Update on the Modal Integration Policy Framework

Seattle Bicycle Advisory Board
Jonathan Lewis & Lizzie Moll
7/6/2021 Department of Transportation

City of Seattle

Presentation overview

- Share background
- Discuss how the Complete Streets policy is used
- Review status of what's been achieved to date
- Next steps
  - Define and incorporate critical bike connections
  - Introduce future citywide transportation planning

Our vision, mission, and core values

Vision: Seattle is a thriving equitable community powered by dependable transportation

Mission: to deliver a transportation system that provides safe and affordable access to places and opportunities

Committed to **6 core values**:

- Equity
- Safety
- Mobility
- Sustainability
- Livability
- Excellence

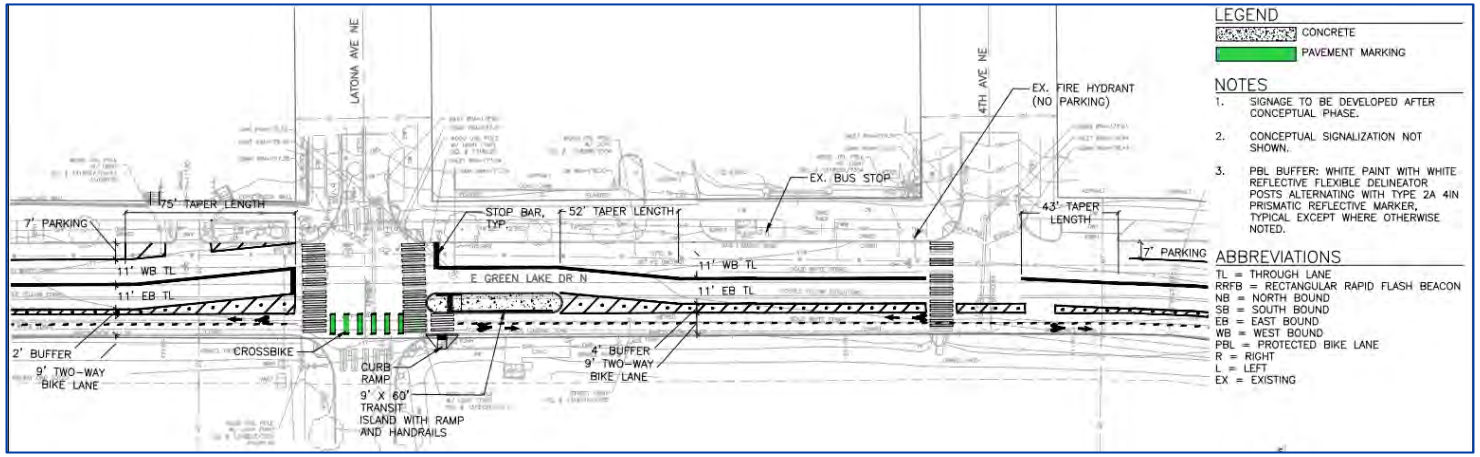
Policy context: Seattle 2035 Comprehensive Plan

- Transportation focus based on land use
- References transportation master plans for prioritizing curb space
- **Gap**: lacks guidance on how to accommodate travel modes when the street is not wide enough for all to safely operate
- Update process starts in 2022

Commercial/Mixed-Use Areas	Industrial Areas	Residential Areas
* Modal plan priorities	Modal plan priorities	Modal plan priorities
Access for commerce	Access for commerce	Access for people
Access for people	Access for people	Access for commerce
Activation	Storage	Greening
Greening	Activation	Storage
Storage	Greening	Activation

Policy context: Complete Streets

- **Ordinance**: City Council passed, and SDOT implemented, in 2007
- **Purpose**: Consider opportunities to make investments that benefit multiple modes
- **Result**: Create and maintain safe streets for everyone



Green Lake & Wallingford Paving & Multimodal Project

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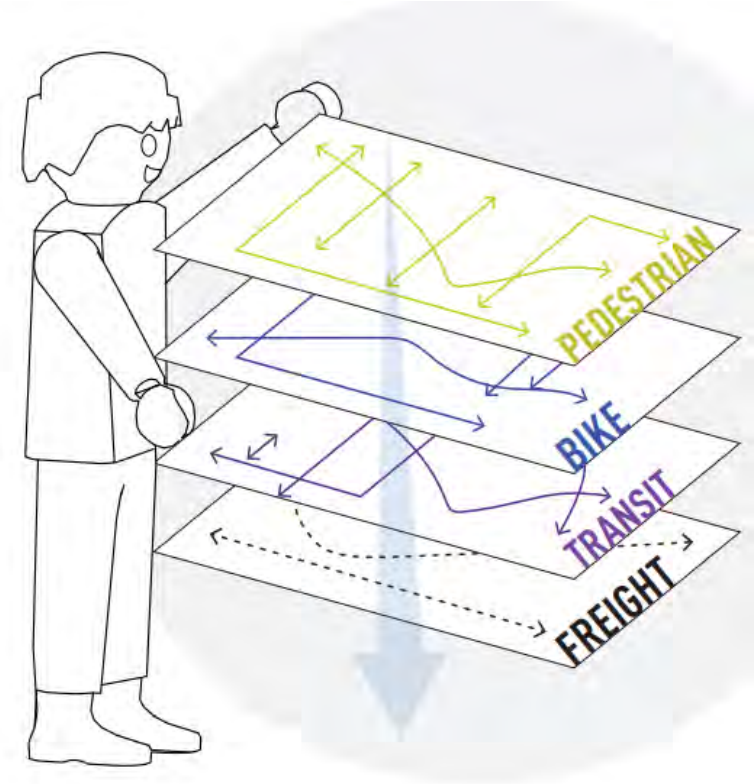
Implementing Complete Streets

- A multi-disciplinary staff team completes an assessment of existing conditions and considers improvement opportunities for all travel modes
- Projects are elevated to division directors or SDOT Director for confirmation of direction or resolution, if needed



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Desired outcomes from the Modal Integration Policy Framework

- As part of the complete streets process, determine early in the project scoping phase how to best accommodate travel modes when the street is not wide enough for all to safely operate
- Optimize public right-of-way allocation by balancing network function, land use development patterns, and local context

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Desired outcomes from the Modal Integration Policy Framework (cont.)

- Formalize a **consistent and transparent approach** for interpreting our plans and policies into project decisions and share our approach during outreach
- Identify considerations and **opportunities for future policy and plan development** that consider the full range of community priorities for our transportation system, in addition to delivery of our modal networks

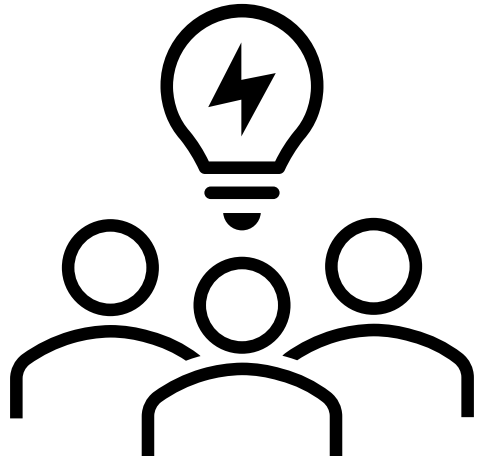
Our approach

- Consultation with an ad hoc Policy and Operations Advisory Group
- Policy review
- Technical analysis
- Interviews with staff

Board, Committee, or Commission	Members
Bicycle Advisory Board	Pierre Brunelle Alexander Lew
Business Improvement Association	Mike Stewart (Ballard Alliance)
Freight Advisory Board	Warren Aakervik Geri Poor
Pedestrian Access Advisory Committee	Dorene Cornwell Steven Feher
Pedestrian Advisory Board	Emily Mannetti Anna Zivarts
Planning Commission	David Goldberg Grace Kim
Transit Advisory Board	Erin Tighe Bryce Kolton
Transportation Equity Workgroup	Kiana Parker Yordanos Teferi

What we heard

- Transportation master plans were developed with stakeholder input, and recommendations need to be part of policy framework
- Pedestrian safety and access is critical citywide
- While useful, the urban center framework has limitations
- Climate change and equity need to be prioritized when thinking about right-of-way allocation
- Framework should address mobility needs rather than one travel mode
- Address modes not included in modal plan networks (e.g., personal vehicles) and space dedicated to general purpose traffic
- High housing costs have shifted residents out of Seattle; many still work in the city, creating a reliance on cars
- Concern that bicycle infrastructure would be deprioritized



Modal integration policy framework overview

Prioritize travel modes based on Urban Village, Urban Center, Manufacturing/Industrial Centers and connections to them

In urban villages and centers, we prioritize pedestrians

In manufacturing and industrial centers, we prioritize goods movement

Between urban villages and centers, we prioritize transit

Citywide, at critical connections, we prioritize the bicycle network

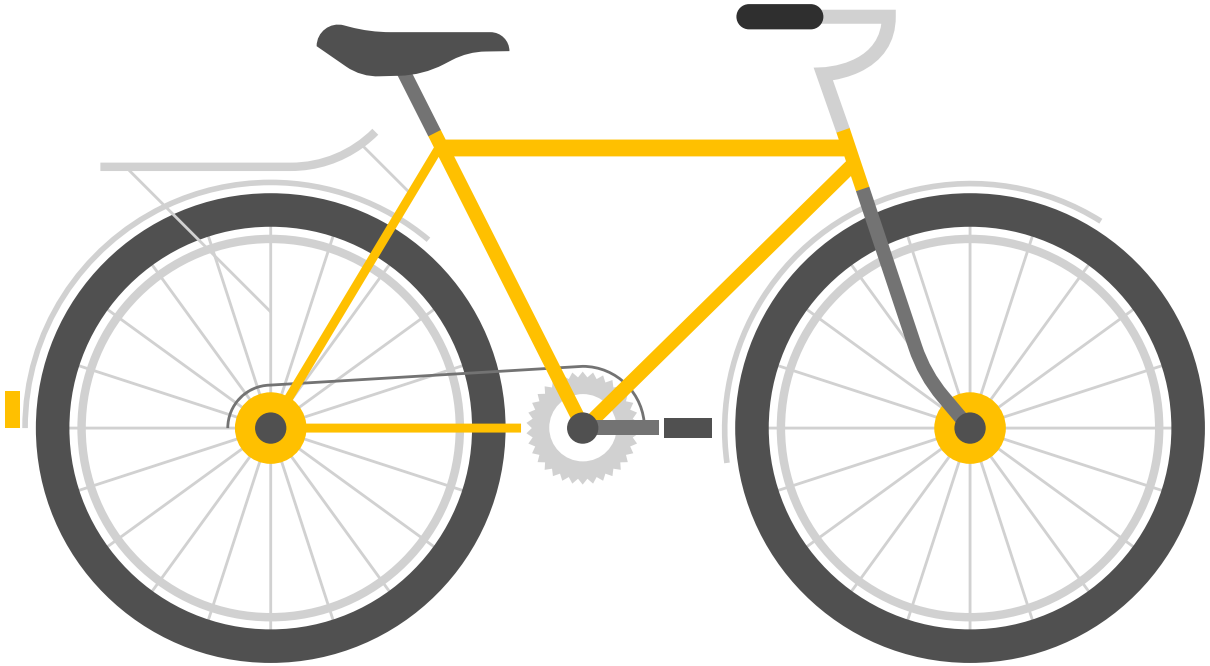
Next steps for the policy framework

From the modal integration policy white paper:

- Prepare additional policy guidance for deployment of transit lanes and freight lanes
- Create additional project development tools
  - Modal plan constraints map
  - Information to support community conversations
  - Guidance to make curbspace/flex zone changes
  - Critical Bicycle Connections map
- Integrate our modal plans into a citywide transportation plan
  - Identify a People Streets and Public Spaces network to prioritize the creation, improvement, and management of public spaces in the ROW

Critical bicycle connections

Fulfill the goals and intent of the citywide Bicycle Master Plan network along routes where there is no equivalent all ages and abilities (AAA) alternative within the corridor

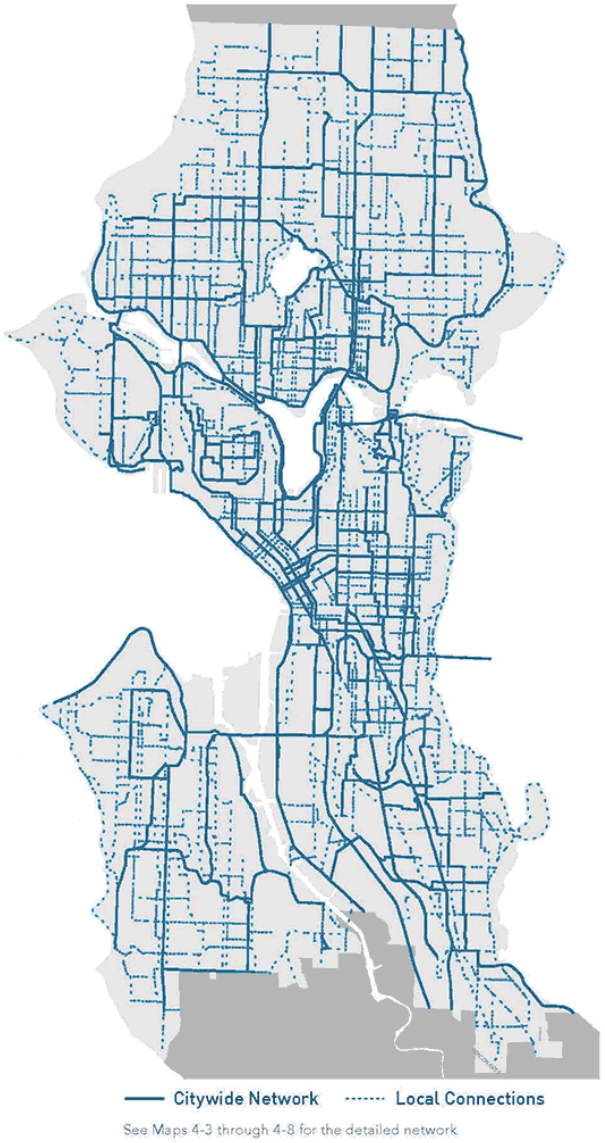


What we are not doing

- Not redoing the BMP
- Not creating a new bicycle network
- Not modifying the BMP implementation plan or reprioritizing existing funding plans

How would critical bicycle connections be used?

- Tool for internal planning and scoping through Complete Streets analysis on projects being planned for **2024** and beyond
- Advance the Bicycle Master Plan and prioritize AAA facilities over other modes at critical connections citywide
- Help prepare for future transportation funding, planning, and public engagement

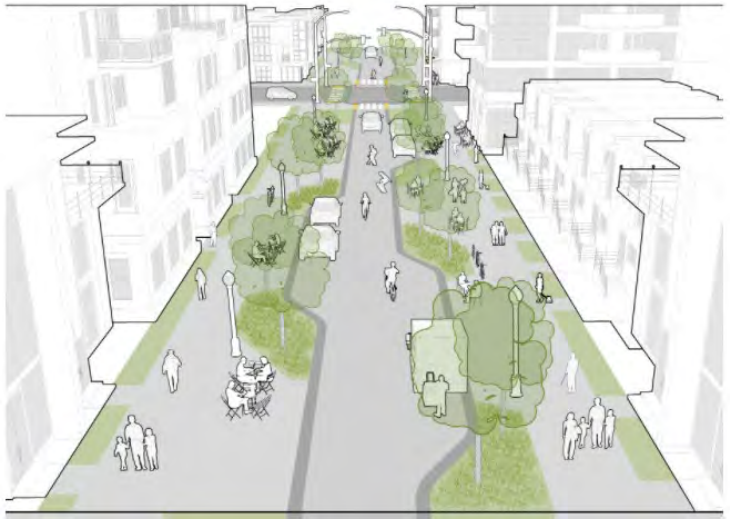


2014 BMP map

Draft criteria for identifying critical connections

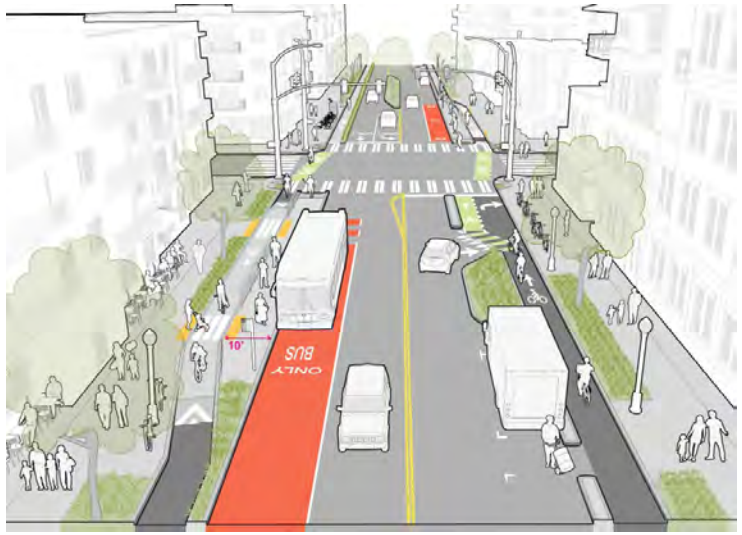
Desired Outcomes	Criteria	Map layers
Network integrity	All ages and abilities (AAA) facilities are spaced at no more than ½ mile throughout the city BMP goal: All Seattleites within a ¼ mile of an AAA facility by 2035	Topography, streets, bridges, waterways, BMP planning layer, existing bicycle infrastructure (including greenways), infrastructure in implementation plans (including greenways)
Network legibility	Fewest number of turns on flattest route to get to destinations Slope less than 6% grade if possible/relative flatness within a corridor	Weighted destinations analysis from BMP, street slope, BMP planning layer

Ways to incorporate AAA facilities on constrained streets



Shared streets

Multi-use trails



Protected bicycle lanes

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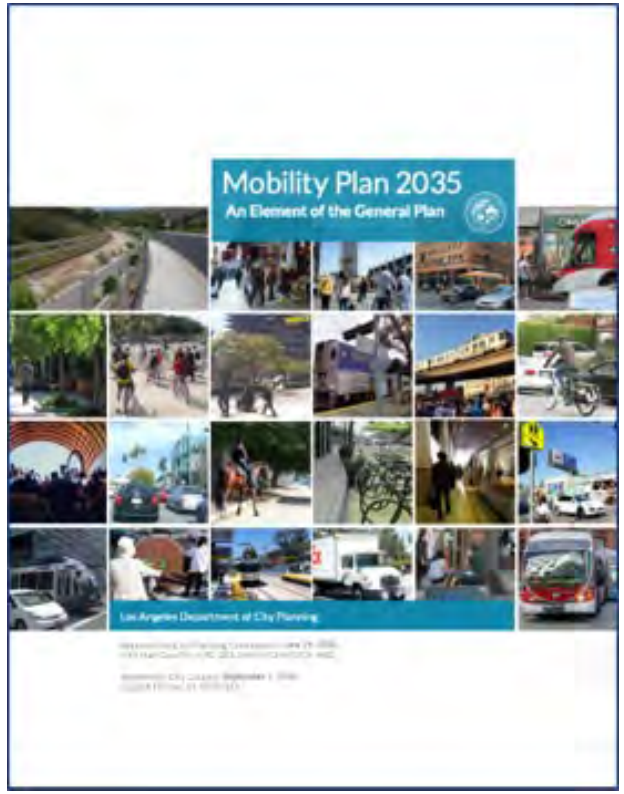
Next steps for the critical bicycle connections

Date	Activity
Summer	Develop draft map using criteria
Fall	Advisory boards review and comment on the map
TBD	Integrate tool into Complete Streets process

Future citywide transportation plan

- Engage in community conversations around mobility and public space needs
- Operationalize our values and achieve department commitments on transportation equity, safety, and climate action
- Leverage Comprehensive Plan update process starting next year
- Prepare for future transportation funding package



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Questions?

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www.seattle.gov/transportation

Seattle's Policy Framework for Integrating Walking, Biking, Transit, and Freight

Delivering a transportation system that provides safe and affordable access to places and opportunities

Why a Modal Integration Policy Framework?

Across the city, some streets are not wide enough to accommodate the recommendations in the Pedestrian, Transit, Bicycle, and Freight Master Plans. Working with a diverse group of stakeholders, we've developed a policy framework for making decisions in these locations.

