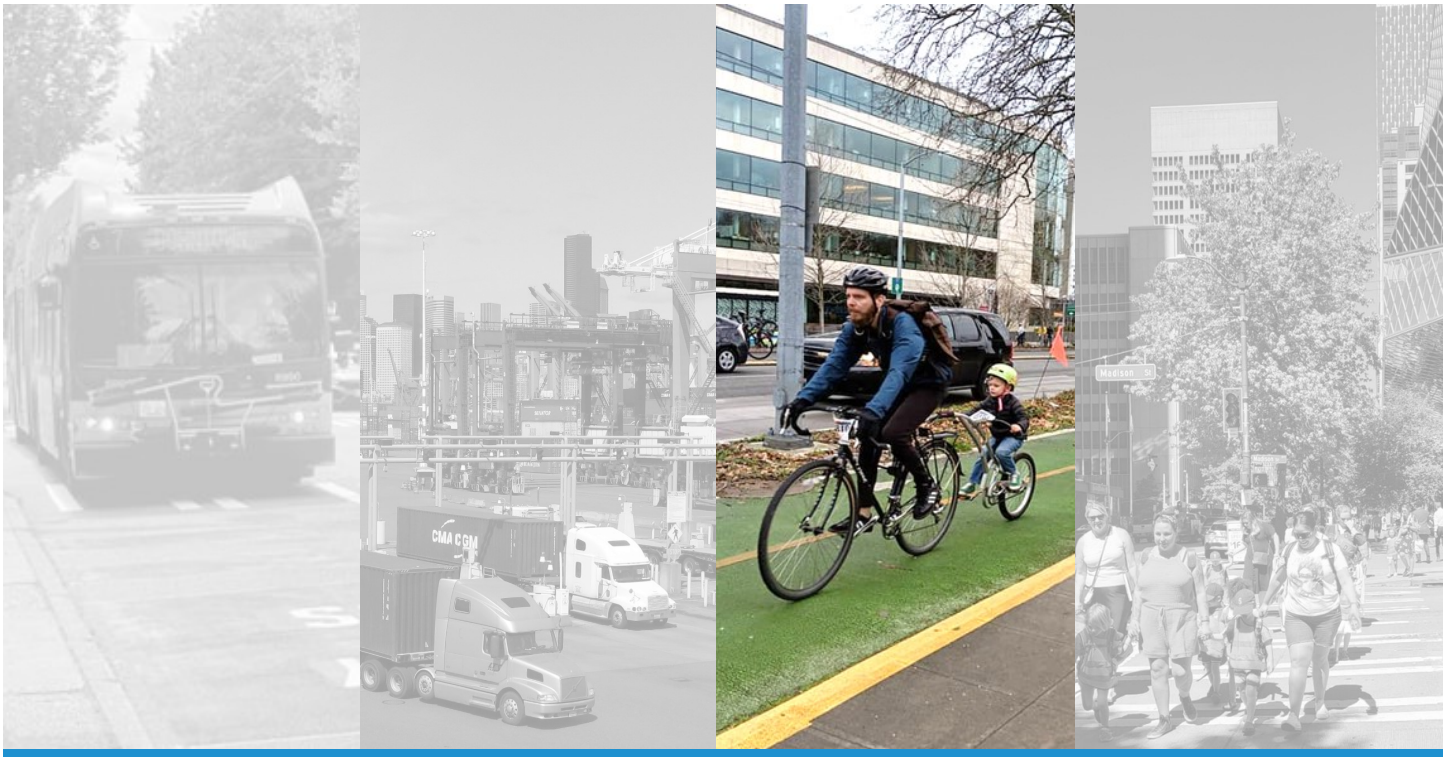
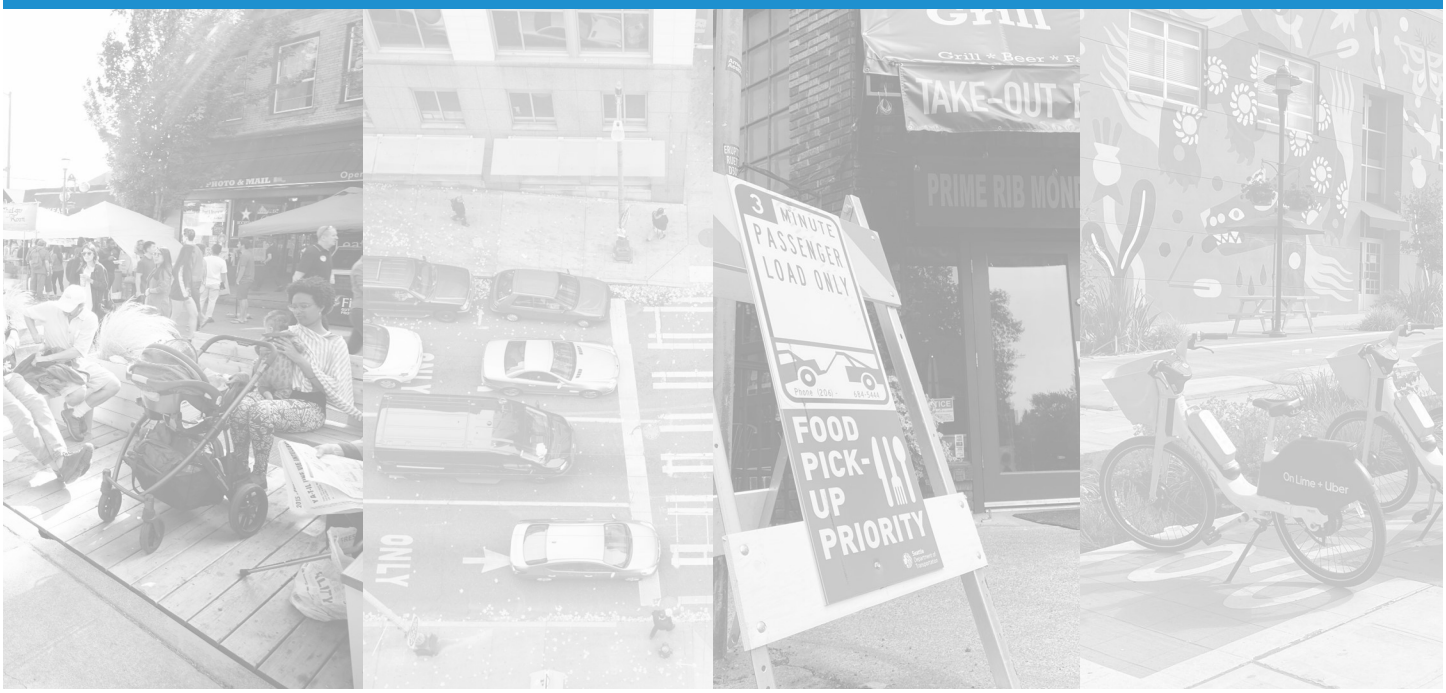


Bicycle and E-Mobility Element



Seattle Transportation Plan
May 2024

Seattle Department of Transportation

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INTRODUCTION

By 2050, Seattle is expected to be a city of nearly 1 million people. To achieve the Seattle Transportation Plan's (STP) shared transportation vision and meet our goals, we'll need to be strategic about how we move the growing number of people who live, work, play, and deliver goods on city streets—both locally and regionally. We'll need to sustainably accommodate growth by investing in improvements that enable people to increasingly choose low-emission mobility options, like biking and using e-mobility. A bikeable city is one where people of all ages and abilities ride bikes and use e-mobility because it is a convenient, affordable, fun, safe, and healthy choice. We want to build on Seattle's existing bicycle network to make that a reality.

HOW BICYCLES AND E-MOBILITY ADVANCE THE STP

The Bicycle and E-Mobility Element of the STP will help create a safer, more bikeable Seattle. It provides a foundation for the City of Seattle to grow our investment in bicycling and e-mobility to achieve STP goals. The STP and the Bicycle and E-Mobility Element build on and supersede the 2014 Bicycle Master Plan (BMP). The bicycle and e-mobility network serves not only people riding traditional bicycles, but also people using adaptive bikes, cargo bicycles for both personal use and deliveries, trikes, scooters, skateboards, roller skates, wheelchairs or other wheeled mobility devices, and "e-mobility" devices, which refers to personal and shared electric-powered bicycles, scooters, and other electric-powered devices. It serves people bicycling and taking e-mobility to serve a variety of trip purposes, such as getting to work, school, transit, the gym or doctor's office, recreating, making urban goods deliveries, and more.

The Bicycle and E-Mobility Element outlines the actions that are needed to make bicycling and e-mobility for personal and commercial travel an integral part of our transportation future, fulfilling the STP Vision Statement where "moving around is just, sustainable, and safe." Investments in our bicycle and e-mobility network provide an affordable and environmentally friendly travel option that also improves Seattle's livability, public health, and economic vitality.

ALL AGES AND ABILITIES (AAA)

We are striving to create a network of bicycle and e-mobility facilities that people of all ages and abilities feel comfortable using—whether it's a child biking to school or an adult that is less confident bicycling on city streets. AAA facilities provide low-stress bicycling conditions and focus on safety. They may include off-street trails, protected bike lanes, conventional bike lanes that meet AAA guidelines, Healthy Streets, and Neighborhood Greenways. This is described more in **Table 4.**

This Bicycle and E-Mobility Element:

- Sets a vision for continued investment and improvements to Seattle's all ages and abilities (AAA) bicycle and e-mobility network. We are striving to have 100 percent of Seattle households within a quarter mile of a connected network of AAA facilities and to have all public schools served by an AAA facility.
- Identifies catalyst projects that overcome major connectivity barriers and expand access.
- Identifies programmatic investments that support and encourage bicycling among people of all ages, abilities, races, and economic backgrounds
- Focuses on policies and investments that improve safety for people bicycling and using e-mobility.
- Identifies policies and strategies for equitable investment in the bicycle and e-mobility network.
- Identifies and guides opportunities for coordination with other key modal and functional elements of Seattle's transportation system.

HOW THE BICYCLE MASTER PLAN HAS BENEFITED SEATTLE

Seattle has used citywide bicycle plans to guide investments since 1972, with the most recent edition published in 2014. These plans:

- Defined the vision for a connected bicycle network that serves all of Seattle
- Demonstrated an evolution in bicycle network planning, with the 2014 BMP emphasizing a network that serves people of all ages and abilities with protected bike lanes, Neighborhood Greenways, and multi-use trails
- Engaged the public and stakeholders in bicycle network planning and identifying other strategies for improving bicycling
- Identified programs and strategies to promote bicycling as a viable mode of transportation
- Informed funding and implementation priorities
- Resulted in 34-miles of protected bike lanes, 75-miles of bike lanes, 54-miles of neighborhood greenways, 68 bike signals, and 263 bike corrals.[1]

[1] Bike infrastructure constructed from 2007-2022

Supporting Growth and Economic Vitality

As Seattle continues to grow, our transportation system must evolve in tandem with our changing landscape. Our comprehensive plan, One Seattle, guides how and where growth will occur to accommodate the growing number of people who live, work, and travel here. No matter where people live or work, providing safe and equitable transportation will always be critical to connect people and goods where they need to go. To achieve our shared goals as One Seattle, we must strategically plan for a range of appropriate travel options and supportive infrastructure that fit the needs of our unique and varied communities—whether a dense downtown grid, quiet residential neighborhood, or bustling manufacturing and industrial center.

In denser neighborhoods and commercial centers, development typically occurs close together. Combined with safe and supportive transportation infrastructure, density can make it easier for people to walk, bike, and use transit because they don't have to travel as far. People have more access in these places, enabling them to live car free if they choose to or can't afford it. In places where development is more spread out, people might still walk or bike for shorter trips or to connect to transit services, but it is often harder due to longer distances between places.

While some people choose to live or work in places that are more spread out, others do so because they have no choice, and driving is their only viable option. For instance, people who live outside of Seattle because housing is more affordable, or people who transport freight or cargo for a living may not have options for how they travel other than driving a vehicle.

Our transportation system can support anticipated growth in different places while continuing to advance our goals by making other travel options more viable and available in appropriate contexts. For example, freight-and-bus only lanes can support reliable travel times for industrial workers and transit riders, or on-demand rideshare services could provide more convenient shared trips. Each functional element of the STP plays a role in supporting Seattle's growth and economic vitality.

Studies show the bicycle industry, bicycle tourism, and health benefits from bicycling create jobs, economic activity, and cost savings. By planning for bicycles and e-mobility, we can support our growing city in several ways:

- Shared micromobility devices, like bikes and scooters, can replace driving for short trips and make it easier for people to connect to or from transit services.
- Electric bikes and cargo bikes provide smaller and more sustainable urban goods delivery solutions that use less street space than motor vehicles.
- Bicycle and e-mobility trips are zero-emission and help keep our air clean.
- A more built-out bicycle and e-mobility network will provide more seamless connections, increased safety and comfort, and space for more riders, encouraging more people with a broader range of ages and abilities to choose biking.
- When biking and e-mobility are more viable travel options, it can reduce vehicle trips and related traffic and puts less demand and wear-and-tear on roads.

Economic Benefits of Bicycling and E-Mobility

The STP supports economic vitality in a range of ways, and each functional Element plays a role. Ample research has shown a positive correlation between economic benefits and the addition of transportation improvements that support people biking, using e-mobility, and walking.

- A study of greater Portland found that while customers who arrive at local businesses by automobile tend to spend more per visit, people bicycling tend to spend more over the course of a month, stay longer, and make more frequent visits.[2]
- Bike and e-mobility related businesses, such as retailers, repair shops, short-term bike rentals, micromobility operators, and other tourist industries benefit from increased sales when more people choose bikes and e-mobility.
- Evidence indicates that an increased presence of bikes and foot traffic can result in increased sales (up to 30%)[3] and prosperity for commercial areas.
- Increased sales often support increased jobs. For example, a protected bike lane along Broadway in Seattle that was completed in 2014 was accompanied by a 30.78% increase in food service employment compared to 2.49% and 16.17% increases in control areas.[4]
- As biking and e-mobility use increases, demand for vehicle storage and parking may decrease, which is beneficial because parking can increase building construction and maintenance costs that are often passed on to residents.
- Employees who bicycle tend to have health benefits from physical activity that can save businesses (and society at large) money on health insurance costs and increased productivity.[5]
- Adding capacity for bicycle and e-mobility infrastructure and improvements is generally much less expensive than adding new road capacity for vehicles.

[2] Study shows biking customers spend more – BikePortland

[3] Walkability Means Better Business (Issue 188, July 2019) – Community Economic Development (wisc.edu)

[4] Study Finds Bike Lanes Can Provide Positive Economic Impact in Cities | Transportation Research and Education Center (pdx.edu)

[5] https://infrastructureusa.org/bicycling-means-business-the-economic-benefits-of-bicycle-infrastructure/#:~:text=With%20the%20money%20saved%20from%20lower%20travel%20costs%2C,save%20their%20companies%20money%20on%20health%20insurance%20costs.

RELATIONSHIP TO STP GOALS

Bicycling plays an important role in meeting the STP's goals for safety, equity, sustainability, mobility & economic vitality, livability, and maintenance & modernization.

Prioritize safety for all travelers in Seattle, with no serious injury or fatal crashes. Implementing the bicycle and e-mobility network increases separation from vehicles, implements predictable travel patterns in the roadway, and creates low-speed streets that increase safety for all people. As the number of people bicycling increases, the safer bicycling becomes.[6] People bicycling and using e-mobility devices are unlikely to kill or seriously injure other road users in a collision, so increasing the number of people bicycling reduces the number of people that could cause grievous harm in a collision.

Co-create with community and implement restorative practices to address transportation-related inequities. All ages and abilities facilities provide more affordable and accessible travel options. They improve access to transit, employment, education, and services, and they positively contribute to health outcomes and active living.

Respond to climate change through innovation and a lens of climate justice. Implementing the network encourages more trips by bicycle and e-mobility, which are one of our cleanest travel options since they are zero-emission. They reduce driving trips, which is our greatest source of greenhouse gas (GHG) emissions, air and water pollution, and harmful emissions that impact community health.

Provide reliable and affordable travel options that help people and goods get where they need to go. Provide a reliable and affordable travel option for personal and commercial travel, particularly for shorter trips. They support first-/last-mile connections to Seattle's transit system and provide independent mobility for younger and older Seattleites.

Reimagine city streets as inviting places to linger and play. Contribute to economic and neighborhood vitality by reducing household transportation costs and encouraging local spending. Create positive health outcomes for communities through physical activity, clean air, mental health, and social connection. Support the creation of inviting, people-oriented streets due to the quiet, zero-emission travel.

Improve city transportation infrastructure and ready it for the future. A well-maintained bicycle and e-mobility network contributes to safety, comfort, and accessibility. People bicycling and using e-mobility have a lower impact on our streets compared to people driving. Use of durable materials with low life-cycle costs will reduce maintenance costs while enhancing safety and comfort of people riding bicycles.

[6] Fyhri, A., Sundfør, H. B., Bjørnskau, T., & Laureshyn, A. (2017). Safety in numbers for cyclists-conclusions from a multidisciplinary study of seasonal change in interplay and conflicts. Accident; analysis and prevention, 105, 124–133. https://doi.org/10.1016/j.aap.2016.04.039

DELIVERING THE KEY MOVES

Part I, Chapter 3 of the Seattle Transportation Plan (STP) includes a collection of key moves, or strategies that describe the priority actions we've identified as critical to achieve our STP goals:

- Safety (S)
- Equity (TJ)
- Sustainability (CA)
- Mobility & Economic Vitality (PG)
- Livability (PP)
- Maintenance & Modernization (MM)

Each of the functional elements serve a distinct and important role in making our key moves happen. This section highlights the most relevant key move actions for this element.

Table 1 is intended to illustrate which of the key moves the **Bicycle and E-Mobility Element** will help us to accomplish.

- Element actions with a reference, such as "**Supports Key Move TJ1**," link directly back to the corresponding Part I Key Move that it supports. See Chapter 3.
- Element actions with a reference, such as "**Supports TEF 32.1**," link directly back to the corresponding Transportation Equity Framework (TEF) tactic(s) the action advances. A comprehensive list of supported TEF tactics is included at the end of each element.

Several actions are repeated across all STP functional elements because they are important commitments that should be present in all of our work. For example, all elements include:

> *Incorporate Vision Zero and Safe System approaches into every project and program, including proactive safety improvements for citywide implementation.*
> *(Supports Safety Key Move S2a)*
>
> *Feature community voices in planning documents. (Supports Equity Key Move TJ1b)*

Part I, Chapter 4 Implementation Strategy of the STP provides additional information on how we'll deliver our shared vision, goals, and key moves.

Table 1: Bicycle and E-Mobility: Delivering the Key Moves

Bicycle and E-Mobility: Delivering the Key Moves		STP Goals Supported					
		Safety	Equity	Sustainability	Mobility & Economic Vitality	Livability	Maintenance & Modernization
SAFETY KEY MOVES							
Reduce vehicle speeds to increase safety (S1)							
B1	Design all streets using context-appropriate traffic calming treatments that are proven to reduce speeds and encourage people driving to travel at the posted speed limit. This should include strategies to narrow the street, coordinate traffic signs and signals, and plant street trees. (Supports Key Move S1a)	✓			✓		✓
B2	Implement traffic calming strategies, such as traffic circles, chicanes, or speed humps, cushions, and tables. Pair strategies with programs that deliver educational campaigns to reduce speeding. (Supports Key Move S1b)	✓					
Concentrate safety investments where fatal and serious injury collisions occur most or are at a higher risk of occurring (S2)							
B3	Incorporate Vision Zero and Safe System approaches into every project and program, including proactive safety improvements for citywide implementation. (Supports Key Move S2a)	✓	✓	✓	✓	✓	
B4	Prioritize bicycle safety improvements that are on the high-injury network, have high levels of travel stress, or are identified through the Seattle Bicycle and Pedestrian Safety Analysis. (Supports Key Move S2b and TEF 19.2)	✓	✓		✓		
B5	Accelerate implementation of research-backed improvements that are proven to make streets safer for everyone, including but not limited to leading pedestrian intervals at signals, arterial traffic calming, and road diets. (Supports Key Move S2c)	✓			✓		✓
B6	Make people biking and using e-mobility more visible by improving sight lines at intersections through treatments such as curb bulbs, intersection daylighting, and refuge islands, with a focus on High Injury Corridors. (Supports Key Move S2d)	✓			✓		✓
B7	Expand opportunities to more safely cross busy arterials by installing enhanced crossings, improved lighting, and other treatments. (Supports Key Move S2e and TEF 40.6)	✓			✓		✓
B8	Pilot and evaluate new and emerging safety treatments in locations where proven interventions are infeasible or do not address the identified safety issues. (Supports Key Move S2f)	✓					
Make all journeys safer from departure to destination, especially for people traveling outside the protection of a vehicle (S3)							
B9	Construct new sidewalks, enhanced crossings, bike lanes for all ages and abilities, and multi-use trails where there are gaps or opportunities for new connections, prioritizing places with the greatest safety concerns. (Supports Key Move S3a)	✓			✓		

Bicycle and E-Mobility: Delivering the Key Moves		STP Goals Supported					
		Safety	Equity	Sustainability	Mobility & Economic Vitality	Livability	Maintenance & Modernization
B10	Provide dedicated places for people to walk, bike, or roll safely separated from vehicles by using context appropriate treatments, such as protected bike lanes or "complete street" corridors, especially on major truck routes. Where a bicycle route shares a street with a freight route, facilities for bicycles and trucks should be clearly separated and comply with width and materials standards, consistent with *Streets Illustrated*. (Supports Key Move S3b)	✓	✓	✓	✓	✓	
B11	Harness funding and opportunities when private development occurs to build planned new network facilities and prioritize mobility for people biking and using e-mobility when construction occurs. (Supports Key Move S3c)	✓			✓		
B12	Upgrade existing facilities for people bicycling and using e-mobility to be safer and accessible for people of all ages and abilities. (Supports Key Move S3d and TEF 7.1, 43.4)	✓			✓		✓
B13	Support programmatic activities and partnerships to reduce the size and weight of vehicles used for personal trips, transit, and urban goods movement. Heavier vehicles are a key factor in pedestrian fatalities. (Supports Key Move S3f)	✓			✓		✓
B14	Coordinate with freight, passenger rail, and light rail partners on safety improvements at rail crossings. (Supports Key Move S3g)	✓					
B15	Expand safety education for all travelers. (Supports Key Move S3h)	✓					
Provide safer routes to schools, parks, transit, community gathering spaces, and other common destinations (S4)							
B16	Construct the bicycle and e-mobility network as outlined in this Plan. (Supports Key Move S4a)	✓	✓	✓	✓	✓	✓
B17	Make investments near light rail stations and busy transit stops that make it safer to bike to transit. Establish a Safe Routes to Transit program. (Supports Key Move S4b)	✓		✓	✓	✓	
B18	Develop station access plans for future light rail stations and enhance the experience and quality of existing facilities that connect people bicycling along and across major transit corridors. (Supports Key Move S4c, TEF 40.2)	✓		✓	✓	✓	✓
B19	Serve every public school with an all ages and abilities bicycle facility. (Supports Key Move S4d, TEF 43.4 and Executive Order 2022-07)	✓	✓	✓	✓	✓	
B20	Expand permanent Healthy Streets to all neighborhoods as a way of providing low stress connections to common destinations for people walking, biking, and rolling, regardless of age or and ability. (Supports Key Move S4e, TEF 43.4 and Executive Order 2022-07)	✓	✓	✓	✓	✓	
B21	Make investments that make it safer to bicycle to parks, community gathering spaces, and other common destinations. Establish a Safe Routes to Parks program. (Supports Key Move S4g)	✓	✓				

