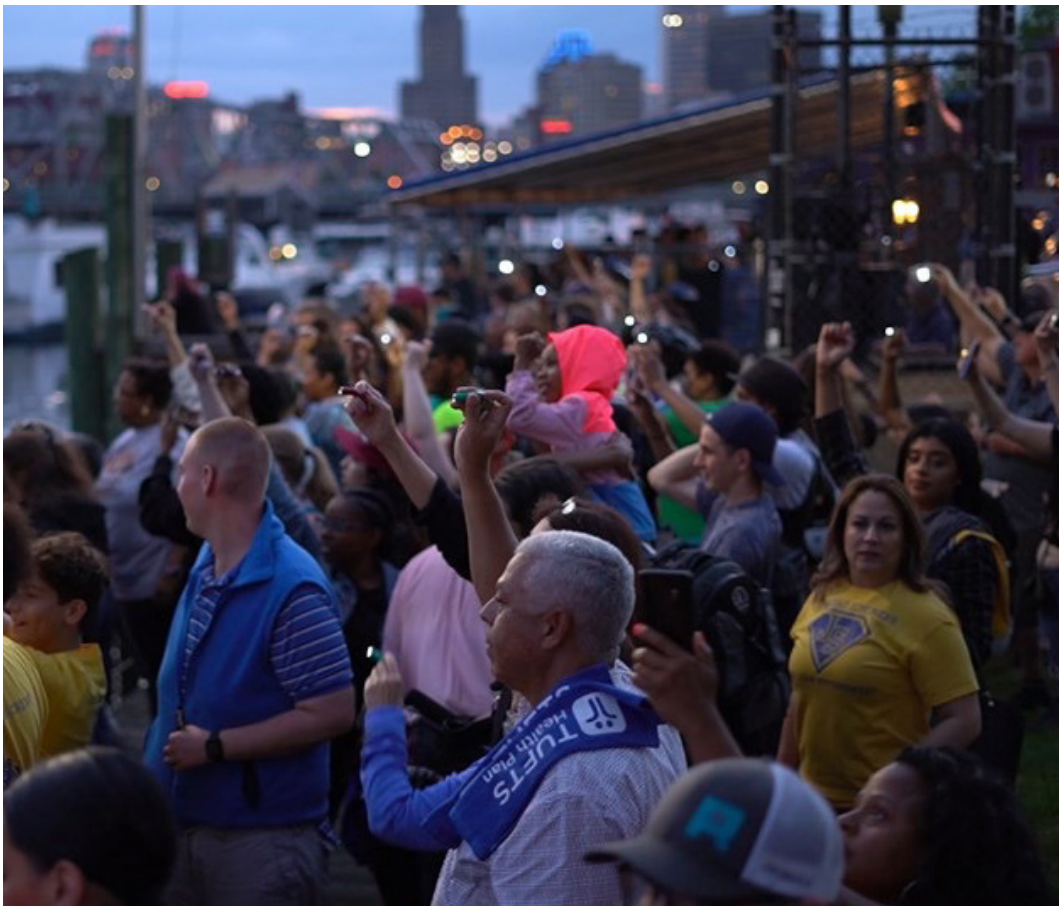
PVD GREAT STREETS



MAYOR JORGE O. ELORZA
CITY OF PROVIDENCE

January 2020

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Letter from the Mayor

Dear Neighbors,

After engaging residents and stakeholders across our city, I am delighted to present Providence's Great Streets Initiative and Urban Trail Network Master Plan (Great Streets)—an actionable roadmap to better connect our residents and neighborhoods. The plan will guide the City's efforts to ensure that every street in Providence is safe, equitable and sustainable. As our city looks towards the future, Great Streets guides the day-to-day work of our City's Departments to ensure the investments we make in our public spaces add value to all residents and make Providence a better-connected city.

Thriving cities are cities that offer choices. This plan builds out our infrastructure goals in a way that provides safe transportation options to residents, visitors and commuters of all physical abilities, economic statuses and ages. During our public outreach, we consistently heard that residents crave the freedom to safely live, work, and travel throughout our city, no matter how they chose to get around. With industry best practices and community priorities leading the way, Providence now has a plan to transform feedback into a vision—policy into action.