The policy framework is one piece of a larger puzzle that helps us plan consistently, transparently, and equitably. Using it, we will:

- Decide how to accommodate travel modes when the street is not wide enough for all to safely operate
- Use City plans and priorities to linform project decisions consistently and transparently in a way that the community understands
- Inform future policies/plans, prioritizing evolving needs and all travel modes
- Improve our ability to implement Seattle's Pedestrian, Bicycle, Transit, and Freight Master Plans
- Build on our existing policy to prioritize space-efficient movement of people and goods by delivering our modal plan priorities
- Identify considerations and opportunities for future policy and plan development that considers the full range of community priorities for our transportation system, in addition to delivery of our modal networks.

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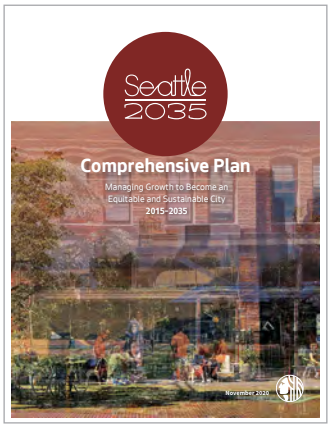
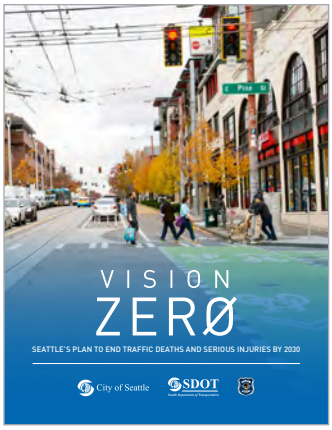
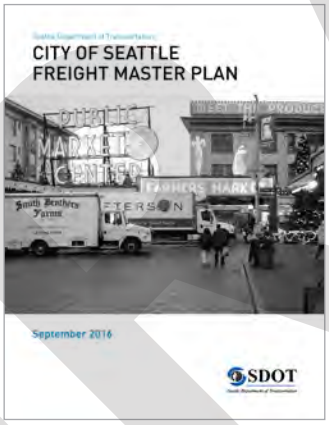






The policy is informed by years of work and broader City goals, policies, and community engagement including our:

- Seattle Comprehensive Plan establishes policies that prioritize space-efficient modes of transportation, which translates to discouraging our historical reliance on single-occupancy vehicles and focus growth within designated urban centers and urban villages.
- Vision Zero Action Plan to end traffic deaths and serious injuries on city streets by 2030
- Complete Street Ordinance to promote safe mobility, best practice design, and convenient access for all users
- Climate Action Plan to help shift travel patterns away from vehicles using fossil fuels.
- Bicycle Master Plan (2014), Transit Master Plan (2012; amended 2016), Freight Master Plan (2016), and Pedestrian Master Plan (2017) to support travel for people and goods using these modes and guide investment decisions
- Streets Illustrated to provide design guidance and standards for implementing modal facilities
- Race and Social Justice Initiative to recognize and address race-based transportation disparities

When developing the policy framework, we identified themes to inform this policy and future directions for modal integration:

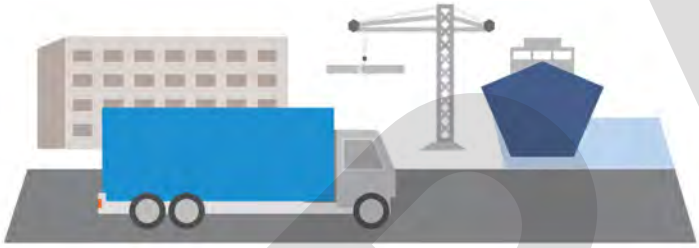
- Sustainability and racial equity values must guide street allocation policies
- Street allocation decisions require careful consideration of trade-offs
- Future modal planning should holistically address mobility needs rather than focusing on one travel mode

So, what's the policy framework to support integrating modes?

The Modal Integration Policy Framework provides guidance on how to support integration of our 4 modal plan priority networks and, when necessary, how to prioritize modes where there is not enough space to accommodate all planned network improvements and other priority functions.

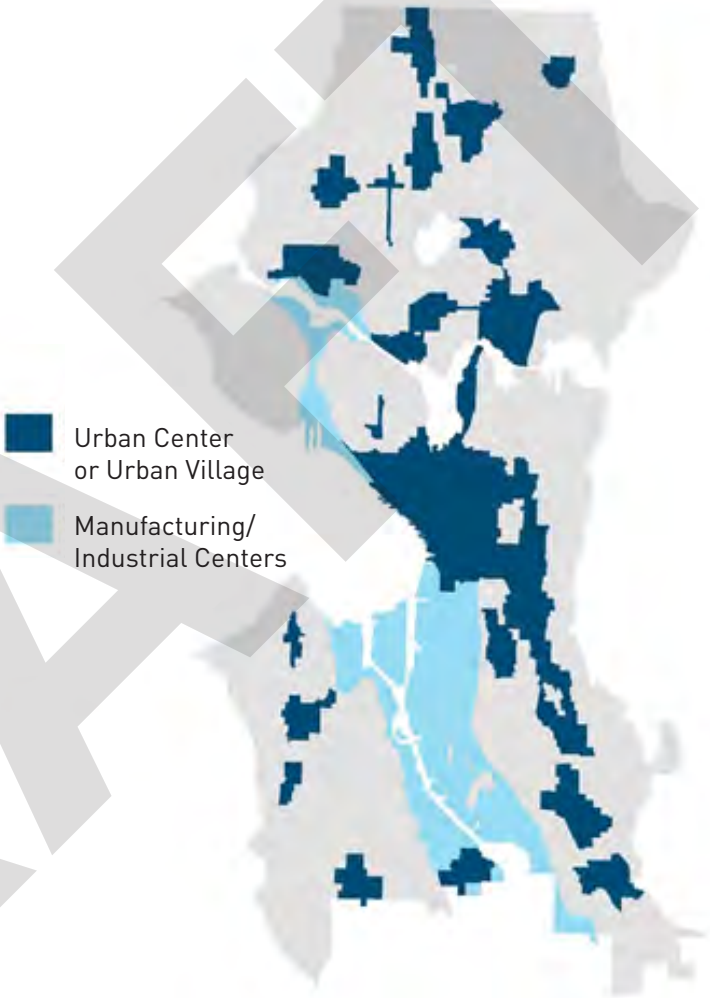
In urban villages and centers, we prioritize **pedestrians**.

In manufacturing and industrial centers, we prioritize **goods movement**.



Between urban villages and centers, we prioritize **transit**.

Citywide, at critical connections, we prioritize **the bicycle network**.



Identifying "**critical bicycle connections**" is a citywide strategy to help us complete our network of bicycle facilities, especially where our right-of-way is constrained and there are limited options. Critical bike connections are connections where bike infrastructure should be implemented along an arterial route per the Bicycle Master Plan, to achieve an All Ages and Abilities network because analogous parallel routes or streets don't exist. Within those critical segments, this policy recommends first prioritizing space for bicycle infrastructure to ensure we are able to build connected facilities and networks to encourage safe and convenient cycling trips, regardless of the geographic context.

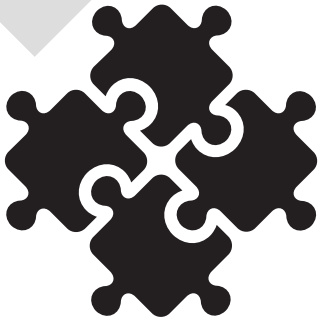
We've identified a range of next steps to turn this framework into action:

2021

Looking beyond those streets that aren't wide enough, we will complete new policies to affirm a pedestrian-first approach in urban centers and urban villages and establish when and where to designate transit-only lanes, transit + business access (BAT) lanes, freight-only lanes, and shared freight-and-transit lanes.

Prepare project development tools in consultation with advisory boards including a map illustrating where our streets are too narrow, Critical Bicycle Segments map, communications tools, and curbspace priority/flex zone guidance.

2021 and beyond



Integrate our modal plans into one citywide transportation plan, contingent on funding availability. A citywide integrated transportation plan will allow us to further the work of the Modal Integration Policy Framework and align with our City's next Comprehensive Plan update which will set our overall growth strategy. This is an opportunity to engage the community in a discussion about their mobility and pedestrian realm needs and aspirations for their streets in a way that cuts across all modes and uses of the right-of-way.

Seattle Department of Transportation

DRAFT

Modal Integration Policy Framework White Paper

July 1, 2021

About the Seattle Department of Transportation

Vision & Mission

Seattle is a thriving, equitable community powered by dependable transportation. We're on a mission to deliver a transportation system that provides safe and affordable access to places and opportunities.

Values & Goals

Equity

We believe transportation must meet the needs of communities of color and those of all incomes, abilities, and ages. Our goal is to partner with communities to build a racially equitable and socially just transportation system.

Safety

We believe everyone should be able to move safely throughout the City. Our goal is to create safe transportation environments and eliminate serious and fatal crashes in Seattle.

Mobility

We believe transportation choices are critical to accessing opportunities. Our goal is to build, operate, and maintain an accessible transportation system that reliably connects people, places, and goods.

Sustainability

We believe environmental health should be improved for future generations through sustainable transportation. Our goal is to address the climate crisis through a sustainable, resilient transportation system.

Livability

We believe transportation is essential to supporting daily life. Our goal is to manage our streets and sidewalks in a way that enriches public life and improves community health.

Excellence

We believe in exceeding the expectations of the communities we serve. Our goal is to build a team committed to excellence and equipped with the skills to meet the challenges of today and tomorrow.

Purpose

Streets are fundamental to Seattle's quality of life. They define our systems of movement, create connections between people, places, and products, ensure access to destinations, allow for greenery and open space, and enable public life[1] to unfold. As we continue to grow and place increased demands on our streets, it is important that we use them efficiently and wisely. Because our streets are not always wide enough to accommodate all desired functions, we require a prioritization framework for consistent and transparent decision-making rooted in our City values.

We have created this policy white paper to address the need for a consistent approach to decision-making for City rights-of-way when the demands for its use exceed its physical capacity. In the near term, this policy framework is intended to inform capital project development activities led by the Seattle Department of Transportation (SDOT) and, in the long term, to shape our future transportation plan and policy development activities.

Specifically, the purpose of the *Modal Integration Policy Framework White Paper* is to develop policy guidance and identify next steps for how to best integrate our modal master plan networks (Transit Master Plan, Pedestrian Master Plan, Freight Master Plan, and Bicycle Master Plan) to better address competing needs for people walking and biking, people riding transit, freight vehicles, personal vehicles, and critical access needs. Our policy focus is on locations where street rights-of-way are too narrow to accommodate essential street functions, particularly our priority modal networks.

Our desired outcomes for the Modal Integration Policy Framework and its implementation include:

- Determine how to accommodate modal networks where there is constrained right-of-way space at the planning and concept design stages instead of later within project design and delivery stages.
- Optimize right-of-way allocation based on a policy framework that balances network function, land use development patterns, and local context.
- Formalize a consistent and transparent approach for translating our plans and policies into project decisions and share our approach within our outreach efforts.
- Identify considerations and opportunities for future policy and plan development that considers the full range of community priorities for our transportation system, in addition to delivery of our modal networks.

The policy framework and new project development tools will improve the ability to implement Seattle's current modal master plans, and the framework can improve future policy and plan development. Through clear guidance that is rooted in broader city policies and values, we can more efficiently focus on a preferred set of design options that address conflicts and trade-offs in space-constrained streets during the project development process. This policy framework can also inform how we can develop future policies and plans that holistically consider multi-modal needs.

Existing Policy Framework

The Modal Integration Policy Framework builds from existing City policies and plans and provides additional guidance for staff seeking to develop complete streets and corridors in constrained areas.

[1] Public life is "activity that takes place in everyday public spaces—on streets, in parks and plazas, and in spaces between buildings" (Gehl Institute). These activities support community development, vibrancy, and livability.

Seattle's Comprehensive Plan, a 20-year vision and road map for guiding City decisions, defines our City's core values around race and social equity; environmental stewardship; community; and economic opportunity and security. Additionally, the Comprehensive Plan articulates a long-range growth strategy to focus population growth within urban centers and urban villages and focus industrial businesses in manufacturing/industrial centers. The Comprehensive Plan contains our foundational citywide transportation goals and policies, including policies on how we use street space to align with our growth strategy. To plan for future population growth, the Plan establishes policies that prioritize space-efficient modes of transportation, which translates to discouraging our historical reliance on single-occupancy vehicles and focus growth within designated urban centers and urban villages. By setting mode share targets, the Comprehensive Plan establishes the City of Seattle's interest in encouraging alternative forms of transportation like biking, walking, and taking transit, which are further articulated in modal master plans. The Plan's policy framework also provides initial guidance on how we optimize allocating the right-of-way by defining its priority functions—mobility, access for people, access for commerce, activation, greening, and storage. The policy framework also identifies how these functions should be prioritized in the "flex zone"[2] portion of the roadway relative to the adjacent land use context.

Safety is a core theme woven throughout all our planning and policy framework documents. As a transportation agency, our goal is to create safe traveling environments for all users of the transportation system. Our Vision Zero Action Plan aims to end traffic deaths and serious injuries on city streets by 2030.

The City's Complete Street Ordinance directs the Seattle Department of Transportation (SDOT) to design, operate, and maintain Seattle's streets to promote safe mobility, best practice design and convenient access for all users.

We are also guided by Seattle's Climate Action Plan, which identifies transportation as the City's largest source of greenhouse gas emissions and establishes targets for shifting travel patterns away from vehicles using fossil fuels.

Seattle's Bicycle Master Plan (2014), Transit Master Plan (2012; amended 2016), Freight Master Plan (2016), and Pedestrian Master Plan (2017) expand on Comprehensive Plan goals and policies to advance use of these modes. They also identify priority networks to guide investment decisions. Even with a large policy foundation, we lack comprehensive policy guidance for how to accommodate these networks in places where the right-of-way is too narrow for all desired modes and uses.

The City's commitment to the principles of racial equity through the Race and Social Justice Initiative is another critical foundation for our approach to this work. We seek to recognize the ways our existing policies and practices result in race-based transportation disparities and identify avenues for addressing these disparities through this policy framework and future efforts.

More detail about the existing policy framework that informs the Modal Integration Policy Framework can be found in **Appendix A**.

[2] The flex zone is a zone for people and goods, providing separation between moving vehicles in the travelway and people in the pedestrian realm. This zone can contain multiple uses along a street - including commercial deliveries, bus stops, curb bulbs, parklets, on-street parking, and taxi zones. It can be used for mobility at specific times of the day.

Despite a large existing policy foundation, we lack comprehensive policy guidance for how to accommodate these networks in places where the right-of-way is too narrow for all desired modes and uses. This modal integration policy framework seeks to address these policy gaps.

Approach

To understand the challenges to integrating our modal plan networks, we conducted a technical analysis of how the modal plan recommendations overlap on our existing streets. Based on design dimensions established in Streets Illustrated (Seattle's Right-of-way Improvements Manual), we identified where the right-of-way cannot accommodate all of the modal plan network recommendations. We have termed these "deficient" because it means that one (or more) modal networks cannot fit within existing streets. We separately assessed spatial deficiencies within the curb-to-curb area, as well as pedestrian realm deficiencies in the area between the curb line and property line. Our analysis assumes maintaining the existing curb-to-curb dimension. While there are special circumstances that require curbline relocation, such as to expand the sidewalk or accommodate a needed transit lane, most capital projects maintain existing curblines as moving them is costly and, as a result, atypical. While we assumed curblines remained, our analysis included opportunities to re-prioritize our curb-to-curb space from general traffic lanes and parking for transit, freight, and bicycle facilities. We also interviewed SDOT staff and reviewed recent or ongoing projects within the project development phase (0-30% design).

We shared and discussed key findings, draft policy recommendations, and implementing actions with the Policy & Operations Advisory Group (POAG)—a group of representatives from City commissions, boards, the Transportation Equity Workgroup, and other advisory groups that we convened to serve as a sounding board for this work. We also worked in parallel with a group of subject matter experts within SDOT to do the same.

More detail about the approach and process we took to arrive at the Modal Integration Policy Framework and next steps can be found in **Appendix B**.

Findings

The key findings describe the complexity of potential solutions for modal integration and the factors we considered in the development of the policy framework and next steps. Our findings are grouped into three themes:

- Sustainability and Racial Equity Values Must Guide Right-of-Way Allocation Policies
- Right-of-Way Allocation Decisions Require Careful Consideration of Trade-Offs
- Future Modal Planning Should Holistically Address Mobility Needs

A longer, more in-depth discussion of findings can be found in **Appendix C**.

Sustainability and Racial Equity Values Must Guide Right-of-Way Allocation Policies

City values should be a key driver for how right-of-way is allocated, including **directly connecting right-of-way allocation policies to actions needed to meet Seattle's climate goals** and **improving modal planning processes and right-of-way allocation decisions to advance racial equity.** When it comes to people-moving networks, without a clear priority for right-of-way decisions based on desired mode shift outcomes and a reduction in greenhouse gas emissions, POAG members expressed concern that walking, biking, and transit may lose out over personal vehicles when there is constrained right-of-way—even when there are two or more lanes in a direction for general purpose traffic.

Our racial equity analysis relied on the processes completed for each modal plan and leaves gaps in authentic understanding of comprehensive community mobility needs—particularly Black, Indigenous, and people of color (BIPOC) communities. Future planning efforts should include BIPOC and localized community needs to help place individual modal needs into context.

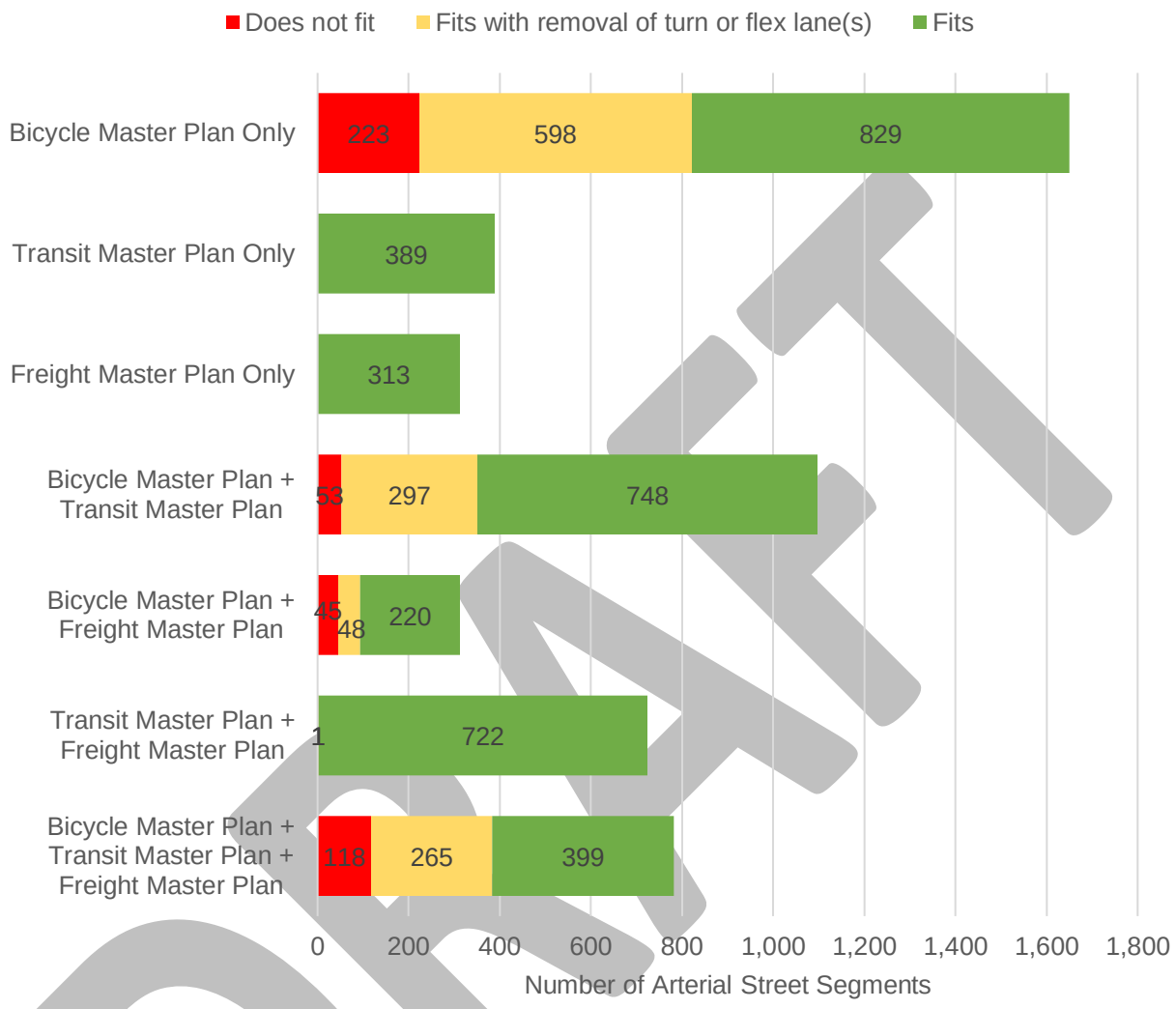
Right-of-Way Allocation Decisions Require Careful Consideration of Trade-Offs

Our modal master plans' priority networks sometimes require more street space than is available, based on current curb-to-curb pavement. Seattle's arterial street network contains 5,269 street segments (defined as the length of street between intersections) that are designated as part of a planned modal network (Bicycle Master Plan, Transit Master Plan, and/or Freight Master Plan) intended to fit between the curb-to-curb dimensions. Detailed discussions of the analysis approach and findings can be found in **Appendix B** and **Appendix C**, respectively. Based on our analysis, we found that **most streets are able to accommodate the modal networks** in the existing curb-to-curb dimension, even where modal networks overlap (demonstrated by the green and yellow areas in Figure 1). Most of the accommodation would come from re-prioritizing our curb-to-curb space from underutilized general traffic lanes or parking. As illustrated by the red areas in Figure 1, only 8% (440) of these street segments have curb-to-curb widths that are too narrow to accommodate all designated modal plan networks. Of the 440 arterial street segments with curb-to-curb widths too narrow to accommodate all modal plan networks, all but one includes a planned bicycle facility. This means projects to build out the Bicycle Master Plan network will come with the most trade-offs around other uses within the right-of-way.