Bicycle and E-Mobility: Delivering the Key Moves		STP Goals Supported					
		Safety	Equity	Sustainability	Mobility & Economic Vitality	Livability	Maintenance & Modernization
EQUITY KEY MOVES							
Center the voices of communities of color and underrepresented groups in planning and decision-making processes (TJ1)							
B22	Implement the Transportation Equity Framework to grow transparency, accountability, and shared power when making transportation decisions with community members. (Supports Key Move TJ1a)		✓				
B23	Feature community voices in planning documents. (Supports Key Move TJ1b)		✓				
B24	Continue to build and maintain relationships with vulnerable communities and underrepresented groups. (Supports Key Move TJ1c and TEF 29.1, 41.6)		✓				
B25	Meet early and often to provide opportunities to influence projects during the initial phases of the development process. (Supports Key Move TJ1d and TEF 3.4)		✓		✓		
B26	Build trust and capacity within organizations that prioritize our vulnerable communities and advocate to improve conditions for people who walk, bike, and roll. Learn from leaders active in these spaces. (Supports Key Move TJ1e and TEF 31.4)	✓	✓	✓	✓		
B27	Normalize the practice of making decisions about policies and right-of-way allocations with input from vulnerable communities. Expand and build on our existing participatory budgeting programs, such as the Neighborhood Street Fund. (Supports Key Moves TJ1f and TEF 19.1, 25.4)	✓	✓	✓	✓	✓	✓
B28	Compensate community partners for their valuable work to connect and communicate with their networks and uplift community-driven initiatives. (Supports Key Move TJ1i and TEF 1.1, 13.4, 31.4, 37.1)		✓				
Address inequities in the transportation system by prioritizing investments for impacted communities (TJ2)							
B29	Prioritize transportation investments that benefit people and local businesses who currently and historically experience high transportation burdens and those at high risk of displacement. (Supports Key Move TJ2a)		✓		✓	✓	
B30	Engage regularly with local businesses owned by our vulnerable communities to hear their concerns around transportation project impacts and displacement, and co-create transportation, public space, and permitting solutions. (Supports Key TJ2d and TEF 14.3, 15.2)	✓	✓		✓	✓	
B31	Identify actions to address inequities experienced by vulnerable community members who walk, bike, and roll, and provide capacity-building support to BIPOC-led organizations that focus on increasing active transportation. (Supports Key Move TJ2e and TEF 31.4)	✓	✓		✓		
B32	Develop policies to prevent and mitigate transportation projects, both past and present, from contributing to future displacement. (Supports Key Move TJ2g)		✓		✓		✓
B33	Conduct and implement racial equity assessments at the program level. (Supports Key Move TJ2j)	✓	✓	✓	✓	✓	✓

Bicycle and E-Mobility: Delivering the Key Moves		STP Goals Supported					
		Safety	Equity	Sustainability	Mobility & Economic Vitality	Livability	Maintenance & Modernization
Remove cost as a barrier so everyone can take the trips they need to make (TJ3)							
B34	Construct the bicycle and e-mobility network outlined in this plan. Expanding access to these affordable mobility options makes it easier to get around without the expense of automobiles. These networks provide 24/7 access, benefitting people who need to travel outside of 8 AM to 5 PM, especially those who are low-income people of color, and those who rely heavily on public transportation. (Supports Key Move TJ3a)		✓		✓	✓	
B35	When a capital project is underway in a community, incorporate supplemental programs to help community members transition to sustainable travel options like walking, biking, and taking transit. For example, when installing a bike lane, consider partnering with a local bike shop on helmet distribution. (Supports Key Move TJ3b)	✓	✓		✓		
B36	Enhance programs that provide free or reduced travel fares and fees for low-income households and develop programs that connect people with e-bikes and e-scooters, remove upfront costs and ongoing maintenance costs. (Supports Key Move TJ3c and TEF 32.1, 46.2, 46.3, and 52.4)		✓		✓		
Support shifts toward non-punitive transportation enforcement approaches that reduce harm and enhance public safety on city streets (TJ4)							
B37	Improve enforcement of existing regulations that support reliable mobility and safety, including those that keep bike lanes and pedestrian zones clear, deter improper use of transit-only lanes, and discourage speeding, especially in school zones. (Supports Key Move TJ4g)	✓	✓		✓		
SUSTAINABILITY KEY MOVES							
Improve neighborhood air quality and health outcomes by promoting clean, sustainable travel options (CA1)							
B38	Expand beyond employer-based travel demand management programs to include residential and neighborhood-based strategies that encourage non-driving travel choices for all trips. (Supports Key Move CA1a)		✓	✓			✓
B39	Expand public education campaigns to encourage bicycling, using e-mobility, walking, rolling, and taking transit. (Supports Key Move CA1b)		✓	✓	✓		
B40	Develop and expand programs that incentivize sustainable alternatives to driving for large events and as a primary congestion mitigation tool during major construction projects. (Supports Key Move CA1c)			✓	✓		
B41	Operate the transportation system—signals, markings, signage, and right-of-way allocation—to encourage sustainable travel choices (walking, biking, taking transit, and for moving goods). (Supports Key Move CA1g)			✓	✓		✓
Green city streets with landscaping and street trees to better handle changing climate (CA2)							
B42	Encourage the maintenance and installation of green infrastructure—such as street trees, rain gardens, landscaping, natural drainage systems, bioswales, and pervious materials—as other improvements occur in the right-of-way. (Supports Key Move CA2a and TEF 56.4)			✓			✓

Bicycle and E-Mobility: Delivering the Key Moves		STP Goals Supported					
		Safety	Equity	Sustainability	Mobility & Economic Vitality	Livability	Maintenance & Modernization
Foster neighborhood vitality and improved community health (CA3)							
B43	Design for people-first streets to make sustainable travel choices the default and easy choice for neighborhood trips and to increase neighborhood business district activity. Reflect the wide range of bicycle and e-mobility devices that will use the Bike+ and multi-use trail networks in the future. (Supports Key Move CA3d)		✓	✓	✓		
B44	Incentivize mobility options that don't use fossil fuels for transit, personal and urban goods delivery vehicles, and shared mobility (such as e-bikes and scooters). (Supports Key Move CA3e)		✓	✓			
Support the transition from fossil fuel to electric vehicles for personal, commercial, and delivery trips (CA4)							
B45	Support electrification of shared mobility and freight vehicles through programs that install charging infrastructure, offer focused incentives, and reduce reliance on large vehicles. (Supports Key Move CA4f)			✓			✓
MOBILITY & ECONOMIC VITALITY KEY MOVES							
Create seamless travel connections (PG1)							
B46	Prioritize efficient and sustainable movement of people within limited street space and reallocate street and curb space to maximize comfort, convenience, and directness for walking, biking, rolling, and transit. (Supports Key Move PG1a and TEF 19.6, 43.4)				✓		✓
B47	Improve the experience of making travel connections, especially between transit and travel options—such as personal and shared bikes and scooters—used for first-/last-mile trips. Provide helpful resources to help people plan their bicycle and e-mobility trips. (Supports Key Move PG1b and TEF 35.2, 45.3)		✓	✓	✓		✓
Make walking, biking, and rolling more convenient and enjoyable travel choices, especially for shorter trips (PG2)							
B48	Develop standards to measure right-of-way tradeoffs for bicycle design along designated bicycle routes and corridors to implement during project development. (Supports TEF 19.6 and 43.4)			✓	✓		
B49	Grow the bike network and employ designs that reflect the needs and comfort level of people of all ages and abilities. Expand the bicycling community. (Supports Key Move PG2d)	✓	✓	✓	✓		
B50	Launch a citywide parking program for bicycles, scooters, and e-mobility devices, with a focus on community and mobility hubs, curbspace, and other locations, including short-term and long-term secure bike parking. (Supports Key Move PG2e)		✓	✓	✓	✓	
B51	Update private development bike parking guidelines and code requirements (for charging and storage) to support and grow the use of e-bikes, larger cargo bikes, and scooters. (Supports Key Move PG2f)		✓	✓	✓		✓

Bicycle and E-Mobility: Delivering the Key Moves		STP Goals Supported					
		Safety	Equity	Sustainability	Mobility & Economic Vitality	Livability	Maintenance & Modernization
Create world-class access to transit and make service more frequent and reliable (PG3)							
B52	Enhance existing and create new community and mobility hubs, with connections to high-capacity transit services. (Supports Key Move PG3h)			✓	✓		✓
B53	Prioritize low-carbon travel options through seamless, direct walking, biking, and rolling connections to community and mobility hubs. (Supports Key Move PG3i)			✓	✓		
Support access to jobs, freight movement, and growth in deliveries (PG4)							
B54	Collaborate with private sector partners on pilots and programs that accelerate the shift of freight trips to more sustainable low- and zero-emissions vehicles, such as electric cargo bikes to replace a portion of last-mile deliveries made by larger vans and trucks in densely developed areas. (Supports Key Move PG4f)			✓	✓		
B55	Expand efforts to work with employers and property managers to provide sustainable transportation options, education, and incentives to promote sustainable travel options for shift workers, non-peak hour commuters, small business employees, and workers in MICs. (Supports Key Move PG4l)		✓	✓	✓	✓	
Manage curbspace to reflect city goals and priorities (PG5)							
B56	Recognize that the curb supports all essential functions of the right-of-way (mobility, access for people, access for commerce, activation, greening, and storage) and develop decision frameworks to prioritize these functions based on local area and system needs. (Supports Key Move PG5a)		✓	✓	✓	✓	
B57	Develop strategies and new tools to accommodate more types of curb uses, including parking for bikes and other small devices, parking for shared micromobility, and other curb uses that support low-emission travel options. (Supports Key Move PG5c)		✓	✓	✓	✓	✓
LIVABILITY KEY MOVES							
Reallocate street space to prioritize people while preserving access for goods delivery and emergency response (PP1)							
B58	Reallocate street space currently used for vehicle storage (i.e., parking) and general purpose travel to support a variety of people-oriented uses, such as gathering, playing, walking, and biking in strategic locations (Supports Key Move PP1a)	✓	✓	✓	✓	✓	✓
B59	Update Seattle's Right-of-Way Improvements Manual (*Streets Illustrated*) to implement actions and strategies outlined in this Plan. Develop a Bicycle Facility Design Guide to supplement *Streets Illustrated* and provide comprehensive guidance for project implementation. (Supports Key Move PP1d)	✓	✓	✓	✓	✓	✓
Transform community and mobility hubs into welcoming places (PP2)							
B60	Provide a safe and comfortable experience moving in and around community and mobility hubs. This includes better crossings and intersections, slower speeds and rightsized travel lanes, decluttered sidewalks, universal access, and more. (Supports Key Move PP2c)	✓	✓	✓	✓	✓	✓

Bicycle and E-Mobility: Delivering the Key Moves		STP Goals Supported					
		Safety	Equity	Sustainability	Mobility & Economic Vitality	Livability	Maintenance & Modernization
MAINTENANCE & MODERNIZATION KEY MOVES							
Maintain our streets, sidewalks, and bridges and incorporate planned safety and network improvements with maintenance work (MM1)							
B61	Maintain our transportation infrastructure, including streets, bike facilities, sidewalks, and bridges serving the most users and on the high-injury network. (Supports Key Move MM1a)	✓	✓	✓	✓	✓	✓
B62	Reduce the maintenance backlog by being proactive, leveraging technology to monitor asset conditions, and using data and lifecycle analyses to help determine when it's time for upgrades. (Supports Key Move MM1c)						✓
B63	Collect feedback on asset conditions as part of community engagement on transportation system planning, design, and co-creation. (Supports Key Move MM1e)		✓				✓
B64	Conduct asset maintenance in accordance with the priority investment and emergency response route networks to guide asset maintenance, especially when investment supports walking, biking, transit, and freight. (Supports Key Move MM1f and TEF 45.6)		✓	✓	✓		✓
B65	Modernize city streets by incorporating planned safety and network improvements into maintenance and replacement activities to not only improve the condition of transportation infrastructure and equipment, but also reduce dependence on driving, promote sustainable travel options, and support economic vitality. (Supports Key Move MM1g and TEF 19.3)	✓	✓	✓	✓	✓	✓
Reduce neighborhood disparities in the quality of streets, sidewalks, public spaces, and bridges (MM2)							
B66	Conduct a racial equity assessment of the maintenance needs of existing assets in neighborhoods that score high on the city's Race and Social Equity Index. (Supports Key Move MM2a and TEF 19.3)		✓		✓		✓
B67	Focus resources for maintenance and improvements in neighborhoods that have been historically or are currently underserved. (Supports Key Move MM2b and TEF 19.4)	✓	✓	✓	✓	✓	✓
Ready city streets for new travel options and emerging trends and technologies (MM3)							
B68	Collect, monitor, and use data to inform changes to the transportation system. (Supports Key Move MM3a)	✓	✓	✓	✓		✓
B69	Adapt streets for new and evolving forms of mobility devices such as commercial or private cargo bikes, e-scooters, personal delivery devices, low-speed electric vehicles, and others to create more travel options. (Supports Key Move MM3e and TEF 19.2)	✓		✓	✓	✓	✓
B70	Develop and maintain up-to-date asset data, including digital inventories of physical assets like curb space, load zones, bike, and scooter parking locations. (Supports Key Move MM3e)		✓	✓	✓		✓

SETTING THE CONTEXT

Seattle is a dynamic and ever-evolving city. We've seen dramatic changes in the types of travel options available for people to choose from, as well as when and where people want to travel. Additionally, there are increasing demands on the role streets play to support social, environmental, and economic health. We can't fully predict changing conditions (such as a global pandemic) that could disrupt the transportation system and all the functions it serves. As such, we will need to remain agile and able to continually adapt and respond to the evolving transportation needs of the city's residents, businesses, and visitors.

The STP provides a framework for how SDOT will navigate a changing transportation landscape over the next 20 years. This section describes the context we're operating in today, including significant opportunities, emerging trends, and challenges. It also includes a summary of major community engagement themes we heard that relate to bicycling and e-mobility. They were used to shape the actions we'll take to achieve our shared transportation vision. SDOT will continue to engage and co-create with community members as transportation system needs, preferences, and circumstances continue to evolve in the years to come.

OPPORTUNITIES, EMERGING TRENDS AND CHALLENGES

This section discusses opportunities, challenges, and emerging trends that we need to understand and respond to in order to achieve our vision for bicycles and e-mobility. Support for bicycles and e-mobility includes not only infrastructure and safety improvements to make riding comfortable and enjoyable, but also requires strategic coordination with land use, transit and station area planning, policy development and considerations for how other new and emerging travel options may impact people riding bikes or other e-mobility devices in the future.

Opportunities and Emerging Trends

- **E-bikes and cargo bikes.** The increasing adoption of electric bikes, cargo bikes, and adaptive bikes has the potential to help people overcome network and personal barriers previously seen as limiting factors for bicycling in Seattle, such as hills or the need to transport family members and goods.
- **Complete communities.** These communities include access to adequate housing, essential needs and services, amenities, jobs, educational opportunities, and more within a short walk, bike ride, e-mobility ride, or transit ride. Updates to Seattle's land use vision as part of the One Seattle Comprehensive Plan will put more destinations within biking distance of peoples' homes. As a result of the 2018 land use code update, bicycle parking is required at all new developments, so residents and employees have a location to lock their bike.
- **Commercial bike use.** As we implement our bike and e-mobility network, there will be enhanced opportunities for business to reduce reliance on autos to make urban goods deliveries including business to consumer (B2C) and business to business (B2B) deliveries.
- **More cargo and e-mobility bikes** can be used to offer reliable, low-emission delivery options. The University of Washington's Urban Freight Lab estimates a potential 30% reduction in CO2 emissions

per package. The creation of a future Commercial Bike program could improve awareness, promote partnerships, and accelerate adoption of commercial cargo and e-mobility deliveries.

- Light rail expansion. West Seattle and Ballard, Lynnwood, and East Link extensions and infill stations will allow more opportunities to connect to the regional transportation network using a bicycle as a "first- and last-mile" travel option. Per Seattle's land use code, new stations will have bike parking that to make biking to transit more secure.
- **Improved safety data.** Data and findings from SDOT's Bicycle and Pedestrian Safety Analysis (BPSA), the 2023 Vision Zero "Top to Bottom" Review, and Vision Zero Action Plan will help guide strategic and equitable investments in safety for people bicycling.
- **Low-Emission Neighborhoods.** Executive Order 2022-07 on transportation emissions will further promote bicycling for transportation within proposed low-emission neighborhoods. Low-emission neighborhoods prohibit or restrict the types of vehicles allowed within the neighborhood and encourage other, zero- to low-emission modes like biking, walking, e-cargo deliveries, etc. (Supports TEF 19.7) See the STP People Streets and Public Spaces Element for more information.
- **Other elements from Executive Order 2022-07**, such as the Youth Transportation Summit, the commitment to 20 miles of permanent Healthy Streets, expansion of the School Streets program, and the commitment to have an all ages and abilities bike facility serve every public school, will also support bicycle and e-mobility element goals. See the STP People Streets and Public Spaces Element for more information.
- Improved detection. New technology has been developed that allows for better bicycle detection at signals, enabling a more seamless and convenient experience for riders.
- Vehicle technology. Active safety systems—such as autonomous emergency braking and intelligent speed assistance—could curb risky driving behavior and reduce crashes, including bicycle crashes. Fully autonomous vehicles, capable of operation without any human involvement, are not available today, but they have the potential to reduce the number and severity of collisions and improve road safety for everyone. That said, these technologies are also a potential safety challenge for people bicycling and using e-mobility devices until the technology advances.
- Implementation of bicycle-related Transportation Equity Framework (TEF) tactics. Tactics outlined in the Seattle Transportation Equity Framework (TEF) provide a roadmap to address historical disinvestment and the resulting disparities in mobility, including safe bicycling facilities, health, and travel affordability. Relevant TEF tactics are referenced throughout this element and are listed at the end of this document.

Challenges

- **Maintenance.** Investments in equipment, labor, and materials will be necessary to maintain safe, comfortable, and attractive bicycle facilities. This includes sweeping debris, filling potholes, restriping faded lines, maintaining signals, fixing broken bollards (posts that block vehicle access into restricted bike or pedestrian facilities), and more.
- **Lighting.** A 24/7 network requires us to address lighting deficiencies across the network and especially at intersections.
- **Bike parking.** More secure and ubiquitous bike parking is needed that accommodates adaptive bikes, e-bikes, and cargo bikes in both residential and commercial areas and at high-frequency transit/light rail stations and community and mobility hubs.
- **Geographic pinch points.** Seattle's steep topography, highway network, water bodies, and bridges create pinch points where freight, transit, bicycle, and pedestrian access needs compete for limited space on existing bridges and rights-of-way. The STP provides guidance on how to address these pinch points, and additional analysis will be needed as part of project implementation.
- **Cultural changes.** Changes in public opinion and behavior are needed to shift a portion of trips from driving in private vehicles to other modes, such as bicycling and e-mobility, in a meaningful way.
- **Interagency coordination.** We will need to work with agency partners to identify solutions to challenges that inhibit use of bicycling and e-mobility:
    - *King County Metro*: It is challenging to locate bike facilities under trolley lines where buses must maintain lateral clearance to attach overhead, and bike racks on buses do not accommodate a variety of e-bike and cargo bike sizes.
    - *WSDOT*: There are conflicts between bike facilities and highway entrance and exit ramps.
    - *U.S. Army Corps of Engineers, U.S. Coast Guard, Washington State Departments of Natural Resources and Fish & Wildlife, and Tribal Nations*: There is a desire to provide new and upgraded facilities with drawbridge operations.
    - *Seattle Public Utilities*: Common complaints include dumpsters located in bike lanes during pickup days and water on the roadway due to drainage system issues.
    - *Seattle City Light*: Overhead wires and "down guys" obstruct access for trail maintenance within Seattle City Light right-of-way.
    - *Railroad Companies:* There is potential for conflicts between bike facilities and train track crossings.
    - *Seattle Parks and Recreation:* There are some bicycling pinch points on streets adjacent to Parks.
- **Access through construction zones**. It is critical to provide safe and intuitive access through construction zones—whether roadway or building construction—so people bicycling are not suddenly forced to merge with traffic. Often, this comes down to enforcing approved traffic control plans.
- **Vehicles obstructing bike lanes.** Bike lanes often are obstructed by people driving delivery vehicles, Transportation Network Company (TNC) drivers, and others who need to access the curb, forcing people bicycling and using e-mobility devices to merge with traffic. Protected bike lanes reduce

occurrences of obstructed bike lanes, as does more awareness-building messaging and enforcement.

- **Continuous improvement opportunities.** While the use of flexible delineators for protected bike lanes has allowed for relatively low-cost expansion of Seattle's protected bike lane network, we recognize the need to upgrade these bikeways with more permanent, robust protection to truly make them comfortable for more people. We are always seeking to improve safety and update facilities to meet current standards.
- **Wayfinding.** While Seattle has an extensive bicycle wayfinding sign system, there is more work to be done to improve signage so people can confidently and comfortably find their way along the bicycle and e-mobility network. Increased coordination with other city wayfinding programs is needed to provide consistency in what destinations are called, graphics, and format for secondary languages.
- **Urban Heat Island Effect.** As climate change accelerates and extreme weather events continue to include longer periods of hotter, dryer weather, active transportation becomes more difficult. Areas lacking tree canopy are most impacted by urban heat island effects. Where trees provide shade to bike facilities, their natural debris and growing roots can increase maintenance needs.
- **Autonomous Delivery.** Autonomous delivery robots, if permitted, would potentially use bike lanes, resulting in increased demand and competition for space in bicycle lanes.
- **Need for Nimble Design Standards.** *Streets Illustrated* (Seattle Right-of-Way Improvements Manual)[7] identifies a high-level design framework for bike lanes, multi-use trails, intersections, bike lanes with transit service, Neighborhood Greenways, and bike parking that are based on national best practices. However, best practices are evolving, and our design standards must reflect that.
    - A comprehensive design guide is needed to supplement Streets Illustrated and more nimbly reflect current best practices. As more people use cargo bikes, e-bikes, adaptive bikes, and e-mobility devices that vary in size and speed at which they travel, there needs to be adequate space for people traveling faster to safely pass those moving slower and to maneuver larger devices through pinch points.

[7] https://streetsillustrated.seattle.gov/

COMMUNITY ENGAGEMENT

Bicycling is a form of transportation and recreation embraced by many people within Seattle, and there are still more people who would choose to bicycle if it were safer and more convenient. We conducted extensive public outreach as part of the Seattle Transportation Plan (STP) development process through a variety of tools, such as two interactive maps, open ended surveys, in-person events, festivals, listening sessions, and open houses.

Public engagement for the STP occurred from March 2022 to November 2023. Please see Chapter 2 in Part I of the STP for more details on the public engagement process and feedback received. As part of this engagement, we used two interactive web maps. In the first interactive map (May to August 2022), people could drop pins, trace routes, and draw areas where they want to see improvement in Seattle's transportation system.

We received over 4,750 bicycle-related comments on challenges and opportunities for bicycling and e-mobility. In the second interactive map (December 2022 to February 2023), people could drop pins and leave comments in response to the STP bicycle and e-mobility network. We received nearly 900 bicycle-related pins.