I am grateful for the support of our community partners, our talented design consultants and the City staff who shared their passion and expertise throughout the development of this plan. Together, we've already begun to put our pedestrian and mobility goals into motion through City Walk, the Woonasquatucket River Greenway Extension, and the diverse array of upcoming projects that are now funded through the City's Capital Improvement Plan.

We've laid out a bold vision for the future of Providence. I am proud to share this vision with you and look forward to building safer and more equitable streets across our City.

Mayor Jorge O. Elorza


Photo: WRWC

Acknowlegments

Jorge O. Elorza, *Mayor*

Thank you to many City of Providence staff members who contributed their time, input, and expertise to the creation of the Great Streets Master Plan:

Nicole Pollock, *Chief of Staff*

Sabrina Solares-Hand, *Director of Operations*

Bonnie Nickerson, AICP, *Director of Planning and Development*

Martina Haggerty, *Director of Special Projects*

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Craig Hochman, *Deputy Chief Engineer*

Leo Perrotta, *Parking Administrator*

Doug Still, *City Forester*

Ellen Cynar, *Director of Healthy Communities*

Leah Bamberger, *Director of Sustainability*

Gina Rodriguez-Drix, *Cultural Affairs Manager*

Thank you to the community partners and venues who generously hosted community meetings throughout this process:

Grace Church

Southside Cultural Center

William D'Abate Elementary School

Federal Hill House

The Church of the Redeemer

Alan Feinstein Elementary School

The DaVinci Center

Vartan Gregorian Elementary School

West End Community Center

Silver Lake Annex Community Center

Saint Pius V Church

Harry Kizirian Elementary School

Thank you to our consultants:

Toole Design

Nelson\Nygaard Consulting Associates

Valerie J Southern Transportation Consultant LLC

Cogent

Photo: Sam Goater

Information contained in this document is for planning purposes and should not be used for final design of any project. All results, recommendations, and commentary contained herein are based on limited data and information, and on existing conditions that are subject to change.

MAYOR JORGE O. ELORZA
CITY OF PROVIDENCE

PVD GREAT STREETS

Contents

Introduction

The Providence Great Streets Initiative is based on the belief that every street in Providence should be safe, clean, healthy, inclusive, and vibrant. As our largest public asset, covering over 13 percent of Providence's total land area (over 1,500 acres), our streets play a central part in shaping our neighborhoods and impact the way we live, work, play, and move around our city.

Our Vision: Every street in Providence should be safe, clean, healthy, inclusive, and vibrant.

What makes a Great Street?

- Safety for all people
- Clean, green, and sustainable
- Inclusive and welcoming for all
- Vibrant and prosperous

What do Great Streets include?

- Improvements to make walking safer
- Improvements to make riding bicycles safer
- Improvements to make transit safer and more efficient
- Traffic calming improvements to reduce speeding and cut through traffic
- Streetscape and placemaking improvements like lighting, trash and recycling cans, landscaping, pocket parks, and benches
- Creation of a "spine" network of Urban Trails that connect every Providence neighborhood

What does this plan do?

The Great Streets Master Plan establishes a vision and framework for specific public realm improvements citywide that will ultimately connect every Providence neighborhood to a safe, comfortable, high-quality network of public improvements where residents and visitors can walk, run, bike, scoot, and skate to get to schools, jobs, parks, and other important destinations.

Goals

- Improve traffic safety and personal safety by bringing more order to the public realm.
- Ensure our public realm is clean and well-maintained.
- Connect every neighborhood in the city with low-stress, high-comfort facilities for people of all ages and abilities to walk, run, bike, scoot, and skate along.
- Increase opportunities for gathering, socializing, playing, and creating.
- Celebrate the diverse character of the City's neighborhoods, art, and cultures within the public realm.
- Provide equitable access that meets the needs and desires of all neighborhoods.
- Lower greenhouse gas emissions.
- Reduce stormwater runoff and flooding.

All streets can be Great Streets.

