

Bellevue College's 2025

FLEET DECARBONIZATION PLAN



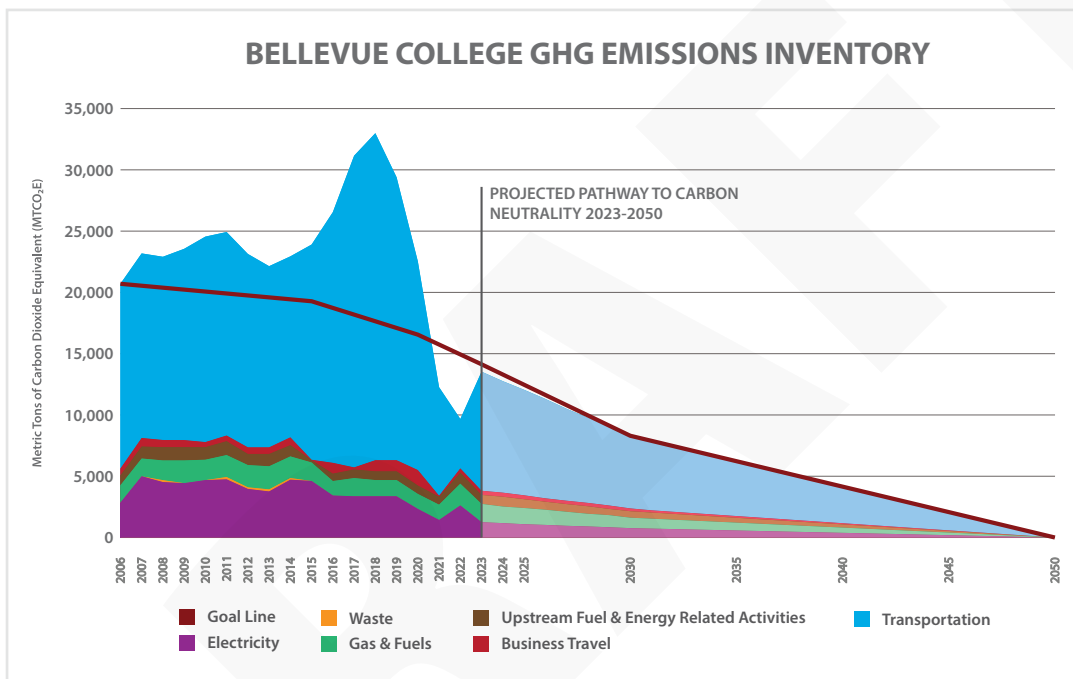
BELLEVUE
COLLEGE



OFFICE OF
SUSTAINABILITY

Introduction

Bellevue College strives to be a regional leader in higher education sustainability, and is pursuing many pathways to decarbonize, as noted in the 2024 Climate Action Plan Update. The Office of Sustainability additionally tracks and reports greenhouse gas (GHG) emissions, as shown below. Transportation as a category is the largest source of emissions, surpassing all other categories combined. This matches regional GHG emissions trends and is a focus for municipal climate planning. In recent years, the Covid-19 pandemic has changed the landscape for hybrid/virtual curriculum offerings, shifting more courses to formats that don't require commuting. This led to a significant reduction in Scope 3 emissions 2020-2023, as indicated in the emissions inventory during that time period. This category includes emissions associated with commuting by the campus community, and the Office of Sustainability continues to advance initiatives that encourage alternative transportation methods and reduce single-occupancy vehicles.



Bellevue College is working to achieve carbon neutrality by 2050, as pledged in the Presidential Climate Commitment, pursuing decarbonization pathways that decrease this timeline. If carbon neutrality is achieved prior to this date, BC will pursue pathways to make the college carbon negative by prioritizing carbon insetting in lieu of offsets whenever possible. Carbon insetting refers to the practice of decarbonization within an organization's value chain and physical footprint, rather than compensating for emissions through offsets elsewhere.

The 'Gas & Fuels' category represents all non-building related gas usage, including fuels used in the vehicle fleet, small gas-powered equipment used in grounds maintenance, and gas used in campus science labs. As Bellevue College strives to achieve carbon neutrality, reductions in emission from the campus vehicle fleet will be necessary to meet these goals, with the fleet ultimately being fully electric by 2035.