See **Figure 1** and **Figure 2** for aggregated bike-related comments. This feedback informed the bike maps in this chapter. Additional public comment received directly informed the policies, programs, and strategies found in this element. The third phase of engagement did not include interactive web maps, but participants still offered feedback on specific locations where they felt bike network improvements were needed.

Several themes emerged related to the bicycle and e-mobility network and policies, including:

- **Prioritize safety.** Frequently cited safety concerns include motorist speeding, distracted driving, delivery/freight drivers parking vehicles in bike lanes, and car doors opening into bike lanes. There is also concern that streets aren't safe for kids to walk and bike.
- **Provide permanent separation.** Physically separated bike lanes are strongly preferred. Durable, permanent materials are strongly preferred over temporary bollards. Maintaining protection through intersections both physically and temporally is needed to achieve an AAA facility designation.
- **Increase geographic equity.** Focus bike network improvements, bike facilities, and safety investments in areas that have historically seen less investment, such as South Seattle.
- **Close gaps in the network.** Focus on completing the bicycle and e-mobility network so there are no gaps.
- **Improve bike parking options to deter bicycle theft**. Community members frequently requested more secure short-term and long-term bike parking options citywide for a variety of bicycle sizes and types. This is particularly essential at community and mobility hubs, including light rail stations.
- **Use universal design**. Consider the needs of people with limited mobility when designing the bicycle and e-mobility network and parking areas (such as accessible vehicle parking at the curb, bicycle-pedestrian conflict points, and maintaining a clear pedestrian zone on sidewalks and at crossings).

- **Enhance safety and comfort through better maintenance**. Better maintained surface conditions in bike lanes and paths would make it safer and more comfortable for people biking and using scooters and other smaller-wheeled devices.
- **Provide more enforcement and education**. Drivers need to be held accountable for aggressive driving and breaking the law. All travelers need to practice better etiquette.
- **Deter parking and loading in bike lanes.** When cars are parked in bike lanes, people bicycling must merge into vehicular traffic to get around the parked car, putting them at risk of being hit. Enforcing no parking mandates within bike facilities will be an important part of keeping people bicycling and using e-mobility devices safe.
- **Be more consistent.** More consistency in bikeway design and maintenance would create a more predictable and safe bicycling experience, both for bicyclists and drivers.

”There are no good, safe, flat ways to get to central [Seattle] from this far south…Add protected bike bus priority infrastructure all the way from Othello to downtown to increase equity in the south end.”

– Quote from Survey Respondent

We also had a series of listening sessions with Black, Indigenous, and People of Color (BIPOC) bicycle leaders, which offered key takeaways for the STP:

- **Prioritize investment in the South End**. This is necessary to rebuild and regain trust from the community. Co-create with the community so that investments enhance lives of Black and Brown people living in the South End and do not facilitate displacement.
- **Reduce Speeds**. Need safer street design, traffic calming in underserved neighborhoods.
- **Promote protected bike facilities**. There is a desire to see more permanent protected bike lanes and other bike safety investments—as opposed to lanes distinguished by paint and plastic bollards, particularly in areas with lower vehicle ownership rates.
- **Emphasize safety in growing neighborhoods**. As neighborhoods densify, there is a need to reevaluate safety needs for people bicycling.
- **Accelerate the build-out of a complete and connected cycling network**. Bicycling infrastructure needs to connect riders as directly as possible to the places they want to go. Bicycle lanes should not just end and merge into a vehicle lane. Work to methodically complete a connected and safe cycling network.
- **Continue to build a meaningful relationship with these groups**. Meet and communicate regularly and make progress on action items discussed.
- **Make the rules of the road clearer.** Many people do not have a clear understanding of who can use bike lanes and multi-use paths and associated rules of the road.

"Until we actually add safe infrastructure to the Ballard Bridge, we should absolutely not consider it part of our bike network or a safe bike route."

– Quote from Survey Respondent

Locations in Seattle where the most public comments were received included Capitol Hill, Rainer Valley, Ravenna/Roosevelt, Burke-Gilman Trail, Beacon Hill, Aurora Ave, I-5 (multiple locations crossing I-5 and at ramps), Ballard Bridge, Fremont, and the University District.

Figure 1 and **Figure 2** show aggregated bike-related comments.

In **Figure 1,** the map on the left shows clusters of bicycle-related comments received on the first web map, and the map on the right shows the location of each individual bicycle-related pin.

Figure 2 shows the location of each individual bicycle-related pin received on the second web map.

Some neighborhoods provided more comments than others on the web maps. In response, the STP outreach process pivoted over the course of the project based on who we were hearing from—or not hearing from—to try to hear from as many different voices as possible.

This included meeting people where they were through grocery store and library pop-ups, focus groups, and more. While these conversations are not reflected in the web maps, input we heard was considered in creating the Elements and are highlighted in the Community Engagement Reports (see Appendix B).

Figure 1: Bike-related Public Comments on Webmap #1

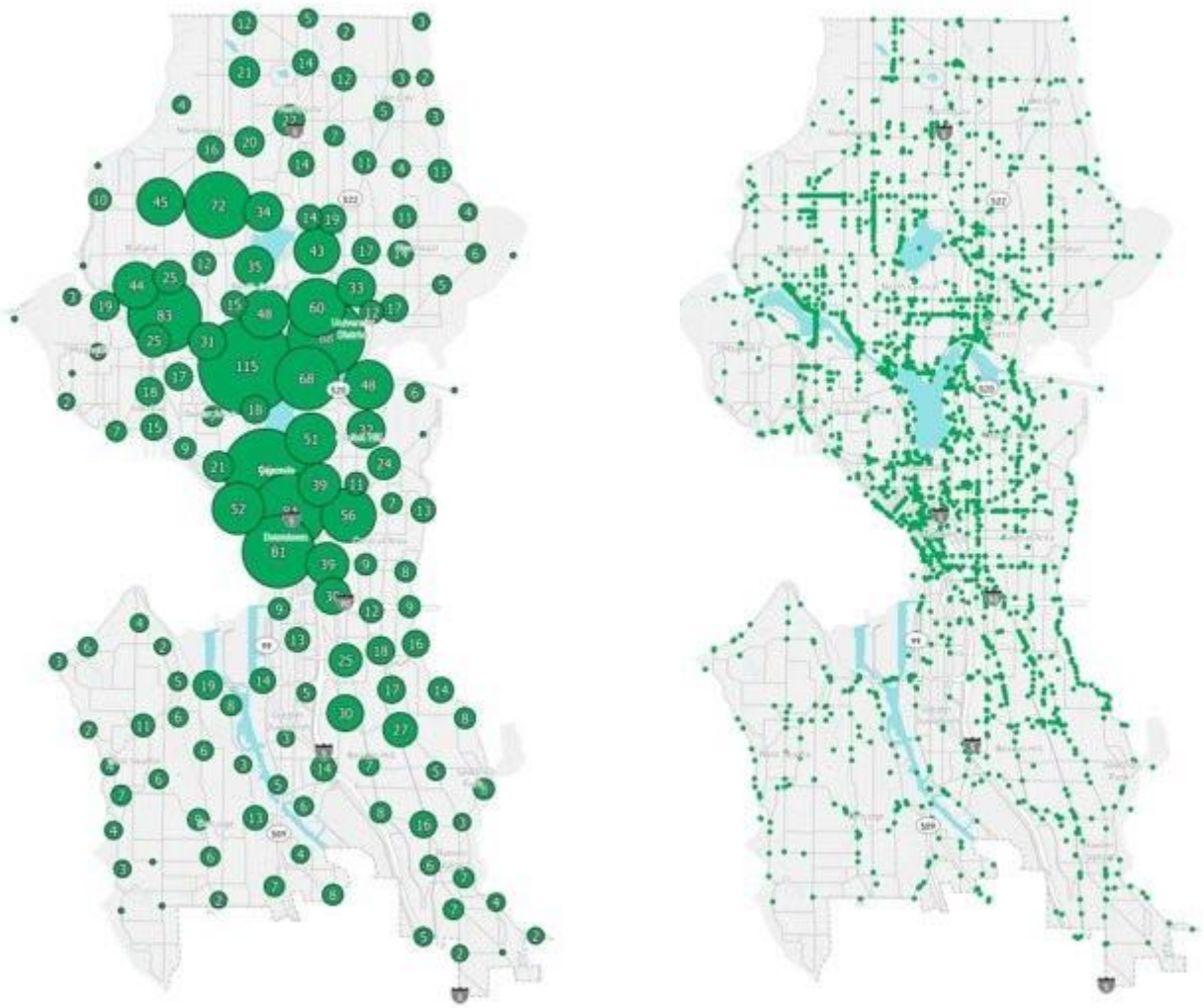
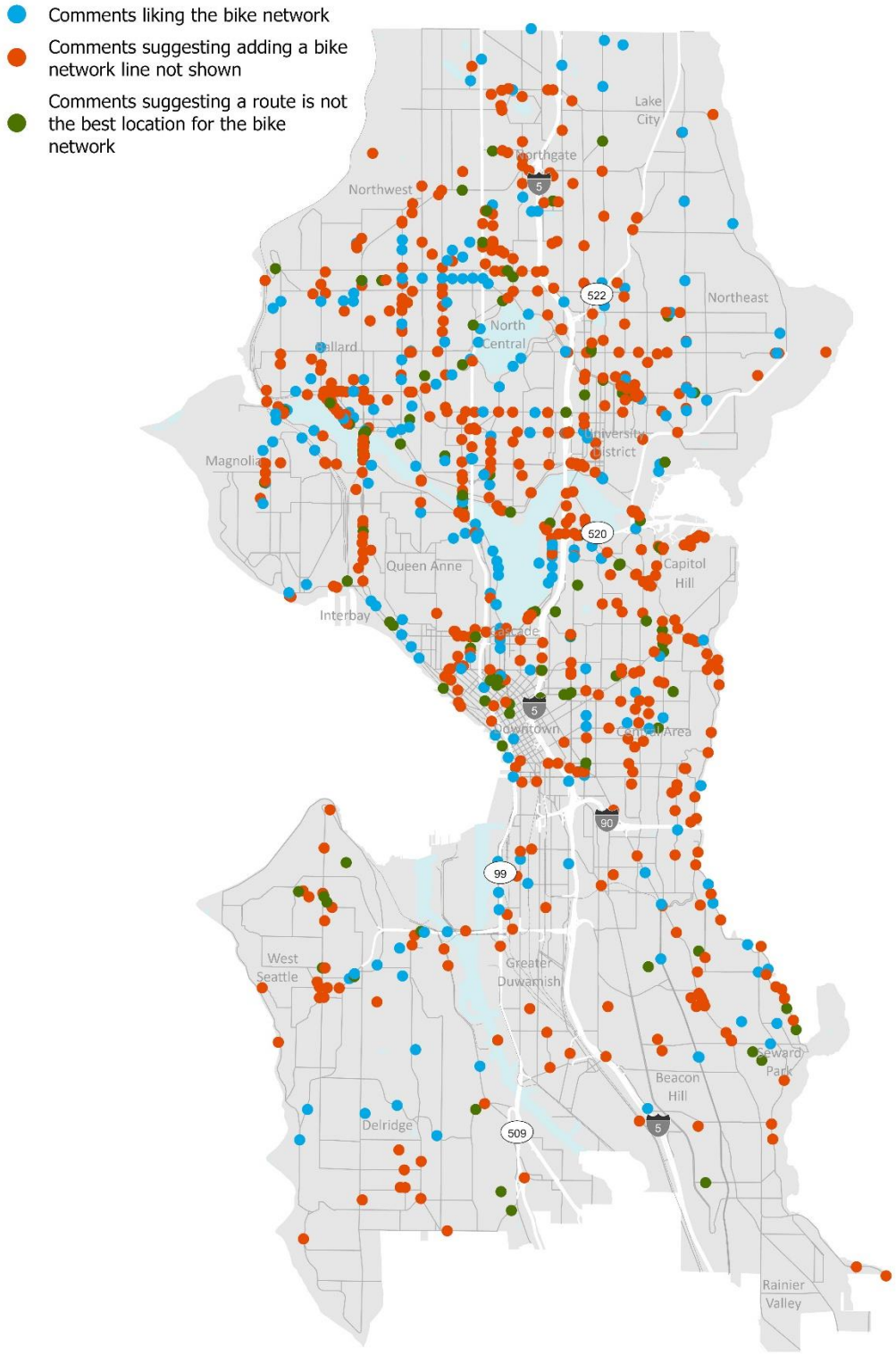


Figure 2: Bike-related Public Comments on Webmap #2

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BICYCLING AND E-MOBILITY IN SEATTLE

To make bicycling a viable and attractive mode of transportation for a greater number of Seattleites and visitors, the bicycle and e-mobility network must feel safe, intuitive, and provide convenient access to the places people want to go. This means the bicycle and e-mobility network must be connected, provide a consistent level of comfort, be well-maintained, and offer competitive travel times. This section describes the bicycle and e-mobility network and the key spatial and operational considerations necessary to achieve this vision.

We are responsible for constructing and maintaining bicycle and other e-mobility facilities in the right-of-way. These facilities include trails, protected bike lanes (cycle tracks), painted bike lanes, and other SDOT assets that help these facilities function, such as bicycle signals, bike racks, and markings. We regularly updates bicycle transportation planning documents to add new routes and desired upgrades to existing routes.

The bicycle and e-mobility network continues to grow each year, both in terms of overall miles and quality of design and materials used. Our projects are prioritized annually to fill in network gaps, achieve safety outcomes, and address equity opportunities to make biking a vibrant part of life for everyone in Seattle.

BICYCLING ETIQUETTE

The Bike+ network and multi-use trails will be used by a wide variety of people. This includes but is not limited to children; people in wheelchairs; both avid, long-time bicyclists and those new to bicycling; people using conventional bikes, cargo bikes, adaptive bikes, e-bikes, e-trikes, and e-scooters; and more. It is inevitable that people will travel at a range of speeds. We expect:

- People bicycling and using e-mobility devices to travel in a safe and prudent manner with reasonable speeds not to exceed 15-20 miles per hour, considering weather and site conditions.
- Courteous behavior that prioritizes the comfort and safety of people using the network more slowly.
- Slower travelers keep right to enable passing on the left.
- Give audible warning when passing.
- Signage may be installed to remind riders to slow down.
- If a person bicycling wants to travel at the speed of people driving, then they may want to take the travel lane.

BICYCLE AND E-MOBILITY NETWORK

The Seattle bicycle and e-mobility network will be safe, comfortable, and provide convenient access to destinations for people of all ages and abilities. It will support complete communities where everyday destinations like parks, schools, transit, and shopping are easily accessible by biking or walking. It will also enable time-competitive longer trips between priority destinations, such as Urban Villages, Urban Centers, and regional destinations, particularly for a growing number of people using e-bikes.

The bicycle and e-mobility network consists of the Bike+ network (defined below) and multi-use trail network, which will accommodate a greater volume and variety of people over time. This will involve ongoing coordination with e-mobility providers and freight delivery services utilizing e-trikes or similar vehicles for local deliveries. The network will be well-integrated with multi-use trails regardless of whether they are managed by SDOT or other agencies like WSDOT and Seattle Parks and Recreation. Finally, the network will be integrated with Seattle's network of historic Olmsted Boulevards.

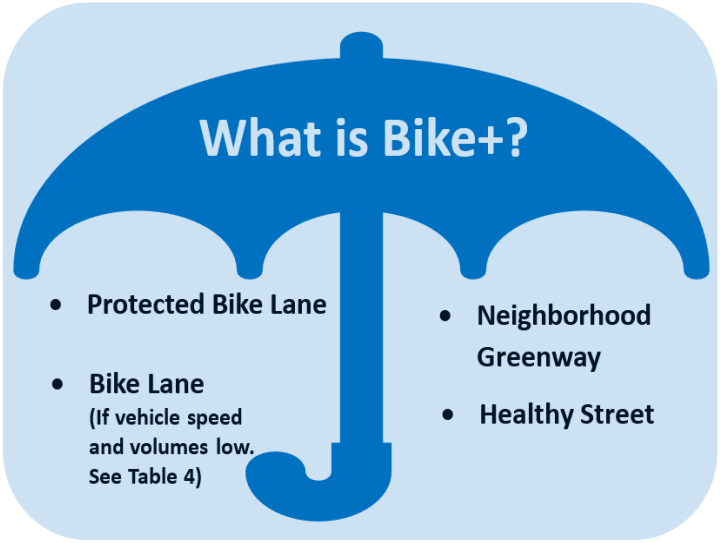
Bike+ Network

The Bike+ network consists of bikeways suitable for people of all ages and abilities (AAA), including protected bike lanes, Neighborhood Greenways, Healthy Streets, and bike lanes where vehicle speeds and volumes are sufficiently low.

The Bike+ network is envisioned to seamlessly integrate with the multi-use trail network, which provides connections through or on the edges of parks and opens spaces, where an off-street connection is preferred, or is more feasible than an on-street connection.

Many planned projects from the 2014 BMP have been implemented and are shown on the existing bicycle and e-mobility network map**.** The Bike+ network shows existing and proposed AAA bikeways on Seattle's arterial and non-arterial (i.e., neighborhood streets) networks.

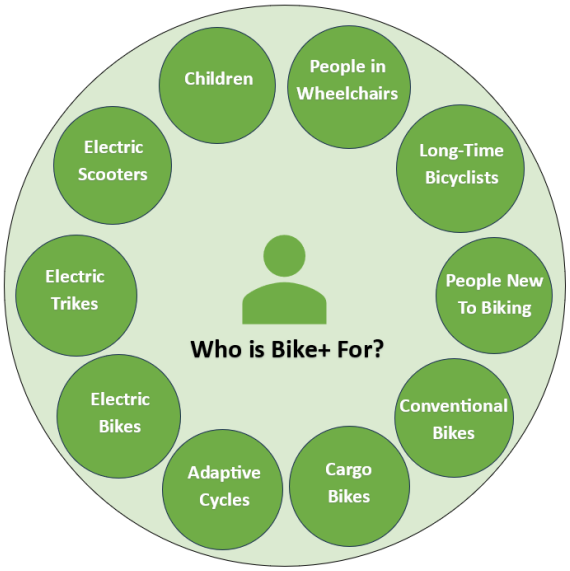
The proposed Bike+ network comprises planned bikeways carried over from the 2014 BMP, new bikeway connections, and existing bikeways that are proposed to be upgraded to meet National Association of City Transportation Officials (NACTO) AAA guidelines.



The proposed Bike+ network includes new connections to better serve new and planned light rail stations and other key destinations. In some locations, such as on Delridge Way and Airport Way, planned connections identified in the 2014 BMP were removed because alternative parallel routes were deemed more feasible and in alignment with other modal priorities.

Through the STP process, we conducted preliminary, planning-level analysis to identify locations where Bike+ improvements would not fit – either because of limited right-of-way or conflicts with other proposed priority networks – to put forward a future network that is as realistic as possible.

See Chapter 2 for an overview of this analysis.



However, in the future when a corridor is being designed, there is the possibility that some locations shown as Bike+ in the maps in this element will be deemed infeasible, and per the Comprehensive Plan's Complete Corridor policy, alternative parallel routes may be explored instead. Conversely, there is also the possibility that bicycle and e-mobility facilities could be built in locations even if they are not shown on the maps in this element.

ONE SEATTLE "COMPLETE CORRIDOR" POLICY

Collectively two or more streets can combine to serve as a "complete corridor," since not every street can accommodate every need.

Bikeway Typologies

The bicycle and e-mobility network consists of the following types of bikeways:

Protected Bike Lanes

Protected bike lanes are physically separated from traffic and the sidewalk. Like a trail, protected bike lanes are often more comfortable for people who prefer not to ride with traffic. They may be one-way (both sides of street) or two-way (on one side of the street). Input from Seattle residents indicates a clear preference for these types of bike lanes, and numerous studies from across North America have shown that such bikeways generally encourage more people to bicycle. Protected bike lanes built with flexible delineators are intended to be temporary, and over time we will upgrade these bike lanes with more permanent design elements, such as Toronto-Style barriers or planters.

One-way protected bike lane with Toronto-style permanent barrier

Two-way protected bike lane with planters

Bike Lanes

Seattle's current built bike network consists of many miles of painted bike lanes and bike lanes that are buffered through additional hatched pavement marking to create greater distance between moving cars and people bicycling. These types of lanes offer dedicated space for bicycling but lack any physical separation from moving vehicles. This lack of separation can result in "door zone" conflicts and collisions, which is when drivers open their car doors before looking for bicyclists in the roadway, as well as motor vehicles parking in bike lanes.

Over time, bike lanes may be upgraded to protected bike lanes, particularly in locations with identified safety issues. Where vehicle volumes and speeds are low (i.e., 20 mph or less), bike lanes may meet NACTO AAA guidelines. In such cases, the bike lane may be maintained as is, or upgraded, if feasible. In cases where an AAA facility within a quarter mile of an existing bike lane does not meet NACTO AAA guidelines and there isn't room to upgrade, the existing bike lane may be preserved because it could still have an important network role even if it's not AAA.

Bike lane

Buffered bike lane

Neighborhood Greenways

Neighborhood Greenways are routes that prioritize people walking, biking, and rolling comfortably on non-arterial streets with low vehicle volumes and speeds. Defined by their enhanced crossings of busy streets, Neighborhood Greenways provide a seamless connection between many protected bike lanes, trails, and community destinations such as schools, parks, libraries, and neighborhood commercial areas. **Figure 3** shows the design elements of a Neighborhood Greenway.

Bike train to school on a Neighborhood Greenway

Heathy Streets

Healthy Streets are open for people walking, rolling, biking, and playing and closed to pass-through vehicular traffic. They frequently overlap with the Neighborhood Greenway network. Because Healthy Streets are closed, people walking, rolling, and biking are permitted full use of the public right-of-way and function as Shared Streets. People driving who need to access homes and destinations along Healthy Streets are intended to move at the speed of play and share the space with people outside of vehicles.

For additional details, see the People Streets and Public Spaces Element.

People bicycling on a Healthy Street in Seattle

Figure 3: Neighborhood Greenway Design Elements

Multi-Use Trails

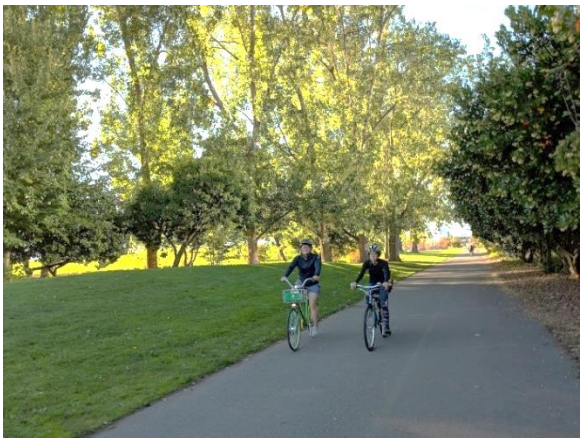
Multi-use trails are off-street facilities that accommodate people walking, biking, and using a wide range of other non-motorized and e-mobility devices. Multi-use trails are for two-way travel and may be adjacent to a street or found in parks, along rivers, beaches, greenbelts, or utility corridors.

Seattle has many multi-use trails that offer recreational opportunities and are an essential part of the city's transportation network. Because these facilities are shared by a wide variety of people traveling at varying speeds for a variety of purposes, they require both courteous behavior and adequate space for travelers to coexist safely and comfortably.