A lot goes into a street being great, and it's hard to summarize all of that in a few categories. That's why in a few places in this plan you'll see "walkability improvements," "other Great Streets project," or "intersection improvements." All of these include improvements to make it safer and more comfortable for people to cross or walk along streets, but may also include slowing down traffic where speeding is an issue, improving aesthetics with street trees, landscaping, lighting, or other streetscape improvements that will be further explored with community members. The inclusion of these projects is based on community feedback, crash history, and other data.

Providence Urban Trail Network

Providence's Urban Trail Network will connect every neighborhood with high-quality routes for people walking, riding bicycles, accessing transit, or using shared micromobility options, like scooters and e-bikes, with a goal that residents and visitors can safely and comfortably travel to schools, jobs, and other important destinations like parks, libraries, and museums. The Urban Trail Network will also seamlessly and comfortably connect Providence residents to regional trails and paths, including the East Bay Bike Path, Blackstone Bike Path, Woonasquatucket River Greenway Bike Path, and Washington Secondary Trail.

What are Urban Trails?

Urban Trails are on- or off-street paths that are safe, comfortable, and easily accessible for people of all ages and abilities. On busy streets, Urban Trails are fully separated from vehicle traffic. In other instances, off-road trails and paths like the Blackstone Bike Path and Woonasquatucket River Greenway serve as part of the Urban Trail Network. On smaller neighborhood streets, Urban Trails take the form of "neighborhood greenways" – where a combination of traffic calming and wayfinding provide a consistent, easy to understand, high-comfort experience for people using the trail.

The Urban Trail Network needs to be connected to work well, just like streets that we drive cars on need to be connected to work. Using the Urban Trail Network, people will be able to access destinations using active modes without having to traverse high-stress segments or intersections. The Network will be intuitive to use and easy to navigate through the use of consistent design elements and branded wayfinding signage.

Types of Urban Trails

- Fully separated from motor vehicles
- Neighborhood Greenways
- Off-road bike path or trail

Qualities of Urban Trails

- Easily identified and understood
- Connect to the rest of the Urban Trail Network

Some streets have existing bike lanes that do not meet the Urban Trail threshold. Streets with existing bike lanes that are proposed for Urban Trails have an "Upgrade Due" label in this plan.

How the Plan Was Developed

Intersection improvements

Recommendations for intersection improvements include intersections with a history of numerous crashes, intersections repeatedly mentioned by community members as needing improvements, unusually wide intersections, intersections with a complex or confusing layout, and key crossing locations for the Urban Trail Network.

Intersections included in the plan were refined based on data analysis, stakeholder input, and comments collected from the neighborhood workshops.

Improvement strategies include, but are not limited to:

- Crossing improvements
- Lane configuration modifications
- Urban Trail crossings (priority treatment based on context)
- Lighting improvements at crossings
- Placemaking and public art opportunities

Certain improvement types should be considered universal for intersection improvement projects, such as ADA/accessibility, signage, pavement marking, and signal upgrades as needed to meet design standards.

An intersection crash cluster is an intersection with at least six reported traffic crashes involving vulnerable users (people walking or riding bicycles) between 2009-17.

Traffic calming

This plan recommends a new approach to traffic calming in Providence: implement traffic calming in small areas, or zones, within neighborhoods instead of on individual streets. A zone-based traffic calming program allows groups of streets within neighborhoods to be comprehensively evaluated for traffic calming. The resulting implementation would strategically occur on several streets, to prevent higher-speed traffic being pushed to adjacent streets from traffic-calmed streets. The Recommendations section suggests that the City should establish a process to evaluate zones proposed by neighborhoods for traffic calming. Candidate traffic calming zones are included for each neighborhood group below, but this should not limit traffic calming implementation on other streets if warranted. Refer to the Assessment of Regulations, Programs, and Policies section of this document for more detailed recommendations.

Streetscape improvements

Streetscape improvements include physical changes to improve walkability, transportation amenities, aesthetics, or green infrastructure. The Implementation Guide serves as the primary reference for integrating such improvements into existing projects where possible or when necessary creating standalone projects.

