



EVERETT TRANSIT

Everett Transit: FTA Zero-Emission Fleet Transition Plan

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Introduction

Everett Transit developed this Zero-Emission Fleet Transition Plan to meet the requirements of 49 U.S.C. 5339(c)(3)(D) for applicants to the *FY2022 Low or No Emission Grant Program (Low-No)*. This interim fleet transition plan was developed specifically for the FY2022 application and includes reference to the project(s) requesting FY22 funding. A final transition plan will be developed by July 1, 2023.

The plan is divided into six sections, addressing each of the following elements outlined by the Federal Transit Administration (FTA):

1. **Fleet Assessment:** Demonstrate a long-term fleet management plan with a strategy for how the applicant intends to use the current request for resources and future acquisitions.
2. **Funding Needs Assessment:** Address the availability of current and future resources to meet costs for the transition and implementation.
3. **Policy Assessment:** Consider policy and legislation impacting relevant technologies.
4. **Facilities Assessment:** Include an evaluation of existing and future facilities and their relationship to the technology transition.
5. **Partnership Assessment:** Describe the partnership of the applicant with the utility or alternative fuel provider.
6. **Workforce Analysis:** Examine the impact of the transition on the applicant's current workforce by identifying skill gaps, training needs, and retraining needs of the existing workers of the applicant to operate and maintain zero-emission vehicles and related infrastructure and avoid displacement of the existing workforce.

Element 1: Fleet Assessment

Fleet Assessment Overview

The Fleet Assessment determines a projected timeline for replacing existing buses with zero-emission buses (ZEB) that stays consistent with Everett Transit's current fleet replacement plan. This assessment also includes a projection of vehicle capital costs over the transition timeline.

Everett Transit (ET) is a municipally owned transit agency in Washington State, operating fixed route and complementary paratransit service throughout the city limits with select service in the City of Mukilteo. The fleet consists of 41 fixed-route buses with a standard fleet size of 35' and 40' coaches. A fleet of 28 paratransit vehicles operate in-house for complementary ADA paratransit services. However, because



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the market for electric cutaways is in a nascent state and future developments are especially difficult to predict, Everett Transit’s paratransit fleet has been excluded from this analysis.

The first step in the Fleet Assessment is determining the schedule for replacing Everett Transit’s current bus fleet with ZEBs. For the FY22 Low-No application and based on Everett Transit’s goals and current fleet replacement plan, Everett Transit developed the following Annual ZEB Purchase Schedule presented below in **Table 1**.

Year	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40
Number of Buses Scheduled to Enter Service	10	0	15	0	0	0	2	5	0	4	3	2	0	0	0	10	15	0	0
Number of ZEBs Scheduled to Enter Service	10	0	15	0	0	0	2	5	0	4	3	2	0	0	0	10	15	0	0
ZEB Percentage of New Buses	100%	0	100%	0%	0%	0%	100%	100%	0%	100%	100%	100%	0%	0%	0%	100%	100%	0%	0%

Table 1: Annual ZEB Purchase Schedule

In this schedule, vehicles are replaced once they have come to the end of their useful life with a battery-electric vehicle up to the given percentage of replacements as determined by the Annual ZEB Purchase Schedule. This assessment assumes that the fleet will remain the same size throughout the period of transition to a zero-emission fleet.

Everett Transit is pursuing \$16.5M in funding to purchase 15 fully electric, zero-emission buses that will replace 15 diesel buses that are 9 to 16 years old. Everett Transit has made a substantial investment in electric vehicles and charging infrastructure. If awarded this opportunity, Everett Transit will be 80.5% electric and 14.6% hybrid electric, leaving only two diesel buses in the entire fleet. Everett Transit’s aged diesel vehicles have met their useful life and must be replaced. Everett Transit’s FY22 Low-No project is reflected in the second procurement year.

Key Results

Figure 1 shows Everett Transit’s projected bus purchases by year, including the number and type of bus propulsion through 2040. The proposed FY22 Low-No project is reflected in **Figure 1**,

with Everett Transit procuring 10 battery-electric buses in 2022 and 15 battery-electric buses in 2024. In addition to the 15 buses in the Low-No project, this figure reflects ongoing procurements of 10 additional battery-electric buses.