This plan outlines Bellevue College's pathway to carbon neutrality for its vehicle and equipment fleet. While campus vehicles use a greater quantity of fuel than other equipment classes within the College's inventory, this plan includes all non-stationary equipment that uses fossil fuels. This addition allows for strategic long-term planning of electrical infrastructure, as campus leadership assesses the total electrical needs required for fleet vehicles, grounds equipment, and other large equipment such as forklifts and boom lifts.

As charging needs increase dramatically on the BC campus with the transition to electric equipment, it is important to right-size electrical panels updates to accommodate the full scope of future needs.

A note on supply chain materials in electric vehicles: The manufacture of EVs requires the use of a number of rare earth minerals, sourced globally through mining operations. Labor practices within the EV battery supply chain have been identified as problematic; the mining of cobalt in particular has numerous documented cases involving child labor, uncompensated labor, safety issues, and a lack of raw materials tracking that allow these problems to continue. This is inherent in the present global supply chain, and part of the manufacture of all rechargeable devices that require cobalt, though extraction of other rare earth minerals are not without their own environmental and labor issues. Bellevue College intends to source used EVs when possible, and ensure that these assets are well maintained and operated to maximize their useful life, in order to reduce the need for additional resource extraction that contributes to these labor practices.

Section 1: Vehicle Usage and Storage

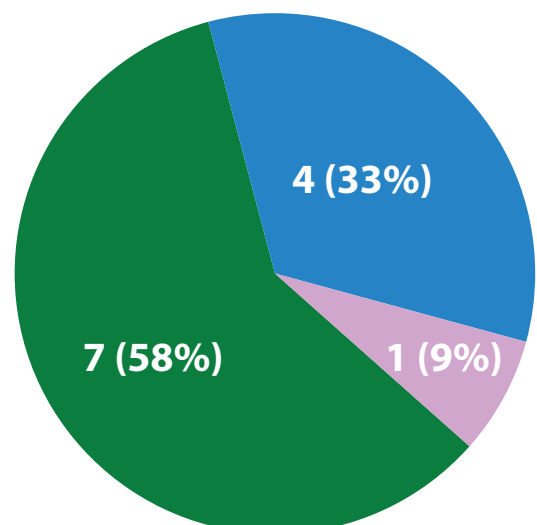
Bellevue College's fleet operates 12 vehicles, with 7 in Campus Operations, 4 in Public Safety, and 1 in Food Services.

Year	Make	Model	Type	Campus Department
1993	Chevrolet	P30	Food Truck	Food Services
2012	Ford	eTransitConnect	Cargo Van	Campus Operations
2013	Ford	F-150	Pickup	Campus Operations
2013	Nissan	NV 2500	Cargo Van	Food Service Catering
2014	Ford	F-450	Pickup	Campus Operations
2014	Toyota	Tacoma (4WD)	Pickup	Public Safety
2014	Honda	Civic Hybrid	Sedan/Saloon	Campus Operations
2015	Ford	F-250 (4WD)	Pickup	Campus Operations
2015	Ford	Transit Connect	Cargo Van	Campus Operations
2016	Ford	Escape	SUV/MPV	Public Safety
2017	Chevrolet	Silverado 2500	Pickup	Campus Operations
2022	Ford	Maverick	Pickup	Public Safety
2023	Ford	Maverick	Pickup	Public Safety

The fleet consists of light to medium duty vehicles, and the majority of which have internal combustion engines. Vehicles generally stay local and mostly drive on BC's main campus with occasional trips for errands and to North Campus.

Fleet Vehicle Makeup By Type

- Medium Duty Vehicles (Class 3-6)
- Passenger Vehicles (Light Duty)
- Electric Vehicles



Additionally, BC operates a number of electric EZ-go carts. These vehicles are used only on BC campus and are an integral part of Campus Operations.