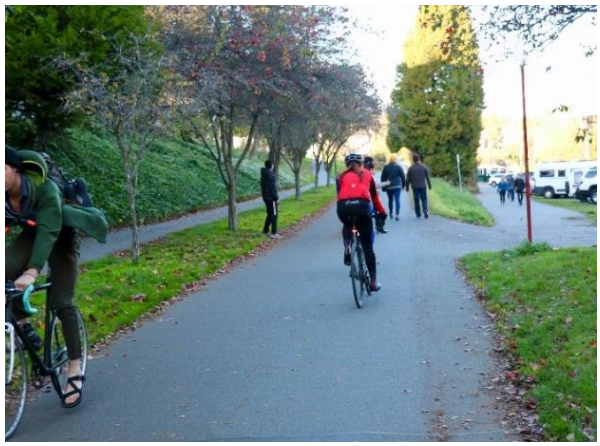
Several multi-use trails in Seattle connect to the greater regional trail network, including the Burke-Gilman Trail, Interurban Trail, and trails on State Routes 520 and I-90, as shown in **Figure 4**.

These multi-use trails facilitate travel between Seattle and neighboring communities and connect Seattleites to recreational opportunities in the greater Puget Sound region and beyond, especially those designated as part of the regional Leafline trail network.

Portions of the Burke-Gilman Trail, Elliott Bay Trail, and waterfront trail are part of the Great American Trail, a cross-country route connecting La Push, WA to Washington, D.C. Ensuring Seattle's multi-use trails are safe, comfortable, and easy to navigate can encourage more visitors and yield economic benefits.

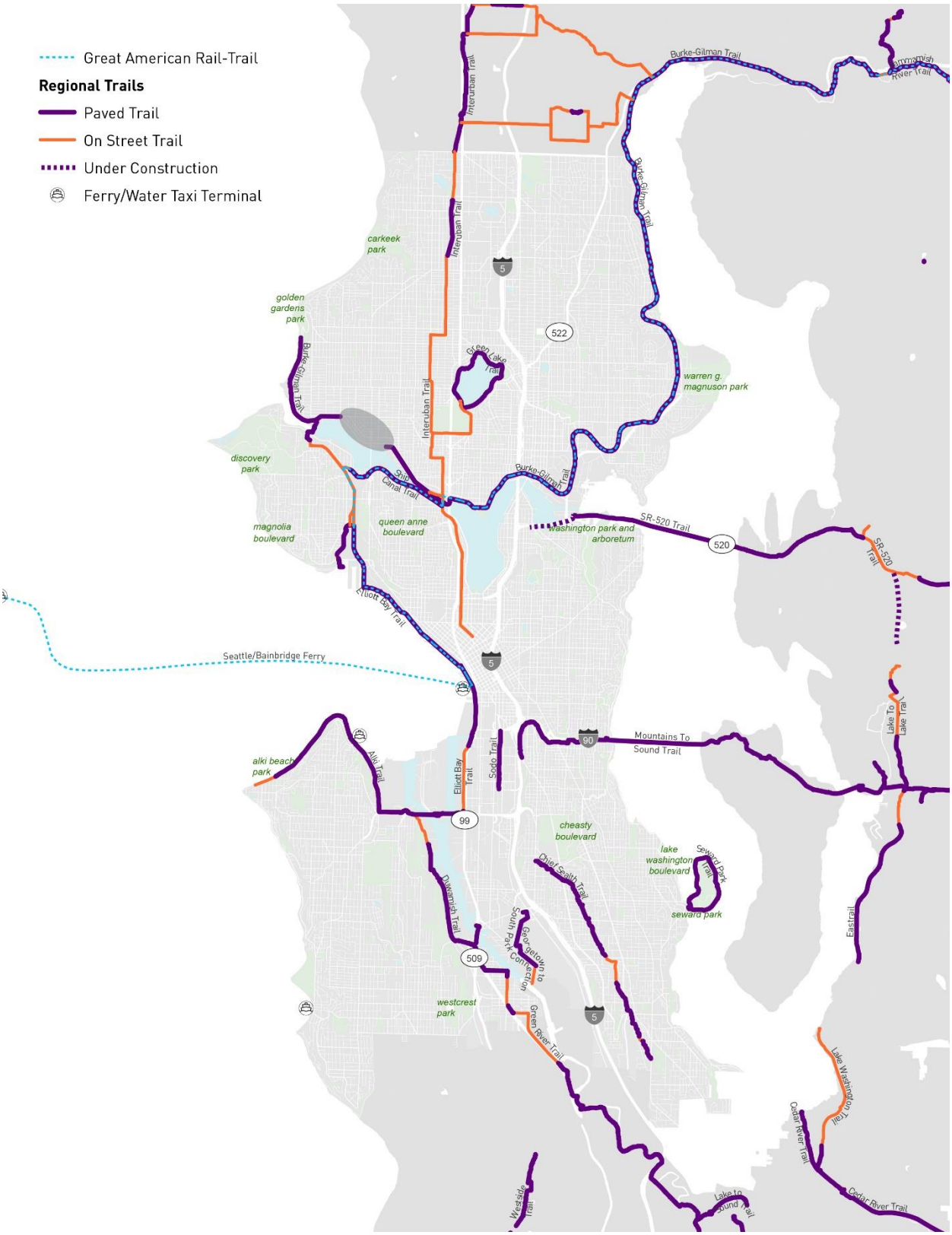


Ship Canal Trail



Burke-Gilman Trail

Figure 4: Regional Trails of the Seattle Area



Magnolia Blvd

Lake Washington Blvd during a temporary street closure

Olmsted Boulevards

While not technically multi-use paths, Seattle's Olmsted Boulevards similarly create recreational opportunities for people biking, walking, rolling, and engaging in other activities.

In the early 1900s, Seattle hired the Olmsted Brothers landscape architecture firm to design a system of interconnected parks and boulevards that provided open space for all people.[8] The Seattle City Council approved the Olmsted Brothers' plan "A Comprehensive System of Parks and Parkways" in 1903.

Olmsted Boulevards include:

- Cheasty Boulevard
- Green Lake Boulevard
- Hunter Boulevard
- Interlaken Boulevard
- Lake Park Drive
- Lake Washington Boulevard
- Magnolia Boulevard
- Montlake Boulevard
- Mount Baker Boulevard
- Queen Anne Boulevard
- Ravenna Boulevard
- Schmitz Boulevard
- University Boulevard

Today, Olmsted Boulevards are owned by Seattle Parks and Recreation and managed jointly by Seattle Parks and Recreation and SDOT. While these boulevards have been more vehicle-centric in the past, SDOT has heard requests from people who want more people-oriented streets in the city. There are opportunities to open more street space for walking, strolling, and bicycling along our Olmsted Boulevards by introducing car-lite strategies.

This would enable recreational opportunities year-round instead of only summer weekends and, in some cases, provide high-comfort bike network connections. (Supports TEF 43.4) The city would engage with communities and Friends of Seattle's Olmsted Parks in any such decision-making processes.

[8] Friends of Seattle's Olmsted Parks. "A Brief History." https://seattleolmsted.org/history/

Complementary Facilities

Complementary facilities are places where traffic volumes are exceptionally low, slow, or closed to traffic. These are located one to two blocks away from busy arterial streets. Slow Lanes and Shared Streets are both places where bicycles can enjoy low-stress riding combined with reduced conflicts and vibrant neighborhood community interaction.

More about Slow Lanes can be found in the New and Emerging Mobility Element and Shared Streets in the People Streets and Public Spaces Element.

Non-Bike+, Existing/Proposed

Some roadways are important connections for people bicycling and using e-mobility devices, but right-of-way is so constrained that an AAA bike facility is not feasible. This includes painted bike lanes that do not meet NACTO's AAA guidelines (based on vehicle volumes and speeds), protected bike lanes on only one side of the street when the street has two-way travel, and sharrows. While not ideal, SDOT will either seek to maintain the bike infrastructure that exists today or make future improvements that support bicycling even though it is not feasible to design them for all ages and abilities.

Should it become feasible to build Bike+ facilities in the future, these roadways are not precluded from receiving AAA facilities. For instance, if right-of-way is acquired or if a roadway is deemed suitable for conversion to one-way motor vehicle travel, a roadway categorized as Non-Bike+ in this plan may become suitable for Bike+.

Bicycle and E-Mobility Maps

Many planned projects from the 2014 BMP have been implemented and are shown in **Figure 5**, which shows our existing bicycle and e-mobility network**.**

Figure 6 through **Figure 11** show existing and proposed AAA bikeways on Seattle's arterial and non-arterial (i.e., neighborhood) streets. This map is printed in six sections by geography: northwest, northeast, west, east, southwest, and southeast.

Figure 12 shows the future bicycle and e-mobility network—this is the ultimate vision for a connected AAA network that would put 100 percent of Seattle households within a quarter mile of a AAA bikeway or multi-use trail.

Figure 5: Existing Bicycle and E-Mobility Network

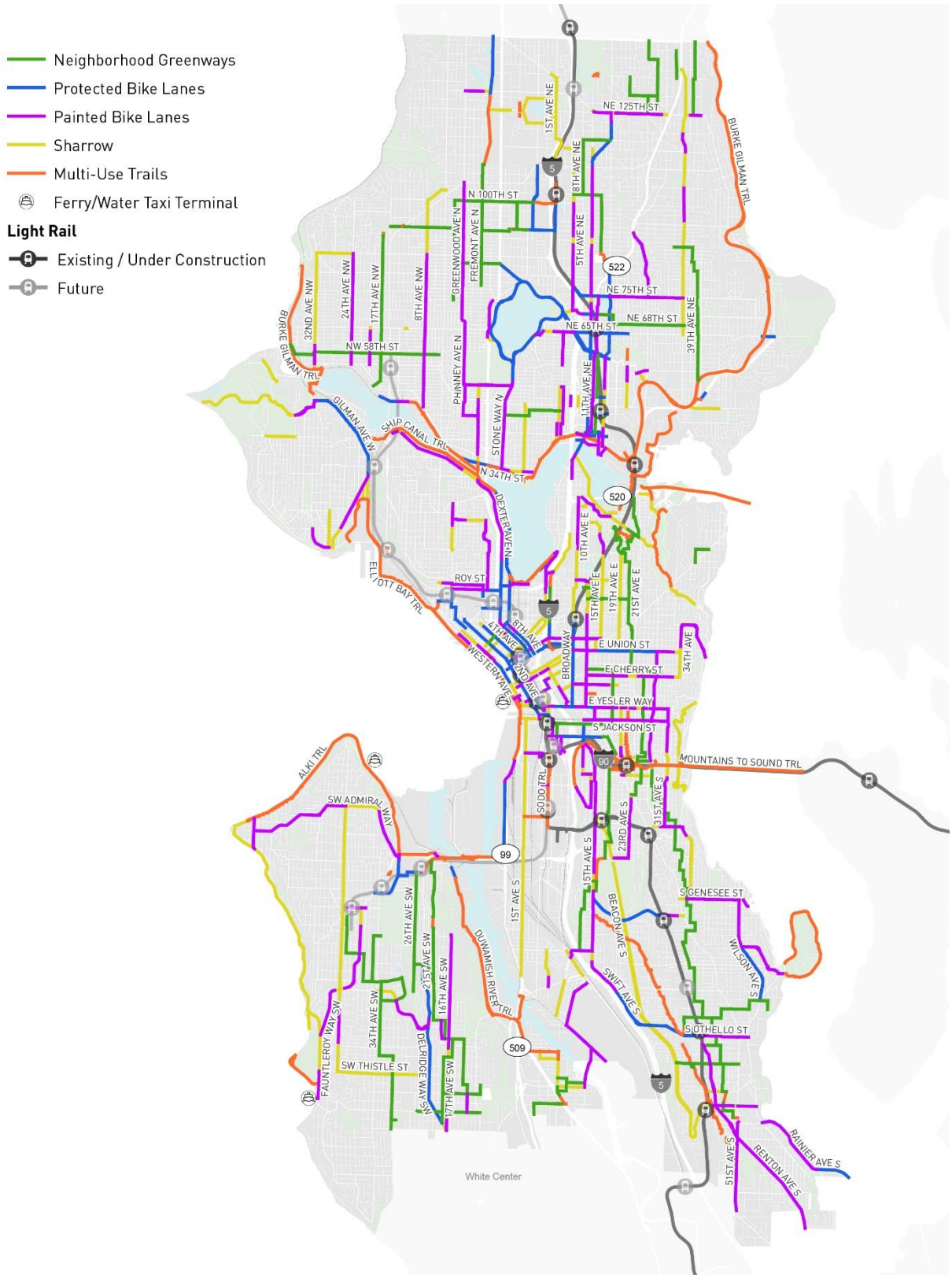


Figure 6: Existing and Proposed Bicycle and E-Mobility Network (Northwest)

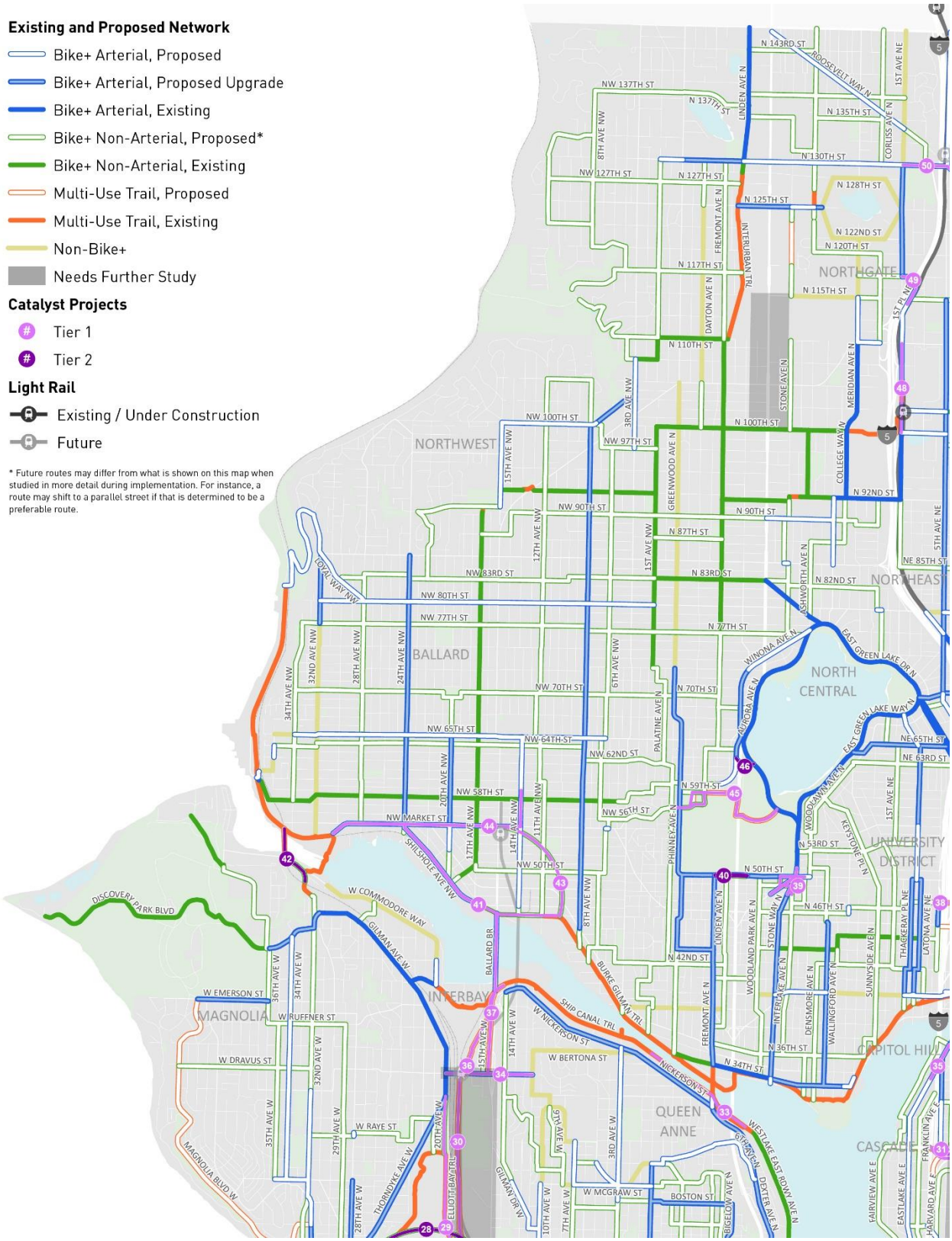


Figure 7: Existing and Proposed Bicycle and E-Mobility Network (Northeast)

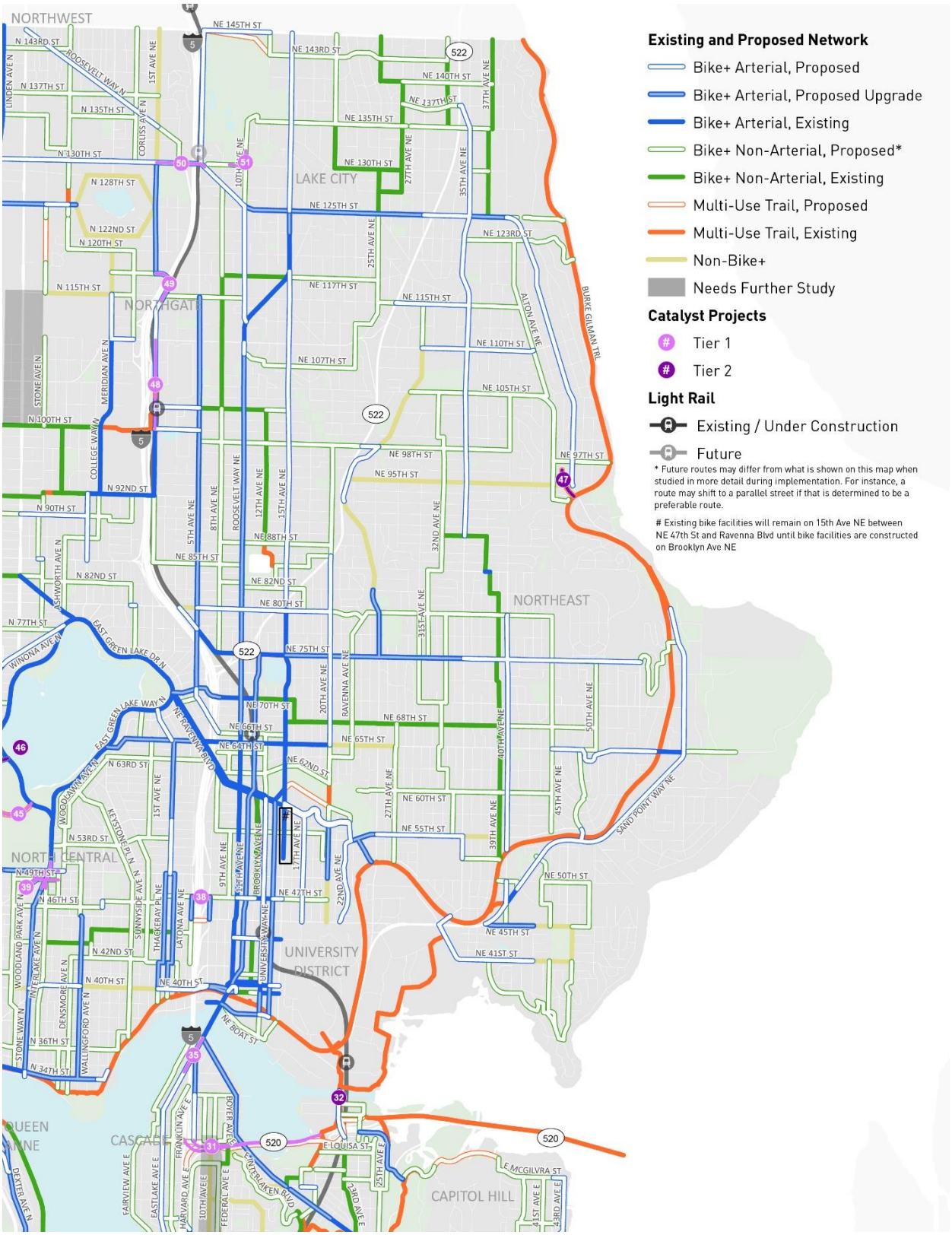


Figure 8: Existing and Proposed Bicycle and E-Mobility Network (West)

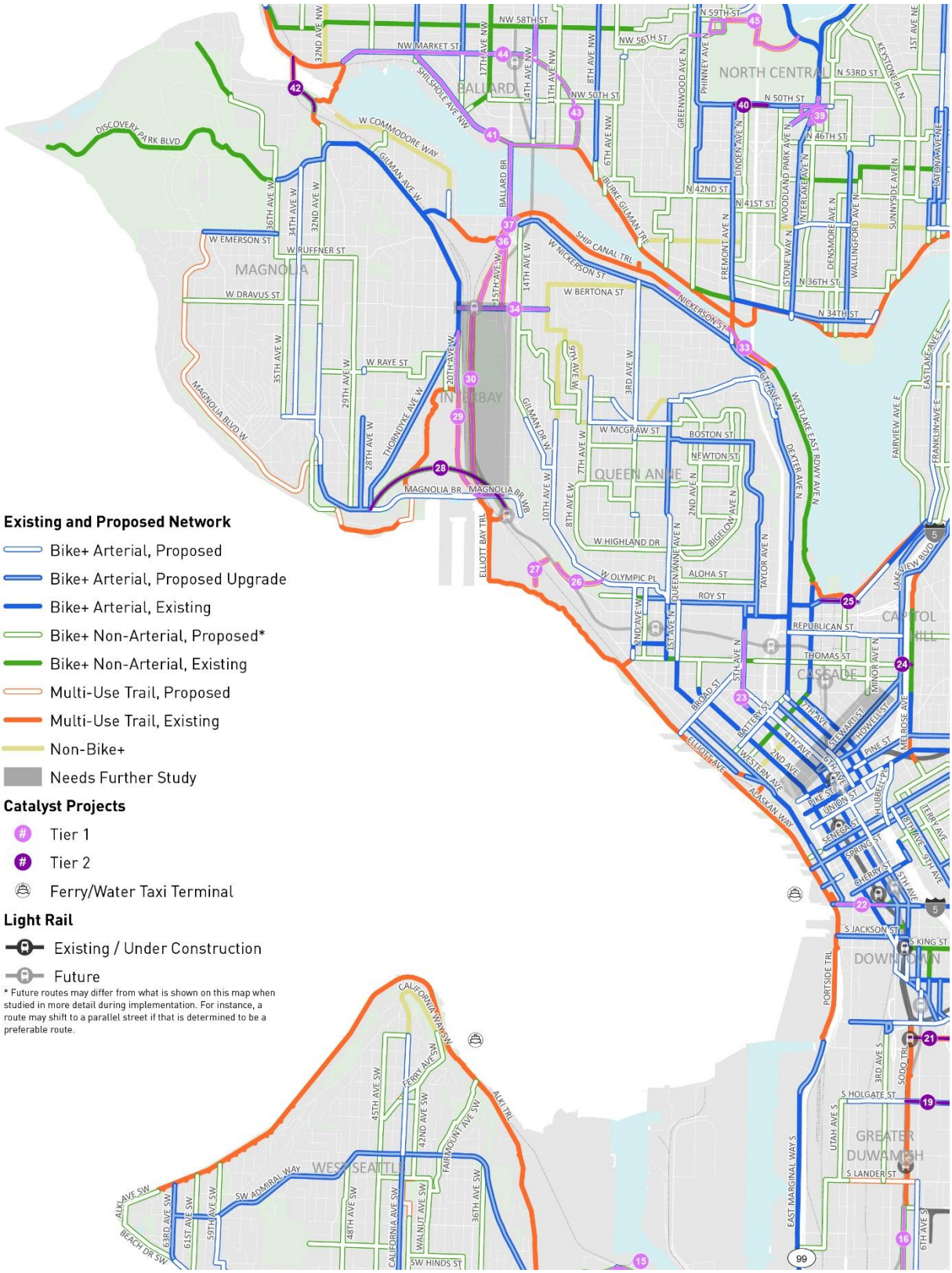


Figure 9: Existing and Proposed Bicycle and E-Mobility Network (East)