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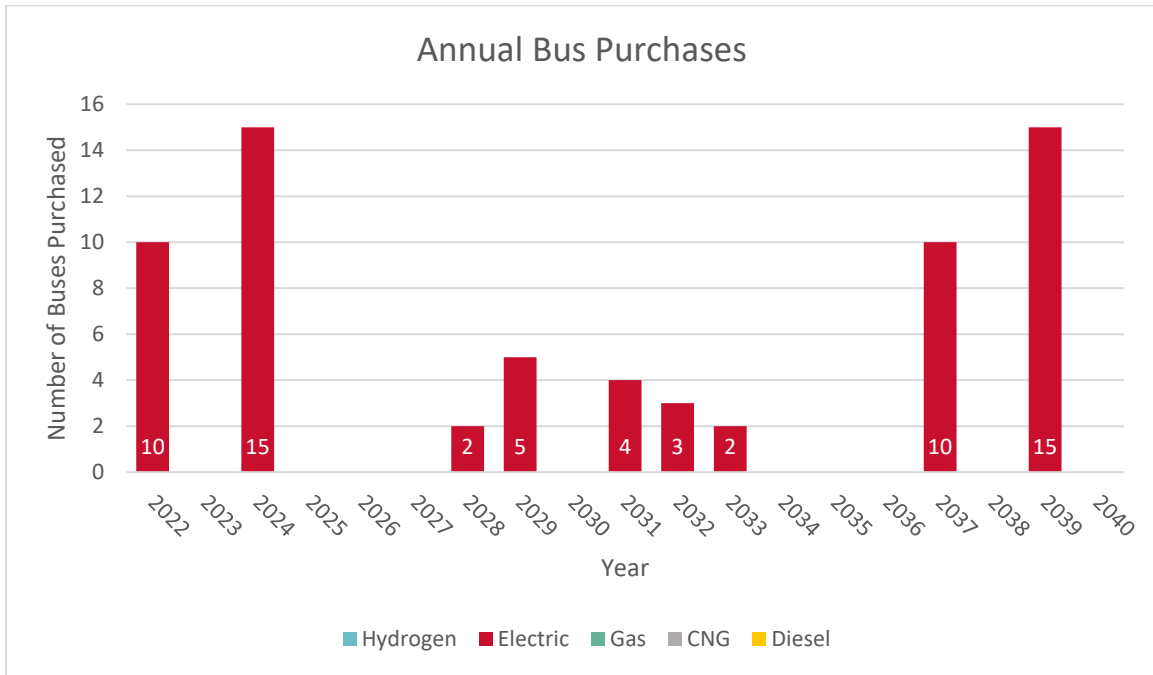
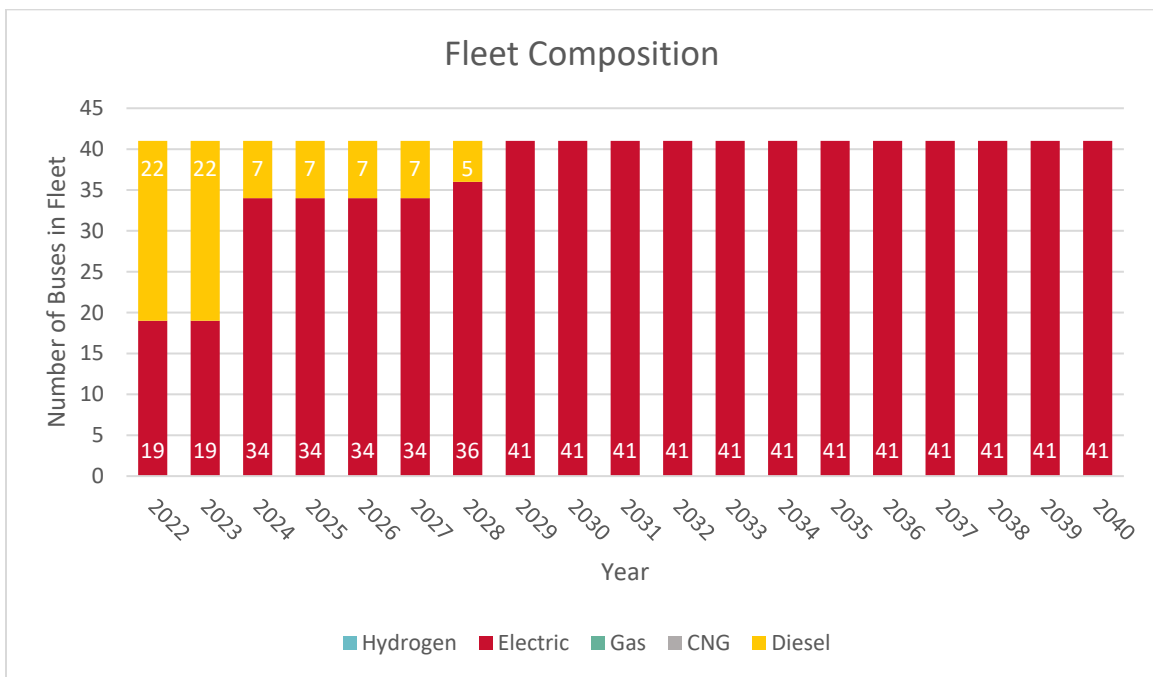


Figure 1 – Projected Bus Purchases

Figure 2 depicts Everett Transit’s proposed annual bus fleet composition through 2040 as it phases out previous vehicle propulsion technologies for ZEBs. By 2028, the agency’s fleet will be 100% ZEBs.





