehicles	Level 3 Depot chargers to deploy 45 BEBs, with capacity for up to 50.
Needs Upgrade? (Yes/No)	Yes	No	Yes	Yes
Estimated Construction Timeline	Start (4 chargers with oversized switchgear): June 2021 Complete: Nov. 2022 Additional chargers will be installed to meet the electrification needs for vehicles parked here as listed below	Complete: April 2023	Construction initiated to install 2 chargers in September 2023. Additional chargers will be added as demand response fleet is electrified.	Construction is estimated to begin in 2027 and be complete by 2030.

Rush Landing

In November 2022, Marin Transit added electrical service to the site for electric vehicle charging of up to 6 heavy duty buses. The facility can park up to 35 vehicles but will only be able to park and charge 20 full-sized buses due to the narrow width and the inability to install charging infrastructure on the east side of the lot.

The project completed in November 2022 included installation of an oversized switch gear, so that Marin Transit will be able to more easily increase power capacity to the site and charge up to twenty (20) 40-foot Battery Electric Buses using level 3 chargers.

Marin Transit plans to deploy the following Battery Electric Buses at this site using depot charging:

- FY2023 – Four 40ft Battery Electric Buses (Existing)
- FY2028 – Four 30ft Battery Electric Buses
- FY2033 – Two 35ft Battery Electric Buses
- FY2035 – Two Battery Electric Cutaways
- FY2036 – Four 35ft Battery Electric Buses and three 40ft Battery Electric Buses
- FY2040 – Two 30ft Battery Electric Buses and Three 40ft Battery Electric Buses

Marin Transit will work with our utility, Pacific Gas & Electric (PG&E) to increase power capacity at the site to meet the needs each of these purchases.

Active Grant Requests

Marin Transit submitted an application for the Federal FY2025 Grants for Buses and Bus Facilities Competitive program to improve resiliency of the facility. The project includes:

- Solar panels and energy storage
- Upgrading building subsystems like HVAC, lighting, and windows to increase energy efficiency
- Installing accessible access to building's second floor
- Repave bus parking area

1075 Francisco Blvd E.

Marin Transit acquired land at 1075 Francisco Blvd E. and plans to develop it into the District's main fixed route parking and maintenance facility. The site will provide maintenance for the entirety of the fixed-route fleet and have parking and overnight charging for 45 vehicles, with the ability to park up to 50 if needed.

Marin Transit plans to deploy the following Battery Electric Buses at this site using depot charging:

- FY2030 – Nine 40ft Battery Electric Buses, Two 35ft Battery Electric Buses
- FY2032 – Eleven 40ft Battery Electric Buses and Four 35ft Battery Electric Buses
- FY2033 – Four 30ft Battery Electric Buses and
- FY2035 – Three Battery Electric Cutaways
- FY2038 – Four 30ft Battery Electric Buses and five 40ft Battery Electric Buses
- FY2040 – One 30ft Battery Electric Bus, and four 40ft Battery Electric Buses

Marin Transit is working with our utility, PG&E, on securing planning for and securing adequate power for this site.

Kerner Facilities

Marin Transit purchased 3000 Kerner Blvd in 2021 for use as an administrative and bus maintenance facility for Marin Transit's demand response services. A level 2 charger has been added to this facility to support future maintenance of Electric Vehicles.

Marin Transit purchased the adjacent property at 3010/3020 Kerner Blvd in 2022 for use as vehicle parking. A project is currently underway to create a bus parking facility. The project includes a solar canopy over a portion of the lot and battery storage to help manage energy at this site. The project will also include level 2 chargers and provisions will be made for additional charging throughout the lot. While, the lot is planned as a paratransit parking facility, Marin Transit is also planning for the ability to park larger vehicles at the site on the southern side of the lot. This project will be complete in early 2026.

Utility Partnership

Marin Transit is actively working on its utility partnership by participating in Pacific Gas and Electric's (PG&E's) Electric Vehicle Fleet Program. This program was created when the California Air Resource Board allocated $236 million to PG&E to support the conversion of commercial and public fleets to electric. The program pays for all improvements to increase electrical capacity to support an electric fleet up to the customer's meter. This means that any infrastructure improvements that are required to bring a larger power capacity to the site including any necessary transformer upgrades will be paid for by the program. Marin Transit is then responsible for the cost of all improvements after this meter, which may include, electrical panels, switch gears, and electric vehicle chargers.

This program ensures that proper design standards for fleet electrification infrastructure are leveraged into each of our BEB infrastructure installations and also ensures that adequate grid capacity will be available and interconnected to our site(s) prior to the planned commissioning dates of our vehicles.

While this program is sunsetting in 2028, PG&E has created a new Fleet Advisor program. While this program doesn't have the same financial incentives as the program funded by CARB, it does provides a higher level of support than PG&E's standard process to help agencies navigate through design and permitting of expansion projects.