When implementing the bicycle, transit, and freight modal networks (those within the curb-to-curb space), we found that **modal plan networks will frequently impact other essential functions, such as access and loading, that take place in the flex zone**, illustrated by the yellow areas in Figure 1. A majority of arterial street segments have curb-to-curb widths sufficient to accommodate priority modal networks, and still maintain 1 or more flex zones; however, many segments do not. Through our conversations with staff and POAG, we consistently heard that access functions are essential for all land uses and should be addressed and, in some cases, prioritized in right-of-way allocation decisions. Overall, curb access needs should be evaluated more consistently within our project development processes. While these segments are not "deficient," they often present challenges within the design and outreach processes.

Seattle's Comprehensive Plan growth strategies call for denser development and investment in urban centers and urban villages. These locations are regional draws and are places where people work, live, learn, and play. **Most of the deficient street segments are located on arterials that provide direct connections between our urban centers and urban villages, which are critical for people and goods movement that support and enable our growth strategy.**

Figure 1: Ability for Arterial Street Segments to Accommodate Modal Networks in Curb-to-Curb Dimensions, Based on Designated Network Type(s)



In addition to the curb-to-curb roadway dimensions, we analyzed the pedestrian realm of our arterial street network to understand spatial right-of-way deficiencies beyond the roadway. We identified 384 street segments that are substantially deficient to meet sidewalk infrastructure needs (defined as more than 3 feet too narrow). We heard from POAG members that **pedestrian safety, access, and convenience are key priorities for consideration in right-of-way allocation that could impact curb-to-curb priorities in most parts of the city.** Remedies to provide the needed right-of-way are limited to moving the curb line or acquiring additional right-of-way, which can be difficult in more urbanized areas.

Future Modal Planning Should Holistically Address Mobility Needs

We were not able to directly address all findings in our Modal Integration Policy Framework. Those we could not address can serve as considerations for future modal planning. For example, we intend to

explore **aligning the Modal Integration Policy Framework with signal operations to further advance modal integration** and facilitate priority movement for modes.

Across the board, we heard enthusiasm for thinking creatively about the future of modal planning to address shortcomings outlined through this process. POAG members expressed support for a new approach to planning transportation networks that veers away from separate modal plans towards holistically addressing mobility and access needs. Members expressed a desire for a stronger policy framework to support our climate action and drive-alone rate goals that must also account for how these goals can be equitably met. We also heard concerns about how significant transportation policy shifts could adversely impact people with less access to transportation options that enable a car-free or car-light lifestyle, such as some BIPOC community members, people who have been displaced from Seattle because of the housing affordability crisis, and people living with disabilities.

While some of the findings we uncovered are addressed through the Modal Integration Policy Framework, there are also findings that lend themselves to larger solutions, which are discussed in "Next Steps."

Policy Framework to Support Modal Integration

The Modal Integration Policy Framework provides guidance on how to support integration of our 4 modal plan priority networks and, when necessary, how to prioritize modes where there is deficient right-of-way to accommodate all planned network improvements and other priority functions. The framework includes 3 geographic policy priorities based on whether the deficient street segment is located within an urban center or urban village, within a manufacturing/industrial center (MIC), or elsewhere in the city. It also includes Critical Bicycle Connections, a citywide strategy for identifying segments within the bicycle network that have no viable alternatives to be relocated and are critical to network integrity. Note that several forthcoming policy initiatives referenced below are discussed in more detail in the Next Steps section.

Within Urban Centers and Urban Villages

Areas located within our urban centers and urban villages are places to prioritize pedestrians. These areas include our densest residential and commercial buildings and our busiest areas for people walking. The arterials within our urban centers and urban villages have their own street type classifications within Streets Illustrated, which emphasize safe accommodations for shorter trips, transit priority, and access needs. When there is insufficient right-of-way to accommodate all modal plan priorities, this policy recommends prioritizing space for people walking.

Goal: Within urban centers and villages, ensure the right-of-way is prioritized to achieve safe and comfortable places for people walking and enjoying public space.

Policy:

- When there is insufficient right-of-way to accommodate all modal plan priorities within an urban center or urban village, prioritize, provide, and/or preserve pedestrian infrastructure (sidewalk clear zone, landscape/furniture zone, and frontage zone) to meet applicable Streets Illustrated design standards.

Considerations as we apply this policy:

- When there is insufficient right-of-way to accommodate all modal plan priorities within an urban center or urban village, and where sidewalk width (including the clear zone and landscape/furniture zone) is deficient (at least 3-feet too narrow), a capital project's scope shall aim to expand sidewalks into the flex zone to meet applicable Streets Illustrated standards or, at minimum, protect access and parking functions within the flex zone to ensure our future ability to expand the sidewalk to meet Streets Illustrated standards.
- When there is insufficient right-of-way to accommodate all modal plan priorities within an urban center or urban village, favor shared street design instead of rigid spatial delineation of modes and optimize pedestrian design standards on designated Green Streets.[3]
- Where there are multi-family residential and commercial buildings, identify and address critical building access needs, including passenger and package delivery, goods services, and solid waste management, whenever flex zone changes are considered.

Outside Urban Centers, Urban Villages, and Manufacturing/Industrial Centers

Areas located outside our urban centers, urban villages, and manufacturing/industrial centers (MICs) are places to prioritize transit mobility. These areas tend to have a low-density-residential land use pattern with fewer commercial destinations, fewer signalized intersections, and fewer transit stops. These arterial segments are typically classified as a "Connector" street type in Streets Illustrated, which are focused on movement of people and goods between centers, villages, and MICs. As a result, when there is insufficient right-of-way to accommodate all modal plan priorities, this policy recommends prioritizing space for transit.

Goal: Outside of urban centers, urban villages, and MICs, ensure the right-of-way is prioritized for transit travel time and reliability while designing for safety of all users, and meeting design standards for freight.

Policy:

- When there is insufficient right-of-way to accommodate all modal plan priorities outside of urban centers, urban villages, and the MICs prioritize transit travel time and reliability.

Considerations as we apply this policy:

- When there is insufficient right-of-way to accommodate all modal plan priorities outside of urban centers, urban villages, and the MICs, prioritize right-of-way allocation for transit-serving features including dedicated transit lanes (where policy thresholds are met) and traffic signal queue jumps.
- Consider implementing shared transit and freight lanes along routes that are also major truck streets to jointly prioritize freight and transit travel time and reliability.
- If necessary, update the right-of-way deficiency analysis assumptions to reflect any refinements to the transit lane policy thresholds.
- Where there are multi-family residential and commercial buildings, identify and address critical building access needs, including passenger and package delivery, goods services, and solid waste management, whenever flex zone changes are considered.

[3] A Green Street is a land use code designation and acts as an overlay to the street type assignment. Green Streets are designed to give priority to pedestrian circulation and open space over other transportation uses.

In Manufacturing/Industrial Centers

Areas located within our manufacturing/industrial centers (MICs) are places to prioritize freight mobility. These areas are home to Seattle's port facilities and other major generators of truck traffic. These arterial segments are typically classified as an "Industrial Access" street type in Streets Illustrated, which are focused on movement of goods within and between MICs and the regional highway system. As a result, when there is insufficient right-of-way to accommodate all modal plan priorities, this policy recommends prioritizing space for freight and goods movement.

Goal: Within the MICs, ensure right-of-way is prioritized for safe and reliable freight mobility and operations while ensuring safety and meeting design standards for transit, and people walking and biking.

Policy:

- When there is insufficient right-of-way to accommodate all modal plan priorities within a MIC, prioritize freight and urban goods reliability by ensuring that Streets Illustrated freight design standards are met on the freight network.

Considerations as we apply this policy:

- When there is insufficient right-of-way to accommodate all modal plan priorities within a MIC, prioritize right-of-way allocation for freight reliability by considering freight-only lanes, where forthcoming policy guidance is met.
- Consider implementing shared freight and transit lanes along busy transit routes and major truck streets to jointly prioritize freight and transit travel time and reliability.
- Where freight routes share a street with a bicycle route, facilities for trucks and bicycles should be clearly separated and comply with width and materials standards, consistent with Streets Illustrated.

At Critical Connections in the Bicycle Network

As the Comprehensive Plan highlights, one of the key approaches to prioritizing space-efficient modes of transportation that align with our region's growth strategy is to encourage bicycling. Connected bicycle facilities are crucial for making cycling a safe and convenient transportation choice. When it comes to building out the bicycle network, the Bicycle Master Plan outlines the following: "While all efforts will be made to implement the recommended bicycle network on the multi-modal corridors, people riding bicycles can more easily be accommodated on parallel non-arterial streets than can the other modes" (2014 Bicycle Master Plan, page 70). Within the Comprehensive Plan, this strategy is further established as a Complete Corridors option for tackling areas within limited right-of-way.

Where analogous parallel routes or parallel streets do not exist, there is no clear policy framework for prioritizing bicycle infrastructure. The Critical Connections policy and subsequent map seeks to identify those critical segments and connections. And within those critical segments, this policy recommends first prioritizing space for bicycle infrastructure to ensure we are able to build connected facilities and networks to encourage safe and convenient cycling trips, regardless of the geographic context.

Goal: Ensure that right-of-way is prioritized at key street segments for critical connectivity to fulfill the goals and intent of the citywide Bicycle Master Plan network along routes where there is no analogous all ages and abilities alternate route within the corridor.

Policies:

- Critical Bicycle Segments implementation should strive to achieve all ages and abilities design types and fully achieve Streets Illustrated design standards.
- On arterials **within urban centers and urban villages**, Critical Bicycle Connections share priority with pedestrian infrastructure.
- On arterials **between urban centers and urban villages** with a Critical Bicycle Connection, first prioritize right-of-way space for standard bicycle facilities while meeting design standards for freight, consistent with Streets Illustrated.
- On arterials **within MICs** with a Critical Bicycle Connection, prioritize right-of-way space for standard bicycle facilities while meeting design standards for freight, consistent with the design standards in Streets Illustrated.

Considerations as we apply this policy:

- Designate Critical Bicycle Segments on the 2014 Bicycle Master Plan Network for use as a Project Development tool for corridor projects until the network map is formally updated. The map will help prioritize right-of-way allocation where the right-of-way is identified as deficient and where there are trade-offs between modal priorities and other priority functions of the right-of-way.
- On arterials that are outside of urban centers and urban villages that are Critical Bicycle Connections, consider bicycle design options that are not within the curb-to-curb area if necessary to achieve bikeway design standards.
- On arterials within urban centers and urban villages that are Critical Bicycle Connections, especially where there is insufficient right-of-way, consider creative design approaches such as shared street design, restrictions to vehicle movement, or one-way travel in order to jointly prioritize space for people bicycling and walking.

Next Steps

In addition to the development of the policy statements above, there are several key steps to fully integrating our modal plans and policies:

1. Complete complementary policies around right-of-way allocation and prioritization to affirm a pedestrian-first approach in urban centers and urban villages and to establish when and where to designate transit-only lanes, transit + business access (BAT) lanes, freight-only lanes, and shared freight-and-transit lanes.
2. Prepare project development tools to include creation of a ROW deficiency analysis map, identification of Critical Bicycle Segments, development of policy-framework communications tools, and completion of a curbspace priority policy and related flex zone change guidance.
3. Integrate our modal plans into a citywide transportation plan.

We aim to complete the first two steps above in 2021. The third step is a major planning process that will take time to launch and complete. Each of these activities is further discussed below.

Complementary Policies and Actions to Inform Right-of-way Allocation Decisions

Concurrent with the development of the Modal Integration Policy Framework, we have several complementary policies in parallel development. Once completed, they will support and build upon the Modal Integration Policy Framework.

Prepare a People Streets and Spaces Plan (PSS)

As described within **Appendix C**, our current Pedestrian Master Plan is missing a pedestrian-oriented map that prioritizes the creation, improvement, and management of public spaces, and special areas in the right-of-way. In addition to traffic safety as a top priority, and to achieve our livability goal, we need to support active, sustainable transportation by creating welcoming and safe spaces for public life and providing essential pedestrian infrastructure such as pedestrian lighting, landscaping, seating, and public art to support pedestrians of all ages and abilities. Within development of the citywide integrated transportation plan, described below, we will integrate a people streets and places layer. This new layer would bring together pedestrian movement and pedestrian places, encompass existing Green Streets (streets designated by Seattle Municipal Code that give priority to pedestrian circulation and open space over other transportation uses), existing street concept plans, existing and proposed pedestrianized streets, special alleys, and plazas in the right-of-way. This project would do so by recommending a new "People Streets and Spaces Plan" to inform future large capital investments in the public realm.

Bell St is an example of an urban curbless street that is designed to provide additional pedestrian comfort and amenities.
(Source: Map data © 2021 Google)

The intended outcomes of the PSS plan would be to encourage equitable investments in public spaces within underinvested areas; to identify funding mechanisms for the design and maintenance of existing and new public spaces in the right-of-way; to build our capacity to plan and construct community spaces; and to cultivate livability through enhanced mobility that also serve to support economic and community development. Next steps include:

- Map the existing neighborhood greenways, Green Streets, linear parks, park boulevards, woonerfs, "main" streets, and any other pedestrian-oriented street segments in Urban Centers and Urban Villages.

- Analyze gaps in the recommended plans and improvements to develop a strategy and identify and recommend opportunities for a complete network of pedestrian priority streets and places principally focused within Urban Centers, Urban Villages, and underinvested areas.
- Integrate with the upcoming Citywide Integrated Transportation Plan scope to refine and opportunities and strategy through community engagement and public discussions. Develop an implementation plan.

Prepare a Transit Lane Policy

A transit lane policy will guide citywide deployment of transit-only lanes and business access and transit (BAT) lanes. This policy will support the City's goals to reduce drive-alone rates, reduce climate-harming emissions, make efficient use of the right-of-way, and provide affordable, reliable travel options. Importantly, this policy will provide key guidance to support modal plan integration by identifying locations within the Frequent Transit Network and along other busy transit routes where right-of-way allocation is needed or should be preserved. We will develop the policy with stakeholder input and in coordination with King County Metro. Through the transit lane policy, we will work to:

Example of a bus-only lane with red surface treatment

- Guide transit lane implementation to support bus and streetcar service.
- Consider factors such transit volumes, feasibility, equity, benefit to transit passengers, and impacts to other travel modes.
- Identify candidate street segments for transit lanes.
- Clarify the time period/duration for when dedicated lanes are in effect and when they may be used for business access or general-purpose traffic.
- Provide guidance on when to consolidate nearby bus routes to optimize transit lanes and improve rider travel times and reliability.
- Consider critical curb needs for transit layover, businesses, and residential properties along planned routes to ensure that loading needs are managed and support efficient and enforceable transit lane operations.

Prepare a Freight Lane Policy
Preparation of a freight lane policy will support safe and reliable movement not only of goods but also of people when implementing freight-priority lanes—whether through freight-only or shared freight-and-transit lanes. This policy will support the City's goals for a thriving port and industrial sector, make efficient use of our right-of-way, help ensure reliable goods delivery, and reduce our climate-harming emissions. The policy development process will include stakeholder engagement. Through the freight lane policy, we will work to:

Example of a lane designated for freight use only on Alaskan Way S (Source: Map data ©2021 Google)

- Support the modal integration policy and the prioritization of freight movement within the manufacturing/ industrial centers (MICs).
- Establish criteria to guide the selection and prioritization of potential freight lanes.
- Prioritize opportunities for freight-only lanes first within the Major Truck Street (MTS) network, followed by other truck streets designations within the Freight Master Plan.
- Prioritize freight-only access lanes to alleviate bottlenecks for streets serving commercial and industrial activities.
- Consider temporary freight-only lanes during regularly occurring events that generate high commercial truck activity, such as access to terminals for cruise ship restocking.
- Identify criteria to guide freight permission within transit lanes (freight + transit or FAT lanes), including how to minimize impacts on transit travel time and reliability such as by time of day use. These criteria will also include how to manage impacts on bicycle travel and the bicycle network, as people riding bicycles are generally allowed in transit lanes.
- Recommend strategies to improve freight-related data collection to better evaluate the effectiveness of freight lanes as they are implemented.

Prepare Project Development Tools

Develop modal plan constraint map and proposed solutions by applying policy framework
Building on the modal integration analysis and policy development, we will take several additional steps to support operationalization of the policy framework. These steps will help SDOT staff connect the policies with their projects and support consistent policy application. This work will include:

- Train staff on the new policies as part of our regular Complete Streets training modules.
- Incorporate our analysis, mapping tools, and policy language within our in-house Complete Streets checklist and project development tools.

Develop outreach and engagement tools to support community conversations
SDOT is developing easy-to-understand graphics and diagrams to use for community outreach and engagement. The tools aim to help connect our vision, values, and policies to specific project decisions and are designed to help tailor conversations to specific audiences and media. The next step aims to:

- Create storytelling materials to connect Comprehensive Plan and other relevant policies to individual projects.
- Align communication materials with current and future practice.
- Tailor outreach and engagement to different audiences and support constructive conversations around ways to make our streets safer, more equitable, and more efficient for all modes.

Develop flex zone/curbspace change guidance
The implementation of our modal plans often impacts curbside functions within the flex zone. Our current policy framework prioritizes critical access and loading needs within our rights-of-way. This work will update our Curbspace Priority policy to strengthen how we maintain and enhance those critical building access needs at the curb.

If a plan or project has the potential to remove or affect the curb/flex zone, the critical access needs of the curb and the buildings along the blockface should be documented, accounted for, and the needs addressed in a way that ensures buildings' access needs can be met. To ensure projects take these intentional steps to address critical access needs, we will create policy guidance and a toolkit to support more consistent, predictable approach to critical access and loading needs as follows:

- Complete a curbspace priority policy and integrate within Streets Illustrated, Complete Streets Checklist, and the City's Comprehensive Plan, including clear definition of our critical access needs.
- Finalize curbspace review checklist for use in identifying and mitigating impacts to critical curbspace access needs.
- Prepare a curbside toolkit to illustrate the range of solutions to manage loading needs at the curb.

Develop Critical Bicycle Connections Map
SDOT is preparing a bicycle priority map of critical connections for internal guidance to be used by project developers. This map helps operationalize the policy statements included in the previous section. Currently the Bicycle Master Plan includes a map of Citywide bicycle routes as well as Local bicycle routes. The additional critical connections layer will ensure that right-of-way is prioritized for connectivity to fulfill the goals and intent of the Bicycle Master Plan. We will work with the Bicycle Advisory Board to discuss the goals and intent of the critical connections layer. Through the Critical Bicycle Connection map, we will work to:

- Prioritize safety for all users and create critical connections for an all ages and abilities bicycle network.
- Identify Critical Bicycle Segment candidates within our Bicycle Master Plan network map using topography, destination connectivity, route directness, right-of-way width, and modal plans.
- Create a Critical Bicycle Connections mapped layer using standardized considerations to determine candidates for bicycle right-of-way priority connections.
- Use right-of-way deficiency analysis to emphasize modal and flex zone trade-offs along Critical Bicycle Connection segments in the mapped layer.