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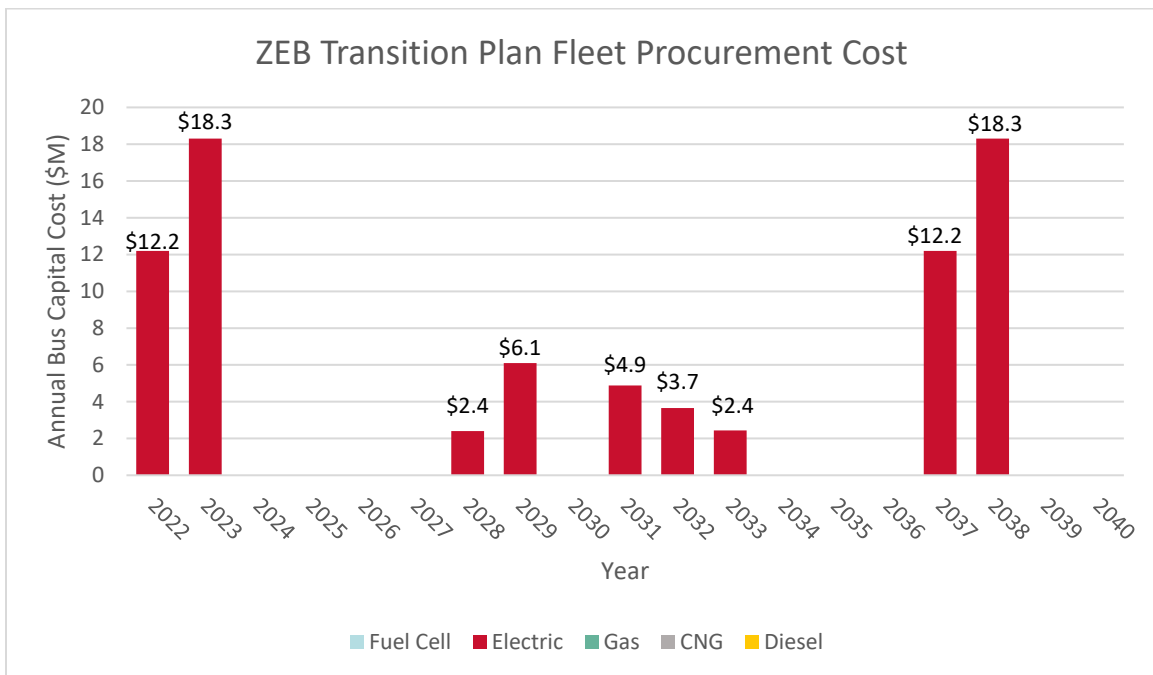
Figure 2 – Annual Fleet Composition

Cost Assumptions

Key assumptions for vehicle costs for the Zero-Emission Fleet Transition Plan are as follows:

- Vehicle costs are based on the agency’s most recent procurement price for standard vehicle propulsion technologies and industry averages for zero-emission technologies;
- Vehicle costs are inclusive of estimates for configurable options;
- Vehicle cost includes an estimate for extended battery warranty, allowing for a mid-life battery replacement;
- Vehicle costs do not include inflation.

Figure 3 shows the annual capital costs for buses purchased in a given year through 2040. The estimated total cost for vehicles over the designated transition period is \$80.5M. Costs are incurred from the annual ZEB purchases laid out in the fleet replacement plan. Each bus purchased costs approximately \$1.2M. Throughout the transition period, Everett Transit plans to deploy 66 battery-electric buses from 2022 to 2040 as vehicles surpass their expected useful life. Everett Transit’s fixed route fleet will be fully electric by 2028. Approximately eight (8) diesel buses will be retained during the transition period as spares to use as needed to ensure service levels are met. The agency’s experience with the current electric buses in service, reflects that performance of an electric bus is approximately 67% of efficiency of a diesel bus. The agency expects that as technology improves this ratio will also improve. The agency will not retain more than 49 fixed route buses at any given time.





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Figure 3 – Annual Capital Costs

Conclusion

Everett Transit is expected to reach its transition to a zero-emission fixed route bus fleet by 2028. The expected total capital cost of vehicles for the transition to a ZEB fleet is estimated at \$80.5M.

Element 2: Funding Needs Assessment

Funding Assessment Overview

Everett Transit allocates funds based on an established procurement timeline determined by the useful life of its buses. Transitioning to a zero-emission bus fleet increases overall fleet costs because of the incremental cost of zero-emission buses, new infrastructure installation, and required maintenance facilities' modifications. The current market cost of zero-emission buses is between \$750,000 and \$1,200,000, which is approximately \$250,000 to \$700,000 more expensive than diesel buses. Additionally, the necessary infrastructure to support these zero-emission buses adds to the financial burden of transitioning to a zero-emission fleet.

For the Zero-Emission Fleet Transition Plan, vehicle costs and infrastructure costs are assessed individually in the Fleet and Facilities Assessments. The results of those cost assessments are compiled here as total costs and then compared to Everett Transit's budget to better understand funding gaps and needs.

Everett Transit Funding Needs

ET is a small agency operating as part of the Seattle/Tacoma/Everett Transit UZA. The annual distribution of earned share formula funding is approximately \$1M per year and is insufficient to support a comprehensive vehicle replacement program. Without the ability to compete successfully for additional funding to replace vehicles.