Department	EZ GO Type	Color
Custodial	Long bed	Green
Custodial	Long bed	White
Custodial	Long bed	White
Custodial	EZ GO	Green
Custodial	EZ GO	Green
Maintenance	Icon	White
Maintenance	Icon	White
Maintenance	Icon	White
Maintenance	Icon	White
Maintenance	Icon	White
Maintenance	Icon	White
Maintenance	Club Car	Green
Maintenance	Columbia	White
Maintenance	Club Car	Gray
Warehouse	Club Car	Green
Warehouse	Bigfoot Cart	White

Section 2: Landscape Fleet Analysis

Based on analysis of the BC fleet, the Sustainability Office worked with Campus Operations staff to identify priority vehicles for electrification. The campus mail truck, a 2015 Transit Connect, had been experiencing ongoing electrical issues. A locally available used 2012 eTransit Connect was located and purchased in May 2024, with an extra battery included for future replacement as necessary. The eTransit was purchased in 2024 and is BC's first electric vehicle.

In mid-May 2024, the Student Environmental Sustainability Fund (SESF) approved the purchase of 2 additional EVs, a Ford eTransit and Nissan Leaf for campus use. These vehicles will be available to campus staff and faculty who have passed all necessary state driver requirements for use on college business. The eTransit will be retrofitted with bench seating installed, allowing for seating for 12. The addition of these EVs to the vehicle fleet will dramatically reduce the need for rental of ICE vehicles for local travel for conferences, club and athletic activities.

Following these EV purchases, the fleet will be opportunistically transitioned to EVs, with priority given to vehicles with the lowest usable life span. When vehicles reach the end of their useful life, EV replacements will be considered. The Sustainability Office will additionally keep apprised of opportunities for local used EV purchasing, with the intent to phase out ICE vehicles campus wide on an accelerated timeline. Additionally, the Sustainability Office is working with the BC Grounds Department to plan a replacement schedule for all gas-powered small equipment on campus. This work will occur in tandem with the vehicle transition work already in process and will be included in a future iteration of the fleet decarbonization plan.

Section 3: Priority Charging Locations

Bellevue College has 10 Level 2 EV chargers and 2 DC fast chargers, located in three areas around campus. North of the Cafeteria in lot C7, there are 2 Level 2 chargers and 2 DC Fast Chargers. The U Building's lot 4 on the east side of campus has 6 Level 2 chargers, while the parking garage's first floor has 2 Level 2 chargers. Both the parking garage and lot C7 charging stations are Blink and the U building's charging stations are Chargepoint.

In Fall 2024, the Office of Sustainability was awarded a \$418,000 grant from the Washington State Department of Commerce for the installation of an additional 4 DC fast chargers and 8 Level 2 chargers. Work is underway to identify priority locations and install these chargers in 2025.

As the campus fleet transitions to electric, new chargers will be installed at various locations where departments park vehicles. For the 7 vehicles within campus operations, 7 chargers will be added at the K and M Building. There will also be 4 chargers added to the parking garage's first floor where Public Safety parks their vehicles and 1 charger at the C Building loading dock where Food Services parks their van. New chargers will also benefit the EV drivers within the campus community and beyond. 1 in 4 vehicles sold in 2025 are projected to be electric.

Adding chargers near the K and M Building will be prioritized due to lack of chargers currently located nearby, whereas the Food Services van and the Public Safety vehicles are parked near existing charging infrastructure.