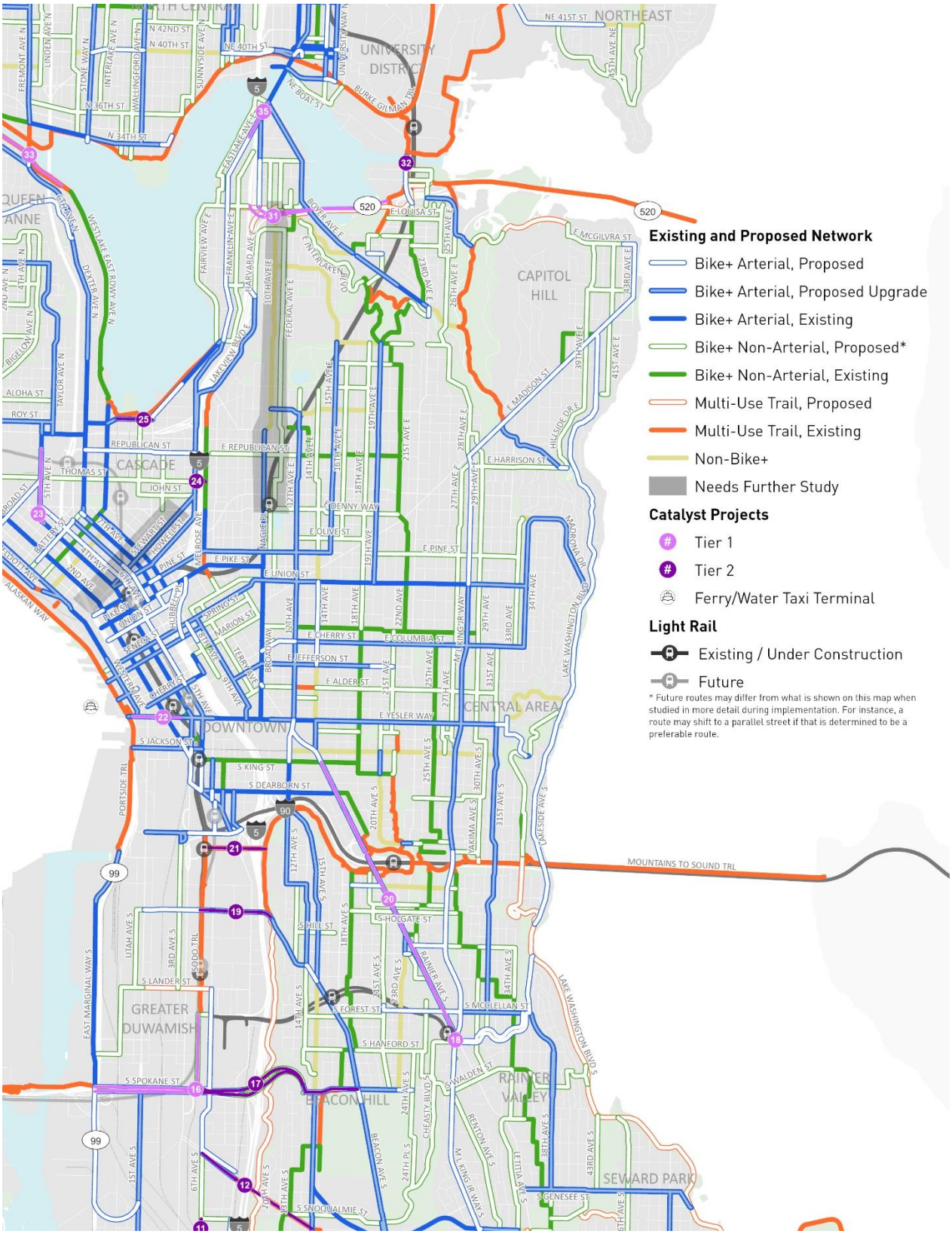


Figure 10: Existing and Proposed Bicycle and E-Mobility Network (Southwest)

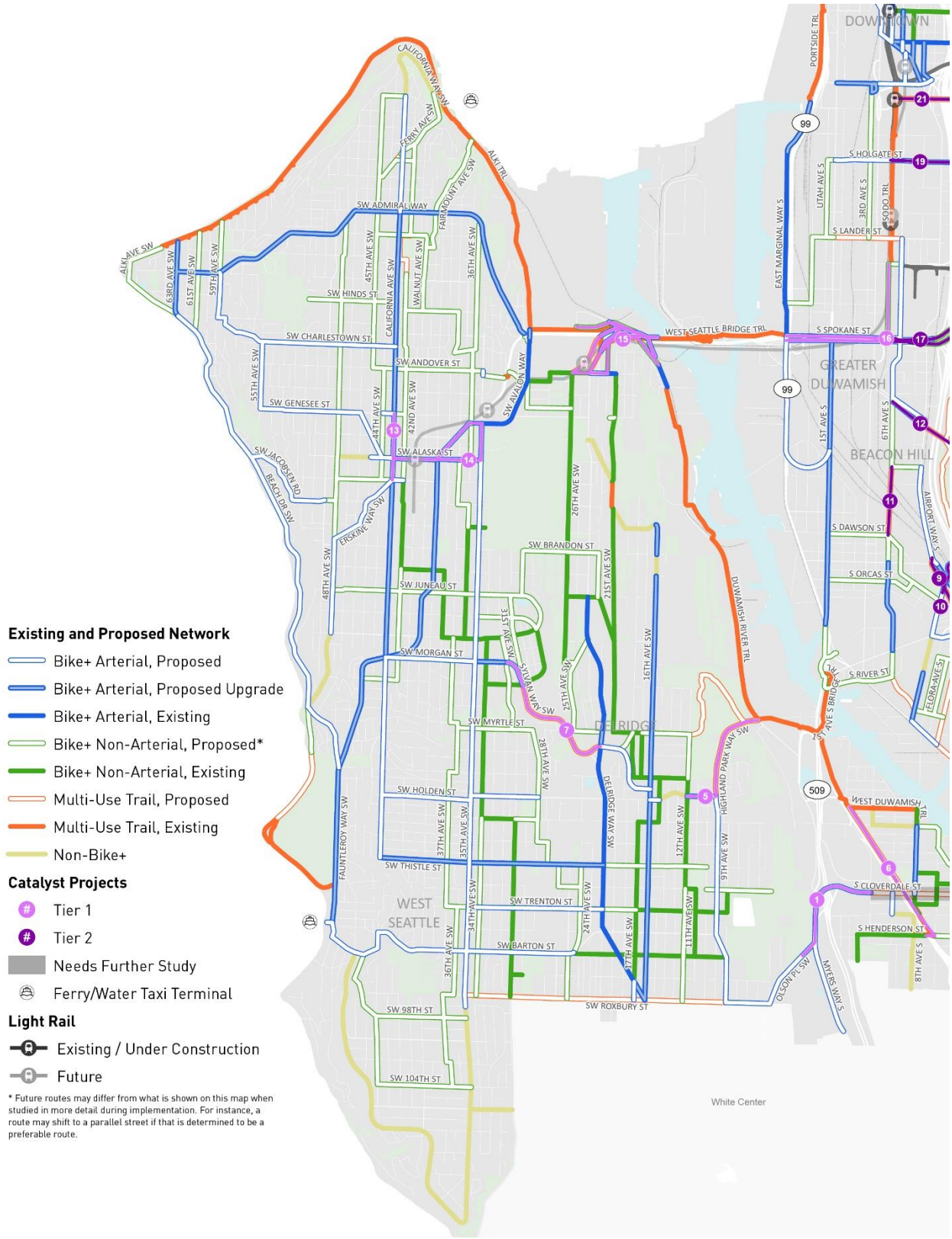


Figure 11: Existing and Proposed Bicycle and E-Mobility Network (Southeast)

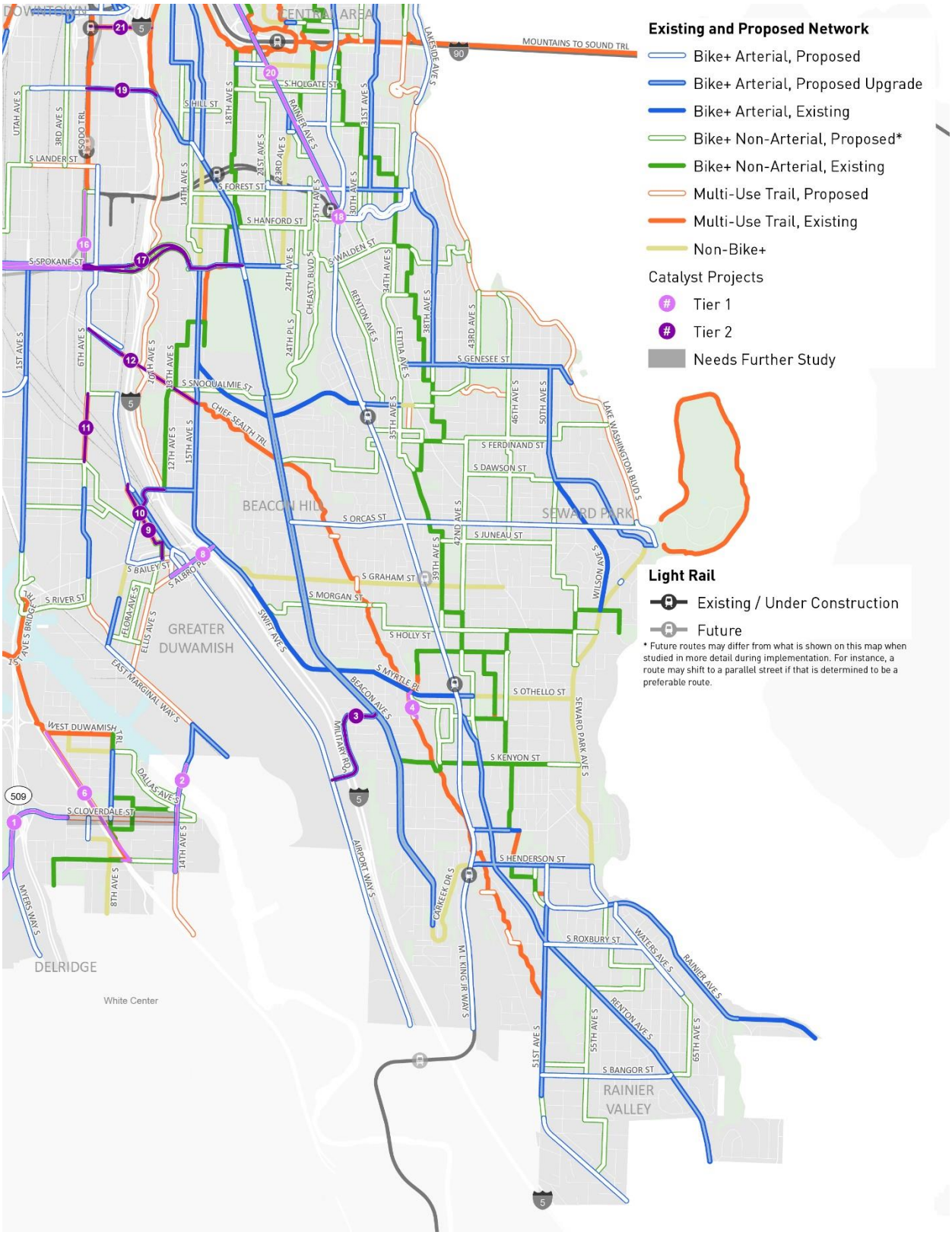
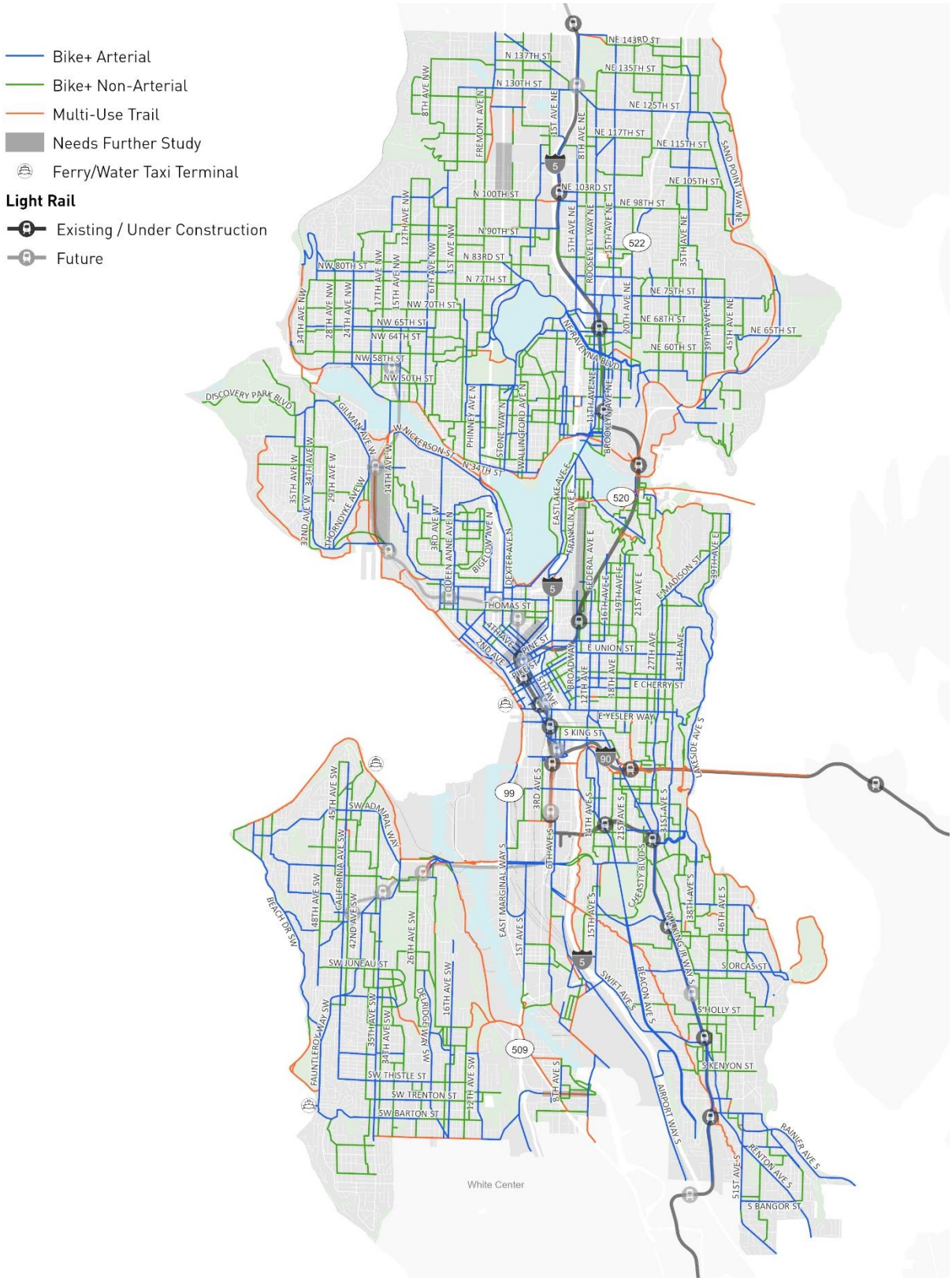


Figure 12: Future Bicycle and E-Mobility Network Vision



Bicycle and E-Mobility Catalyst Projects

Catalyst projects overcome major connectivity barriers and are often complex projects requiring creative solutions, large capital investments, and in some cases, coordination among multiple stakeholders both internal and external to the city. Catalyst projects pertaining to bicycles and e-mobility are identified in **Table 2** and presented in **Figure 13.**

The 2014 BMP identified 27 bike network catalyst projects, several of which have been completed, such as the John Lewis Memorial Bridge (also known as the Northgate pedestrian and bicycle bridge) and N 34th St and Fremont Ave intersection improvements. Many projects have not been completed due to their complexity and cost, while others, such as the SR 520 connection across Portage Bay, have been designed and will soon be constructed. Where catalyst projects have not been completed, other investments have been made at several locations in the interim to improve safety for people walking and bicycling. For example, for Project 18 at S Holgate Street, we have widened the sidewalk to 12 feet and replaced the staircase with a ramp. Uncompleted catalyst projects, for the most part, remain on the list and additional catalyst projects have been identified.

A total of 51 bicycle and e-mobility catalyst projects have been identified. Many of these catalyst projects directly benefit the Bike+ network, while others also remove barriers to the pedestrian network. Examples of catalyst projects include:

- **Reconnecting communities divided by highway construction** (e.g., S Cloverdale St over SR 509 (Project 1), S Henderson St over W Marginal Way S (Project 6), S Albro St over I-5 (Project 8), and NE 47th St over I-5 (Project 38)
- **Providing new multi-use trail connections to fill gaps in the Bike+ network** (e.g., Duwamish Trail connection to Highland Park (Project 5), a new multi-use trail on Sylvan Way to connect Delridge Way and the High Point neighborhood (Project 7), and a multi-use trail connection across SR 99 through Woodland Park (Project 45))
- **Providing safer and more comfortable bicycle facilities on arterial streets to minimize conflicts** with cars, transit, and freight (e.g. S Spokane St connecting West Seattle to SODO and Downtown (Project 16), Rainier Ave S from MLK Way S to S King St (Project 20), 5th Ave N between Belltown and Seattle Center (Project 23), and NE 130th St connecting the neighborhoods east and west of I-5 (Project 50)) (Supports TEF 19.2)
- **Addressing pinch points that constrict our Bike+ network** (e.g., SR 520 trail connection to Capitol Hill and Eastlake (Project 31), W Dravus St to connect to the future Interbay light rail station (Project 34), and University Bridge improvements (Project 35)

Catalyst projects are categorized into two tiers. Tier 1 catalyst projects are our highest priorities because they address critical access, equity, and safety needs. Tier 2 catalyst projects also address important connections, but due to their complexity and cost, may have longer implementation timeframes.

Figure 13 shows catalyst projects, which are described in greater detail in **Table 2**.

Figure 13: Bicycle and E-Mobility Catalyst Projects

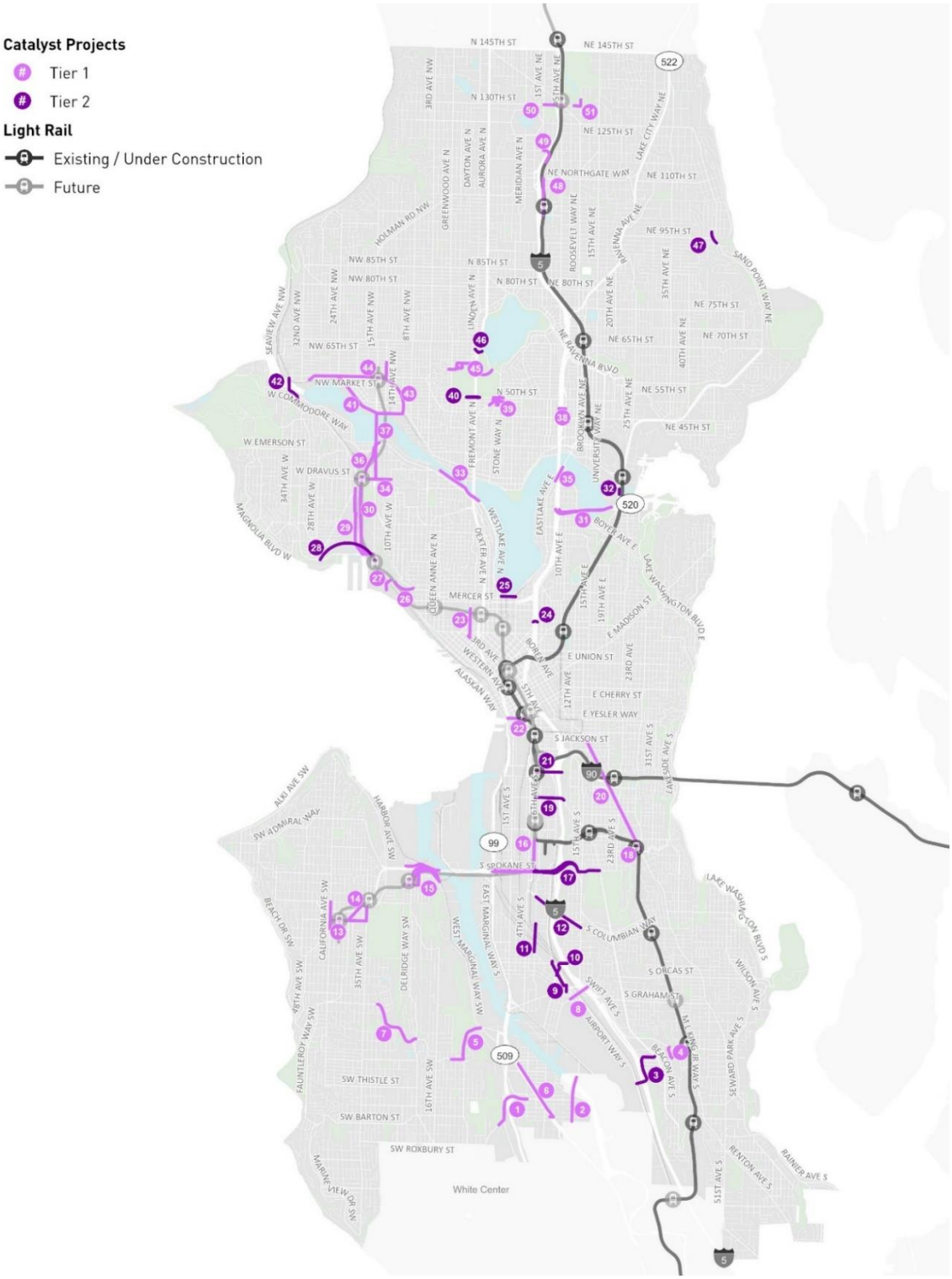


Table 2: Bicycle and E-Mobility Catalyst Projects

ID	PROJECT	TIER	OPPORTUNITY STATEMENT
1	Cloverdale multimodal connection over SR 509	Tier 1	Provide an all ages and abilities bicycle connection between South Park and White Center
2	14th Ave S Trail Connection to Green River Trail	Tier 1	Connect the 'Georgetown to South Park Trail' with the 'Green River Trail' extension
3	Military Road S to Airport Way S connection across railroad tracks	Tier 2	Connect Beacon Hill to Airport Way S/Boeing Field
4	Chief Sealth Trail connection Myrtle to Webster	Tier 1	Fill the missing gap in the Chief Sealth Trail between Myrtle/Othello and Webster to connect schools and housing to the urban village.
5	Duwamish Trail connection to West Seattle	Tier 1	Connect Duwamish Trail to Highland Park neighborhood and greater West Seattle through a multi-use trail on the west side of Highland Park Way and protected bike lanes on SW Holden St
6	Duwamish Trail connection to South Park	Tier 1	Fill the missing gap in the Duwamish Trail on W Marginal Way and improve the connection on S Henderson St over W Marginal Way S per Reconnect South Park
7	Sylvan Way Multi-use Path	Tier 1	Build an all ages and abilities connection between Delridge Way SW and the High Point neighborhood
8	S Albro Pl bike connection over I-5	Tier 1	Provide an all ages and abilities bike connection between the Georgetown to South Park Trail and Swift Ave S along S Albro Pl
9	Central Georgetown Connection	Tier 2	Fill future missing link between Georgetown to Downtown and Georgetown to South Park projects through the commercial core of Georgetown; preferred route is a rail with trail along the Union Pacific spur
10	S Lucile St under I-5	Tier 2	Provide an all ages and abilities bike connection between the Central Georgetown Connection and Beacon Hill
11	6th Ave S Bridge over railroad tracks	Tier 2	New bicycle and pedestrian bridge across railroad tracks to connect SODO to Georgetown
12	Chief Sealth Trail Extension	Tier 2	Provide an all ages and abilities connection between the Chief Sealth Trail and Airport Way S
13	SW Alaska St from Fauntleroy Way to California Ave and California Ave from Edmunds to Genesse	Tier 1	Provide an all ages and abilities connection along SW Alaska St to connect to the Alaska Junction light rail station
14	West Seattle Bridge Triangle area improvements	Tier 1	Provide bicycle connections along SW Alaska St, Fauntleroy Way SW, and 35th Ave SW
15	Chelan Ave SW / W Marginal Way / Alki Trail / SW Marginal Way / Delridge Way SW / SR 99 intersection enhancements	Tier 1	Improve the trail network between the Alki Trail, West Seattle Bridge Trail, Duwamish Trail, and Delridge Station; enhance the crossing
16	SODO Trail Extension and Spokane Street Connection	Tier 1	Expand existing SODO Trail south to Spokane Street, connecting West Seattle to SODO and Downtown
17	S Spokane St viaduct at-grade to Beacon Hill	Tier 2	Connect the SODO Trail to Beacon Hill
18	Rainer Ave S/Martin Luther King Jr Way S intersection improvements	Tier 1	Provide access to Mount Baker light rail station and reconnect Mount Baker Boulevard to Cheasty Boulevard S
19	S Holgate St across I-5	Tier 2	Connect the Mountains to Sound Trail with the SODO Trail by widening the Holgate I-5 overpass. This would provide a walking and biking connection (Since the 2014 BMP, we have widened the sidewalk to 12 feet and replaced the staircase with a ramp)
20	Rainier Ave S (Martin Luther King Way S to S King St) multimodal improvements	Tier 1	Provide an all ages and abilities bicycle connection between the Judkins Park light rail station, Chinatown International District, and Mount Baker
21	Mountains to Sound Trail Crossing over I-5	Tier 2	Build a bridge that connects Stadium Station to the Mountains to Sound Trail