Throughout the transition period, Everett Transit plans to deploy 66 battery-electric buses from 2022 to 2040 as vehicles surpass their expected useful life. Everett Transit's fixed route fleet will be fully electric by 2028. Everett Transit will also deploy inductive and depot charging infrastructure for these BEBs.

To achieve these goals and move towards a successful deployment of zero-emission buses, Everett Transit projects will require \$99,181,865 in funding to cover the procurement of vehicles and infrastructure during the transition period.



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Available Funding Resources & Resulting Funding Shortfalls

Based on the funding needs identified above and an assessment of Everett Transit's current projections, Everett Transit must identify resources that can cover this funding gap. It is likely Everett Transit will require additional funding to offset the higher costs associated with zero-emission technology.

Everett Transit is prepared to pursue funding opportunities at the federal, state, and local levels as necessary and as available.

Federal Funding sources Everett Transit is considering include:

- Federal Transportation Administration (FTA)
 - Bus and Bus Facilities Discretionary Grant
 - Low-or No-Emission Vehicle Grant
 - Urbanized Area Formula Grants
 - State of Good Repair Grants
- Environmental Protection Agency (EPA)
 - Environmental Justice Collaborative Program-Solving Cooperative Agreement Program

Washington State funding sources Everett Transit is considering include:

- Green Transportation Grant
- Regional Mobility Grant

Element 3: Policy Assessment

Policy Assessment Overview

Policies and regulations supporting the transition to zero-emission are proliferating as the efforts to decarbonize the transportation sector expand. Everett Transit is monitoring the implementation of relevant policies and legislation. While relevant funding programs are considered in the Funding Needs Assessment above, policies and regulations that direct aspects of zero-emission transit deployments beyond funding are considered in this section. Everett Transit will thoroughly assess all relevant policies and legislation throughout the fleet transition.

Alignment with Federal Priorities and Policies

With the passage of the *Bipartisan Infrastructure Law* and *Executive Order 14008: Tackling the Climate Crisis at Home and Abroad*, the federal government has set a renewed focus on zero-emission transit. Everett Transit's goal to deploy 66 battery-electric buses from 2022 to 2040 over 17 years supports the



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federal administration's priorities of safety, modernization, climate, and equity for public transportation. Everett Transit's Low-No/Buses & Bus Facilities deployment will contribute to the four listed administration priorities by modernizing the fleet, replacing aging diesel buses with cleaner, greener vehicles, and improving transit service for communities that have historically had more limited access to transit.

Washington State Policies & Goals

Washington State HB 2042 – 2019-20 supports the implementation of relevant technology by eliminating sales tax on the purchase of zero-emission buses, helping lower the cost for transit agencies.

There are no Washington State policies like that of the Innovative Clean Transit Regulation in California that impact the relevant technologies Everett Transit can deploy. However, in 2020, the Motor Vehicle Emission Standards law directed Washington State Department of Ecology to adopt California vehicle emission standards. In November 2021, Washington State adopted the zero emission vehicle standards that require a percentage of the vehicles sold in Washington to be zero emission. Consumers will have more choices of zero emission vehicles — including medium- and heavy-duty trucks — starting with the 2025 model year. Also, in January 2022, Washington State Department of Ecology announced the start of rulemaking to adopt new vehicle emission standards. This rule would increase zero emission vehicle sales of passenger cars, light-duty trucks, and medium-duty vehicles to 100 percent starting in 2035.

In 2021, the Washington Legislature passed the Climate Commitment Act which establishes a comprehensive program to reduce carbon pollution and achieve the greenhouse gas limits set in state law. The program will start Jan. 1, 2023. In April 2014, Gov. Inslee signed [Executive Order 14-04](#) outlining a series of next steps to reduce carbon pollution in Washington state and improve energy independence through use of clean energy. This executive order directly addresses the requirement of zero emission vehicles for transportation agencies in the state of Washington.

Support for Local Policy Goals

Everett Transit's Metropolitan Planning Organization (MPO) is the Puget Sound Regional Council (PSRC). PSRC has confirmed that the Electric Bus Replacement project is consistent with the region's long-range transportation plan, Transportation 2050. This project is also consistent with the city of Everett Transit's Comprehensive Plan, Transportation Element IV, B. Vehicular Transportation Strategy (local coordinated plan) and is included in the City of Everett Transit's six-year Transportation Improvement Program (COE TIP 2022 - 2027 and the Transportation Development Plan 2021-2026).

The City of Everett's Transportation Department are committed to reducing pollution in our community. Planning documents attached to this application include: the City's Climate Action Plan, page 25; Long-range plan, page 22; Comprehensive plan Transportation Element, page 62; Comprehensive Plan Urban Carbon Reduction Strategies, page 4; Comprehensive Plan, Land Use Element, page 21; and Governor Inslee's Clean Transportation Policy brief 2019 as part of the Clean Air Initiative.