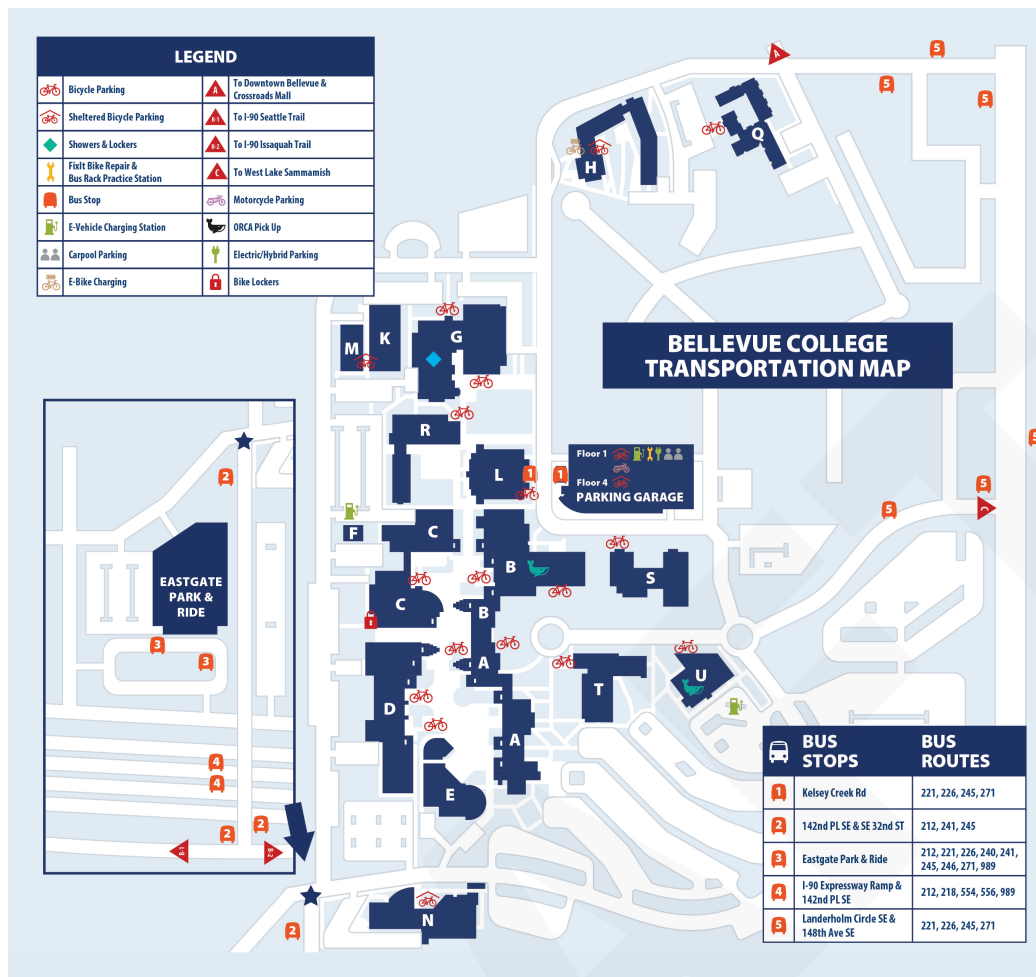
Section 4: Charging Technology Strategy

BC currently hosts 2 DC fast charging stations, as well as 10 Level 2 chargers operated by Blink and ChargePoint. These chargers are in 3 locations: the west side of the C building, south of the U building, and the bottom floor of the parking garage. As new chargers are added, the Sustainability Office will work to locate them in unserved areas of campus, increasing availability for campus community members who may be parking and seeking charging access in the southeast and northwest corners of campus.

As the charger network on campus is built out, the Sustainability Office will prioritize offering a variety of charger port types, as well as different charging speed options (Level II and DCFC.) This will require continuing to partner with Puget Sound Energy to ensure that electricity infrastructure meets the needs of added chargers. To this end, the Office will additionally continue to work to add onsite energy generation, resulting in lessened strain on the electric power grid.

Section 5: Site Evaluations

Bellevue College continues to work closely with Puget Sound Energy, the local electric utility, to ensure that electrification infrastructure is improved to keep pace with local and college fleet demands. With 3 charging hubs on campus currently and plans underway to add additional chargers in the coming year, charger availability needs are currently being met. However, rapid EV adoption could necessitate the addition of chargers in many more of the College's 20+ parking lots. As EVs are incorporated into campus operations, dedicated fleet chargers may become needed. The Sustainability Office will work closely with Campus Operations staff to site and install these chargers in the coming years. Areas under specific consideration are lots C3 and C7, and lot 19. These areas offer parking for the campus fleet and proximity to the campus core.



Section 6: Grounds and Campus Operations Equipment

The Office of Sustainability and Grounds Department are working closely to develop a plan to phase out old and failing grounds equipment with battery operated equipment. In October, the college was awarded a small grant of \$7,500 from Second Nature to buy an initial round of the most used tools for replacement. This included batteries and charging stations, a hedger, a trimmer, and pole saws.

To transition all grounds equipment to electric, the college will need to invest in a DC fast charger dedicated to fleet charging to support at least one EV lawn mower.

The M building, where the Grounds department operates from, will need to have a panel upgrade to ensure capacity to charge enough batteries to support the entire ground crew's workday. Additionally, the College is working on the Solar Plus Storage project to provide back-up power to G and K buildings in case of a power outage. During a windstorm in November 2024, the college was without power for over three days. Adding Solar Plus Storage will be an important step for the Grounds Department in making the transition to electric. One future consideration will be the amount of power required for Grounds to run their equipment in the event of future longer duration power outages.