- Integrate the mapped layer into the complete streets process.

Integrate Our Modal Plans into a Citywide Transportation Plan

A citywide integrated transportation plan will allow us to further the work of the Modal Integration Policy Framework. First and foremost is the opportunity to engage the community in a discussion about their mobility and pedestrian realm needs and aspirations for their streets in a way that cuts across all modes and uses of the right-of-way. We believe a broad-based outreach process, especially one that centers Black, Indigenous, and people of color residents and businesses, is essential to shape our policies and investments towards creating a more equitable transportation system. In addition to an equity focus, there is also an opportunity to center SDOT core values of safety, sustainability, mobility, livability, and excellence.

Stemming from our core values are a variety of formal goals and targets, many of which are embedded in the modal or topical plans (e.g., Vision Zero Action Plan). These include targets related to climate action, access, network implementation, and mode share. A citywide plan allows us to think holistically and strategically about how to achieve our aspirations for our streets, public spaces, and transportation system.

We also have an opportunity to align our citywide plan with our overall growth strategy. In 2021, Seattle will launch a major update to the Comprehensive Plan for adoption in 2024. We have an opportunity to align our transportation and public space network planning with the Office of Planning and Community Development's focus on land use planning. This can include joint outreach activities and coordinated policy and projects. Our coordination will allow us to consider population and employment growth, any proposed changes to our growth target areas, and the logistics needs of our business and industrial communities so that we can continue to grow a healthy economy, reduce car dependency, invest in our public spaces, and create healthier communities.

Reinforcing this schedule is the Levy to Move Seattle, which expires in 2024. A citywide integrated transportation plan can help guide the City towards the development of a funding strategy that supports future program and project investments.

In addition, a citywide integrated transportation plan will allow us to tackle some of the opportunities we identified in the Modal Integration Policy Framework White Paper process, with a focus on more fully integrating the modal plan networks. We found compelling examples of integrated plans from Amsterdam, Los Angeles, and Washington, DC. These cities created unified policy frameworks and a more robust Complete Streets approach to their plans and policies. In addition to integrating the 4 modes within our existing modal master plans, we can better articulate the role of personal vehicles, more equitably invest in people streets and public spaces, and shape how recent, emerging, and future mobility can help create a more equitable and sustainable transportation system.

Acknowledgements

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Pierre Brunelle Alexander Lew	Bicycle Advisory Board
Mike Stewart (Ballard BIA)	Business Improvement Association
Warren Aakervik Geri Poor	Freight Advisory Board
Dorene Cornwell Steven Feher	Pedestrian Access Advisory Committee
Emily Mannetti Anna Zivarts	Pedestrian Advisory Board
David Goldberg Grace Kim	Planning Commission
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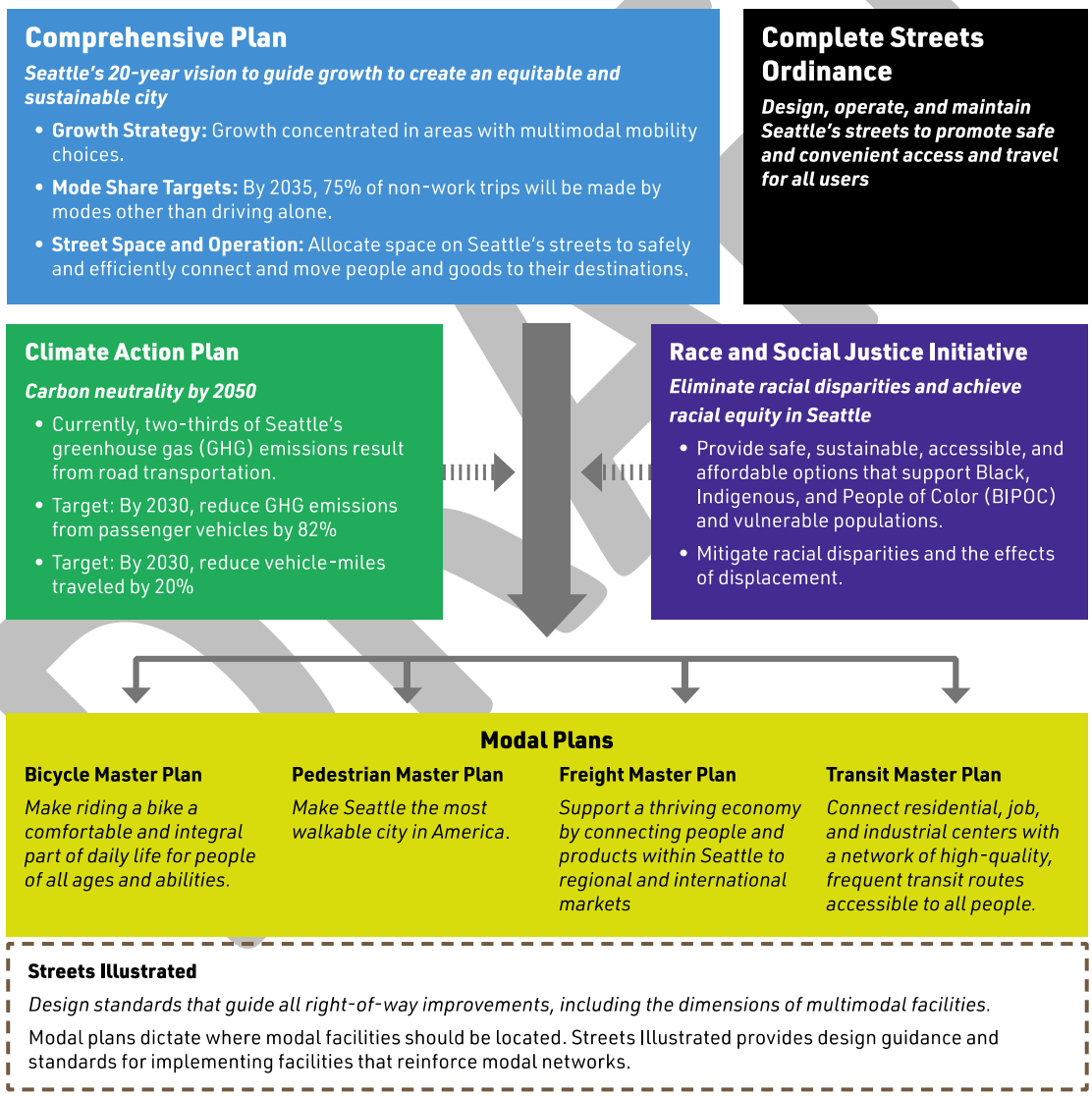
Appendix A: Existing Policy Framework

The Modal Integration Policy Framework builds from existing City policies and plans and provides additional guidance for staff seeking to develop complete streets and corridors in constrained areas. This section provides background on existing plans that are foundational to our recommendations, including: documents and initiatives that establish values upon which additional policy should be based (Comprehensive Plan, Complete Streets Ordinance, Climate Action Plan, and Race and Social Justice Initiative); the 4 modal master plans (pedestrian, bicycle, transit and freight) that establish mobility networks; and implementation standards to ensure street design meets the needs of these networks (Streets Illustrated: Seattle's Right-of-Way Improvements Manual). See Figure 2 for an overview of how the existing policy framework functions as a whole.

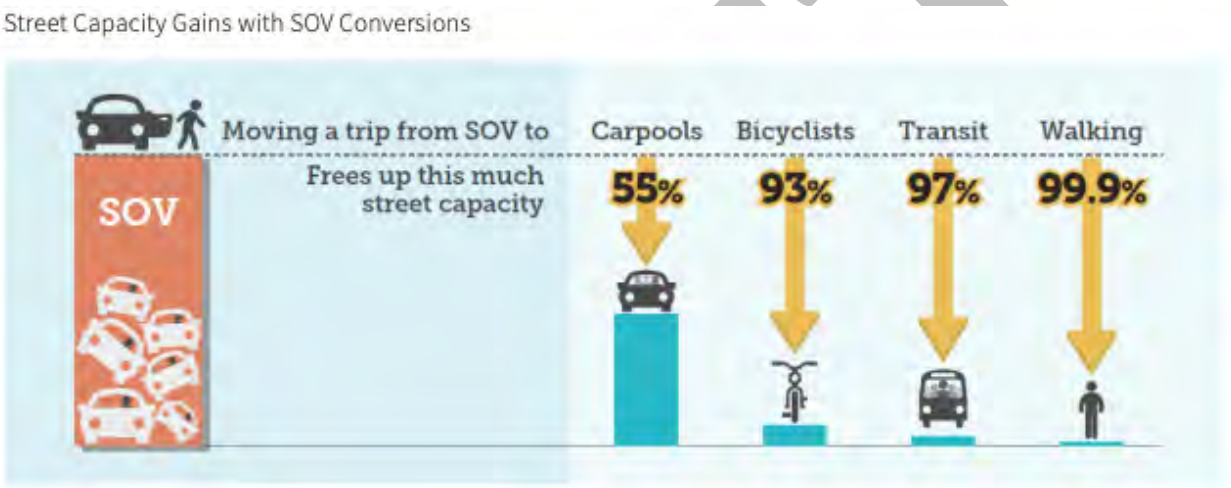
Figure 2: City of Seattle Plans and Key Policy Initiatives



The Comprehensive Plan

The Comprehensive Plan is a 20-year vision and roadmap for Seattle's future that documents policies to guide growth. The Plan has the goal of fostering a healthy and vibrant city for years to come. To plan for future population growth, the Comprehensive Plan establishes policies that prioritize space-efficient modes of transportation, which translates to discouraging our historical reliance on single-occupancy vehicles (see Figure 3), and focus growth within designated urban centers and urban villages. By setting mode share targets (discussed further below in Figure 7), the Comprehensive Plan establishes the City of Seattle's interest in encouraging alternative forms of transportation like biking, walking, and taking transit, which are further articulated in modal master plans.

Figure 3: Street Capacity Gains with Trips Converted from Single-Occupancy Vehicles (SOVs) to Alternative Modes



Source: Fehr & Peers, 2016

As the City's long-range growth management plan, the Comprehensive Plan contains foundational policies related to complete streets and modal integration. The Transportation section of the Comprehensive Plan lists several goals and associated policies that apply to modal plan integration, and in fact specifically recommends a policy framework for evaluating right-of-way allocation trade-offs. ***Transportation Goal 1 (TG 1)****: Ensure that transportation decisions, strategies, and investments support the City's overall growth strategy and are coordinated with [the Comprehensive Plan's] land use goals.*

As the city continues to accommodate new growth primarily through compact development focused within urban centers and urban villages, the transportation system needs to evolve and transform accordingly. As such, transportation investments and operational decisions should reflect local land use needs, as well as network integrity. Together, coordinated land use and transportation investments can help to make progress towards the City's mode-share and climate goals.

Transportation Goal 2 (TG 2)*: Allocate space on Seattle's streets to safely and efficiently connect and move people and goods to their destinations while creating inviting spaces within the rights-of-way.*

- *T 2.5, Prioritize mobility needs in the street travelway based on safety and … the modal plan networks*

- *T 2.8, Employ the following tactics to resolve potential conflicts for space in the right-of way:*
  - *Implement transportation and parking-demand management strategies to encourage more efficient use of the existing right of way.*
  - *Allocate needed functions across a corridor composed of several streets or alleys, if all functions cannot fit in a single street.*
  - *Share space between travel modes and uses where safe and where possible over the course of the day.*
  - *Prioritize assignment of space to shared and shorter-duration uses.*
  - *Encourage off-street accommodation for non-mobility uses, including parking and transit layover.*
- *T 2.9, Develop a decision-making framework to direct the planning, design, and optimization of street right-of-way*

Goal 2 includes two critically important policies. First, this goal establishes safety and modal plan implementation as our two top priorities. This aligns with the City's Vision Zero goal of eliminating traffic deaths and serious injuries on city streets by 2030; SDOT intends to meet this goal by implementing a variety of strategies outlined in the Vision Zero Action Plan. Efficient movement is important, but not at the cost of safety. While this goal underscores the priority of modal plan networks in ROW allocation and design decisions, it does not suggest to ignore or discount how other functions of the ROW should also be accommodated in these decisions.

Second, Goal 2 also provides high-level policy guidance on how to resolve conflicts and weigh trade-offs (T2.8). While these tactics are essential, the guidance stops short of establishing a policy framework for what to do when there are multiple modal plan priorities within a corridor and not enough right-of-way.

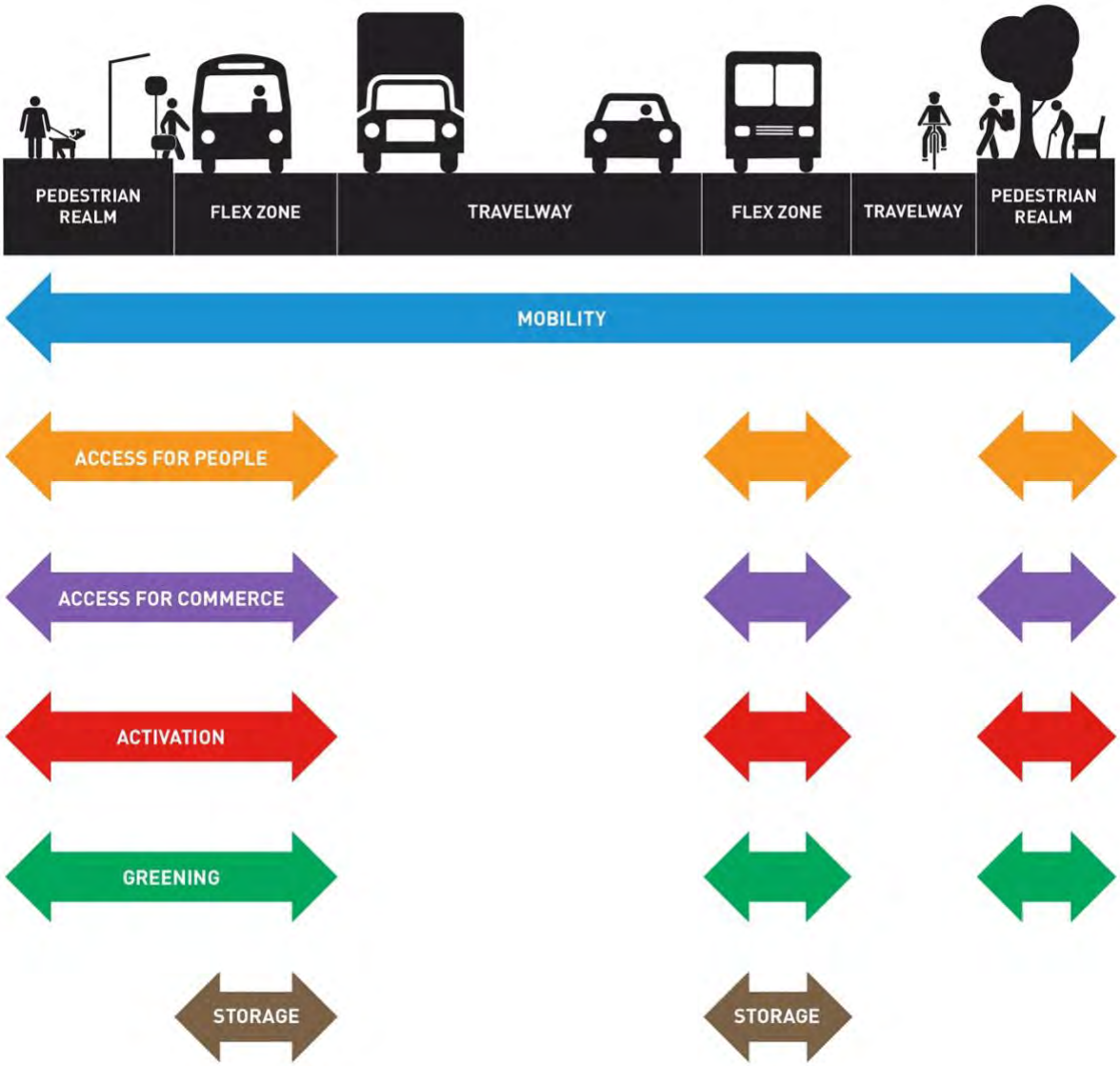
The Comprehensive Plan provides initial guidance for street optimization by defining the priority functions of the right-of-way, which SDOT has further elaborated. The 6 priority functions of the right-of-way, as defined in Figure 4 below, are mobility, access, for people, access for commerce, activation, greening, and storage.

Figure 4: Right-of-Way Priority Functions

FUNCTION	STORAGE	GREENING	ACTIVATION	ACCESS FOR COMMERCE	ACCESS FOR PEOPLE	MOBILITY
DEFINITION	Provides storage for vehicles or equipment	Enhances aesthetics and environmental health	Offers vibrant social spaces	Goods and services reach their customers and markets	People arrive at their destination, or transfer between different ways of getting around	Moves people and goods
USES	Bus layover Long-term parking Reserved spaces (e.g. for Police or other government use) Construction	Plantings -Boulevards -Street trees -Planter boxes Rain gardens and bio-swales	Food trucks Parklets and streateries Public art Street festivals	Commercial vehicle load zones Truck load zone	Bus or rail stops Bike parking Curb bulbs Passenger load zones Short-term parking Taxi zones	Sidewalks Bus or streetcar lanes Bike lanes General purpose travel lanes Right or left turn-only lanes

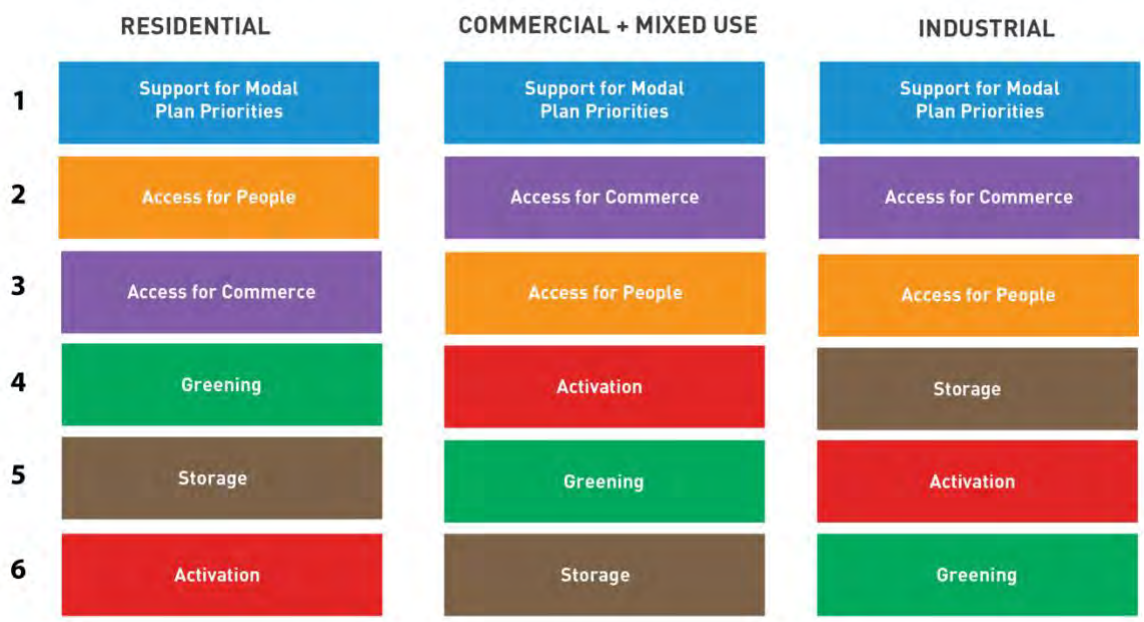
While these 6 functions of the right-of-way are critical, each is typically present in only certain zones of the right-of-way. These right-of-way zones are: the pedestrian realm (typically the sidewalk area between the property line and the curb), the travelway (portion of the road typically dedicated for mobility purposes), and the flex zone (the portion of the road with more flexible usage such as for access and mobility functions typically found along the curb). See Figure 5 below for a depiction of what functions are present in each right-of-way zone. As it shows, the flex zone can be the location of all 6 functions of the right-of-way.