Network planning principles

1. To achieve a robust network that reaches all Providence neighborhoods, the target minimum spacing between Urban Trail Network links is ½ mile.
2. The Network will connect all Providence neighborhoods and provide access to major destinations throughout the city including job centers, schools, parks, libraries, museums, and other civic amenities.
3. The Network will connect to the regional trail system, including the Woonasquatucket River Greenway, Washington Secondary Trail, Blackstone River Bikeway, and East Bay Bike Path.
4. The Network should be direct and minimize detours.
    a. Note: Direct routes in Providence are generally Commercial Streets, Neighborhood Collector Streets, and other corridors that serve travel between neighborhoods or extend outside of the city. Moderate detours may be used to address barriers when the most direct routes are not feasible. Research on route choice and ridership indicates that a detour should not exceed a 30 percent increase in distance over the most direct route.
5. Where two or more parallel routes may feasibly accommodate an Urban Trail, preference will be given to corridors with more amentities (e.g. businesses, parks) for trail users.

Table 1. Network building blocks and references

Public Input	Public comments at community meetings
	Public comments via online mapper
Existing conditions research	Data analysis
	Feasibility
	Equity, safety, and connectivity
Bicycle and Pedestrian Advisory Commission (BPAC)	Route suggestions for the Great Streets Plan
	Previous staff reports and committee recommendations
Planning documents and processes	State Bicycle Mobility Plan candidate routes
	Previous plans
	Traffic calming requests
Current Urban Trail Network	In-progress
	Existing

Segment/link design principles

1. The basic design principles for every type of street in the City are laid out in the Implementation Guide. Whenever road work happens in Providence, rather than replacing as-is, improvements should be made to bring the street closer to the principles in the Guide.
2. The Urban Trail Network shall provide a consistent experience and level of comfort not to exceed Bicycle Level of Traffic Stress 1 (lowest stress) and the maximum allowable level is Bicycle LTS 2.
3. The Urban Trail Network shall consist of a range of facility types—including physically separated lanes on busy streets, shared use paths in their own rights-of-way, curb-separated paths on the side of the road, and lower-volume, traffic-calmed streets (neighborhood greenways)—depending upon context.
4. Connections and transitions between network links shall be seamless and intuitive with identifying elements that link together different segments of the network.

Bicycle Level of Traffic Stress (LTS) is a rating of streets and roads from 1 to 4 that estimates the comfort level people feel while riding bicycles down the street. The rating takes into account characteristics such as posted speed limit, the type of bike facility, travel lane width, and the presence of on-street parking. LTS 1 represents the lowest stress rating and LTS 4 represents the highest.

Route feasibility

1. Routes should be feasible, at least over the long term. A separate prioritization process will recommend shorter-term priorities. Many factors inform the feasibility of a route, but basic considerations of feasibility include topography, environmental constraints, regulatory constraints, design standards, and available right-of-way.
2. Preference shall be given to designs that can be implemented with minimal modifications to the roadway.
3. Where traffic conditions indicate the need for separated facilities, the following shall be the ranked order of preferred actions to provide necessary space for an Urban Trail:
   a. Narrow existing lane widths
   b. Remove travel lane (on multi-lane streets)
   c. Remove parking lane
   d. Modify curb line/construction project
   e. Alternative route
4. While no one factor determines the suitability of a neighborhood greenway treatment, considerations for neighborhood greenway treatments include:
   a. Street generally has a functional classification of collector or local
   b. Street is low-volume (3,000 ADT or less), or a target low volume can be reasonably achieved with the neighborhood greenway treatment
   c. Target post-project motor vehicle operating speed is a maximum of 20 mph
   d. Street has seen a formal traffic calming request from community members
   e. Due to the width of the street, separation is not feasible or practical after evaluating the above preferred actions
   f. Based on context, need, and neighborhood priorities, neighborhood greenway recommendations may incorporate other components in addition to traffic calming, including basic sidewalk improvements, landscaping, stormwater management, lighting, and art.