The table below shows the current list of equipment maintained by the Grounds Department, Campus Operations, and Athletics with a potential option for electric replacement. The electric alternative is not an exhaustive list but used to illustrate the number of different brands available on the market today. There are a few pieces of equipment that do not have electric options available.

Equipment	Brand	Type	Electric Alternative Option
Stihl BR-700 backpack blower aka LBJ/ Venus	Stihl	Blower	Ego Power+ Blower
Stihl BR-600 backpack blower aka Ryu - equivalent to 6 batteries	Stihl	Blower	Ego Power+ Blower
Stihl BR-350 backpack blower	Stihl	Blower	Ego Power+ Blower
Billy Goat walk-behind blower	Billy Goat	Blower	
Turbine tow-behind blower	Turbine	Blower	Buffalo Turbine electric
Stihl FS 131 R	Stihl	Trimmer	Stihl - FSA 135 R
Stihl FS 240 R	Stihl	Trimmer	Stihl - FSA 135 R
Stihl FS 250 R	Stihl	Trimmer	Stihl - FSA 135 R
Stihl HS 81 R	Stihl	Hedger	Stihl - HSA 100 - 23.5"
Stihl HT 103	Stihl	Chainsaw	Stihl - HTA 135
Stihl MS 241 C	Stihl	Chainsaw	Stihl - HTA 136
Stihl MS 260	Stihl	Chainsaw	Stihl - MSA 220 CB
Stihl MS 362	Stihl	Chainsaw	Stihl - MSA 220 CB
Husqvarna 460	Husqvarna	Chainsaw	Stihl - MSA 220 CB
Stihl MSA 220 C	Stihl	Chainsaw	Stihl - MSA 220 CB
Kubota Tractor	Kubota	Tractor	
John Deere Tractor	John Deere	Tractor	
Professional mini blue tractor	Professional mini	Tractor	
Toro Workman	Toro	Cart	Toro Workman MDX – lithium ion
Walker mower- R courtyard	Walker	Mower	
John Deere 36 aka Sideshow	John Deere	Mower	Ego Zero Turn 42
John Deere 48	John	Mower	Ego Zero Turn 42
John Deere 930m Z-trak	John Deere	Mower	Gravely Pro EV
John Deere 757 Z-trak	John	Mower	Gravely Pro EV
Honda Push mowers aka Accord and Civic (2)- used for courtyard lawns: A, B, C, D, H, Q, bioswales along Snoqualmie, Coal Creek	Honda	Mower	Ego Commercial 22"
Power Trim walk-behind edger	Power Trim	Misc	
Walk-behind Aerator	Walk-behind	Misc	
Toro Workman	Toro	Foamstream	
Water pumps	Water	Foamstream	
Water heater	Water	Foamstream	Foamstream M600H
Dewalt pressure washer	Dewalt	Water pump	Landa Electric
Landa Pressure washer	Landa	Water pump	CS-HD Electric
Honda water pump	Honda	Water pump	
Vermeer chipper	Vermeer	Misc	
Honda snowblower	Honda	Misc	Snow Blower
Boom Lift – Maintenance and grounds	Boom	Misc	
Forklift - Warehouse, maintenance, grounds	Forklift	Misc	
Scissor lift – (Shared by warehouse/maintenance/athletics)	Scissor	Misc	
John Deere cart - Athletics	John Deere	Misc	John Deere TE 4x2
Toro riding lawnmower - Athletics	Toro riding	Misc	Ego Zero Turn 42
Aerator - Athletics	Aerator	Misc	