Figure 5: Cross Section Showing the Location of Right-of-Way Functions



The Comprehensive Plan applies these concepts by describing the priorities for the right-of-way "flex zone" based on the predominant land use of the area. The Plan prioritizes the 6 functions in the "flex zone" relative to 3 land use types (Figure 6): commercial/mixed-use areas, industrial areas, and residential areas. In all 3 areas, the top priority within the flex zone is "modal plan priorities." While "modal plan priorities" (meaning modal networks) is at the top of the list across all land use types, this does not mean that we would only address other needs once the top priority is addressed. We often work to incorporate essential access needs (e.g., commercial loading, bus stops, or passenger drop off) within the right-of-way in addition to modal plan priorities.

Figure 6: Priorities for Right-of-Way "Flex Zone" by Predominant Use of Area



The other two right-of-way zones—pedestrian realm and travelway—are not addressed or assigned priority in the same way in the Comprehensive Plan. This modal integration process aims to clarify what those priorities are that are not clearly defined in the Comprehensive Plan.

Complete Streets Ordinance

Adopted in 2007, the City's Complete Street Ordinance (122386) directs SDOT to "design, operate, and maintain Seattle's streets to promote safe and convenient access and travel for all users." Users encompass people walking, riding bicycles, taking transit, and people of all abilities, as well as people driving freight and motor vehicles. Complete Streets is among our foundational policies: it is incorporated in our Comprehensive Plan and guided preparation of our four modal master plans. Our approach to delivering Complete Streets is operationalized as a comprehensive assessment tool that is required to be completed during the project delivery process before a project passes the 30% design milestone. Scope, design, and funding decisions are made during this early phase of any given project. As noted, the Comprehensive Plan recommends a "Complete Corridors" approach if all functions cannot fit in a single street, and we should allocate needed functions across a corridor composed of several streets or alleys.

Climate Action Plan

The 2013 Climate Action Plan provides a framework for meeting Seattle's climate protection goals, including the overarching goal of becoming carbon neutral by 2050. Road transportation is a critical focus of the plan given that it is the largest source of greenhouse gas (GHG) emissions, making up approximately 62% of the City's core emissions. Of this subset of emissions, personal vehicles emit more than half of transportation emissions.

The City's 2030 goal is to reduce GHG emissions from passenger vehicles by 82% and vehicle-miles traveled by 20% relative to the 2008 baseline. One of the key methods for achieving GHG reductions is shift travel modes away from vehicles that use fossil fuels. Mode share targets from the Climate Action Plan and other major policy documents are shown in Figure 7.

Figure 7: Seattle's Key Mode-Share and Access Targets

Plan	Indicator	Target
Comprehensive Plan (2019)	Mode-share, non-work trips citywide, not driving alone	75% citywide by 2035 (neighborhood-specific targets exist depending on density)
Pedestrian Master Plan (2017)	Percent of sidewalks within Priority Investment Network (PIN) completed	100% of PIN arterial sidewalks complete by 2035
	Walk mode share, all trips	35% of all trips are made on foot by 2035
Transit Master Plan (2012/2016)	Access to frequent transit	72% of households within a 10-minute walk of 10-minute or better service
Bike Master Plan (2014)	Mode-share for bicycling, all trips	Quadruple bicycling by 2030
Climate Action Plan (2013)	Passenger vehicle emissions	82% reduction in climate warming emissions by 2030 (from 2008 baseline)
Vision Zero Action Plan (2015)	Downward trend in traffic-related fatalities on city streets	Zero traffic deaths and serious injuries on city streets by 2030

Race and Social Justice Initiative

The Race and Social Justice Initiative (RSJI) is the City's commitment to eliminate racial disparities and achieve racial equity in Seattle. The Initiative's long-term goal is to change the underlying system that creates race-based disparities in our community and to achieve racial equity. RSJI provides tools and framing for racial equity analysis to help guide decision making. See Appendix B for a discussion of how we used a Racial Equity Toolkit to inform this work.

Modal Plans

The City's long-range plans for walking, biking, transit, and freight—the modal master plans—provide the framework for moving people and goods safely and efficiently throughout the city. These plans direct investment to achieve policy objectives and address current and future mobility needs. Our modal plans originate from the Comprehensive Plan's imperative to reduce reliance on personal vehicles and to establish connected networks to guide capital projects that help us meet our modal targets for biking, walking, and transit. We have not established a modal plan for personal vehicles because our transportation system was largely built for cars; modal plans attempt to counteract this to create more sustainable travel options and make more efficient use of our ROW.

We prepared and adopted these plans at different times over the past decade and each plan has mode-specific visions:

- The Bicycle Master Plan (2014) vision is to make riding a bike a comfortable and integral part of daily life in Seattle for people of all ages and abilities.
- The Transit Master Plan (2012, amended in 2016) envisions a city that is served by a network of high-quality, frequent transit routes that connect urban centers, urban villages, and manufacturing/industrial centers in a manner that is accessible for people of all abilities.
- The Freight Master Plan (2016) vision is of a vibrant city and thriving economy connecting people and products with Seattle to regional and international markets.
- The Pedestrian Master Plan (2017) aims to make Seattle the most walkable city in the nation.

Each modal master plan contains a "priority network," which provides a clear and connected collection of streets that enables optimal mobility for the particular mode. Additionally, each network directs funding investments and informs right-of-way allocation.

Bicycle Master Plan: Recommended Bicycle Network

The Recommended Bicycle Network in the City's oldest modal plan consists of two network categories: Citywide Network and Local Connectors.

- The Citywide Network ensures that all of the city's urban centers and urban villages are connected by an "all ages and abilities" bikeway. These citywide, neighborhood-connecting bikeways are often the places where bike facilities have to be on arterials and experience conflicts with other modes.
- Local Connectors provide access to the Citywide Network and comfortable and convenient travel by bike within Seattle's neighborhoods. These facilities can often be accommodated on residential streets.

The Recommended Bicycle Network consists of several types of facilities: off-street, cycle track (now commonly called "protected bicycle lane" or "PBL"), and neighborhood greenway. Three-quarters of these facilities are located on residential streets and one-quarter on arterial streets. In total, the recommended bike network comprises 22% of all Seattle Streets (20% of arterial street segments and 22% of non-arterial street segments).

It is important to note the plan states that, while all efforts will be made to implement the recommended bicycle network on arterial multi-modal corridors, people riding bicycles can more easily be accommodated on parallel non-arterial streets than other modes. To this end, the plan anticipated that, when the planned bikeway is not feasible on arterial streets, a neighborhood greenway may be provided on a parallel street to create an "all ages and ability" facility.

Figure 8: Recommended Bicycle Network from the Bicycle Master Plan

Transit Master Plan: Frequent Transit Network

The Transit Master Plan includes official maps guiding service and capital investments. While the plan pre-dates both the Sound Transit 3 (ST3) and Seattle Transit Benefit District (STBD) referenda, the plan remains the key policy guide for both right-of-way and service investments within the city. Within the TMP, the Frequent Transit Network highlights streets that are served by frequent and very frequent transit service (as of 2016) and where this service is recommended to be expanded by 2030. Frequent transit service is defined as all-day, 15-minute service, while very frequent service is 10-minutes or less. This network is almost entirely on arterials. The vast majority of the network is served by buses, along with existing and future streetcar and light rail routes.

In total, the Frequent Transit Network comprises 13% of all Seattle Streets (46% of arterial street segments and 0% of non-arterial street segments).

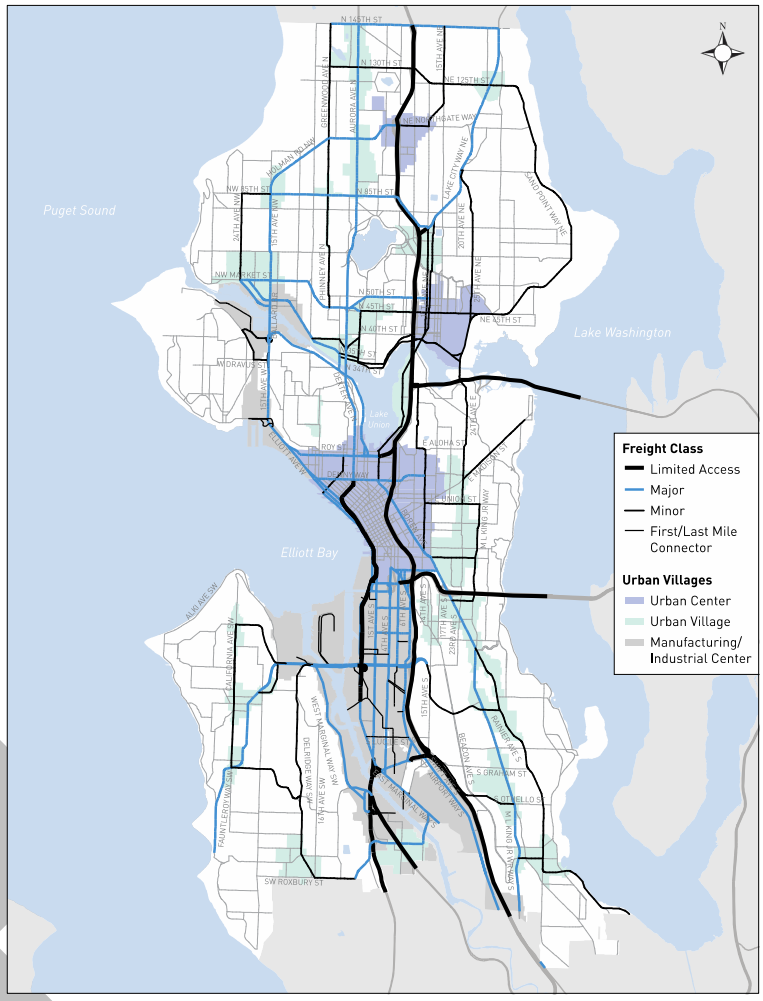
Figure 9: Frequent Transit Network from Transit Master Plan

Freight Master Plan: Major Truck Street Network

The City's freight network consists primarily of Major and Minor Truck Streets along with limited access highways. The City also has designated first/last mile connectors, Heavy Haul network, and an over-legal network. Almost all the freight network is on arterial streets. While designating a street as part of the freight network does not necessarily change its overall function, design or character, it does underscore the importance of ensuring goods movement can be accommodated on that street in a safe manner. In total, the Freight Network comprises 9% of all Seattle Streets (32% of arterial street segments and 0% of non-arterial street segments).

The networks within the FMP focus on serving our Manufacturing and Industrial Centers (MICs), connecting MICs to the regional freight network (I-5 and state routes), and serving urban centers and villages with select priority routes to ensure reliable, efficient goods delivery. Since the adoption of the Freight Master Plan, the freight and urban goods landscape has continued to change rapidly, driven by the growth in e-commerce and the COVID-19 pandemic. This has accelerated the frequency of package deliveries throughout the city and increased the need for urban goods delivery space at the curb.

Figure 10: Freight Network from the Freight Master Plan

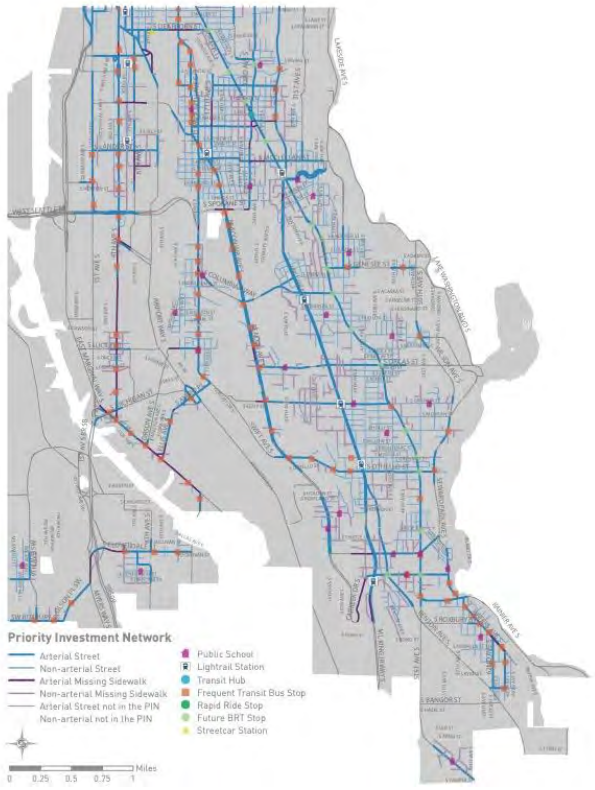


Pedestrian Master Plan: Priority Investment Network

The Priority Investment Network (PIN) prioritizes pedestrian network improvements—both along-the-roadway and crossing-the-roadway—where people most need to walk throughout the city. Along-the-roadway pedestrian infrastructure speaks to the need of accessible sidewalks with adequate width and design (as defined by Streets Illustrated). A key action outlined in the Pedestrian Master Plan is to provide sidewalks along all arterials to ensure there is grade-separated sidewalks along the city's busiest streets. Crossing-the-roadway pedestrian infrastructure focuses on reducing crossing distances, properly designing the spacing of controlled-crossings, and adequate curb ramps. Each type of infrastructure has implications on overall right-of-way allocation and street operations.

The PIN is composed of streets that serve as key pedestrian routes to schools and frequent transit stops. These same streets also often provide key connections to and within urban centers and urban villages. About two-thirds of the PIN is on residential streets and one-third on arterials; together, these streets create a clearly identified, interconnected pedestrian network that links people to important destinations. In total, the Priority Investment Network comprises 52% of all Seattle Streets (71% of arterial street segments and 45% of non-arterial street segments).

Figure 11: Pedestrian Investment Network from the Pedestrian Master Plan *(Southeast Seattle Sector as Example)*



Streets Illustrated

Streets Illustrated, Seattle's Right-of-Way Improvements Manual, is another tool used to deliver complete streets. It establishes Street Type Standards that are based on the adjacent land uses, mobility functions, and the envisioned character of the street. These design standards guide all right-of-way improvements, including specific dimensional requirements for travel lanes, bicycle lanes, and sidewalks.

Appendix B: Approach

To best understand the scope of challenges to integrate our modal plan network recommendations on Seattle's streets, we conducted a technical right-of-way (ROW) deficiency analysis of the modal plan recommendations, interviewed city staff, and reviewed recent or ongoing projects within the project development phase (0-30% design).

We shared and discussed key findings with the Policy & Operations Advisory Group (POAG) and SDOT Core Team (a group of subject matter experts within SDOT) to inform the policy recommendations and identification of implementing actions.

Engaging with the Policy & Operations Advisory Group

We convened the Policy & Operations Advisory Group (POAG) on a pilot basis in 2020 to serve as a sounding board for policy development proposals, including analysis of trade-offs and potential impacts. We solicited POAG members from 8 existing boards, commissions, and organizations through an application process to lend their expertise to the policy and operations challenges at hand.

Figure 12: Policy & Operations Advisory Group Members

Board, Committee, or Commission	Members
Bike Advisory Board	Pierre Brunelle Alexander Lew
Business Improvement Association (Ballard BIA)	Mike Stewart
Freight Advisory Board	Warren Aakervik Geri Poor
Pedestrian Access Advisory Committee	Dorene Cornwell Steven Feher
Pedestrian Advisory Board	Emily Mannetti Anna Zivarts
Planning Commission	David Goldberg Grace Kim
Transit Advisory Board	Erin Tighe Bryce Kolton
Transportation Equity Workgroup	Kiana Parker Yordanos Teferi

The intended approach to the POAG meetings was to change the dynamic from one where individual modal, equity, business and other stakeholders interact individually with SDOT related to a modal plan or a specific project or location, to one where a balanced and comprehensive discussion could be held to address citywide needs. We supported the POAG by providing briefings on relevant technical and policy topics to build a shared knowledge foundation. Topics included our current policy base (Comprehensive Plan, modal master plans, Streets Illustrated, and Complete Streets Ordinance) and multimodal traffic operations and safety.

These meetings served as a new forum for our stakeholders to hear from and learn about each other's interests and concerns while providing guidance to us on right-of-way allocation decisions and how we operate the transportation system. The POAG members shared their perspectives on policy development and served as a liaison to their own boards, commissions, and organizations. To this end, we did not seek POAG consensus, nor did members vote on any of the presented content or topics.

We held 6 meetings with the POAG between June 2020 and January 2021. Because of the COVID-19 pandemic, all meetings were conducted virtually. Based on the feedback received from POAG members, there is value in this model for facilitating conversations about citywide policy needs that cut across mode-specific concerns. SDOT will consider when and how to host this type of forum in the future to support multimodal policy development; that said, there are no specific plans at this point to continue the POAG.

Right-of-Way Deficiency Analysis: Where Are the Deficient Street Segments?

Our Complete Streets policy, modal master plans, and implementation approach require more street space than what is available in certain locations. When it comes time to build projects that complete these networks, this can lead to challenging conversations about trade-offs internally and with our community members and stakeholders.

We conducted a deficiency analysis to understand where there is not enough right-of-way to accommodate implementation of the modal priority networks. We compared the various modal plan recommendations with existing right-of-way conditions and the street design standards included in the City's right-of-way improvement manual, Streets Illustrated (see Figure 13). Key findings from this analysis are described in Appendix C and draft maps illustrating locations of deficient street segments are compiled in Appendix D.

Figure 13: Inputs to the Right-of-Way Deficiency Analysis

Modal plan networks	**Existing right-of-way conditions**	**Streets Illustrated standards**
• Transit Master Plan: Frequent Transit Network • Bicycle Master Plan: Future bikeway recommendations by type (e.g., standard bike lane, protected bike lane, multi-use trail) • Freight Master Plan: Freight network • Pedestrian Master Plan: Priority Investment Network	• Street segment channelization such as travel lanes, turn lanes, or bicycle lanes • Presence of parking and loading functions in the flex zone • Vehicle volumes • Bus passenger volumes • Sidewalk characteristics	• Travel and turn lanes • Bicycle infrastructure • Parking and loading in the flex zone • Sidewalk clear zone and furniture zone

Our analysis focused on Seattle's arterial street network of 6,539 street segments, the focal point of many priority modal network conflicts. Arterial streets are the classification where we see almost all our right-of-way allocation challenges. Freight and Transit routes are almost always located on arterials.

Almost all standard and protected bike lanes are planned for arterials (with the remaining planned bikeway network on non-arterial streets where right-of-way conflicts are uncommon).

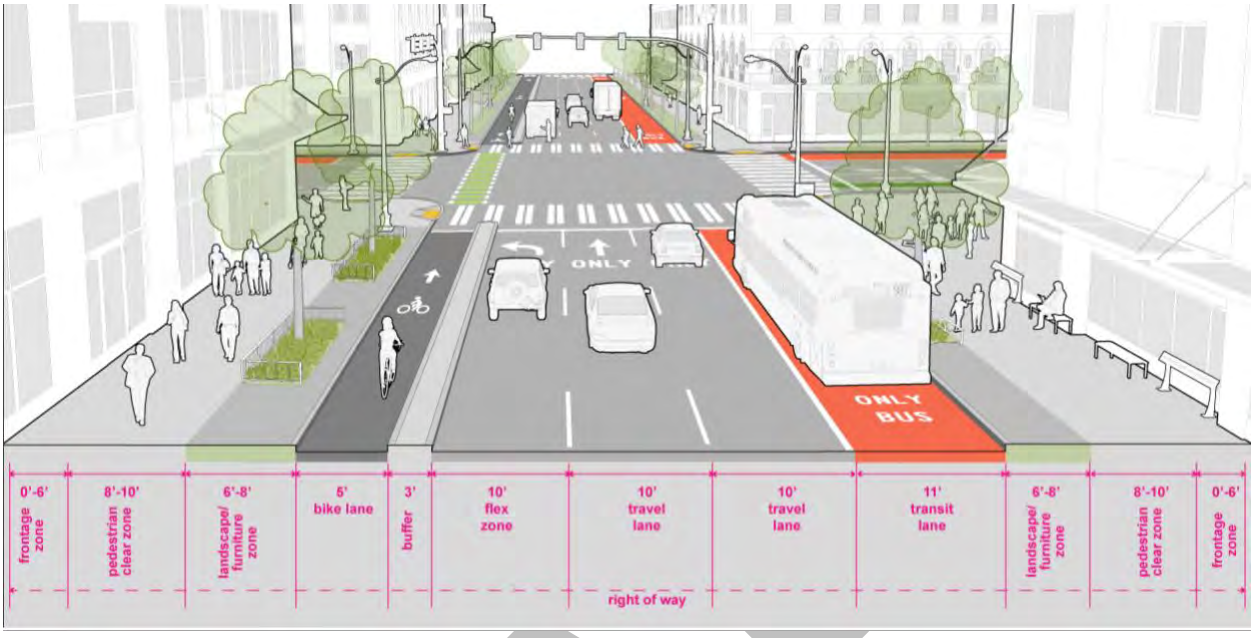
This analysis looked at right-of-way available to install transit-only lanes, bike lanes and protected bike lanes, as well as standard sidewalks. In most instances, right-of-way to deliver modal plan priorities would come from potential repurposing of right-of-way presently used as general purpose travel lanes, turn lanes, or flex zone. Occasionally, existing travel or turn lanes are larger than needed and "right sizing" turn or travel or parking lanes would free up enough space to accommodate modal plan priorities in this analysis.