ID	PROJECT	TIER	OPPORTUNITY STATEMENT
22	Yesler Way Between Alaskan Way and 3rd Ave bike connection	Tier 1	Connect the Waterfront Trail to existing protected bike lanes on Yesler Way
23	5th Ave N connection (Republican St to 4th Ave)	Tier 1	Provide an all ages and abilities bicycle connection between Belltown (4th Ave/Vine St) and the east side of Seattle Center (5th Ave N/N Republican St)
24	South Lake Union to Capitol Hill I-5 Crossing	Tier 2	New bicycle and pedestrian bridge across I-5 at Thomas St connecting Capitol Hill to South Lake Union
25	Valley St multi-use path north side (Westlake PBL to Fairview)	Tier 2	Connect the Westlake PBL to the future Eastlake PBLs and clarify the Cheshiahud Lake Union Loop wayfinding route
26	Kinnear Park Trail connection	Tier 1	Provide a connection from Queen Anne to the future Ship Canal light rail station and Elliott Ave W
27	Helix Bridge Retrofit	Tier 1	Retrofit the helix bridge by adding ramps to make it more accessible for bicyclists of all ages and abilities; it currently has stairway runnels and an elevator
28	Magnolia connection	Tier 2	Build an all ages and abilities connection from the Elliott Bay Trail to Magnolia for people bicycling
29	Elliott Bay Trail to Thorndyke Ave W	Tier 1	Improved and widened trail connection between the existing end of the protected bike lane on 20th Ave W at Thorndyke Ave W to the end of the Elliott Bay Trail under the Magnolia Bridge
30	Elliott Bay Trail Extension	Tier 1	New trail from existing Elliott Bay Trail end below the Magnolia Bridge to the Interbay light rail station, located on the east side of the railroad tracks, west of 15th Avenue W
31	SR 520 connection across Portage Bay (under construction)	Tier 1	Connect the SR 520 Trail to Capitol Hill and Eastlake
32	Improved crossing of Montlake Bridge	Tier 2	When the bridge is replaced, add all ages and abilities bicycle facilities
33	Ship Canal Trail and Dexter Ave to Fremont Bridge connection	Tier 1	Complete a multi-use trail connection between the Ship Canal Trail and Westlake multi-use trail
34	Interbay Station Connection on Dravus	Tier 1	W Dravus St connections from 20th Ave W to 11th Ave W, including the W Dravus St bridge, to provide a bicycle connection to the Interbay light rail station
35	University Bridge - South leg to Eastlake Ave E/Harvard Ave E	Tier 1	Improved connection on Eastlake Avenue E between the University Bridge and Harvard Avenue E for both north bound and south bound bicyclists.
36	Interbay Station Connection from Ship Canal Trail	Tier 1	New connection from Ship Canal Trail crossing under the Ballard Bridge to the Interbay light rail station
37	Connect Trails via Ballard Bridge	Tier 1	If it is determined that the Ballard Bridge will be replaced, provide an all ages and abilities bicycle connection on the Ballard Bridge between the Ship Canal Trail and Burke Gilman Trail, and along 15th Ave W (grade separated multi-use trail) between the Ballard Bridge and W Dravus St, in concert with the bridge replacement. If it is determined that the existing Ballard Bridge will be maintained, build a new bicycle and pedestrian bridge in the vicinity of the Ballard Bridge.
38	NE 47th St overpass over I-5	Tier 1	Build a new bicycle and pedestrian bridge over I-5 to connect the University District and Wallingford
39	Green Lake Way N / N 50th St / Stone Way N intersection multimodal improvements	Tier 1	Provide an all ages and abilities bike connection between Green Lake PBLs and Fremont/Wallingford neighborhoods using both physical and temporal separation through this busy intersection
40	50th St under Aurora	Tier 2	Provide a an all ages and abilities connection along the southern edge of Woodland Park, addressing the pinch point under Aurora Ave N
41	Burke-Gilman Trail "Missing Link" completion	Tier 1	Multi-use trail connecting the two existing sections of the Burke-Gilman Trail in Ballard

ID	PROJECT	TIER	OPPORTUNITY STATEMENT
42	Salmon Bay Bridge	Tier 2	In coordination with BNSF Railroad, connect 33rd Ave W Bridge in Magnolia to the Burke-Gilman Trail
43	14th Ave NW from NW 58th St Neighborhood Greenway to Ballard Station and from NW 45th St / 11th Ave NW	Tier 1	Provide an all ages and abilities connection along 14th Ave NW from the NW 58th St Neighborhood Greenway to the Ballard light rail station and a connection from the light rail station to NW 45th St / 11th Ave NW
44	NW Market St from 24th Ave NW to 14th Ave NW	Tier 1	Provide an all ages and abilities connection along NW Market Street between downtown Ballard and the light rail station. Freight and transit will also operate on this corridor, so the corridor design will have to plan curb space accordingly.
45	Woodland Park Connection across Aurora Ave N	Tier 1	In coordination with the Parks Department, build a multi-use trail connection between West Green Lake Way N and the N 57th St underpass of Phinney Ave N.
46	Green Lake Way to N 63rd St underpass of Aurora Ave N (SR 99)	Tier 2	Widen the SR 99 underpass to provide improved walking and biking connections between the Green Lake Loop and the Phinney/Greenwood neighborhoods
47	Thorton Creek Trail to Matthews Beach	Tier 2	Provide a new bridge and trail connection between the street end of 46th Ave NE and the Burke-Gilman Trail along the Thornton Creek natural space
48	1st Ave NE crossing of Northgate Way	Tier 1	Provide an all ages and abilities bicycle connection along 1st Ave NE across Northgate Way and connecting to the John Lewis Memorial Bridge (Northgate pedestrian and bicycle bridge)
49	1st Ave NE over I-5 multimodal improvements (widening)	Tier 1	Provide a widened connection over I-5 reconnecting the Northgate neighborhood
50	NE 130th St multimodal improvements over I-5	Tier 1	Provide a seamless bike connection between the protected bike lanes on NE 130th St and Roosevelt Way NE connecting the light rail station with the Bike+ network and neighborhoods east and west of I-5
51	Trail connection between 15th Ave NE and 5th Ave NE (NE 135th St/Jackson Park Trail replacement)	Tier 1	Provide an improved trail connection between 15th Ave NE and the light rail station via unopened NE 130th St ROW and improved crossing of Thorton Creek on 10th Ave NE

Phased Implementation

There are various segments in the bicycle and e-mobility network that will require phased implementation. Several of these corridors are dependent on other changes occurring throughout the transportation system, such as the West Seattle to Ballard Link Extension stations opening. Other corridors require changes that will be challenging to implement; in these locations, near-term improvements could be implemented as an interim step until the long-term vision can be realized.

Table 3: Phased Implementation Corridors

ID	Location	Considerations
1	SW Admiral Way	In the near term, consider interim Bike+ Arterial improvements on SW Admiral Way from 45th Ave SW to SW Olga St. RapidRide service is planned to be added to this corridor in concert with light rail expansion. A long-term AAA bikeway route will be determined closer to the introduction of RapidRide service.
2	35th Ave SW	In concert with light rail service expansion, RapidRide is planned to be removed from 35th Ave SW between Alaska and Avalon. After that time, Bike+ Arterial improvements will be considered from SW Dawson St to Fauntleroy Way SW.
3	SW Alaska St	Bike+ Arterial improvements will be considered in the vicinity of the Alaska Junction light rail station in concert with station construction.
4	Martin Luther King Jr Way S	In the near-term, pursue a range of strategies to slow vehicle traffic and create a safer, more comfortable travel experience on Martin Luther King Jr Way S. In the long-term, consider Bike+ Arterial improvements south of Rainier.
5	S Graham St	Bike improvements on S Graham St will be considered for construction in conjunction with the opening of the South Graham Street infill light rail station.
6	W Dravus St	Bike+ Arterial improvements will be considered in concert with opening of the Interbay light rail station and/or in concert with the replacement of the Dravus St bridges.
7	Ship Canal Trail connection to Thorndyke Ave W	Bike+ Arterial improvements will be considered in concert with the opening/construction of the Interbay light rail station.
8	NW Market St	Bike+ Arterial improvements will be considered in concert with the opening/construction of the Ballard light rail station.
9	14th Ave NW	Bike+ Arterial improvements will be considered in concert with the opening/construction of the Ballard light rail station.

SPATIAL REQUIREMENTS AND OPERATIONAL CONSIDERATIONS

There are many design and operational considerations to advance the vision for bicycle and e-mobility use in Seattle and meet the STP vision to help people biking and using e-mobility be able to move around in ways that are "just, sustainable, and safe." Most critical is that the bicycle and e-mobility network provide a safe, comfortable, and convenient experience for people of all ages and abilities, which will help maximize use of the network.

Bikeway design should be informed by the NACTO *Designing for All Ages and Abilities* contextual guidance and design standards from *Streets Illustrated,* our Right-of-Way Improvements Manual that identifies guidance for bike lanes, multi-use trails, intersections, bike lanes with transit service, Neighborhood Greenways, and bike parking based on national best practices.

These resources help SDOT staff determine what type of AAA facility is most appropriate on a given street based on factors like vehicular speeds and volumes and the number of travel lanes.

Table 4 shows the appropriate AAA bicycle facility and key operational considerations for given roadway contexts.

In addition to the factors presented in **Table 4,** it is important that bicycle facility design is closely coordinated with the Seattle Fire Department for emergency access and with our transit agency partners, such as King County Metro, Sound Transit, and Community Transit, to minimize impact on transit operations.

Streets Illustrated will be updated after adoption of the Seattle Transportation Plan to account for evolving best practices, which is described in more detail below under "Maintenance & Modernization."

Inputs for Project Development

Develop a standard to measure right-of-way tradeoffs for bicycle design along designated bicycle corridors to use during project development.

- Evaluate outcomes from existing measures which could include instructions to establish right-of-way allocation measures and goals on the Bike+ network.
- Integrate the operational measures and goals into the complete streets process for project development to streamline right-of-way tradeoff decision-making process alongside other multi-modal operational measures and goals where designated corridors overlap.

Table 4: Contextual Guidance for Selecting All Ages and Abilities Bikeways[9]

Roadway Context				Key Operational Considerations
Target Motor Vehicle Speed[10]	Volume (AWDT)[11]	Vehicle Lanes	AAA Bike Facility	
< 10 mph	<400	No Centerline or Single Lane 1-way	Healthy Street	Pedestrians share the roadway
< 20 mph	<800	No Centerline 11' Single lane; 2-way traffic	Neighborhood Greenway	Neighborhood Greenways may not be appropriate when there are high peak hour volumes, lots of curbside activity, and/or frequent use by transit and/or freight vehicles, even if speeds or volumes are low. Protected bike lanes may be more appropriate in these contexts. Passing opportunities (such as those provided by residential driveways) must be considered in context of topography and vehicle volumes Lower volume Neighborhood Greenways are the most comfortable; however, in urban village contexts, higher volumes may be considered where there are low operating speeds, ample passing opportunities and sidewalks/pathways are present.
	<1,000	No Centerline 18' Single lane; 2-way traffic		
	< 400	Single lane; 1-way traffic	Neighborhood Greenway w/ contraflow bike lane	
< 25 mph	< 1,000 – 3,000	Single lane each direction or single lane one-way	Conventional Bike Lane Buffered Bike Lane Protected Bike Lane	Low curbside activity Low congestion pressure
	< 3,000 – 6,000		Buffered Bike Lane Protected Bike Lane	
	> 6,000		Protected Bike Lane	
	Any	Multiple Lanes in each direction	Protected Bike Lane	
> 26 mph	Any	Any	Protected Bike Lane Or Separated Pathway	Arterial Traffic Calming

[9] Adapted from NACTO guidance to be specific to Seattle

[10] This refers to the speed at which we want drivers to travel, which may be different than the posted speed limit. We design streets to achieve the target speed. To determine these values, SDOT collects data on how fast motor vehicles are traveling in real life and then uses 85th percentile or 95th percentile motor vehicle speed. 95th percentile speed captures high-end speeding, which causes greater stress to bicyclists and more frequent passing events. Setting target speed based on this threshold results in a higher level of bicycling comfort for the full range of riders.

[11] Some locations see high volumes over a short period of time due to adjacent land use (e.g. stadiums). It may be appropriate to design to a higher standard in these locations, and these are considered on a case-by-case basis.

PROGRAMMATIC ACTIVITIES

SDOT engages in a variety of programmatic activities (that is, activities that relate to programs or are ongoing, rather than specific to a project) to complete the work outlined in this Element. This section highlights existing and new programs or initiatives. Over time, it's not uncommon for program groupings and organization to change; however, the programmatic activities listed here provide helpful general information to describe the types of tools and methods SDOT will seek to employ to manage the transportation system.

Bicycle and E-Mobility Network Implementation

SDOT will aim to construct the bicycle and e-mobility network outlined in this Plan to provide a more comprehensive network of AAA routes in the city. SDOT will seek to:

- Continue to include complex and expensive bicycle facilities and large catalyst projects as stand-alone projects within the City's 6-year Capital Improvement Program, as appropriate, so annual program budgets are not fully consumed by one or two large projects.
- Leverage grants to supplement public and private ROW investments and fill network gaps.
- Consider additional connections. Bike connections not included on the maps in this element are not precluded from bike infrastructure in the future. Bicycles are a flexible mode of travel and, as network demands change and our transportation network evolves, we should remain open to opportunities and exploration of additional connections in the future.
- Refine future Neighborhood Greenway and Healthy Street routes. As indicated in **Figure 6** through **Figure 11**, routes may be changed, consolidated, or differ slightly from what is shown on these maps when studied in more detail during implementation. For instance, a route may shift to a parallel street if determined to be a preferable route.
- Conduct studies to evaluate trail expansion needs. If a trail cannot be widened (e.g., adjacency to an environmentally sensitive area), assess if a parallel street may help serve people riding bicycles. Install alternate route wayfinding signage along the trail when a parallel street bicycle facility is installed.
- Prioritize building new bike projects in neighborhoods that have historically seen underinvestment by the city, employing the city's Race and Social Equity Index. Use data sets such as educational attainment level, household car ownership, multigenerational households, and income to analyze neighborhood characteristics.
- Use TEF to prioritize gap construction projects, specifically Districts 1, 2, parts of 3, and 5.
- Early in project planning, identify partnerships with other programs, funding, and potential challenges to construction.
- Create work plans that use cost-efficient SDOT crew capacity to deliver projects, as much as possible.
- Harness funding and opportunities when private development occurs to build planned new network facilities.
- Be prepared to work with developers during the Street Improvement Permit process to build new street elements within the right-of-way.

- Use the street vacation process to implement new bike facilities during the public benefits package scoring.
- While conducting outreach for new capital projects, ask the community if there are any safety concerns that crews can try to address during project implementation.
- When a capital project is underway in a community, incorporate and market supplemental programs to help community members transition to sustainable travel options like biking, walking, and taking transit.
- For example, when installing a bike lane, consider partnering with a local bike shop on helmet distribution.
- Help community members sign up for e-bike and e-scooter incentives, which are discussed below.
- Host events in communities where local shops can interact with individuals and SDOT can offer giveaways for sustainable travel options.
- Where a bicycle route shares a street with a freight route, design the street to minimize conflicts, increase predictable movements, and increase safety. Facilities for trucks and bicycles should be clearly separated and comply with width and materials standards, consistent with *Streets Illustrated*. Generally, treatments could include grade separations or physically separated facilities, such as Toronto-style barriers, to help all roadway users move predictably.

Toronto-style barrier being installed in Seattle

To achieve the bicycle and e-mobility network, some existing facilities will need to be upgraded to be safer and accessible for people of all ages and abilities.

Bike facilities are implemented using the materials and design standards that are current at the time of their construction. However, we are always seeking to improve safety, and updating facilities to meet current standards is an ongoing process. SDOT will seek to:

- Upgrade flexible delineators on bikeways to more permanent, robust protection like Toronto-style barriers to make them comfortable for more people.
- Evaluate current facilities that do not meet the National Association of City Transportation Officials (NACTO) AAA guidelines to determine the best solution for either upgrading the facility or developing a parallel AAA facility nearby. (Supports TEF 43.4)
- Proactively adjust existing bike lanes and trails to widen to new standards that accommodate larger bike footprints.
- Conduct a pilot study on glow-in-the-dark multi-use paths and determine if they are suitable for broader use in Seattle. Considerations will include environmental impacts, availability of the materials, and maintenance.

Bicycle Facility Prioritization

Full implementation of the ambitious vision proposed for our future bicycle and e-mobility network (including new facilities, catalyst projects, and upgrades to existing facilities) will take many years and will likely extend beyond the horizon of the STP, dependent upon available resources.

In order to make progress on our vision in a resource-constrained environment, we use prioritization processes to help focus our work on projects that can provide transformative impact toward meeting the STP's goals. This helps stretch our dollars to support an equitable and implementable set of prioritized projects.

The STP establishes a broad prioritization framework that helps align SDOT's work to our overarching goals. As we proceed with STP implementation, a tailored process to prioritize bicycle and e-mobility projects will be developed. It will directly build on the STP framework with specific criteria and datasets to identify bike infrastructure investments that best advance the STP goals and respond to current challenges and opportunities.

Reallocate Street Space

Reallocate street space currently used for vehicle storage and general-purpose travel to support a variety of people-oriented uses, such as gathering, playing, walking, and biking in strategic locations. SDOT will seek to:

- Use reallocated street space to implement the bicycle and e-mobility network.
- Allocate curbspace for bicycle, micromobility, and shared mobility uses, with priority given to programs that provide an all-electric or transitioning-to-electric vehicle fleet. *See the Curbside Management Element for more details.*
- Expand parking management strategies in more places, including more regulated curbspace for short-term parking with payment requirements that could help encourage some people to try biking for shopping, school, or work trips. *See the Curbside Management Element for more details.*
- Implement shared, car-light streets, such as Café Streets and Neighborhood Greenways, and car-free streets to support the transition to a low-carbon transportation system. *See the People Streets and Public Spaces Element for more details.*
- Partner with Seattle Parks and Recreation to identify on which Olmsted Boulevards we will change policy and operation to allow more flexibility to create better walking, strolling, and bicycling experiences. These changes will enable more opportunities for healthy recreation opportunities year-round instead of summer weekends, and in some cases, provide high-comfort bike network connections. (Supports TEF 43.4) We will evaluate each location individually, as there are different property, design, and social conditions at each location. Any design changes will provide equitable access to these boulevards.
- As part of the STP engagement process, we heard broad support for increased recreational opportunities along Olmsted Boulevards, along with more people-oriented streets throughout the city. The city would engage with communities and Friends of Seattle's Olmsted Parks in any such decision-making processes. Olmsted Boulevards are owned by Seattle Parks and Recreation and managed jointly by Seattle Parks and Recreation and SDOT.
- Work with Seattle Parks and Recreation and other partners to improve and expand temporary open streets events.
- For large capital bike projects, look for opportunities to add planted medians when reconstructing street curb.

Intersection Improvements

- Safety improvements are critical at intersections along the bicycle and e-mobility network so that a person's entire trip will be comfortable. SDOT will seek to:
- Expand opportunities to more safely cross busy arterials by installing enhanced crossings. (Supports TEF 40.6)
- Standardize crossing treatments for bikeways and multi-use trails at arterial streets, streetcar, light rail, and railroads, and clarify who should yield right-of-way for trail crossings with clear signs and markings.
- Make people biking and using e-mobility more visible at intersections by installing treatments such as curb bulbs, No Parking signs, and refuge islands. When vehicles park within 20 feet of an intersection, it makes people crossing the street less visible to people driving, thereby giving drivers less time to react and safely stop.
- When designing an intersection, evaluate if a protected intersection is merited, and expand their use over time.

Freight and Urban Goods Movement Considerations

- Freight and urban goods access will be carefully considered when designing and constructing the bicycle and e-mobility network. SDOT will seek to:
- Design bike facilities and parking to support efficient, time-competitive e-cargo bike freight delivery programs for food and goods delivery (see Executive Order 2022-07). *See the Freight Element for more details on a commercial e-cargo bike program and e-cargo bike lending libraries.*
- Use sufficient freight turning movement templates when designing bike lanes to increase visibility of vulnerable users and protect buffer materials from future maintenance needs.
- Allocate clear and sufficient loading zones for freight, and work with parking enforcement to discourage parking in bike lanes.