Public Input

In Spring 2019, the City of Providence hosted 12 neighborhood meetings to gather input on Great Streets improvements during which we collected over 275 mapped comments from more than 180 attendees about topics ranging from traffic calming to street lighting to bike lanes. Attendees provided input by adding green and red “like/dislike” stickers to neighborhood and citywide maps.

Comments and ideas gathered at the neighborhood meetings were then translated into draft recommendations for projects. From early May to mid-June, those projects were presented to the public in an online interactive map, where community members could vote on project ideas and provide additional mapped comments.

The neighborhood meeting materials, presentation, and online map were presented in a bilingual (English and Spanish) format.

The result is a plan closely shaped by the community.

Neighborhood meeting summary

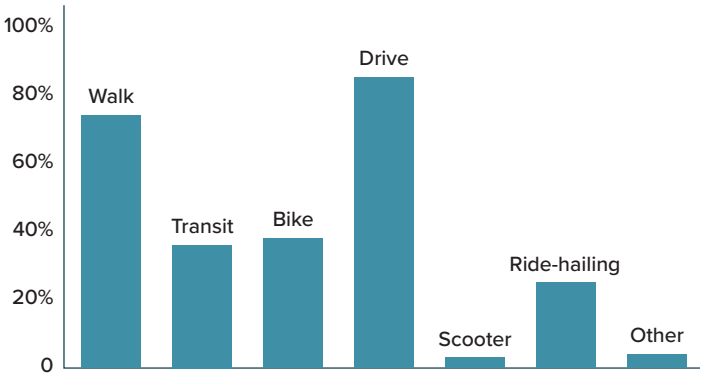
181 Attendees

275 Mapped Comments

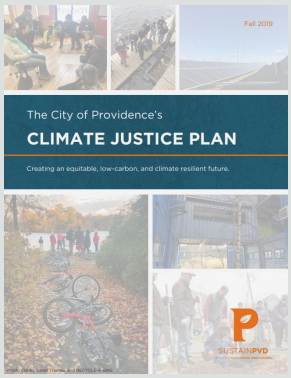
>500 Like/Dislike Stickers on the Citywide Map

How do you travel around Providence? (check all that apply)