The analysis also highlighted common modal conflicts and trade-offs project development and implementation staff must navigate to reconcile demand where there are deficient segments. The analysis highlights 3 broad categories of conditions/circumstances across the arterial street segments:

- Arterial street segments where all recommended modal plan elements (e.g., protected bike lanes, bus-only lane, loading zones) would fit by right-sizing segments (e.g. reducing oversized travel lanes or parking areas or repurposing underutilized travel or turn lanes).
- Segments where recommended modal elements would fit by repurposing flex lane space currently used for curbside storage (e.g. long-term parking) or access (e.g. loading or drop off).
- Segments where no possible combination of recommended elements would fit due to the recommendations exceeding available right-of-way

Given the expense and challenges related to moving the curb lines and drainage, this analysis looked separately at right-of-way between the curbs and behind the curb line. Between the curbs, we evaluated the potential to meet recommendations from the bicycle, transit, and freight modal plans. Behind the curb line, between the curb (or edge of pavement where curbs do not exist) and property line, we evaluated the potential to install compliant sidewalks. Figure 14 illustrates the types of elements found between and behind the curb line and gives some of the typical dimensions found within Streets Illustrated.

Figure 14: Example Street Cross Section and Dimensions from Streets Illustrated



Best Practice Research

We conducted best practice research and looked to other cities in the country and the world. As part of this effort, we conducted interviews with planners who had been working on policies and practices to created balanced networks in Amsterdam and Los Angeles and on modal priority (or policies that create hierarchy for modal implementation) in Portland and San Francisco.

Based on our peer city research, Amsterdam's "PlusNet" strategy was the most comprehensive and integrated approach we found and had the most successful implementation. Their approach evaluated all mobility options and created a clear order of priorities to divide the right-of-way space for pedestrians, bicyclists, public transit, and cars and trucks. This strategy enables clearer choices for which roads or streets different modes should use. It prioritizes different modes at different block scales both for right-of-way allocation and signal operations. For example, pedestrians have a finer-grained network with many smaller blocks prioritized for people walking, and vehicles—personal vehicles and commercial trucks—have a coarser-grained network with people driving prioritized on larger arterials.

Racial Equity Analysis

We conducted a racial equity analysis to better understand and analyze impacts of a modal integration policy framework on Black, Indigenous, and people of color communities, people with disabilities, and other communities we have traditionally underserved. The City's Race and Social Justice Initiative is intended to deepen racial equity analysis, avoid unintended outcomes, and identify opportunities for achieving equitable outcomes. Using a Racial Equity Toolkit (RET), we considered issues related to the modal integration policy such as: who is impacted, including who benefits and who is burdened; what we know on the topic based on stakeholder feedback and data available; and what the unintended consequences may be of any policy changes.

Appendix C: Detailed Findings

We identified numerous themes based on information gathered through mapping modal networks, analyzing data, engaging in conversations with internal and external stakeholders, and conducting a racial equity analysis. Our findings presented here not only better define the problem at hand when it comes to integrating our modal plan networks where there is insufficient right-of-way, but also describe the complexity of what potential solutions look like and what factors should be considered in the development of future policy. Our key findings, discussed in more detail in this section, are:

- Modal plans take distinct approaches with their respective networks.
- Modal plan networks mostly all fit together within existing right-of-way.
- Existing curb-to-curb width most frequently presents challenges to Bicycle Master Plan network implementation.
- Implementing modal priorities may impact the flex zone and its priority access and loading functions.
- Pedestrian safety, access, and convenience are key priorities that could impact curb-to-curb priorities or require acquiring right-of-way.
- Improvement to modal planning processes and right-of-way allocation decisions can advance racial equity.
- There is an opportunity to directly connect modal planning to the actions needed to meet Seattle's climate goals.
- Aligning signal operations with right-of-way allocation policy can further advance modal integration.
- While many cities are interested in modal integration, few have completed an effective modal integration policy or process.
- Thinking creatively about the future of modal planning will address its current shortcoming.

The findings serve as the basis for our recommendations and next steps, including near-term and longer-term strategies for decision making related to modal integration and prioritization.

Modal Plans Take Distinct Approaches with Their Respective Networks

Each of the modal plans (freight, transit, bicycle, pedestrian) include mapped priority networks for each mode; however, the priority networks take distinct approaches to their respective networks. Both the freight and bicycle priority networks include tiered networks. The freight network includes Major and Minor Truck Streets, along with First/Last Mile Connectors and Limited Access (e.g., highway) segments. For bicycles, there is a Citywide Network complemented by Local Connectors; both components are comprised of various facility types (protected bike lanes, neighborhood greenways, etc.). The Transit Plan includes two networks. The Frequent Transit Network (FTN) focuses on service while the Priority Investment Network focuses on capital. The Pedestrian Master Plan includes a single Priority Investment Network (PIN).

A second key difference is the extent of the planned networks for the 4 modal plans. The freight network comprises 9% of Seattle's streets (arterials and non-arterials), while the transit and bicycle networks comprise 13% and 22% respectively. The Priority Investment Network (PIN), stands out in that it comprises 52% of all city streets. The PIN establishes our priority investment areas for standard

pedestrian infrastructure, but we are missing a pedestrian-oriented mapped network that prioritizes the creation, improvement, and management of civic spaces, public spaces, and special areas in the right-of-way. These areas are presently a limited outcome from special area studies and community-led efforts and more attention is needed to develop an equity informed method for identifying and prioritizing these across the city.

It is important to note that our current modal plan framework does not address all modes, such as cars, autonomous vehicles, micro-mobility devices (e.g., e-scooters), and other forms of emerging mobility. There is a need to address modes not included in the 4 current modal plans and networks (e.g., personal vehicles). Stakeholders involved in the process believe it is critical to have clear policies for private vehicles since a large share of our current street space is dedicated to their operation and storage, and thus directly impact the feasibility of networks for the modes for which we plan.

Modal Plan Networks Mostly All Fit Together within Existing Right-of-Way

We evaluated over 6,500 arterial street segments to understand whether our streets' existing curb-to-curb dimensions are sufficient to accommodate planned modal networks that are recommended for implementation in the curb-to-curb right-of-way—Bicycle Master Plan, Transit Master Plan, and/or Freight Master Plan. For the purposes of this curb-to-curb analysis, we did not factor in the Pedestrian Master Plan's Pedestrian Investment Network, given its implementation in the pedestrian realm is typically behind the curb line. A separate analysis looked at available right-of-way between the curb line and the property line. Overall, we found that streets are largely able to accommodate the modal networks (and meet dimensional design standards), even where there is planned modal overlap.

Of Seattle's arterial street network (6,539 street segments), 81% is designated as part of a planned modal network (Bicycle Master Plan, Transit Master Plan, and/or Freight Master Plan). In fact, 45% of all arterial streets are designated for multiple modal networks. A total of 782 street segments (12% of all arterial street segments) are designated for all three modal networks. Figure 15 below details the breakdown of modal plan designation for Seattle's arterial street network.

Figure 15: Distribution of Arterial Street Segments by Modal Plan Network

	Modal Plan Network(s) Present	Number of Arterial Street Segments	Percent of Arterial Street Network
Street Segments with No Modal Networks		1,270	19%
Street Segments with 1 Modal Network	Bicycle Master Plan	1,650	25%
	Transit Master Plan	389	6%
	Freight Master Plan	313	5%
Street Segments with 2 Modal Networks	Bicycle Master Plan + Transit Master Plan	1,098	17%
	Bicycle Master Plan + Freight Master Plan	313	5%
	Transit Master Plan + Freight Master Plan	724	11%
Street Segments with 3 Modal Networks	Bicycle Master Plan + Transit Master Plan +	782	12%

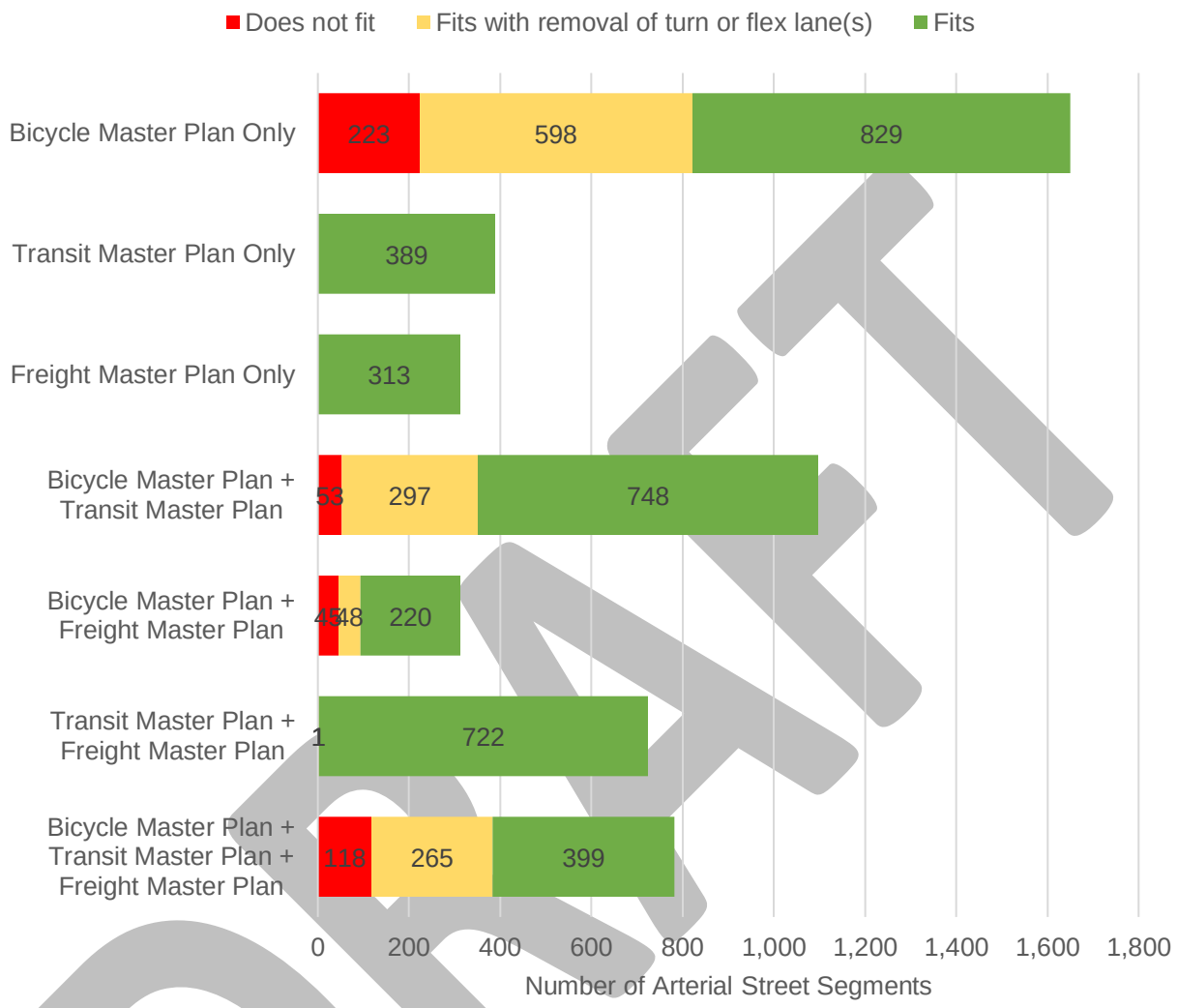
Total	6,539	100%

We analyzed each of these street segments with modal plan networks (n = 5,269) to understand to what degree the existing curb-to-curb dimension of the roadway would accommodate the planned networks. Of these arterial street segments on modal plan networks, we found:

- 69% (n= 3,620) have sufficient right-of-way widths to accommodate the modal plan recommendations while meeting design standards.
- 23% (n = 1,209) could accommodate the networks with the removal or a turn lane or flex lane(s).
- 8% (n = 440) have right-of-way widths that are too narrow to accommodate designated modal plan networks.

Figure 16 provides a detailed breakdown of how arterial streets are able to accommodate modal networks based on network type present.

Figure 16: Ability for Arterial Street Segments to Accommodate Modal Networks Based on Designated Network



Of the 440 deficient street segments, most are located outside of our urban centers and urban villages on Neighborhood Corridor and Urban Center Connector streets. Almost half of the deficient street segments do not have a flex zone, while the other half of street segments have a flex zone on at least 1 side of the street that, even if reallocated for the modal networks, would not be adequate to meet the space needs for modal plan implementation. For draft maps illustrated our deficient street segments, see Appendix D.

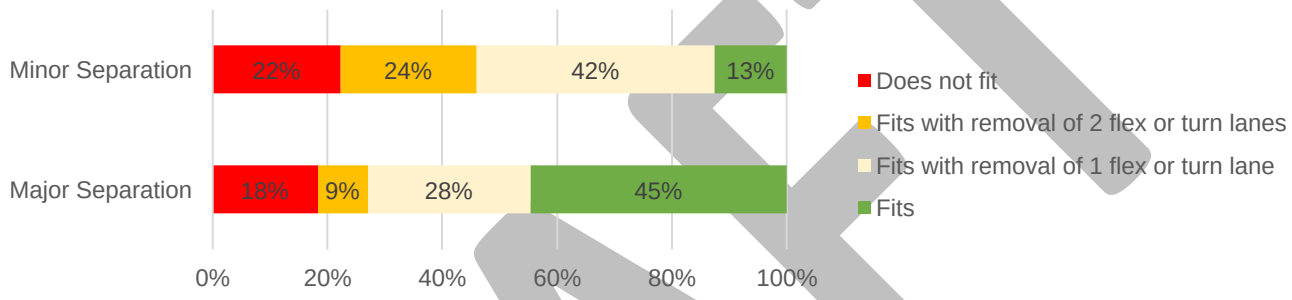
Existing Curb-to-Curb Width Most Frequently Presents Challenges to Bicycle Master Plan Network Implementation

Projects to build out the Bicycle Master Plan network will come with the most trade-offs around other uses of the right-of-way given roadway space constraints and the large existing presence of other modal networks. Of the 440 deficient arterial street segments identified in our analysis, 439 include a planned bike facility. Building bike facilities oftentimes requires creating new, separated facilities where they do

not currently exist, whereas most transit and freight facilities are using or replacing existing general purpose travel lanes.

As Figure 17 shows, a substantial proportion of arterial street segments on the bike network can currently accommodate major separation bike facilities (typically protected bike lanes) and minor separation bike facilities (typically standard bike lanes) only if there are impacts to flex or turn lanes. In fact, 1 in 5 street segments cannot fit the bike facility while retaining general traffic lanes, regardless of type (major or minor separation). Only 13% of street segments planned to have minor separation infrastructure and 45% of street segments with planned major separation infrastructure cleanly fit into the street with no adjustment to existing flex or turn lanes.

Figure 17: Ability for Arterial Street Segments to Accommodate Planned Bike Facilities



Of the 439 deficient street segments with planned bike facilities, a majority (66%) are located on streets with either 1 or 2 lanes of traffic in total, making the prospect of reallocating these travel lanes for modal plan implementation a particular challenge.

Several POAG members expressed concerns about moving bike facilities to parallel routes in the event of insufficient right-of-way to accommodate the facility on the planned street segment. This approach should be considered carefully, particularly when there are substantial impacts to people riding bikes in terms of direct connections, steepness or route, or an overall compromise on the efficiency of the network.

Implementing Modal Priorities May Impact the Flex Zone and Its Priority Access and Loading Functions

In addition to tensions between our modal networks competing for limited right-of-way, our right-of-way allocation decisions can have significant impacts on the other essential functions of the right-of-way. Currently, there is inconsistency in identifying and finding solutions with community and businesses who are impacted by changes to the flex zone.

Our right-of-way deficiency analysis identified locations where the flex zone will likely be impacted. Use of flex lanes for essential functions (see Figure 4), such as critical building access, solid waste services, on-demand passenger pick up/drop off, urban goods delivery, bus stops, and parking is common across our modal networks. While Seattle's Comprehensive Plan prioritizes "Modal Plan Priorities" over access needs for people and commerce (see Figure 6), access functions are often essential. To fully implement

our modal plan recommendations, we will need to consider ways to identify, manage, and minimize those impacts.

Many buildings throughout the city are solely dependent upon reliable access to a nearby curb to meet the critical needs of their building. This is particularly true in parts of the city with older development built under prior regulations for building loading docks or for buildings built before widespread automobile use. SDOT's Downtown Curbspace Study (2016) documented that most properties in the Center City area no longer have sufficient rights-of-way to relocate curbside access nearby (down the block or around the corner).

A majority of arterial street segments have ROW widths sufficient to accommodate priority modal networks, and still maintain 1 or more flex lanes; however, many segments do not. For street segments with flex lanes on 2 sides of the street, 25% could require some form of flex lane removal to accommodate modal networks based on existing curb-to-curb dimensions, while only 16% of street segments with 1 existing flex lane could require flex lane removal. See Figure 18 below for more details.

Figure 18: Proportion of Arterial Street Segments that could Require Flex Lane Removal

	Number of Street Segments	Share of Street Segments Requiring Flex Lane Removal for Modal Plan Implementation	
		1 Flex Lane	**2 Flex Lanes**
Street Segments with 1 flex lane	1,616 (25% of arterial street network)	16%	N/A
Street Segments with 2 flex lanes	3,454 (53% of arterial street network)	17%	8%

Commerce has changed with urban goods delivery services focused on just-in-time delivery to businesses and e-commerce driving an increase in direct delivery to consumers. This has especially been the case with the COVID-19 pandemic where restaurants and retail businesses have relied at times entirely on take out and pick up deliveries for their sales. Market and global trends create more shipments (often with smaller vehicles for urban environments) and result in higher demand for delivery and load/unload zones in street right-of-way. In addition to deliveries, other important building access needs include mail service, solid waste/garbage, passenger drop off, and building maintenance.

The need for a dynamic and functional curb to accommodate essential right-of-way access functions sometimes competes with our modal plan priorities. In fact, by not addressing the essential access needs of businesses and consumers through street design that accommodates loading, there can be negative effects on mobility, climate, and safety. We may want to explore a more nuanced approach to prioritizing essential access needs during our next update of the Comprehensive Plan.

Where reasonable alternatives do not exist, it is common for delivery or passenger vehicles to inevitably use inappropriate areas to fulfill essential access needs, as we have seen with bike lanes or turn lanes being used for loading/unloading functions where reasonable alternatives do not exist. For this reason, modal network projects that impact right-of-way allocation must take into account local access needs and the role of the flex zone to meet these needs.

A few POAG members encouraged any new policy to make a clear distinction between—and not conflate—parking and loading functions of the flex zone. While loading is seen as a more essential function, SDOT should funnel that activity into specified zones (either on or off the arterial) that limit impacts on mobility networks.

Pedestrian Safety, Access, and Convenience Are Key Priorities that Could Impact Curb-to-Curb Priorities or Require Acquiring Right-of-Way

Both the POAG and internal SDOT stakeholders emphasized the need to prioritize pedestrian safety and access. Separate from the curb-to-curb analysis to address ROW accommodation of bicycle, transit, and freight networks, we analyzed sidewalk widths. To do this, we compared existing ROW available for sidewalks (between the curb line and the property line) to the Streets Illustrated standards.

Of the 6,539 arterial block segments we analyzed, 384 are substantially deficient to meet sidewalk infrastructure needs, defined as more than 3 feet short. Of these segments, 152 (40%) are located within designated urban villages and urban centers. Remedies to garner the needed right-of-way are limited to moving the curb line or acquiring additional right-of-way, and acquiring right-of-way is especially difficult in our more urbanized villages and centers.