Additionally, Marin Transit is in ongoing conversations with another local energy provider, MCE, to discuss electric rate structures and how to get the greenest energy into our fleet.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2102

Section F: Providing Service in Disadvantaged Communities

When compared with Marin County's general population, Marin Transit riders have significantly lower income levels and are more predominantly racial and ethnic minorities. Based on the onboard surveys and U.S. Census data for Marin County, 75% of transit riders have an annual household income of less than $50,000, compared to only 18% of county residents. 70% of transit riders are minorities, compared to 33% of county residents. Only 24% of Marin Transit riders have access to a car, while 95% of Marin County residents do.

CalEnviroScreen 4.0

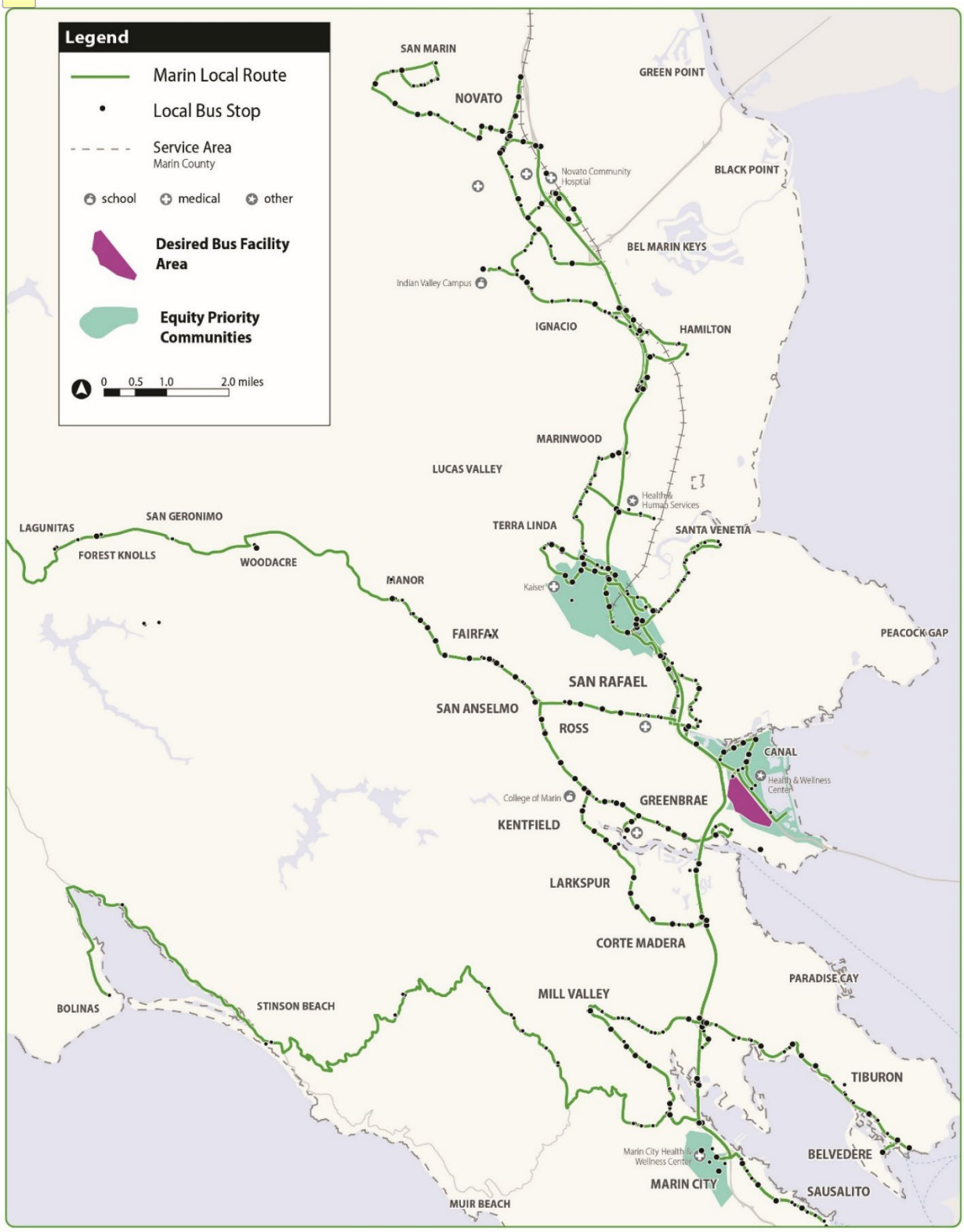
Marin Transit does not serve disadvantaged communities, as listed in the latest version of CalEnviroScreen 4.0.

Zero (0) percent of Marin Transit's facilities are located in communities that are classified as "disadvantaged" according to CalEnviroScreen.

Equity Priority Communities

Marin Transit serves three regionally-designated Equity Priority Communities represent 76% of ridership and 67% of revenue hours. The transition to Zero Emission Buses will reduce air pollution in these neighborhoods. A map of these communities is shown in Figure 5.

Figure 5 - Equity Priority Communities



Section G: Workforce Training

Marin Transit contractors will receive training provided by vehicle OEMs, technology suppliers and infrastructure providers as equipment is deployed onsite.