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VISION 2050 is a growth plan for the Puget Sound and surrounding area. In this plan, PSRC states, “local transit agencies are committed to increased purchases of electric and other alternative fueled transit buses.” VISION 2050’s Climate Change goal is to have “the region substantially reduce emissions of greenhouse gases that contribute to climate change in accordance with the goals of the Puget Sound Clean Air Agency (50% below 1990 levels by 2030 and 80% below 1990 levels by 2050) and prepares for climate change impacts.” Climate Change Policy #3 is “Reduce greenhouse gases by expanding the use of conservation and alternative energy sources, electrifying the transportation system, and reducing vehicle miles traveled by increasing alternatives to driving alone.”

PSRC’s ‘Regional Transportation Plan’ is updated every four years to describe how the four-county central Puget Sound region plans for and improves the transportation system into the future. The RTP includes a four-part Greenhouse Gas Strategy, recognizing that decisions and investments regarding Land Use, Transportation Choices, Pricing, and Technology/Decarbonization are primary factors that influence greenhouse gas emissions for on-road transportation.

Element 4: Facilities Assessment

Facilities Assessment Projects

The following section introduces the timeline and cost estimates for the infrastructure associated with Everett Transit’s transition to battery-electric buses.

Everett Transit’s Current Facilities

Everett Transit operates from two locally funded facilities in Everett Transit: an operations and maintenance facility on Cedar Street. Administrative offices are located at Everett Station, 3201 Smith Avenue. Bus service is oriented around Everett Station, a regional multi-modal center adjacent to downtown Everett. ET also serves two other transit centers: Mall Station and College Station near the southern and northern boundaries of the city. Everett Station and College Station have FTA interest. ET’s transition to an all-electric fleet will require updated operations and maintenance facilities. Whether this includes an additional base or expansion of an existing base remains to be determined. Bus storage, layover, comfort stations, and other capital needs will also need to be considered for this network.

Everett Transit is partnering with PUD on two grant projects. The first is Eclipse Mill Park, where Everett Transit is installing a 300kw inductive fast charger. The second partnership is with the Washington State Department of Transportation on a grant funded project for the design and installation of six inductive chargers at Everett Transit’s operation center. A planning study in 2023 will be implemented to examine energy storage at Everett Transit’s operations facility.



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Battery Electric Bus Facilities Assessment Overview

Scaling to a fleetwide battery-electric bus deployment requires substantial infrastructure upgrades and a significantly different approach to charging compared to smaller deployments. With initial deployments, charging requirements are met relatively easily with a limited number of plug-in pedestal chargers and minimal infrastructure investment.

However, full fleet deployments of battery-electric buses require the installation of a significant number of charging stations and improvements to existing electrical infrastructure. These improvements may include upgrades to switchgear or service connections. Planning and design work, including developing detailed electrical and construction drawings required for permitting, is also necessary once specific charging equipment has been selected.

To determine the installation timeline and costs for charging equipment, this assessment breaks the infrastructure scope of work into three key project types: planning, power upgrades, and charging equipment (charger and dispensers) installation. Estimated costs associated with each project type are included in **Table 2**.

Project	Estimate Metrics	Cost Estimate	Source
Infrastructure Planning	Infrastructure Design and Planning	\$200k per project	Engineer's estimate
Power Upgrade Projects	Design, Construction, & Equipment	Variable (\$200k-\$400k) per project dependent on capacity added	Engineer's estimate, includes a 20% contingency
Charging Installation Projects	Charging Equipment & Installation	\$132k per 150 kW charger \$12k per dispenser \$665k per 300 kW inductive charger	Quotes and estimates, includes a 20% contingency

Table 2 – Battery Electric Bus Infrastructure Project Cost Assumptions

Key assumptions applied in the agency's Facilities Assessment are as follows:

- One plug-in dispenser per bus;
- Two buses per 150 kW charger;
- Two charge windows, i.e., no more than half the buses charge at any given moment;
- Inductive charging will occur at ET's base and enroute at specific facilities;



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- Incremental power requirements are met over time. Power upgrades are consolidated to occur in selected years in accordance with the required demand; and
- Dispenser capacity to serve up to 80% of the fleet at a time; no movement of buses overnight.

Battery Electric Bus Infrastructure Cost Summary

Figure 4 summarizes all costs for charging infrastructure for Everett Transit’s transition to a battery-electric bus fleet. The estimated total infrastructure costs are approximately \$20.5M. This total cost includes power upgrade projects, cabinet charger and dispenser installations, inductive charger installations, planning projects, design-engineering costs, and a 20% contingency.