Members of the POAG were similarly interested in ensuring that any policy framework prioritizes pedestrian safety and access throughout the city. Members also raised support for prioritizing universal access in project design. From their perspective, SDOT should consistently apply the full Streets Illustrated design standards for sidewalk design to prioritize universal access and strive to go beyond simple compliance with the Americans with Disabilities Act.

Improvement to Modal Planning Processes and Right-of-Way Allocation Decisions Can Advance Racial Equity

While each modal plan considered equity as a key criteria for developing preferred networks and prioritizing investments, there are inherent gaps in this approach if the outcome sought is an equitable, holistic transportation system. Each modal plan approached equity analysis differently by using diverging definitions, measures, and datasets at the time of development. For each modal plan, we undertook separate engagement efforts and focused on a certain mode of travel, rather than a comprehensive look at what mobility needs and challenges exist in Black, Indigenous, and people of color communities (BIPOC), regardless of mode.

Through the separate modal planning processes currently employed, we are not having conversations about the integrated nature of the street or holistic community needs from land use, economic development, transportation, and community well-being perspective during the modal planning process. This presents an opportunity to plan our networks in an integrated way – one that realizes the most equitable outcomes for marginalized communities, explores community needs comprehensively and with nuance (e.g., comfort with travel in different modes, needs at different times of day, affordability, accessibility), and aggressively mitigates climate change.

Additionally, there are other uses of the right-of-way that are not represented in the modal plans which have not had comparable equity analysis (e.g., personal vehicles, micromobility) because they aren't represented in the modal plan framework. This is an important underlying assumption to be aware of, because the use of cars has real impacts on climate change, equity, and livability.

For a few of the POAG members, the discussion related to improving climate outcomes with a focus on universally reducing private vehicle use ultimately may be harmful to populations who have been marginalized by the City. While car usage is relatively similar among different racial groups, there is a need to recognize that not everyone has the same level of access to transportation alternatives that enable a car-free or car-light lifestyle. Historic land use decisions (including red-lining) have segregated communities and various BIPOC-serving businesses and community centers are often more car dependent than transit friendly especially since the city is experiencing an affordability crisis. We also must recognize that there are residents who need a personal vehicle because of a disability or as part of their work. Without alternative infrastructure in place—transit in particular—that is convenient and reliable, the impacts of shifts in modal priority could further compound existing inequities.

A more robust engagement process was suggested to ensure our plans and policies related to modal integration and right-of-way allocation meet local community needs. With an eye toward equity, communities that have been impacted by systemic racism and past and present practices should play a role in the decision-making process.

There Is an Opportunity to Directly Connect Modal Planning to the Actions Needed to Meet Seattle's Climate Goals

Complete networks that provide safe, convenient, and affordable alternatives to driving alone are essential to attracting more pedestrians, bicyclists, and transit riders. This mode shift is critical for the City to reach its goals related to reducing greenhouse gas emissions in the transportation sector. Integrated modal planning can provide a more comprehensive and cross-cutting approach across all modes to reduce emissions and help keep climate action at the forefront in the decision-making process.

One POAG member underscored the need to directly connect right-of-way allocation policies to City mode shift and greenhouse gas emission reduction goals. Without a clear priority for right-of-way decisions based on desired mode shift outcomes, POAG members were worried sustainable modes (e.g., walking, bikes, transit) may lose out when there is constrained right-of-way. One member suggested adding an objective across the transportation network to guide right-of-way allocation and operational decisions based on the vision that non-car modes are more convenient and reliable than drive-alone travel.

POAG members also raised concerns that without a full accounting of how personal vehicles are prioritized or de-prioritized in right-of-way allocation decisions or what their role is in our understanding of "complete streets," it will be challenging to make progress toward mode shift goals. Existing modal plan policy frameworks attempt to address these issues by identifying priority networks to accommodate and encourage mobility other than by personal vehicle. The modal planning approach, however, does not directly address the role of personal vehicles more broadly nor establish methods to

capture the community impacts of single-occupancy vehicle use. The challenge lies in consistent application of the modal priority policies and how that effort is communicated to the community.

Aligning Signal Operations with Right-of-Way Allocation Policy Can Further Advance Modal Integration

Allocating space curb-to-curb is an important way to demonstrate modal priority on a street, and when paired with signal operations, can facilitate priority movement for particular modes. In discussions with the POAG and the SDOT Core Team, we heard that some of the tools traditionally used to measure the success of our streets like motor vehicle level-of-service (LOS) are outdated and do not align with many of the City's climate or equity goals.

We have an opportunity to define clear policy guidance for signal operation measures and goals to further benefit modal integration efforts. One way we can do this is by re-thinking when we use vehicular LOS as a measurement of a successful street. Although vehicular LOS can describe potential vehicle delays, we need to broaden the measurement tools we use to address all modes and meet our goals. By providing policy for how to link measures and goals to our signal operations and curb-to-curb space allocation, we can create a more straightforward approach with operational goals for project planning and development. This operations guidance would build on the recently completed signal policy guidance prepared with POAG input – to expand Leading Pedestrian Intervals, reduce overall signal cycle lengths, and reduce the number of pedestrian actuated signals. The City of Amsterdam has tied their signal operational goals with their street design. They are creating streets that are designed and operated for priority modes within their priority networks (called "Plus Nets", or plus networks). The "Plus Nets" are defined corridors for each mode that are intended for movement through the city. Each Plus Net type - whether it be for pedestrians, bicyclists, or transit – includes a specific operational target for the priority mode.

While Many Cities Are Interested in Modal Integration, Few Have Completed an Effective Modal Integration Policy or Process

As part of our best practices research for modal integration we contacted planners in Portland, Los Angeles, San Francisco, and Amsterdam as well as reviewed documents from Chicago and Washington, D.C. We found that, although many cities were interested in creating a policy for how to prioritize modes, many cities had run into barriers implementing a set of policies that achieved the goal of defining and delivering modal investments based on a policy, plan, or framework. Two cities that have had some success harmonizing modal plans through policy are Los Angeles and Amsterdam.

Los Angeles integrated their free-standing modal plans into a single document and set of maps, and integrated those maps within their Comprehensive Plan. They also reframed their complete streets policy around "enhanced networks" for pedestrians, bicycles, transit, and motor vehicles. These enhanced network designations clarify the priority in the right-of-way and provide guidance on the types of improvements that optimize mobility within each network. Two modal take-aways from Los Angeles are that pedestrians have priority both in districts and along corridors, and there is a vehicle priority map that includes their freight network.

Amsterdam's "Plus-Net" approach establishes premier networks for each mode. A secondary or tertiary mode is often combined with the highest-priority mode. For example, the bike priority network could also include segments that allow cars. These "fietstraats" are not unlike Seattle's bicycle greenways but they differ in that bicycles are the priority mode and cars are "guests". These bike-priority streets allowed car travel but at much lower speeds, and they must yield to bicycles. Like Los Angeles, Amsterdam's pedestrian priority includes both districts and corridors. Lastly, Amsterdam is the only city we investigated that drew a clear connection between modal priority networks and signal operations.

Thinking Creatively about the Future of Modal Planning Will Address its Current Shortcomings

SDOT staff discussed issues they face to fit all modes in a corridor. Feedback suggested that future modal planning consider how modes successfully integrate and provide direction on when to change the number of travel lanes for cars in a particular direction, transform streets from 2-way streets into 1-way streets for vehicles, and consider if there are opportunities to acquire right-of-way to fit standard modal facilities on a street.

POAG members expressed support for a new approach to planning transportation networks that steers away from siloed planning efforts by mode. Benefits of a different approach that starts from the point of understanding community mobility needs could be:

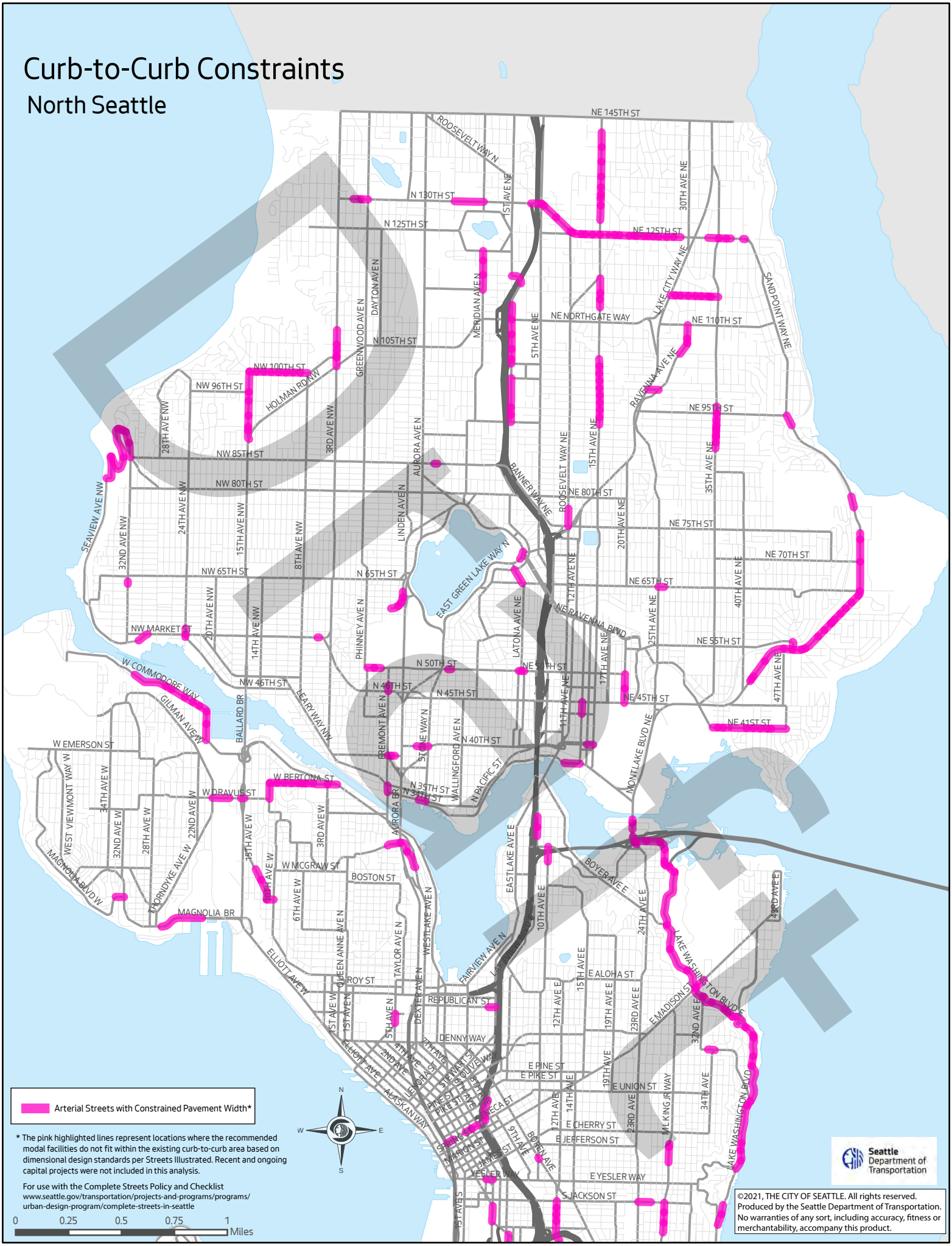
- networks that are scaled to meet our larger climate and equity goals.
- funding structures that are integrated and prioritized to ensure Complete Streets outcomes.
- ability to directly address the role of and externalities associated with the personal vehicle in our networks.

Lastly, we found the Amsterdam "Plus-Net" model may be desirable to emulate, particularly for its clarity around the integration of its modal networks with more fine-grained networks for pedestrians, and larger networks for inter-city travel and automobiles, the design of each priority street and clear connection between modal priority and signal operations.

Appendix D: Map Series of Overlapping Priority Networks and Locations with Deficient Right-of-way

Curb-to-Curb Constraints

North Seattle



Arterial Streets with Constrained Pavement Width*

* The pink highlighted lines represent locations where the recommended modal facilities do not fit within the existing curb-to-curb area based on dimensional design standards per Streets Illustrated. Recent and ongoing capital projects were not included in this analysis.

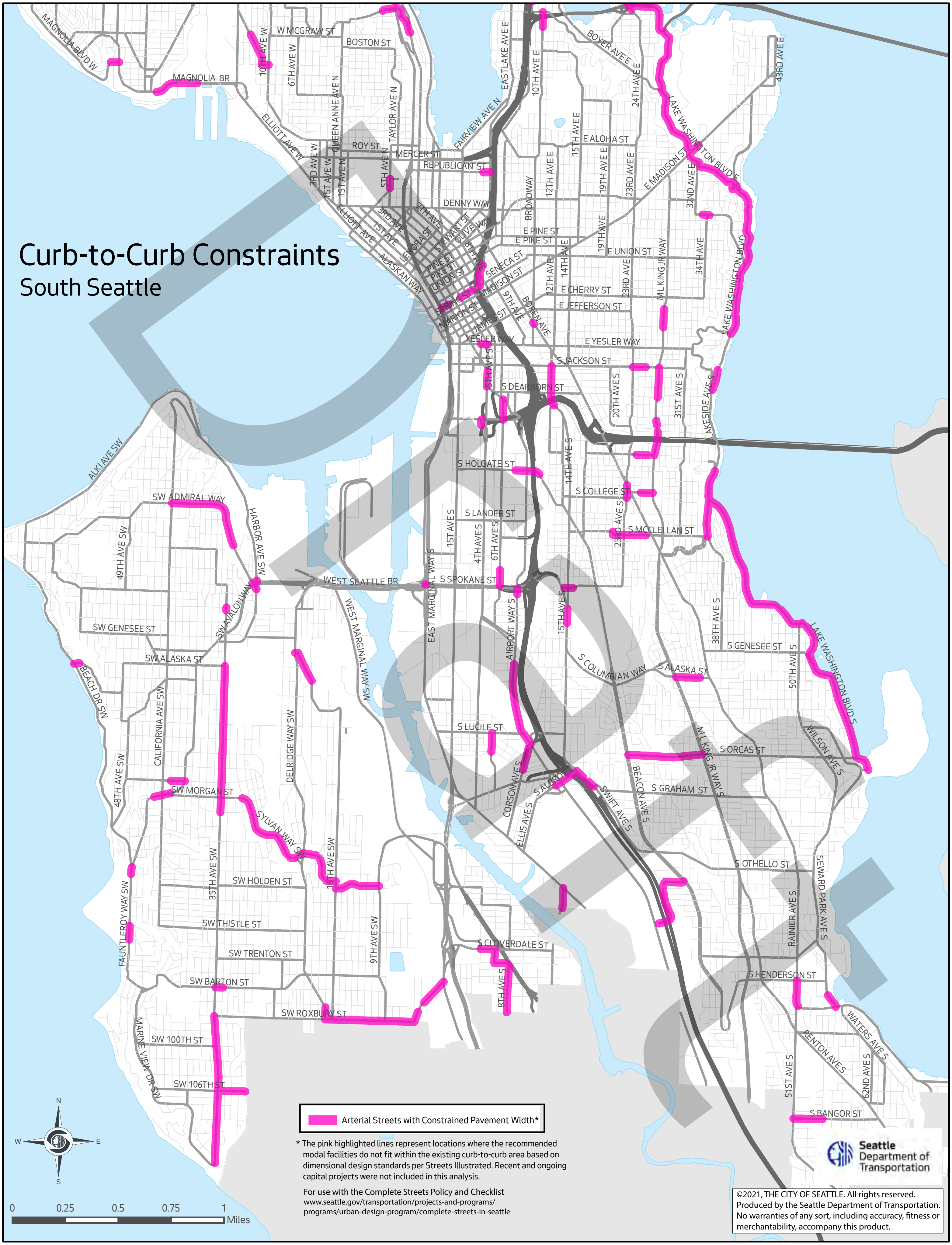
For use with the Complete Streets Policy and Checklist
www.seattle.gov/transportation/projects-and-programs/programs/urban-design-program/complete-streets-in-seattle

0 0.25 0.5 0.75 1 Miles

Seattle Department of Transportation

Curb-to-Curb Constraints

South Seattle



Arterial Streets with Constrained Pavement Width*

* The pink highlighted lines represent locations where the recommended modal facilities do not fit within the existing curb-to-curb area based on dimensional design standards per Streets Illustrated. Recent and ongoing capital projects were not included in this analysis.

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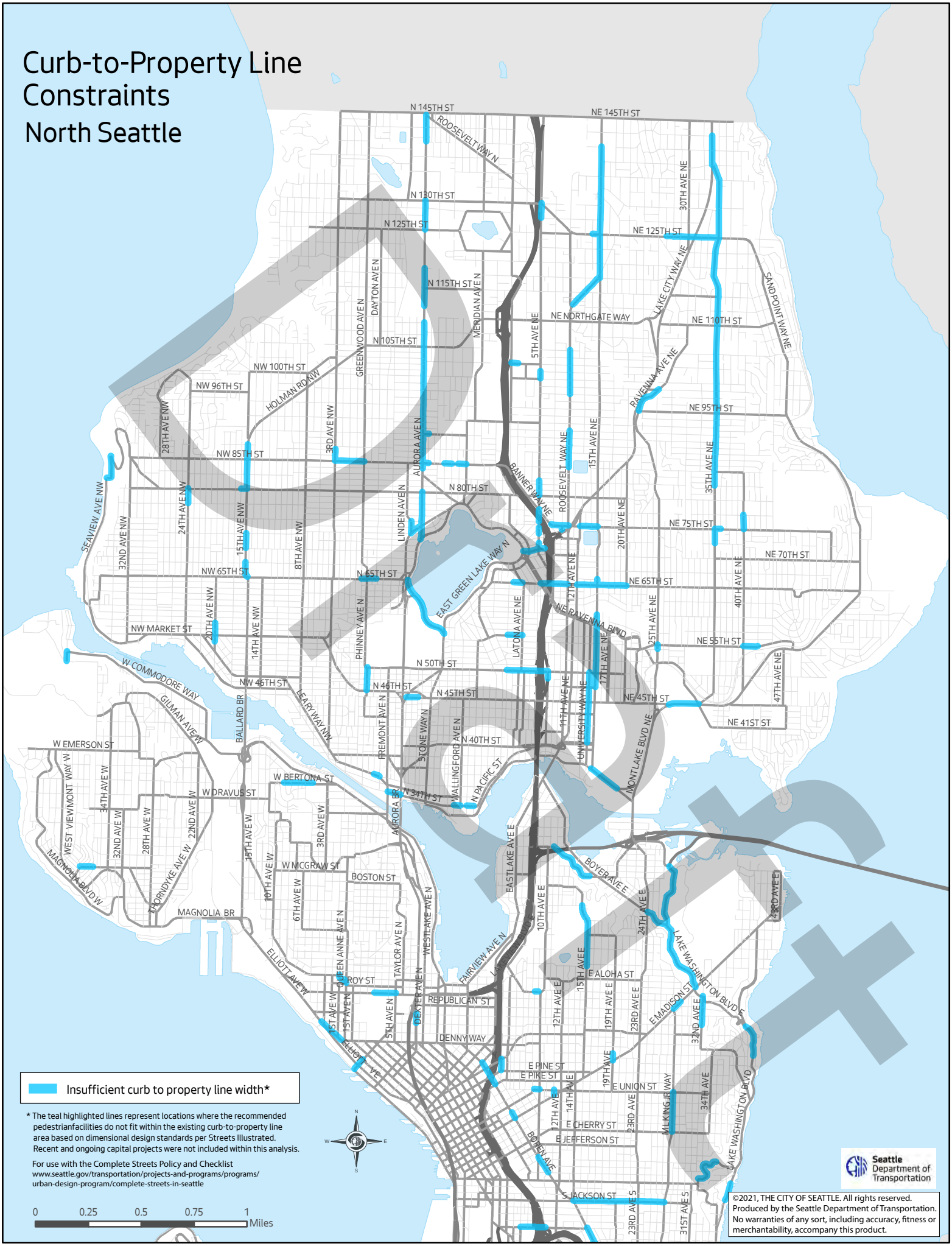
Seattle Department of Transportation

Curb-to-Property Line Constraints

North Seattle



Insufficient curb to property line width*

* The teal highlighted lines represent locations where the recommended pedestrianfacilities do not fit within the existing curb-to-property line area based on dimensional design standards per Streets Illustrated. Recent and ongoing capital projects were not included within this analysis.