In addition, Marin Transit received award of FTA Section 5339 Low and No Emission Grants which includes funding for workforce development. Marin Transit is further scoping and defining how these funds will be used, but some or all of the following will be implemented. These components elements could include:

1. Training and Re-training the Existing Workforce
    - Provide 8 hours per year of paid training to all drivers on the operation of zero-emission buses.
    - Provide 16 hours per year of paid training to all mechanics on the maintenance and monitoring of zero emission vehicles.
    - Fund conference attendance for maintenance managers, other key contract staff, and direct staff.
    - Provide Marin Transit's capital and operations teams with training on solar power opportunities and integration with District facilities.
2. Recruiting and Training a New Workforce
    - Collect data from contractors to better understand recruitment challenges
    - Partner with College of Marin, Santa Rosa Junior College and our contractors to develop a training and apprenticeship program for bus operators and mechanics.
3. Provide Childcare Subsidies to Transit Workers
    - Offset costs of proposed on-site facility
    - If developing and constructing an On-site childcare facility is determined to be infeasible, the subsidy could be provided for off-site childcare.

Section H: Potential Funding Sources

Marin Transit is currently and will continue to monitor funding and financing opportunities that Marin Transit can use to transition its fleet to Zero Emission.

Table 5 below, identifies the existing potential funding sources that Marin Transit is aware of.

Table 5 - Potential Funding Sources

Agency Level	Fund/Grant	Description	Applicability
Federal	FTA Formula Funds (5307)	Through the Metropolitan Transportation Commission's Transit Capital Priorities Program, Federal Funds are made available for Bus Replacements	Marin Transit uses these to fund up to 80% of its bus replacement purchases
Federal	Low or No Emission Program (Low-No Program)	FTA has shifted away from the No Emission program but there may still be future opportunities	Applications for this program were combined this year with the Buses and Bus Facilities Program.
Federal	Buses and Bus Facilities Program (5339)	Grants applicable to rehabbing buses, purchase new buses, and invest and renovate related equipment and facilities for low or no emission vehicles or facilities.	Applications for this program were combined this year with the Low-No Program. Marin Transit submitted an application for $5.64 million for improvements to Rush Landing in July 2025
State	Cap & Trade	Low Carbon Transit Operations Program, Affordable Housing & Sustainable Communities, and Transit & Intercity Rail Capital Program	Marin Transit receives LCTOP funds through Caltrans, and has submitted applications for the TIRCP funding availabilities.
State	Low Carbon Fuel Standard (LCFS Credits)	LCFS credits are collected through using ZEBs and are then traded to reduce operating costs.	Marin Transit currently collects and 'sells' LCFS credits through a broker in order to reduce operating costs.

State	HVIP	Voucher program aimed at reducing the purchase cost of zero-emission vehicles.	Marin Transit received HVIP vouchers on it's first battery electric bus purchase in 2016. The program was oversubscribed when Marin Transit made its next purchase in 2020. Marin Transit will apply for this funding source as it is available when Marin Transit makes vehicle purchases.
State	SB 1 – State of Good Repair	SGR Funds are competitive and eligible for transit maintenance, rehabs, and capital programs.	Marin Transit should apply for this funding opportunity in the next cycle.
State	California Energy Commission	Funding for Fuels and Transportation	Marin Transit should consider applying for this funding.
Regional	Regional Measure 3	Bay Area toll revenues to fund highway and transit improvements	Marin Transit will investigate opportunities to participate in this funding source.
Regional	Carl Moyer Program (CARB, BAAQMD)	Funding to help procure low-emission vehicles and equipment.	Marin Transit should apply for this if additional local match is needed for future bus replacements.
Regional	Transportation for Clean Air (BAAQMD)	Provides funding to procure zero-emission vehicle replacements	Marin Transit applied for and received TFCA funds for its first two battery electric buses. The district will consider this funding source for future purchases as well.
Local	Marin County Measure AA Sales Tax	½-cent County sales tax dedicated to Transportation Projects. 4% of this revenue is dedicated towards transit capital projects	Marin Transit uses revenue from Measure AA as a local match for infrastructure and capital projects.
Local	Marin County Property Tax	This dedicated tax is allocated directly to Marin Transit	Marin Transit uses revenue from property tax as a local match for infrastructure and capital projects.

Section I: Start-up and Scale-up Challenges

Marin Transit has identified to the following challenges in adopting Battery Electric Buses:

- Procurement of Zero Emission Buses has to coincide with infrastructure improvements.
- Supply chains still haven't recovered from the COVID-19 pandemic making procurement of necessary items like switchgears an issue for infrastructure improvements.
- Deployment of Battery Electric Buses and additional power requirements is vulnerable to utility company priorities
- Additional operating costs related to IT and infrastructure
- Additional cost to operate vehicles (Electricity is more expensive than Diesel)
- Uncertainties about future electric rate structures
- Uncertainties about future range capacity of Battery Electric Buses and whether a BEB can be a one for one replacement with a traditional bus.
- Building in solutions for resiliency and interruptions in power
- Additional capital costs (bus prices)
- There are a limited number of Zero Emission Bus manufacturers
- Manufacturers are slow to develop non-standard vehicle types, for example narrow-body or smaller vehicles, due to lower market demand