Section 7: Grant Funding and Incentives

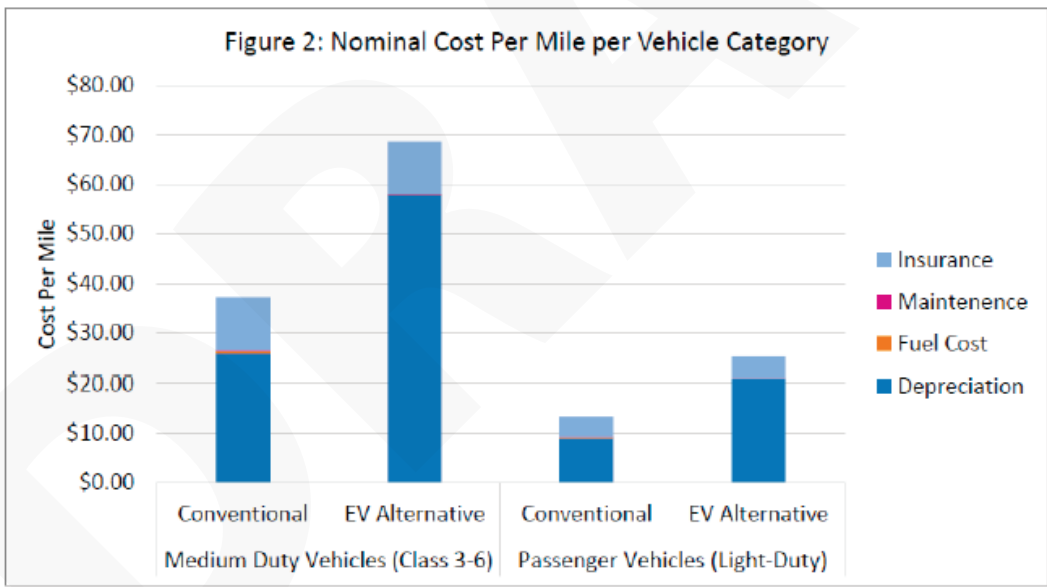
The Office of Sustainability is pursuing grant funding for electric vehicles and charging infrastructure wherever available, with \$1.65m applied for in 2023 from the Federal Department of Transportation, Washington State Department of Commerce, and Department of Enterprise Services, among others. The Office will continue to seek out and apply for available grant funding in the future, prioritizing fleet charging once fleet EVs are delivered.

The Office of Sustainability is also partnering with BC’s Finance Department to take advantage of Federal tax incentives as part of the Inflation Reduction Act as part of the purchases of the 2 new EVs funded by SESF. These funds will be allocated towards future maintenance of the vehicles.

Section 8: Inclusive Fleet Analysis

A Dashboard for Rapid Vehicle Electrification (DRVE) analysis was conducted to determine the total cost of ownership and the best EV replacement for current ICE vehicles. The tool can integrate several variables, including fuel costs, purchase prices, federal and state incentives, infrastructure costs, insurance costs, etc.

After entering the VIN, annual mileage, and service life for each campus vehicle into the tool, it showed the average cost of ownership across each vehicle category. Initial cost per mile were indicated as higher for electric vehicles as the DRVE analysis assumes the purchase of new EVs. The higher pricepoint for medium-duty electric vehicles can also be seen in the results of this analysis.



Additionally, of all the light-duty replacement options, the top 3 models found to be the most cost-effective replacement vehicles for the campus ICE vehicles are the Ford Escape FWD PHEV, Ford F-150 Lightning 4WD, and the Chevrolet Bolt EV BEV.

ICE Replacement	Avg. Percent Savings From EV's	EV Alternative	Vehicles
Ford Escape	4.76%	2022 Ford Escape FWD PHEV	1
Ford Maverick	3.15%	2022 Ford F-150 Lightning 4V	1
Chevrolet Silverado	-4.68%	2022 Ford F-150 Lightning 4V	1
Honda Civic	-31.73%	2022 Chevrolet Bolt EV BEV	1
Chevrolet GMT-400	-102.39%	2022 Ford F-150 Lightning 4v	1
Average	-6.76%	2022 Chevrolet Bolt EV BEV	5

Section 9: Final Recommendations

To achieve carbon neutrality by 2050, as BC has pledged in the Presidential Climate Commitment, the campus should continue to phase out ICE vehicles and replace them with EVs as quickly as possible. BC will continue to seek out funding for electrification infrastructure and EVs, including the addition of EV and e-bike chargers, additional solar arrays, and establishment of a campus microgrid to offset additional load to the grid from transportation electrification. As Washington State has legislated a ban on the sale of ICE vehicles beginning in 2035, it is critical that BC prepare for future community needs. Ensuring that electrical infrastructure is in place to service the growing transportation power needs of campus should be prioritized.

As Bellevue College moves towards fleet decarbonization, the Sustainability Office is committed to ensuring a smooth and equitable transition away from fossil fuel-powered vehicles, and towards a clean energy future.