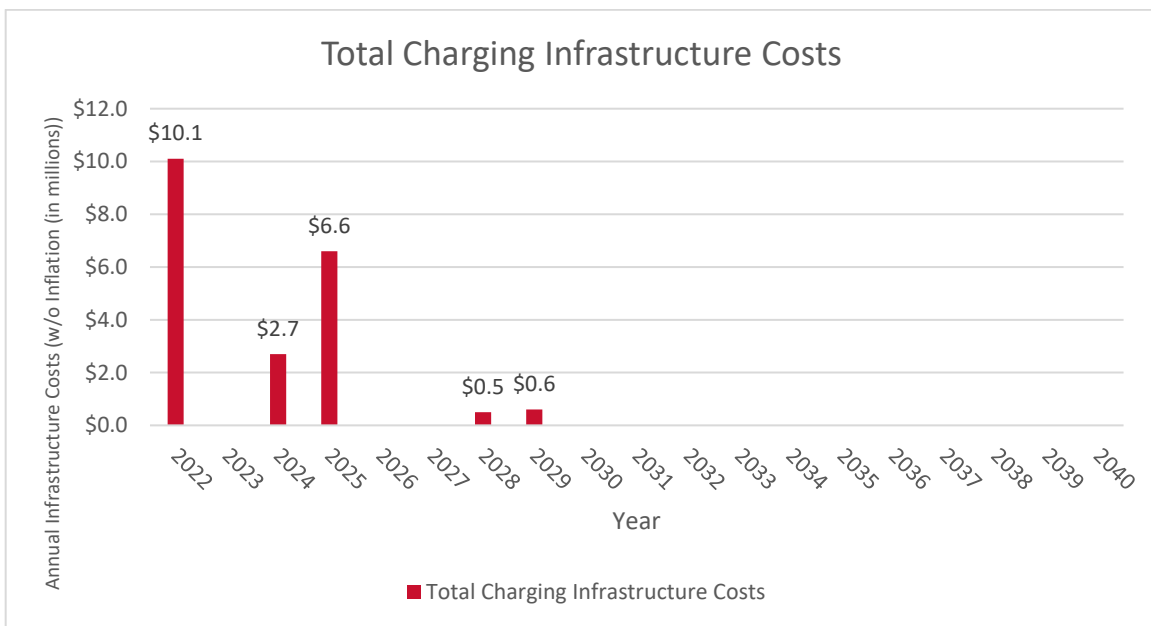


Figure 4 – Depot and inductive Only Annual Costs, Infrastructure

The total number of each infrastructure type included in this cost analysis is included in **Table 3**.

Infrastructure Element	Total Quantity Required (2022 – 2028)
Planning and Design	1
Cabinet Chargers	21
Inductive Chargers	22
Dispensers	42
Added Service Capacity	4MW



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Table 3: Infrastructure Summary

Element 5: Partnership Assessment

Battery Electric Bus Partnership

Establishing and maintaining a partnership with the local electric utility is critical to successfully deploying zero-emission vehicles and maintaining operations. With the addition of battery-electric buses to a fleet, a transit agency may likely become a utility's largest customer, with added implications for grid-side infrastructure and agency operational costs. Early coordination and discussions can avoid costly delays and misaligned operational strategies while also revealing lower operating costs and smart investment opportunities. Fortunately, electric utilities are beginning to develop electric vehicle rates and streamlined processes for charging infrastructure interconnections that can support successful zero-emission fleet deployments.

This project uses the cleanest energy available in the Puget Sound Region from Snohomish County's Public Utility District (SnoPUD). ET's partnership with Snohomish County PUD will help ensure a zero-emission battery system operating at maximum efficiency. ET and SnoPUD are partnering on the development and expansion of charging infrastructure. ET and SnoPUD are partnering on the Eclipse Mill Park project, where ET is installing a 300kw inductive fast charger. This will provide data on the impacts of fast chargers on the power grid infrastructure. In partnership with PUD, the agency has a demonstration project with BattGenie Inc., to assess onsite energy storage.

Element 6: Workforce Analysis

Everett Transit, located in Everett Transit, Washington, operates a fleet of 41 buses, including nine battery-electric buses. The agency is a leader in transitioning to ZEBs and is committed to having a fully electric fleet. In the near term, Everett Transit aims to deploy an additional 25 new battery-electric buses for its fixed-route fleet. To support ZEB operations at this scale, Everett Transit has identified opportunities to ensure the current and future workforce is prepared to manage its entire fleet of more than 40 future ZEBs. This Workforce Development Plan focuses on ZEB operations and maintenance.

In alignment with FTA's requirements under the Workforce Development for the 2022 Low No program, Everett Transit will build a ZEB workforce program in consultation with labor representatives and will continue to build on a current apprenticeship program already in works and determine how to best reskill and upskill the existing workforce to meet the needs of Everett Transit's future operational and maintenance needs.



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Workforce Analysis Overview

Developing and training the workforce required to operate and maintain zero-emission buses requires significant investment and planning. Everett Transit is experienced in recruiting, hiring, training, and integrating new staff to ensure that employees are qualified to provide quality services to our riders. The level of training that Everett Transit staff engage in upon hiring depends on their level of experience. Everett Transit recognizes that a trained ZEB workforce is not readily available, and the transit industry must address the shortage of technicians and mechanics together. Everett Transit has determined, with workforce representatives and management, that reskilling workers to new zero-emission fleets will advance the agency's broader strategy to retrain, retain, and recruit employees into good-paying jobs with the choice to join a union and equitable access to training and support that helps workers stay employed.