Figure 1. Modes Used by Community Meeting Attendees



Coordination spotlight: Climate Justice Plan



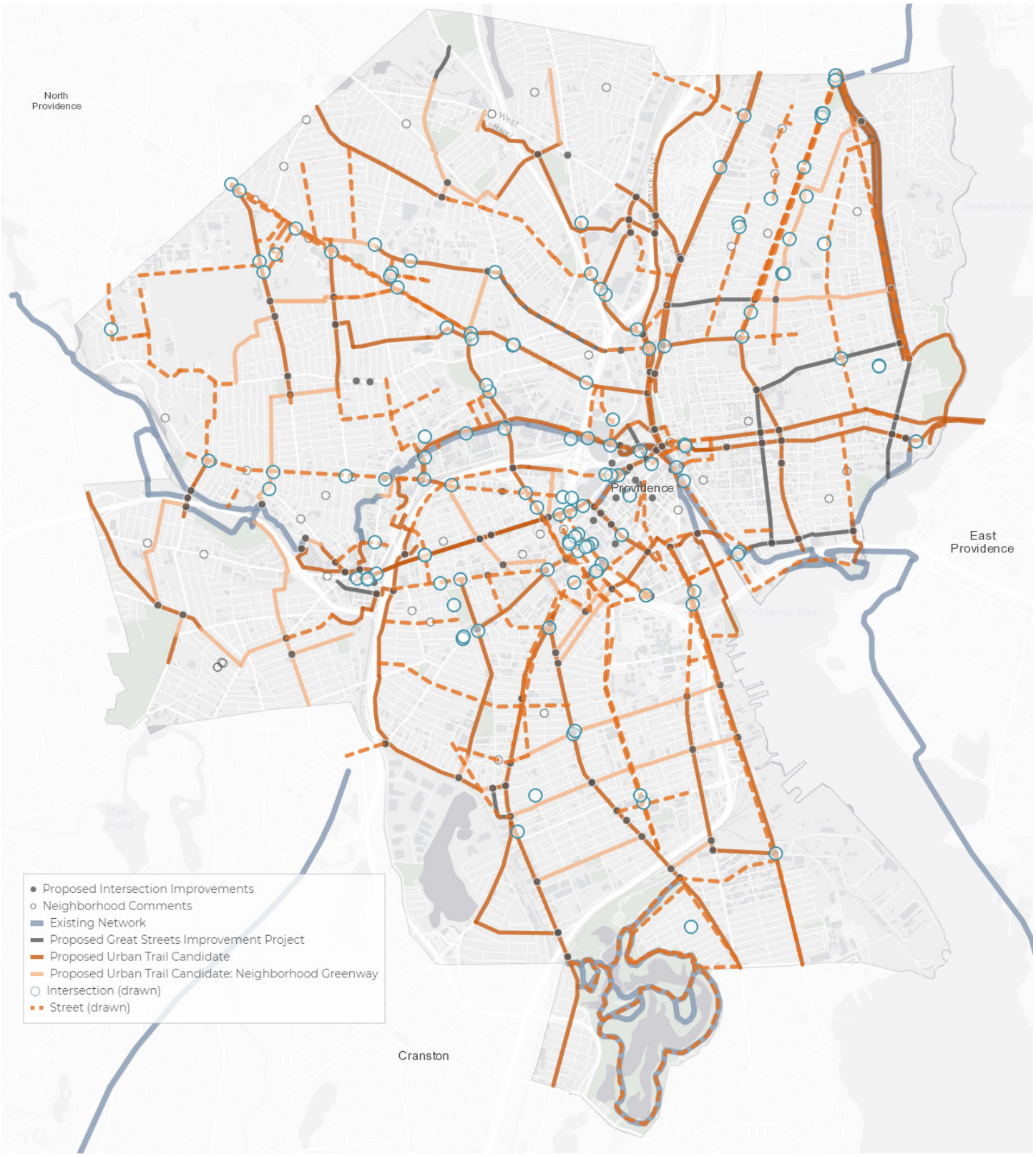
A parallel plan produced in 2019 by the Providence Racial and Environmental Justice Commission and the Office of Sustainability, the Climate Justice Plan featured a nationally-recognized public engagement process and its transportation section complements the Great Streets Plan.

Climate Justice Plan Transportation Targets:

- *By 2035, reduce Vehicle Miles Traveled (VMTs) by 11% and by 2050, reduce VMTs by 20%.*
- *By 2035, 43% of VMTs are electric and by 2050, 80% of VMTs are electric.*
- *By 2035, increase the number of employers in Providence offering RIPTA's EcoPass to their employees from 50 to 200.*
- *Increase trips taken using JUMP Boost plan subscriptions to 10%.*
- *Increase public transit ridership in Providence.*
- *Reduce diesel truck traffic in frontline communities.*
- *Increase low-carbon transit options in frontline communities.*
- *Increase sidewalk maintenance and investment in frontline communities.*

Online map public input summary

This map was generated based on the draft June 2019 urban trail network map, on top of which community members proposed additional routes and intersections by drawing on the map.