Bike Parking

Secure and convenient bike parking is a critical component of a bicycle and e-mobility network. It helps encourage people to bicycle for their everyday needs. To meet anticipated growing demand for convenient and secure bike parking, it will be necessary to dedicate more right-of-way to bike parking facilities. Shopping districts, community and mobility hubs, and multi-family residential areas where residents may not have the space or ability to securely park or store their bikes, are especially important areas for providing secure bike parking options. People also need spots to lock their bikes and other mobility devices for quick trips to shops and other destinations. SDOT will seek to:

- Consolidate bike parking work at SDOT into a permanent, staffed program responsible for implementing the following tactics in partnership with other agencies and the community.
- Utilize the public right-of-way to install bike parking to meet the level of bicycle use needed to achieve Seattle's climate action goals.
- Provide a variety of types of bike parking to accommodate a wide variety of needs:
    - Short- and long-term parking
    - Covered outdoor and secure parking
    - Parking for larger and differently sized bikes and mobility devices including cargo bikes, long family bikes, adaptive bikes, bikes with trailers, e-scooters, etc.
    - E-bike and e-mobility device charging
- Prioritize areas with older multi-family buildings that do not have secure on-site parking and commercial areas where people's everyday needs can be met. (Supports TEF 43.4)
    - *See "Community and Mobility Hubs" section for detail on bike parking at light rail stations and community and mobility hubs.*
- Consider partnerships, updates to *Streets Illustrated* or City Code to change development requirements and property manager incentives as mechanisms for meeting parking demand.
- Resume meeting community-based requests for bike racks and other micromobility parking infrastructure, and proactively install bicycle parking based on the Seattle Displacement Risk Index to fairly allocate bike and other micromobility parking spaces.
- Continue requiring Seattle Public Schools to install long-term and short-term bike parking at redeveloping schools and partner with Seattle Public Schools to install short-term bike racks on other school sites.

- Develop a strategy for deploying secure parking in the public right-of-way, which may include defining residential and commercial bicycle parking zones and estimating parking demand within each zone based on adjacent land uses and availability of publicly accessible, convenient, and secure parking on private property.
- Adopt specifications, graphic identify, and wayfinding for secure parking pods/kiosks in the public right-of-way, then identify vendors to partner in delivering secure parking kiosks or pods.
- Implement "intersection daylighting," which is an easy-to-implement safety treatment that converts the parking spaces and no-parking zones immediately before an intersection into bike parking areas, thereby increasing the visibility of people walking, biking, and rolling across the street.
- Implement loading zones to support increased delivery trips made by people riding bicycles and using e-mobility devices.

PEER EXAMPLE: OONEEPOD

The Ooneepod is one example of secure parking kiosk that can be placed in the right-of-way. With a variety of modular designs and capacities, Oonnepods offer adaptable, secure parking for a monthly fee. Ooneepods are in use in several cities, including New York and Jersey City.

While all residential, commercial, and institutional development should provide secure bike parking (a requirement for new development), older buildings may not be well set up to do so, and bicycle parking code requirements and guidelines do not adequately address the needs stemming from a growing number of e-bikes, cargo bikes, and other types of devices, which often do not fit in traditional bike parking areas. It is also important to provide infrastructure for charging e-bikes and other e-mobility devices.

SDOT will seek to:

- Consider the diversity of bikes (e.g., cargo, trike, adaptive), bike design vehicles (e.g. bikes with trailers), and other mobility devices (e.g. scooters) when designing future bike parking at private developments.

Safe Routes to School

The Safe Routes to School (SRTS) program is designed to improve safety in areas around schools and encourage more kids to walk and bike. SDOT will seek to:

- Expand the School Streets program.
- Serve every public school with an all ages and abilities bicycle facility. (Supports TEF 43.4 and Executive Order 2022-07)
- Continue partnering with Seattle Public Schools on walking and biking safety education for students, including students with disabilities.
- Partner with Seattle Public Schools on bike buses.
- Work with our partners to provide free bicycles to low-income children and their parents/guardians so they may use the skills they learn and ride to school on the bicycle facilities we construct that serve their schools.
- Continue supporting the Safe Routes to School Coordinator position at Seattle Public Schools who works to ignite a culture of active transportation to school.
- Continue providing walking and biking maps to school, free bicycling incentives and prizes for bike to school campaigns, and free packages with bike train supplies.
- Continue engaging with students in designing and installing artwork along routes to school and other community destinations like parks and libraries.

See the Pedestrian Element and People Streets and Public Spaces Element for more information about Safe Routes to School.

Safe Routes to Parks

Park properties offer opportunities to create all ages and abilities bikeways that would greatly enhance network connectivity and create a sense of park expansion. Such connections require close coordination with the Seattle Parks and Recreation Department and thoughtful design to minimize environmental impacts and enhance enjoyment for park users. SDOT will seek to:

- Make investments that make it safer to bicycle to parks. This includes expanding bike connections within and adjacent to parks.
- Build on our existing partnership with Seattle Parks and Recreation and efforts to create these kinds of connections.
- Collaborate with other departments to explore these types of connections.

Neighborhood Greenways and Healthy Streets

Neighborhood Greenways and Healthy Streets are an integral component of the Bike+ network because quieter local streets are often preferred by people riding bikes over busier arterial streets, even if the arterials are AAA. While they are intended for all active modes, they provide important bicycle and e-mobility network connections and neighborhood bicycle recreation opportunities (Supports TEF 43.4). SDOT will seek to:

- Implement Bike+ network to provide a more comprehensive network of AAA routes. Neighborhood Greenways and Healthy Streets will be implemented on non-arterial streets.
- Expand permanent Healthy Streets to all neighborhoods as a way of providing low stress connections to common destinations for people walking, biking, and rolling, regardless of age or and ability. (Supports TEF 43.4 and Executive Order 2022-07) (S4e)
- Enhance Neighborhood Greenways. Bike facilities are implemented using the materials and design standards that are current at the time of their construction. We are always seeking to improve safety and update facilities to meet current standards.
- Improve the legibility and visibility of Neighborhood Greenways and Healthy Streets. Implement cohesive wayfinding between Neighborhood Greenways and the rest of the bike network to help people travel where they need to go. This will make Neighborhood Greenways more visible and navigable for new users and visitors.
- Explore opportunities for expanding neighborhood-based events, play streets, and block parties on Neighborhood Greenways and Healthy Streets.
- Educate people so they are aware of new Greenways in their neighborhood.

See the People Streets and Public Spaces Element for more details on Healthy Streets.

Vision Zero

We are committed to Vision Zero, a goal to eliminate fatal and serious crashes on our streets, and safety is a priority goal for the STP. Achieving the Vision Zero goal requires making changes to our streets to reduce vehicle speeds, minimize conflicts between people driving and people bicycling, and separate people bicycling from those driving. SDOT will seek to:

- Incorporate Vision Zero and Safe System approaches into every project and program.
- Prioritize bicycle safety improvements that are on the high-injury network (HIN), have high levels of travel stress, or are identified through the Seattle Bicycle and Pedestrian Safety Analysis (BPSA) (Supports TEF 19.2)
- Take a comprehensive, data-driven, Safe System approach to address bicyclist fatalities and serious injuries.
- Implement proven techniques systemwide that help further Seattle's goal.
- Create regular opportunities that are not tied to specific projects which enable community conversations on safety with leadership. (Supports TEF 41.6)
- Employ design strategies to maximize comfort and safety for people bicycling, such as those described below under "Update Streets Illustrated" and "Develop a Bicycle Facility Design Guide," through right-of-way reallocation and traffic calming.
- Accelerate implementation of research-backed improvements that are proven to make streets safer for everyone, such as protected intersections for bicycles. Protected intersections may include elements such as color, signage, medians, signal detection, and pavement markings. The level of treatment required for bicyclists at an intersection depends on bicycle facility type used, adjacent street function, and surrounding land use.
- Encourage helmet use and bike safety through helmet giveaways.
- Pilot and evaluate new and emerging safety treatments in locations where proven interventions are infeasible or do not address the identified safety issues. In some locations, data shows repeated collision patterns involving people bicycling and addressing issues can be challenging due to limited ROW or competing needs for space.
- Test new materials and solutions that would require less width in locations with limited right-of-way and current design standard widths for bike facilities cannot be met. Work to approve deviations for these new design treatments efficiently, and partner across divisions to implement new solutions.

See the Pedestrian Element and the SDOT Vision Zero Top to Bottom Report (2023) for more information about Vision Zero.

E-Bike and E-Scooter Incentives

Seattle's steep topography is a deterrent to biking, and while e-bikes and e-scooters help make bicycling and using e-mobility a more feasible travel option because they make the hills easier to navigate, their high upfront cost makes them unattainable for many. SDOT will seek to:

- Develop programs to directly connect people with e-bikes and e-scooters, remove barriers such as up-front costs, and increase access to free and low cost maintenance programs.
- Develop e-bike and e-scooter incentives to increase purchases of e-bikes and e-scooters and broaden public awareness of these options and their potential for everyday use as a clean, convenient, and inexpensive mode of personal transportation. This can be achieved through promotional activities and incentives, such as rebates or stipends.
- Prioritize low-income individuals and households for incentives to increase equitable access to e-bikes and e-scooters.

See the New and Emerging Mobility Element for information about subsidies that could be provided to people renting shared micromobility devices like shared bicycles and scooters.

PEER EXAMPLE: DENVER E-BIKE AND E-CARGO BIKE INSTANT REBATES

The City of Denver established a rebate program to incentivize more people to purchase e-bikes as a sustainable transportation solution. The program offers tiered rebates based on income and physical ability. Income-qualified applicants can receive up to $1,400 for an e-cargo bike and people with disabilities can receive up to $1,400 for an adaptive e-bike. The program releases a limited number of vouchers each month. In its first year, the program has had nearly 5,000 vouchers redeemed.

Participatory Budgeting

Participatory budgeting allows community members to help decide how we spend part of SDOT's budget. The Neighborhood Street Fund is a city program, running on 3-year cycles, that enables the community to propose and help prioritize transportation-related projects that are then built by the Seattle Department of Transportation. Projects fall into various categories such as: art, community placemaking, and safety improvements. (Supports TEF 19.4 and TEF 45.3)

SDOT will seek to:

- Expand and build on our existing participatory budgeting programs, including the Neighborhood Street Fund, to advance equity and transportation justice, and ensure programs serve communities with highest need.
- Expanded programs may also enable an increase in the number of projects selected each cycle.

- Due to project idea collection, community prioritization, and additional outreach efforts, upfront unit costs for projects identified through this process are typically higher than through normal programming.
- However, expanding these programs would allow SDOT to do more meaningful and equitable outreach including funding neighborhood groups, community organizations, informal groups, and business groups who want to do a project, which will help build stronger community connections.

Safe Routes to Transit

Bicycling and e-mobility are ideal first-/last-mile solutions and greatly expand the reach of those who can access our transit system and the region it serves.

SDOT will seek to:

- Make bicycle and pedestrian investments near light rail stations and busy transit stops that make it safer to bike to transit.
- Improve bicycle and e-mobility connections to current and future light rail stations and the frequent transit network.
- Minimize conflicts with transit and impacts on transit performance. (Supports TEF 43.4)
- Advocate for bike supportive policies to transit agency partners, such as continuing the ability to bring bikes onto transit and improving bicycle parking at transit stations.

Community and Mobility Hubs

Community and mobility hubs combine transportation options, community spaces, and travel information into a seamless, understandable, and on-demand travel experience. They are located along major transit routes where frequent transit services intersect to improve connectivity and facilitate local neighborhood connections, especially in historically underserved areas. Bike parking will be an important component of the design. They may feature People Streets and Public Spaces elements and goods delivery elements.

SDOT will seek to:

- Partner with Sound Transit and King County Metro to provide sufficient and secure bicycle parking at existing and future Link light rail stations and community and mobility hubs. Light rail stations need ADA accessible kiosks for cargo bikes and adaptable bikes, and they would benefit from high-capacity storage for more traditional bikes.

See the Transit Element and the Curbside Management Element for more detail.

Biking for Congestion Mitigation

Large events, such as sporting events and concerts at the stadiums and arena, and major construction projects can result in traffic congestion on our streets. Biking and using e-mobility are great alternatives in these scenarios and serve as a congestion mitigation strategy.

SDOT will seek to:

- Develop and expand programs that incentivize sustainable alternatives to driving for large events and as a primary congestion mitigation tool during major construction.
- Partner with hosting agencies to accommodate temporary event parking for bikes and e-mobility devices.
- Work with temporary traffic control plans to ensure bike lanes and trails have sufficient detour routes and connections during events.

Adults with two young children riding their bikes while wearing helmets in Seattle

PUBLIC OUTREACH AND EDUCATION

Safety Education

SDOT currently leads safety education campaigns, such as Vision Zero yard signs, that educate people on the importance of driving more slowly and engaging in safer behaviors on our streets. SDOT will seek to:

- Expand safety education campaigns to increase safety for all travelers.
- Make materials accessible to non-English speakers.
- Create regular opportunities that are not tied to specific projects that enable community conversations on safety with City leadership. (Supports TEF 41.6)

Public Education Campaigns on Bicycling and E-Mobility

We are working to make it safe, easy, and affordable for people to get where they need to go without relying on a car. Public education campaigns will be needed to help mainstream bicycling and make it an integral part of daily life for more people. SDOT will seek to:

- Expand public education campaigns to encourage bicycling and using e-mobility.
- Develop focused, continuous outreach to mainstream bicycling and build a diverse bike culture. Emphasize diversity-focused storytelling. Connect bicycling to urban wellbeing.
- Partner with community groups to organize events to promote bicycling (e.g., Ciclovia/Bicycle Weekends, bike swaps, bike festivals) and safety.
- Collaborate with community partners to ignite a culture of bicycling that gives all people the comfort and confidence they need to start bicycling, including to overcome barriers related to skill, knowledge, and cost.
- Incorporate educational messaging around “rules of the road”, and “bicycling etiquette”, or being courteous, particularly when interacting with pedestrians, and how people are intended to use bicycle facilities. (Supports TEF 43.2)

Public Resources

It is important that people have the resources they need to confidently plan their bicycle and e-mobility trips and identify the route that will work best for their needs and comfort level. In order to make that possible, SDOT will seek to:

- Update and enhance online bike map (i.e., improve compatibility with mobile devices).
- Work with mapping and navigation providers to confirm information is accurate.
- Explore web or app-based bike maps that include access routes and any detours planned to help bikers navigate development activities and plan routes efficiently.
- Create an online walking and bicycling route planner that allows users to tailor routing to their needs, such most direct route, most comfortable route that uses only specific facility types, or least steep route.

PARTNERSHIPS

Address Inequities and Past Harm

To rebuild and regain community trust, we must continue to partner with BIPOC-led organizations and co-create with community so investments enhance lives of Black and Brown people living in the South End and do not facilitate displacement, SDOT will seek to:

- Build and maintain relationships with vulnerable communities, including those focused on increasing biking, and learn from the leaders active in these spaces about how SDOT can work and co-create with community members to improve their community.
- Identify actions to address inequities experienced by vulnerable community members who walk, bike, and roll, and provide capacity-building support to BIPOC-led organizations that focus on increasing active transportation. (Supports TEF 31.4)
- Prioritize investment in the South End.
- Implement safer street designs to reduce vehicle speeds and calm traffic in underserved neighborhoods. Re-evaluate and study bike safety needs as neighborhoods densify.
- Promote concrete protected bike facilities, especially in low car ownership areas.
- Accelerate the build out of a complete and connected bicycling network, which includes improvements at intersections and supporting bike infrastructure (e.g., bike racks).

Bicycling Organizations

There are a number of groups already doing meaningful work to expand the bicycling community, and we seek to establish or expand our partnerships with them to support their efforts. SDOT will seek to:

- Support and partner with organizations, such as Black Girls Do Bike, Bike Works, Outdoors for All, Peace Peloton, and Northstar Bicycling Club, to encourage bicycling by women and caregivers, people of color, people with disabilities, non-English speakers, low-income populations, seniors, and youth.
- Partnership may come in the form of micro-grants, providing material support for events, and/or dedicated staff time.
- Continue to build meaningful relationships with groups through regular meetings, ongoing communication, and progress on action items. Coordinate across City departments to stay apprised of other conversations taking place.

Improve Rail Crossings

There are many opportunities to coordinate with freight, passenger rail, light rail, and streetcar partners on safety improvements at rail crossings.

SDOT will seek to:

- Negotiate who is responsible for ongoing maintenance and design of train track crossing signage.
- Evaluate and update operating agreements for access control for train track use and determine what abandoned tracks can be removed.
- Prioritize locations with greatest needs to update crossing design.
- Research and pilot new materials for track crossing flange treatments to address bike tires becoming stuck.

Coordinate with Partner Agencies

Many agencies play a role in supporting actions to enhance Seattle's bicycle network infrastructure and operations.

SDOT will seek to partner with:

- **King County Metro**: Explore ways to safely locate bike facilities under trolley lines where buses must maintain lateral clearance to attach overhead and make modifications to bike racks on buses to accommodate a variety of e-bike and cargo bike sizes.
- **WSDOT**: Coordinate on design solutions to minimize conflicts at highway entrance and exit ramps.
- **U.S. Army Corps of Engineers, U.S. Coast Guard, Washington State Departments of Natural Resources and Fish & Wildlife, and Tribal Nations**: Coordinate on new and upgraded facilities with drawbridge operations.

A bike on the front rack of a Metro bus.

- **Seattle Public Utilities**: Coordinate on how to minimize dumpsters blocking bike lanes during pickup days.
- **Seattle City Light**: Coordinate on how to improve access for trail maintenance within Seattle City Light right-of-way.
- **Seattle Parks and Recreation**: As discussed above, coordinate on opportunities for improving bicycling adjacent to and/or through parks, improving and expanding temporary open streets events, and changing policy and operation on select Olmsted Boulevards.

Advocate for Changes to State and Federal Legislation and Programs

There are policies that impact bicycle use and safety that are outside of the City of Seattle's control. As a city focused on providing a safe, equitable, and sustainable transportation system, we can advocate for changes to state and federal legislation and programs.

SDOT and the city will seek to:

- Revise driver education policies to require driver education for anyone seeking a Washington driver's license, including people moving to Washington from another state. Put more focus on safety for people walking, biking, and rolling, as well as young driver safety. Many regions of the country do not teach new drivers how to interact with people bicycling and using e-mobility devices, so additional driver education is critical. (Supports TEF 44.4)
- Require drivers aged 72 and older to renew their license every two years and authorize license restrictions to be imposed in the interest of keeping drivers and roadways safe.
- HB 1319 passed in 2023, requiring drivers who are responsible for a fatal crash or one causing "substantial bodily harm" to have their driver's license reexamined. Monitor how HB 1319 is implemented and evaluate if additional legislative action is needed.
- Revise state legislation (RCW 46.61.250) that precludes pedestrians from having priority use of the roadway.
- Continue to engage communities to address equity concerns around automated traffic safety cameras and potentially expand its use in areas with many fatalities and serious injuries.
- Expand e-bike incentives and increase rebates at the state level.

TRANSPORTATION DATA, TECHNOLOGY, AND INNOVATION

Maintain Our Datasets

Data on bicycle facilities is useful to track asset locations and their condition, as well as to provide information to others.

SDOT will seek to:

- Maintain the dataset for existing bicycle facilities and the digital inventory of public bicycle parking locations, and continually update them on the city website.

Use Data to Inform Changes to the Transportation System

To make informed decisions typically requires good data.

SDOT will seek to:

- Create a more robust bike count and annual reporting program that captures bike activity at specific locations, such as within Link light rail station areas, along key bicycle corridors between urban villages and centers, and along Neighborhood Greenways, and trips made using shared micromobility.
- Collect data on non-commute trips made by personal and shared bicycle and e-mobility devices, such as through trip surveys, big data, and more.
- Collect data on the demographics of people bicycling and using e-mobility at a regular interval to track progress toward increasing the diversity of who is bicycling and using e-mobility devices. SDOT strives to expand the bicycling community and include more women, caregivers, people of all ages and abilities, and people of color. Determine the best format for collecting this data.
- To better estimate network-wide bicycle and e-mobility volumes, develop factor groups based on permanent count data and extrapolate short-duration counts that can be used in planning and performance tracking.
- Purchase updated bike counters and maintain existing equipment quickly to provide accurate reporting.
- Explore use of cellular data to augment and validate bicycle volume estimations.
- Make bike count data easily accessible to City staff, partner agencies, and the public.
- Evaluate existing multi-use trail conditions and develop recommendations to improve the multi-use trail environment. This includes pavement and shoulder condition, vegetation control, adjacent buffers and/or barrier treatments, intersection and/or railroad crossings, etiquette signage, and wayfinding signage.
- Continue to partner with third party mapping companies to confirm their maps include up-to-date information and do not route people onto dangerous streets.

MAINTENANCE & MODERNIZATION

Update Streets Illustrated

Streets Illustrated (Seattle's Right-of-Way Improvements Manual) identifies comprehensive design standards and guidance for bike lanes, multi-use trails, intersections, bike lanes with transit service, Neighborhood Greenways, and bike parking based on national best practices. As best practices continue to evolve, our design standards need to reflect that. As more people use cargo bikes, e-bikes, adaptive bikes, and e-mobility devices that vary in size and speed at which they travel, we'll need to provide adequate space for people traveling faster to safely pass those moving more slowly.

Streets Illustrated needs to reflect the wide range of bicycle and e-mobility devices that use, and will use, the Bike+ and multi-use trail networks in the future. This section highlights considerations to account for when updating *Streets Illustrated*.

SDOT will seek to:

- **Include the Bike+ network** in *Streets Illustrated* to minimize conflict points between people bicycling and driveways to new developments.
- **Bikeway Width**. Increase the width of bikeways to accommodate the volumes of people bicycling that are needed to meet Seattle's climate action goals and an increasing number of cargo bikes, e-bikes, adaptive bikes, and e-mobility devices that vary in size and speed at which they travel. In areas with higher anticipated bicycle and e-mobility activity, such as light rail station areas and within urban villages and centers, it is especially important to size our protected bike lanes and their associated buffers to meet growing demand, encourage usage, and help people feel comfortable.
- **Standard Bicycle Design Vehicle**. Adopt a standard bike with a trailer as the "design vehicle" for new and upgraded bikeways. Using this footprint in bikeway design will help make sure new bikeways provide enough space for proper turning movements, intersection cut throughs, and spaces for waiting.
- **Physical Separation**. Physical separation of bike lanes and other measures, such as clear signage and enforcement, should be used to prevent drivers parking or traveling in bike lanes. *Streets Illustrated* identifies a variety of permanent and interim buffer treatments, but interim treatments should be used sparingly and phased out over time for more durable, permanent treatments that meet or exceed the full buffer width per *Streets Illustrated*. We will continue to advance our separation standards to best accommodate emergency vehicles, encourage people driving to obey traffic laws, minimize maintenance and replacement costs, and consider constructability and supply chain issues. Physical separation also increases feelings of and actual safety for people bicycling and using e-mobility devices, making them more likely to use facilities.
- **Multi-Use Trail Width**. Multi-use trails typically should be designed to standard widths, with additional soft surface shoulder space on both sides. In high demand areas with large volumes of pedestrians, wider trails should be provided to enable more operating space, and in some cases, separation between people bicycling and walking.
- **Neighborhood Circulation and Traffic Calming**. As we continue to build out an extensive Neighborhood Greenways network, broader neighborhood circulation strategies should be used to achieve vehicle volumes and speeds at or below NACTO thresholds. Diverters are one strategy that

could be implemented on Neighborhood Greenways, Healthy Streets, and School Streets, though not appropriate in every location. Adding stop signs for side streets crossing the Greenway is another strategy and has improved compliance of drivers stopping for bicyclists and people walking.