Everett Transit plans to develop and maintain a qualified ZEB staff by hiring qualified new staff and retraining existing staff who have previously worked with internal combustion engine (ICE) systems. Meaningful investment is required to upskill maintenance staff and bus operators initially trained in diesel vehicle maintenance and fossil fuel fueling infrastructure. Transitioning to zero-emission vehicles is a paradigm shift for all aspects of transit operations, including but not limited to scheduling, maintenance, and yard operations. Everett Transit's workforce development activities will address the identified skills and tools needed for each relevant team.

Completed Training

Everett Transit's fleet will be over 43% fully electric with a recent order. Maintenance staff and drivers are highly trained for E-buses. ET takes Gillig's E-bus training on maintenance, electrical, and HVAC systems. These OEM SOPs are used as a baseline for working on and around ZEBs. ET will take advantage of these trainings again for this application. When ET ordered Proterra battery-electric buses, training was completed on Maintenance, First Response, Main Propulsion Batteries, 24 Volt System, Charging Procedures, and Bus Operation (in conjunction with a video training from TAPTCO Transit & Paratransit Company). ET starts with approximately 1 hour of E-bus training for drivers with a training manual from Proterra. ET then familiarizes drivers with the different control locations and emergency equipment locations. ET also trains drivers to charge the E-buses safely and properly. Driving follows with 2 hours or more of behind-the-wheel training. ET offers continual training for drivers that do not frequently drive the electric buses.

Identified Training Needs

Several training needs have been identified by Everett Transit staff to support their transition to a 100% ZEB fleet. Everett Transit is committed to ensuring new training and technologies do not displace current workers and has placed a priority on training existing staff and establishing an apprenticeship



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program. The identified training needs are anticipated to evolve as Everett Transit's fleet expands. As such, the following training plans are intended to provide a framework.

1) *Train-the-trainer approach*

Many procurement contracts include train-the-trainer courses through which small numbers of agency staff are trained and subsequently train agency colleagues. This method provides a cost-efficient opportunity to minimize external training while maintaining institutional knowledge and providing widespread agency training on new equipment and technologies. Everett Transit currently relies on OEM training but desires to use a train-the-trainer program to maintain knowledge expertise in-house. Third-party resources will continue to be used as needed.

2) *Vendor training from Proterra and Gillig*

Everett Transit plans to take advantage of training from the bus manufacturers and infrastructure suppliers, including maintenance and operations training, maintenance and safety, first responder training, and other training that the providers may offer. OEM training provides critical information on operations and maintenance aspects specific to the procured equipment model. Everett Transit training staff will work closely with the OEMs providing vehicles to ensure all mechanics, service employees, and bus operators complete necessary training before deploying ZEB technology. Everett Transit staff will also be able to bring up any issues or questions about their training with their trainers. Additionally, trainers will observe classes periodically to determine if any staff would benefit from further training.

3) *ZEB tools*

The following tools have been identified as top needs to bring in-house as more of the maintenance and management falls to internal staff with an expanded ZEB fleet.

- SAMSUNG GALAXY TABLET
- HELIOX MOBILE CHARGER, 25KW
- HELIOX MOBILE CHARGER, 50kW
- WABCO SOFTWARE, ABS TOOLBOX
- TOOL, INTELLIGARE 111, SMART PAC
- KIT DIAGNOSTIC, W/USB WEBASTO KIT
- CABLE, INTERFACE(LAPTOP)
- UTILITY PROGRAM, G5-DINEX
- USB, DOWNLOADER, PROGRAM
- TOOL, MAINTENANCE I/O, (TABLET)
- SOFTWARE, REAL TIME LADDER LOGIC
- AMP CONNECTOR & TERMINAL KIT
- DT DEUTSCH CONNECTOR W/TOOLS KIT
- VANNER, DIAGNOSTIC KIT (INCLUDES SOFTWARE, DRIVERS & HARNESS)
- VOLTAGE DETECTOR TOOL, USB CURRENT
- WEATHER PACK CONNECTOR & TERMINAL KIT
- FLUKE DIGITAL MULTIMETER 1587



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- FLUKE 1503 INSULATION TESTER
- SALISBURY TORQUE WRENCH
- SALISBURY TORQUE DRIVER
- SALISBURY 6" EXTENSION
- WIHA INSULATED SCREWDRIVER SET
- WIHA INSULATED NUT DRIVER SET
- WIHA INSULATED OFFSET WRENCH SET
- WIHA INSULATED OFFSET WRENCH 8MM
- WIHA INSULATED OFFSET WRENCH 9MM
- WIHA INSULATED SLIM LINE SET
- WIHA 10MM SOCKET
- WIHA 8MM SOCKET
- WIHA ¼" SOCKET
- WIHA ¼" OPEN-END WRENCH
- KNIPEX INSULATED MAT 39 3/8 IN.
- DELTA ARC FLASH HARNESS UNIVERSAL
- CAPITOL SAFETY 6FT. ARC FLASH KEVLAR LANYARD
- SALISBURY ARC FLASH KIT