For use with the Complete Streets Policy and Checklist
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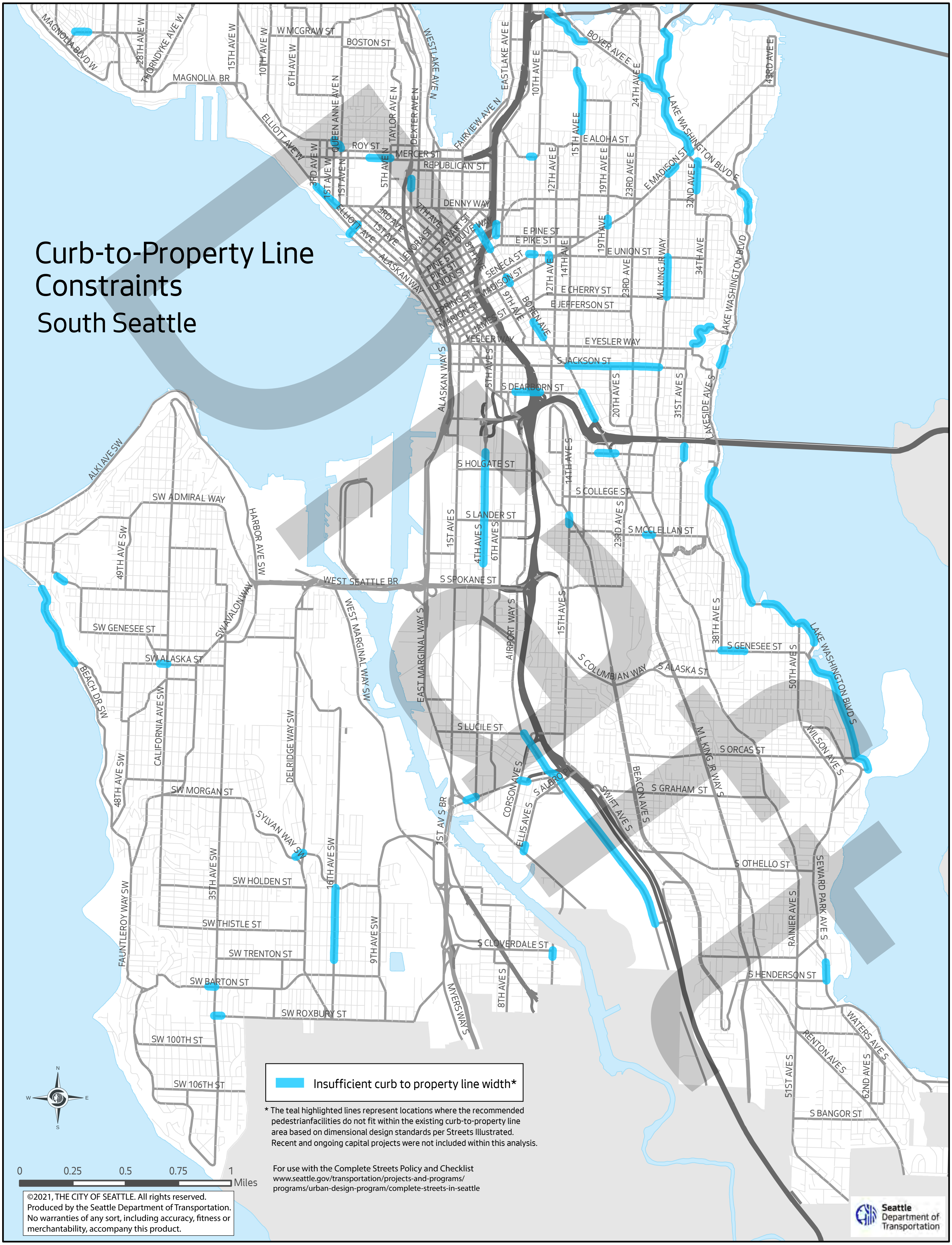
Seattle Department of Transportation

Curb-to-Property Line Constraints

South Seattle



Insufficient curb to property line width*

* The teal highlighted lines represent locations where the recommended pedestrianfacilities do not fit within the existing curb-to-property line area based on dimensional design standards per Streets Illustrated. Recent and ongoing capital projects were not included within this analysis.

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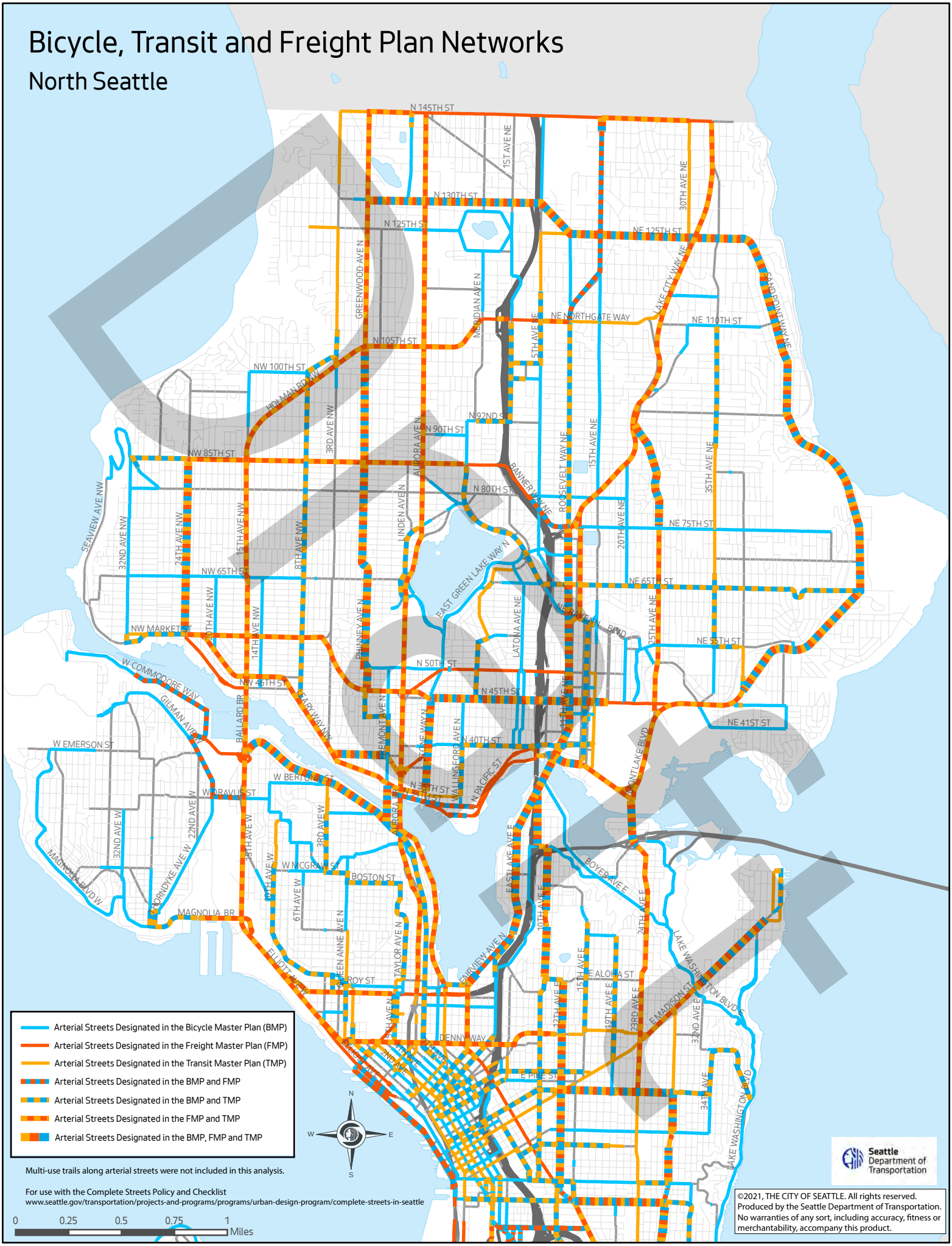
Bicycle, Transit and Freight Plan Networks

North Seattle



- Arterial Streets Designated in the Bicycle Master Plan (BMP)
- Arterial Streets Designated in the Freight Master Plan (FMP)
- Arterial Streets Designated in the Transit Master Plan (TMP)
- Arterial Streets Designated in the BMP and FMP
- Arterial Streets Designated in the BMP and TMP
- Arterial Streets Designated in the FMP and TMP
- Arterial Streets Designated in the BMP, FMP and TMP

Multi-use trails along arterial streets were not included in this analysis.

For use with the Complete Streets Policy and Checklist
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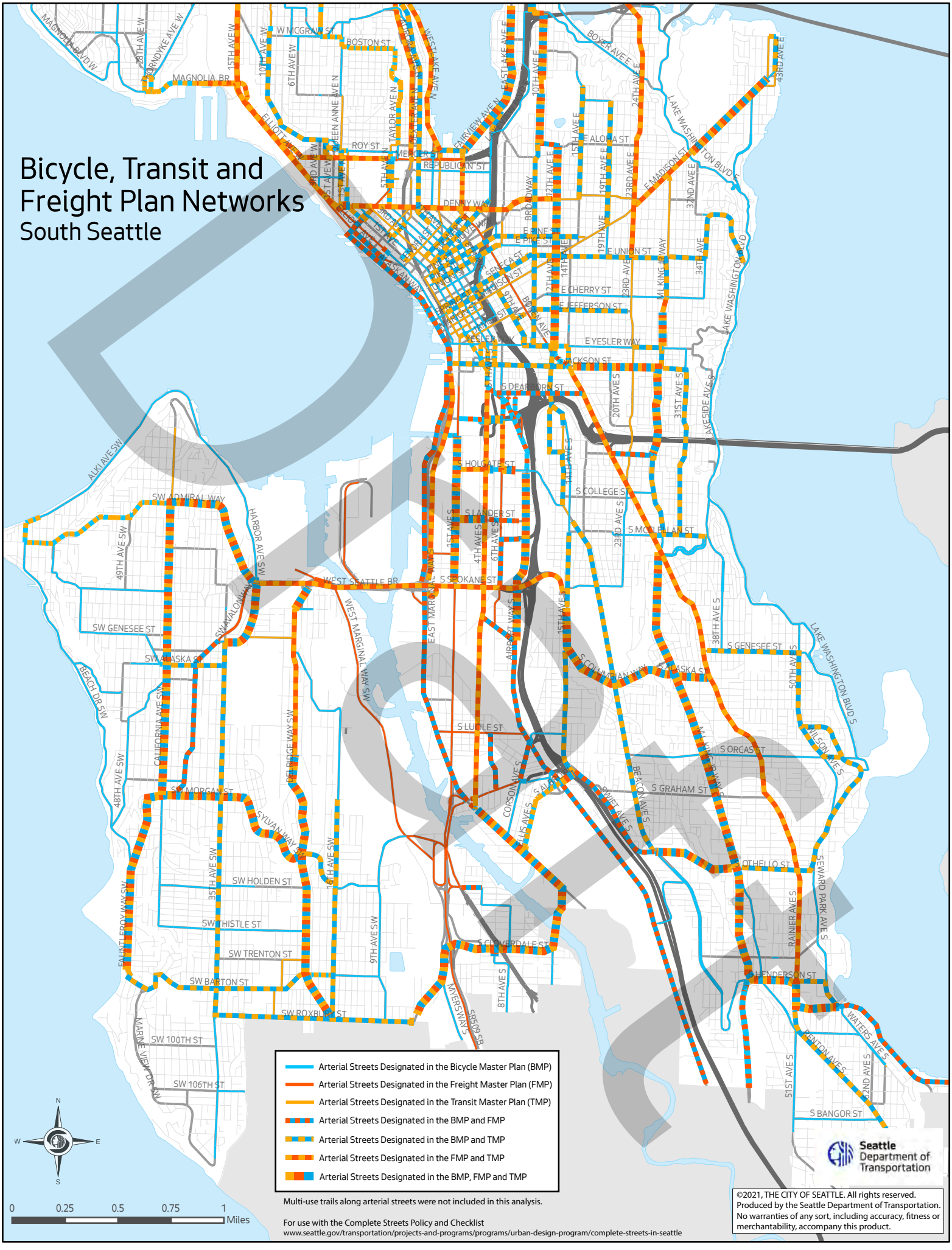
0 0.25 0.5 0.75 1 Miles

Seattle Department of Transportation


Bicycle, Transit and Freight Plan Networks
South Seattle
Arterial Streets Designated in the Bicycle Master Plan (BMP)
Arterial Streets Designated in the Freight Master Plan (FMP)
Arterial Streets Designated in the Transit Master Plan (TMP)
Arterial Streets Designated in the BMP and FMP
Arterial Streets Designated in the BMP and TMP
Arterial Streets Designated in the FMP and TMP
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0 0.25 0.5 0.75 1 Miles
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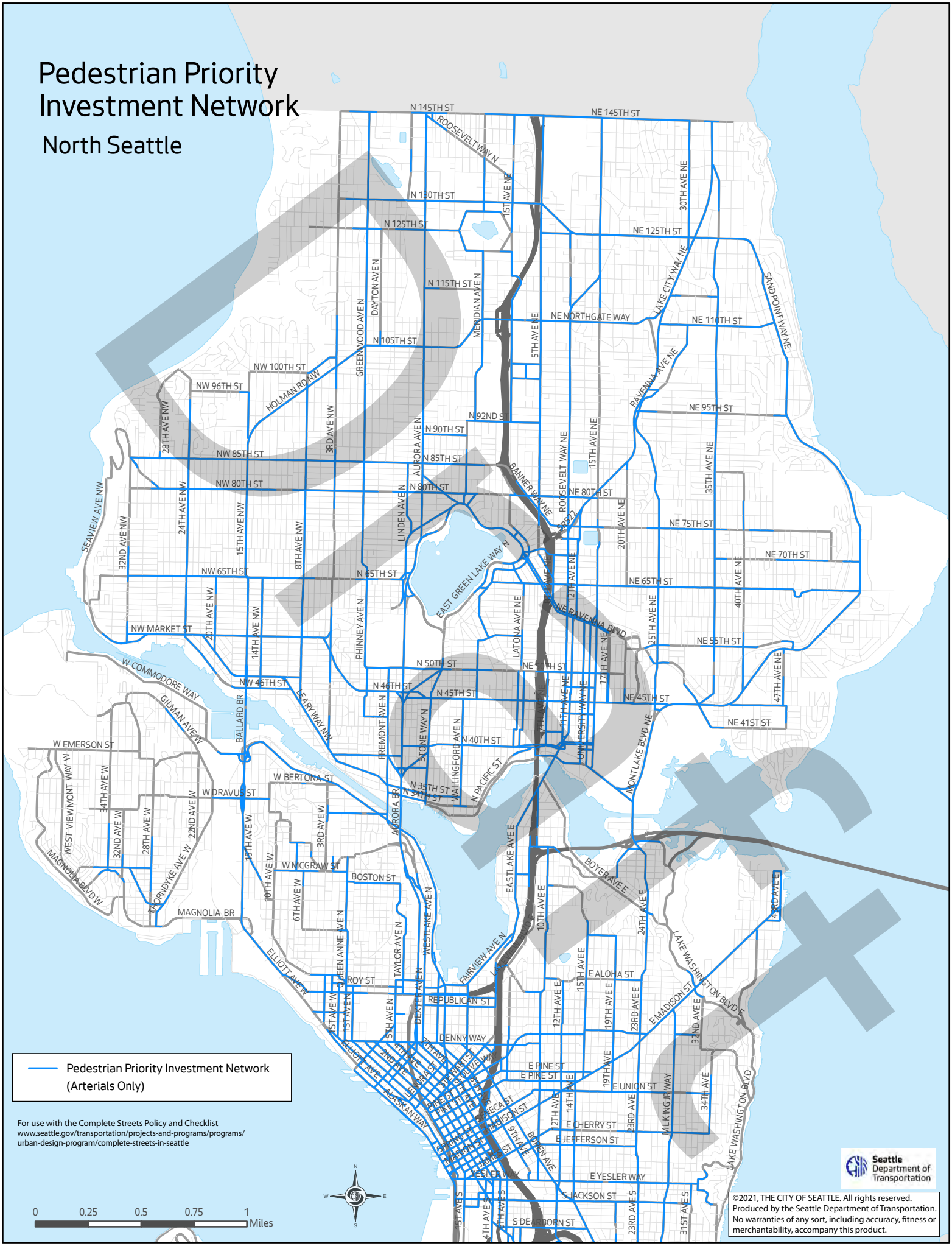
Pedestrian Priority Investment Network

North Seattle



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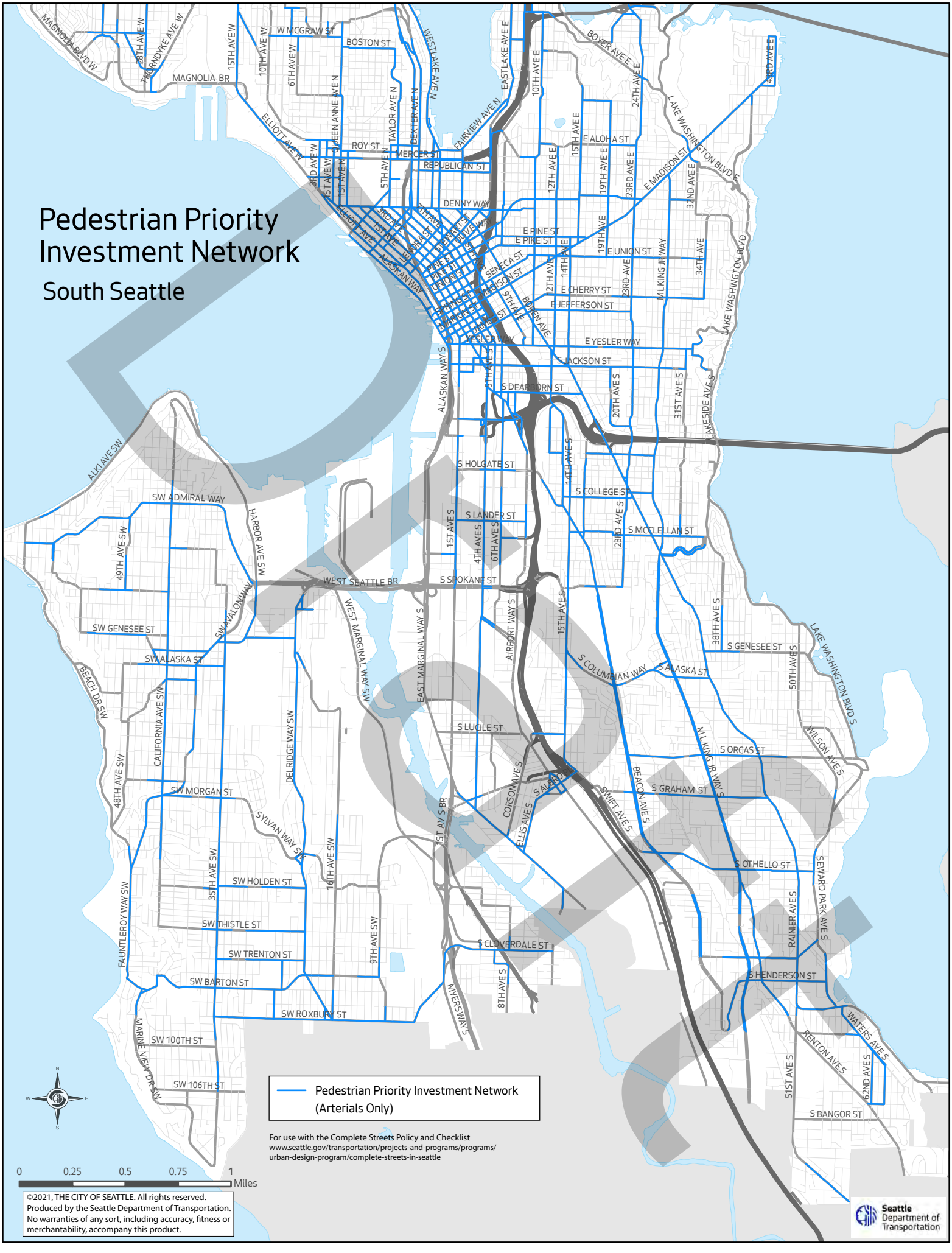
Pedestrian Priority Investment Network
South Seattle
Pedestrian Priority Investment Network (Arterials Only)
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0 0.25 0.5 0.75 1 Miles
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