- **Safe Intersections and Signal Strategies**. At busy street crossings, prioritize people walking, bicycling, rolling, and using e-mobility devices on Neighborhood Greenways and multi-use trails. To reduce crashes and conflicts at major intersections, bicyclists and motor vehicle drivers should be separated physically (e.g., a protected intersection) and/or temporally (e.g., a dedicated signal phase). Eliminate vehicle turn movements that conflict with movements of people walking, rolling, and biking. Bicycle detection should continue to be implemented using an appropriate technology for the specific location context (e.g., push buttons, loops, infrared, etc.), and signal delay for people bicycling should be minimized. This may include retiming signals to provide "green waves" that optimize travel at 10-15 mph for people bicycling on arterial streets.

- **Network Legibility and Predictability**. To make bicycling and e-mobility attractive to a broader group of Seattleites and visitors, the network needs to be legible and intuitive. This includes uniform design and clear connections between on-street bicycle lanes, off-street trails, and Neighborhood Greenways as well as to and from transit stations and major destinations. Designing bicycle facilities to provide predictable movement of people on bicycles also helps minimize conflicts with motor vehicles and freight goods movement. Increased coordination with other city wayfinding programs is needed to provide consistency in what destinations are called, graphics, and format for secondary languages. Our extensive wayfinding system is important to network legibility.

- **Permanent Bike Barriers and Curbspace**. Identify design standards and guidance for how permanent bike barriers interface with the curb. For example, *Streets Illustrated* will include how motor vehicles should access private development curb cuts and how cargo bikes making deliveries should enter/exit the bike lane.

- **Bike Parking at Developments**. As discussed above under "Bike Parking," look at updating *Streets Illustrated* or City Code to change bike parking requirements for development projects as a mechanism for meeting parking demand.

- **Increase pedestrian-scale lighting**. Expand the requirements for pedestrian-scale lighting downtown to all Urban Villages and multi-use trails. Many trails and off-street connections are dark and challenging to navigate at night and better lighting would make them more useful. These locations will be inventoried and prioritized, and we will work with Seattle City Light to develop a plan and funding mechanism for installing additional lighting. (Supports TEF 45.3)

See the People Streets and Public Spaces Element for more information about implementing pedestrian-scale lighting improvements.

Develop a Bicycle Facility Design Guide

Streets Illustrated provides a high-level framework for bicycle facility design, but a more comprehensive *Bicycle Facility Design Guide* is needed to supplement it. This will allow SDOT to better reflect current best practices. SDOT will seek to:

- Create a *Bicycle Facility Design Guide* to supplement *Streets Illustrated* that will be referenced when designing and implementing bike projects.

Maintain the Bicycle and E-Mobility Network

To provide a safe and comfortable bicycling and e-mobility experience, SDOT will seek to:

- Periodically review and adjust resources for maintenance equipment, labor, and program management to be proportionate to a growing bicycle and e-mobility network.
- Improve and promote the Find It, Fix It app to make it easier for community members to report maintenance issues, including bike facility specific issues.
- Address maintenance concerns efficiently and promptly.
- Address annual maintenance needs in an organized manner for seasonal issues, such as vegetation trimming, blackberry bush removal, bike lane sweeping, and clearing drainage problems.
- Promote use of sustainable materials in construction of bike facilities that are durable and have lower lifecycle costs to replace and maintain, such as permanent barriers.
- Negotiate maintenance agreements with partners.
- Work with public and private partners to identify and enforce bike lane detour routes in construction zones so that bicyclists and e-mobility users have a safe alternative route.
- Anticipate signal equipment upgrades, including needed signal heads or phasing changes to make bicycling connections easier.
- Develop a schedule for routine maintenance checks, such as bike lane sweeping, lane striping, and protective barrier materials replacement, that prioritizes locations for investment.

DEFINING SUCCESS

To track progress toward the STP goals, it is important to define what success looks like and how we'll measure it. This section defines the performance measures that have been identified as important indicators of our progress, as well as relevant Transportation Equity Framework (TEF) tactics this Element supports. Performance measurement is how SDOT is held accountable and provides transparency for community members and decision makers to understand the impacts of the plan as it is implemented over time.

A bikeable city is one where people of all ages and abilities ride bikes because it is a convenient, affordable, fun, safe, and healthy choice. (Supports TEF 43.4) [12]

A bikeable city includes:

- Connected and well-maintained bicycle facilities between where people live and the places they need to go to meet their everyday needs, including school, shopping, services, work, parks, and connecting to transit for longer trips (Supports TEF 45.3, 19.4)
- Enjoyable and safe places to ride a bicycle or e-mobility device—whether on a residential street, multi-use trail, or protected bike lane (Supports TEF 45.3)
- Places to securely park bicycles and e-mobility devices of all sizes at destinations (Supports TEF 45.3)
- Intuitive and inviting design and wayfinding that makes people feel comfortable and confident navigating the network
- Increased access to bicycles and e-mobility devices
- Well-lit streets and multi-use trails
- Broad community acceptance and support for bicycling as a viable and attractive mode of travel, including from businesses, schools, and government (Supports TEF 29.1). Bicycling is mainstream
- Biking is more convenient and time competitive than driving for short- and medium-length trips
- A traveling public that is educated on how to share the road safely, respectfully, and predictably
- These components are particularly important to make bicycling more accessible and attractive for populations historically underrepresented in bicycling, such as women, people with lower incomes, and people of color.

MEASURABLE OUTCOMES

This section outlines desired outcomes and recommends performance measures to monitor the implementation of the STP Bicycle and E-Mobility Element. They are part of a 3-tiered system of measures that includes:

[12] TEF refers to SDOT's Transportation Equity Framework. You can learn more about the TEF at https://www.seattle.gov/transportation/projects-and-programs/programs/transportation-equity-program/equityworkgroup. A complete list of the TEF tactics referenced is located at the end of the element.

- Tier 1: Overarching outcome-based measures are identified in the STP implementation strategy (see Chapter 4 of the Part I document). Generally, they are tracked at a citywide scale, and SDOT may not have primary control over their achievement. Examples include a reduction in vehicle-miles traveled and the percentage of household income dedicated to transportation.
- Tier 2: These measures are tracked in individual elements, as they are not as overarching as the measures in Tier 1. Typically measures in Tier 2 are a combination of outcome and output measures over which SDOT has a relatively large degree of control. These measures help SDOT track progress towards our Tier 1 goals. Examples include a target to increase the share of people taking active trips and the percentage of households living within a quarter mile of an all ages and abilities bikeway.
- Tier 3: Measures in the Tier 3 category are typically tracked by individual programs. SDOT has a high degree of control over these measures. They are used to track productivity and to help allocate resources. Examples may include the number of secure bike parking spaces installed each year in public right-of-way (both citywide and in equity priority areas); number of miles of multi-use trails, protected bicycle lanes, and Healthy Streets created each year; percent of bicycle and e-mobility catalyst projects completed (both citywide and in equity priority areas); and more.

While all metrics in the table below will be tracked at a citywide scale, it will be important to track several metrics by demographics and/or geography so that SDOT can pivot as needed to meet our equity goals over the next 20 years. The table indicates which metrics will be tracked using the city's Race and Social Equity Index (RSEI) and/or race. RSEI combines information on race, ethnicity, and related demographics with data on socioeconomic and health disadvantages to identify census tracts where priority populations make up relatively large proportions of neighborhood residents.[13]

The ability to successfully track performance measures is dependent on city staff capacity to collect and analyze data, the availability of relevant data, and/or the availability of resources to acquire data.

Table 5 identifies the Tier 2 performance measures that will be tracked for the Bicycle and E-Mobility Element.

13 https://data.seattle.gov/dataset/Racial-and-Social-Equity-Composite-Index-Current/w3kz-xtmq

Table 5: Bicycle and E-Mobility Performance Measures

Desired Outcome	Performance Measure (Source)	Baseline (year)	Target or Desired Trend	Track measure by RSEI and/or race	Related STP Goals
End traffic deaths and serious injuries on city streets	Number of fatal and serious injury crashes involving people biking and rolling (Seattle Police Department (SPD) Collision reports)	33 (2022)	Zero fatalities or serious injuries by 2030 Sub-measure: track by age, gender, and housing status as data is available.	Yes	Safety Equity Sustainability Livability
Increase walking, rolling, biking, and transit mode share	Increase percent of bicycle and micromobility trips (SDOT)	3% (2019)	8% by 2044 Sub-measure: Track bike ridership by race, gender, and age	Yes	Safety Equity Sustainability Mobility & Economic Vitality Livability
Increase access to All Ages and Abilities network	Percent of households within ¼ mile to the Bike+ or multi-use trail networks (Census Bureau, SDOT)	64% of households 42% of schools (2023)	100% by 2044 Sub-measure: Percent of public schools directly served by a Bike+ route or multi-use trail. 100% by 2044	Yes	Safety Equity Sustainability Mobility & Economic Vitality
Support a well-maintained bike network	Percent of bikeways with fair or better pavement condition (SDOT)	63% (2023)	Achieve and maintain a higher percent of bike segments with fair or better pavement conditions than streets as a whole	Yes	Safety Mobility & Economic Vitality Maintenance & Modernization

RELEVANT TEF TACTICS

TEF 19.2—Identify opportunities to repurpose travel lanes for transit, biking, and smaller, lighter-weight vehicles and devices to create more travel options with the STP.

TEF 19.4—Focus maintenance resources in communities and neighborhoods currently underserved by government that have significant maintenance needs; use findings from the racial equity assessment.

TEF 19.6—Prioritize person-throughput as metric rather than vehicle throughput.

TEF 29.1—Create publicly accessible, community-oriented visuals and neighborhood-specific snapshots to capture where SDOT has built infrastructure, dedicated investments, and collected community feedback; this should be utilized by SDOT, other City departments, and transportation partners to inform future investment needs and planning and programmatic efforts.

TEF 41.6—Create regular opportunities that are not project specific for community conversations on safety with leadership.

TEF 43.2—Coordinate with community-based organizations (CBOs) and legislators to revise or remove pedestrian crossing (jaywalking, etc.) and helmet laws that result in harm to BIPOC communities; replace with educational outreach that promotes safe walking, rolling, and bicycling behaviors.

TEF 43.4—Review SDOT policies, practices, standards, and funding allocation strategies to elevate/give priority to access and use of right-of-way (ROW) for people of all ages and abilities—people recreating, shopping, walking, rolling, riding bikes and transit.

TEF 44.4—Advocate for bicycle and pedestrian safety to be a part of driver education and license renewal process; ensuring that safety is a continuing education component for drivers related to this safety topic.

TEF 45.3—Identify spaces for equitable investment that can activate community, foster local economic development, and facilitate connections to transit.

TEF 56.4—Improve, identify, and maximize current opportunities for street trees and greenscapes in SDOT activities, ranging from routine maintenance to capital project delivery; ensure design guidance and functions of maintenance include this consideration for long-term sustainability.

GLOSSARY

Active transportation: Human-powered modes of travel such as walking, biking, and using a wheelchair.

ADA: Americans with Disabilities Act

Adaptive bikes: Bicycles that are designed for people with disabilities or who cannot ride a traditional two-wheeled bicycle. Examples include trikes and hand cycles.

All ages and abilities (AAA): Bicycle and e-mobility facilities that people of all ages and abilities feel comfortable using. They provide low-stress bicycling conditions and focus on safety.

Arterial street: The "backbone" of the roadway system and accommodates the most trips for all modes. Arterials provide the connections between freeways and access streets and vary in their speed and volume characteristics, design features, and degrees of local access.

Bicycle and Pedestrian Safety Analysis (BPSA): A data-driven study conducted by SDOT to understand where, how, and why pedestrian and bicycle crashes happen. The study used data of where crashes happened and pedestrian, cyclist, and vehicle volumes. The results are used to identify locations and prioritize safety investments with the goal of preventing future crashes.

Bicycle Master Plan (BMP): A long-range plan developed by SDOT in 2014 that identifies projects, programs, and investments for a citywide bike network to make riding a bicycle a comfortable and integral part of daily life in Seattle. The Bicycle and E-mobility Element builds on the BMP.

Bike+ Network: Bikeways suitable for all ages and abilities (AAA) that allow for safe, comfortable, and accessible bicycle travel such as protected bike lanes and Neighborhood Greenways. The Bike+ Network will be seamlessly integrated with the multi-use trail network.

Bike buses/trains: Organized group bike rides for kids to travel safely to and from schools.

Bioswale: Vegetated ditches that capture and filter stormwater runoff.

BIPOC: BIPOC stands for Black, Indigenous, and all People of Color (BIPOC). It is a term to make visible the unique and specific experiences of racism and resilience that the Black/African Diaspora and Indigenous communities have faced in the structure of race within the United States. BIPOC is a term that both honors all people of color and creates opportunity to lift up the voices of those communities.

Café Streets: Streets with high levels of foot traffic and lots of restaurants, cafes, shops, bars, markets, museums, and/or tourist destinations. Vehicles are still permitted to use the street for local access, goods loading, business access, and emergency access, although the street is designed to keep speeds low and to give priority to pedestrians. They are a type of Shared Street.

Capital Improvement Program (CIP): A planning tool that identifies future capital investments and funding strategies over 6 years.

Cellular vehicle-to-everything (C-V2X): Technology that enables vehicles to wirelessly connect and interact with their surroundings, such as other vehicles and 5G service. C-V2X has the potential to make travel safer by reducing crashes and conflicts between road users.

Community and Mobility Hubs: Places of connection that bring together transportation options, community spaces, and travel information into a seamless, understandable, and on-demand travel experience. They are located with major transit facilities and places and may feature People Streets and Public Spaces (PSPS) elements.

Community-based organizations (CBOs): These are trusted community builders and leaders.

Complete communities: Neighborhoods where residents can access all daily needs within walking distance.

Comprehensive Plan: A 20-year vision and roadmap that guides City decisions on where to build new jobs and houses, how to improve the transportation system, and where to make capital investments such as utilities, sidewalks, and libraries.

E-cargo bikes: Human-driven bikes with battery-powered pedal assist that can transport packages or other small goods in a front-mounted wagon or rear-hitched trailer.

E-commerce: The buying and selling of goods online that are then delivered directly to a home or business. Examples include Amazon and eBay.

E-mobility: Personal and shared electric-powered bicycles, scooters, and other electric-powered devices.

Executive Order 2022-07: An executive order signed by Mayor Bruce Harrell to advance the City's climate goals. The order sets goals of establishing 3 low-pollution neighborhoods by 2028, making 20 miles of Healthy Streets permanent, hosting a Youth Transportation Summit, and making the City's fleet zero-emission by 2030.

Find It, Fix It app: A smartphone app offering mobile users a way to report selected issues to the City by submitting a photo and written description.

First-/last-mile: The distance traveled at the beginning or end of a trip from transit to a final destination.

GHG: Greenhouse gas emissions.

Healthy Streets: Streets for people walking, rolling, biking, and playing. They are closed 24/7 to pass-through traffic. People driving who need to get to homes and destinations along Healthy Streets retain access and can still drive on these streets.

High-injury Network (HIN): The High Injury Network (HIN) identifies where fatal and serious crashes have already occurred to inform safety corridors of focus for the Vision Zero program and more. It prioritizes corridors according to fatal and serious injury crash rates, as well as race and equity outcomes.

Key Moves: A series of strategies across the 6 STP core values that explain how the goals of the STP can be achieved. The Key Moves represent an integrated view of our complex transportation system, touching multiple elements.

Leading pedestrian intervals (LPIs): Walk signals at intersections that give pedestrians an additional 3-7 seconds to cross the street before vehicles.

Level of traffic stress (LTS): A measure of the amount of discomfort cyclists feel biking next to traffic.

Low-emission neighborhood: Low-emission neighborhoods, sometimes called low-pollution neighborhoods, prohibit or restrict the types of vehicles allowed within an area and encourage zero- and low-emission travel options like walking, biking, electric vehicles, and deliveries by e-cargo bike. Implementation of these concepts will vary by neighborhood and are co-created with local communities.

Micromobility: Small, low-speed transportation devices. They are convenient for traveling short distances or the beginning or end of trips. They include bikes and scooters.

Multimodal: Refers to the various ways people use the transportation system, such as walking, riding a bicycle, taking transit, or driving a truck or personal automobile. It can also refer to a journey that employs more than one mode, such as walking to the bus stop and then taking a bus to a final destination. The vast majority of individual trips involve more than one mode.

Multi-use trails: Off-street paths for people walking, biking, rolling, or using other non-motorized/e-mobility devices.

NACTO: National Association of City Transportation Officials

Neighborhood Greenways: Neighborhood Greenways are safer, calmer neighborhood streets where people walking and biking are the priority. These streets work together with trails and protected bike lanes to provide connected routes to bring people to the places they want and need to go as part of Seattle's all ages and abilities bicycle network.

Neighborhood Street Fund: A City program, running on 3-year cycles, that enables the community to propose and help prioritize transportation-related projects that are then built by SDOT.

Park Boulevard / Olmsted Boulevard: Streets designed by the Olmsted Brothers in the early 1900s as an interconnected system of parks and boulevards to provide open space for all people. They create recreational opportunities for people biking, walking, rolling, and engaging in other activities. They are owned by Seattle Parks and Recreation and jointly managed by Seattle Parks and Recreation and SDOT.

Personal delivery devices (PDDs): Small automated or remotely piloted robots designed for short deliveries carrying food, packages, or other goods

Protected bike lanes: Bike lanes that are physically separated from traffic and the sidewalk, offering a greater level of comfort and safety for cyclists.

PSRC: Puget Sound Regional Council

PSRC Household Travel Survey: Collection of data on travel behavior – who, what, when, where, why, and how people travel – from households throughout the Puget Sound Region.

Public Spaces: Plazas and Shoreline Street Ends that come in many shapes and forms. They are pedestrianized spaces that invite people to gather, play, and connect with one another. These spaces may be focal points in neighborhoods that support local businesses, venues for community gatherings, or more subtle spaces that are loved by locals and stumbled upon by visitors who delight in their discovery. They may incorporate public art, seating, games, trees and green infrastructure, and flexible space for vendors and gatherings. Public Spaces are born of inclusive, community-driven processes that inform design, programming, and long-term stewardship.

Race and Social Equity (RSE) Index: A tool produced by the Office of Planning and Community Development to aid in the identification of city planning and investment priorities.

RCW 46.61.250: This is the state code regarding pedestrians on roadways. It describes the nuances of allowed pedestrian behavior when sidewalks are available and accessible and when they are not. You can find exact language of the code here: https://app.leg.wa.gov/rcw/default.aspx?cite=46.61.250

Refuge islands: Paved median that protects pedestrians crossing a multi-lane street by providing a safe place to stop.

Right-of-way (ROW): Strip of land legally established for primary purpose of public travel by pedestrians and vehicles.

Road diet: Physical changes to the right-of-way that decrease vehicle volumes and speeds and reallocate space toward non-motorized modes, such as walking and biking. Examples include curb bump-outs, pedestrian refuge islands, narrowed lanes, street cafes, and street trees and landscaping.

Rolling: Includes low-speed, wheeled mobility devices that use pedestrian network, like wheelchairs and strollers.

Safe Routes to School: A national movement to make it easier and safer for students to walk and bike to school. The program is designed to improve safety in areas around schools and to encourage more kids to walk and bike.

Safe System Approach: A framework for transportation planning to move toward a transportation network that is safe for everyone. The approach differs from traditional approaches to traffic safety by recognizing that humans will make mistakes and layers of protection must be built elsewhere into the system to address that. The approach is based on 6 principles:

- Death and serious injuries are unacceptable
- Humans make mistakes
- Humans are vulnerable
- Responsibility is shared
- Safety is proactive
- Redundancy is crucial

Goals are to create safer vehicles, speeds, roads, and people and provide post-crash care.

Seattle Displacement Risk Index: Areas in Seattle identified where displacement of people of color, low-income people, renters, and other populations susceptible to displacement may be more likely.

Shared micromobility: Shared bikes and scooters offer low-cost options for a short distance trip. Riders locate and rent available devices with a phone, ride it where they want to go, and leave it responsibly parked for the next person.

Shared Streets: Streets that are “people first” spaces either permanently or during certain times of the day or week. They are typically identified in partnership with the surrounding community. Shared Streets include Healthy Streets, Café Streets, School Streets, Event Streets, Special Alleys, and Pedestrianized Streets.

Slow Lanes: Dedicated lanes that allow human-powered or small motorized devices to travel safely separated from larger vehicles.

Speed cushion: Multiple low-rise speed humps placed together that slow vehicle speeds while still allowing emergency vehicles to pass through normally. They are used on low volume and non-arterial streets.

STP: Seattle Transportation Plan

Streets Illustrated: Seattle's Right-of-Way Improvements Manual is an online resource for property owners, developers, and architects involved with the design, permitting, and construction of Seattle's street right-of-way.

Traffic calming: Physical changes to street design that slow traffic and make the street safer for all travelers. Examples include traffic circles, speed humps, and narrow lanes.

Transportation Equity Framework (TEF): A roadmap for SDOT decision-makers, employees, stakeholders, partners, and the greater community to collaboratively create an equitable transportation system. The TEF addresses the disparities that exist within the transportation system due to institutional racism.

Urban Villages and Centers: Areas in Seattle identified in the Seattle 2035 Comprehensive Plan where the most future job and employment growth is targeted. This strategy promotes the most efficient use of public investments and encourages walking, bicycling, and transit use.

Vision Zero: City's goal to eliminate traffic deaths and serious injuries on city streets by 2030.

Vision Zero Top to Bottom Review: A review of the Vision Zero program and actions. It was conducted to help the department better understand the causes of the rise in number of traffic deaths and to identify opportunities to reduce harm while creating a culture of care and dignity for all travelers.

Vulnerable Communities: Communities that have historically and currently been erased, intentionally excluded and/or underinvested in by government institutions. SDOT's Transportation Equity Program and Transportation Equity Workgroup include:

- BIPOC communities
- Low-income communities
- Immigrant and refugee populations
- Native communities
- People living with disabilities
- LGBTQIA+ people
- People experiencing homelessness or housing insecurity
- Women and female-identifying populations
- Youth
- Aging adults
- Individuals who were formerly incarcerated
- Displaced and/or high-risk displacement neighborhood

Vulnerable traveler: As defined in City Code, a pedestrian, a person riding an animal, or a person operating or riding any of the following on a public way: a farm tractor or implement of husbandry, without an enclosed shell, a bicycle, an electric-assisted bicycle, an electric personal assistive mobility device, a moped, a motor-driven cycle, a motorized foot scooter, or a motorcycle." The STP intentionally uses the term "vulnerable traveler" instead of "vulnerable user" to better reflect that people are traveling in the public way.

Wayfinding: Visual information that helps people to orient themselves spatially. Wayfinding is important to ensure people can travel easily, comfortably, and safely. Methods of wayfinding include signs and maps.

WSDOT: Washington State Department of Transportation

Zero-emission travel: Modes of transportation that do not emit any greenhouse gases (GHGs)

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