4) *National Transit Institute training*

Everett Transit has identified the following courses offered by the National Transit Institute:

- Assault Awareness and Prevention for Transit Operators
- Crisis Communications for Transit Managers
- Disadvantaged Business Enterprise
- Enhancing your Transit Asset Management Program with Lifecycle Management
- ESMS
- Introduction to Transit Service Planning
- NEPA 101
- NTD
- Title VI and Public Transit
- Understanding ADA

5) *Local Partnerships and Collaborations*

Everett Transit and Snohomish County PUD are partnering on the electrification of Everett Transit's fixed-route fleet. SnoPUD is instrumental in the development and expansion of charging infrastructure. Everett Transit is partnering with PUD on two fully funded grant projects. The first is Eclipse Mill Park, where Everett Transit is installing a 300kw inductive fast charger. Data will determine the impact of the fast charger on the power grid infrastructure.



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The second partnership is with the Washington State Department of Transportation on a grant funded project for the design and installation of six inductive chargers at Everett Transit’s operation center. In partnership with PUD, the agency has a demonstration project with BattGenie Inc., to assess onsite energy storage.

6) Professional Associations

Everett Transit is active within the following professional associations: Washington State Transit Association, Washington State Transit Insurance Pool, Bus Coalition, Everett Station District Alliance, Puget Sound Regional Council, and the Western Washington Clean Cities Coalition.

Resources and Strategies to Meet Identified Needs

To incorporate the above training needs, Everett Transit envisions using the following resources and strategies. FY2022 Low-No funding will ensure the workforce development plan can be implemented in parallel with the deployment of vehicles and infrastructure.

Training Resource/Strategy	FY2022 Low-No Budget
WFD Training - E-bus Maintenance	\$5,000
WFD Training Electrical Systems	\$5,000
WFD Training – HVAC Systems	\$5,000
Professional associations	excluded

Table 4: Training Resources

Workforce Development Timeline

Demand for skilled and experienced workers will increase rapidly as new clean transportation policies and programs take effect and numerous agencies begin fleet transitions. Aligning workforce development activities with the fleet transition timeline ensures that a qualified workforce is ready and available to support a successful deployment. Based on Everett Transit’s fleet transition plan of becoming 100% ZEB by 2028, the graphic below shows the anticipated progression. By 2025, Everett Transit will have a battery-electric fleet of 34 buses, which is 83% of the total fleet. By 2028, Everett Transit will have a battery-electric fleet of 41 buses and be 100% zero-emission. Existing mechanics and operators will continue to be either initially trained or refreshed on training as new electric buses come into service. At this time, Everett Transit does not expect to expand staffing levels for maintenance and operators.



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Workforce development is an ongoing process that must continue as fleets scale up and deploy additional zero-emission vehicles. Currently, Everett Transit has 2 mechanics. Those two mechanics are trained to work on Proterra electric buses but will receive OEM-specific training for our recent order of Gillig buses. There are three other mechanics who work on buses but are trained to work on hybrid-electric and diesel buses. To ensure that the workforce scales efficiently and cost-effectively, Everett Transit will employ training strategies that support additional zero-emission vehicle deployments in the future. This will require additional OEM-specific training. Everett Transit anticipates technology advancements that will evolve to support workforce and training needs going forward.

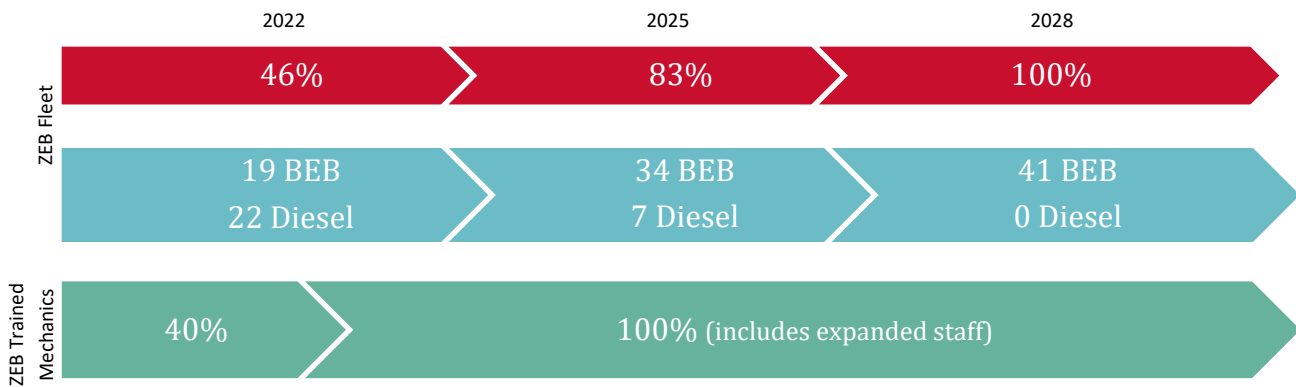


Figure 5: ZEB Fleet & Mechanic Transition Plan