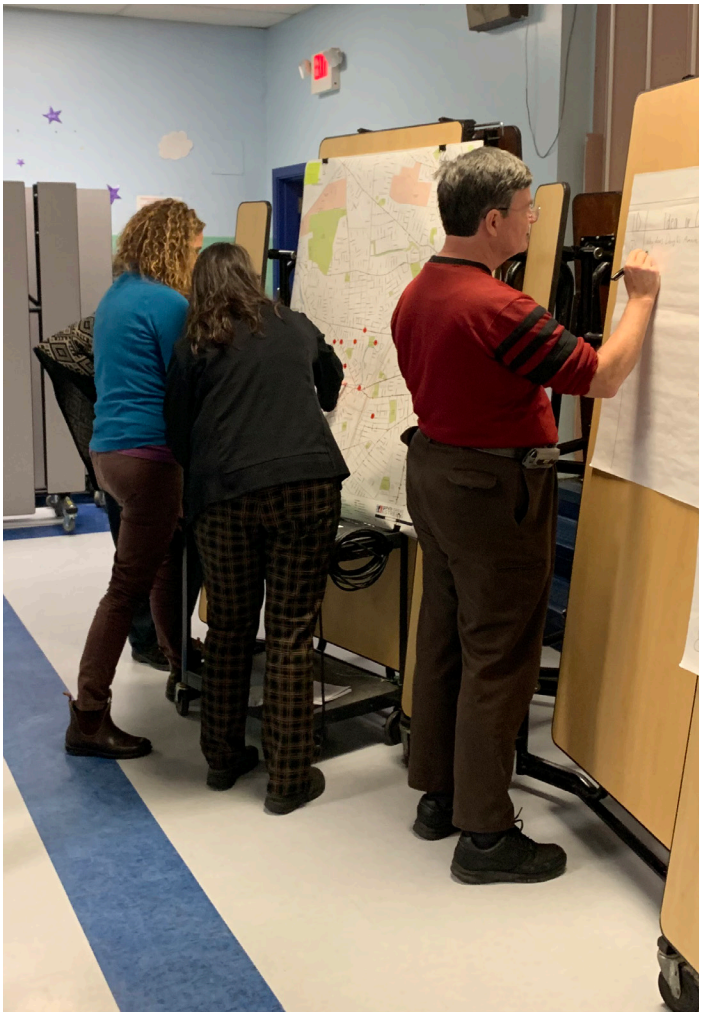
What we heard

"Lots of pedestrians crossing to church. Better crosswalk needed."
(Charles Street at Hawkins Street, Charles)

"Speeding, cut through traffic, parking on sidewalk, [happens a lot on this street], stop sign ignored."
(Windmill Street, Charles)

"Crosswalk is long. Cars accelerate uphill – dangerous for crossing pedestrians. There are blind spots as well."
(Benefit Street at Benevolent Street, College Hill)

"Unsafe pedestrian crossing; all double lanes. Pedestrians must run across."
(I-95 ramps at Point Street, Downtown)



"Like protected lane, but should be longer and more protected with planters, and [highlighted with] green bike lane paint."
(Fountain Street, Downtown)

"Traffic interferes with usability of the park [Columbus Square]."
(Elmwood Avenue at Reservoir Avenue, Elmwood/Reservoir)

"Difficult vehicle turns, and large intersections makes it difficult for pedestrians to cross."
(Atwells Avenue at Dean Street, Federal Hill)

"Vehicles speed along Knight, and with two way traffic and cars parked on one side, it's dangerous for pedestrians. Consider making it one-way southbound with dedicated parking on one side and a posted lower speed limit."
(Knight Street at Grant Street, Federal Hill)

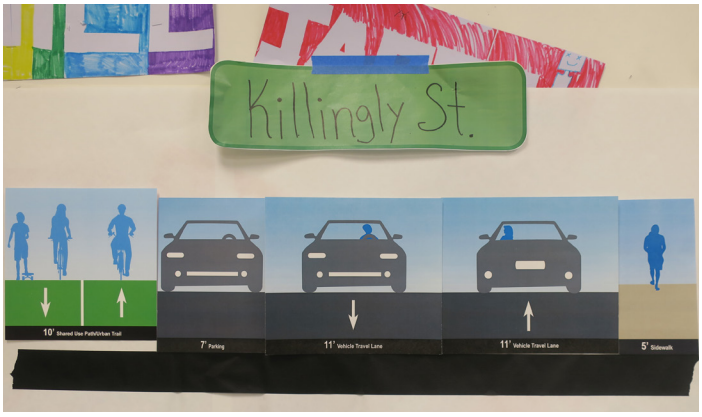
"Hard to cross; fast traffic."
(Gano Street, Fox Point)

"Need a new bridge across the river to Hartford Ave."
(Hartford)

"Complicated/indirect [pedestrian] crossing."
(Hope Street at Blackstone Boulevard, Hope)

"Congestion, people driving run red lights"
(Eddy Street at Thurbers Avenue, Lower South Providence)

"Eliminate the slip lane at Olney + N. Main. It is dangerous to pedestrians."
(Mount Hope)



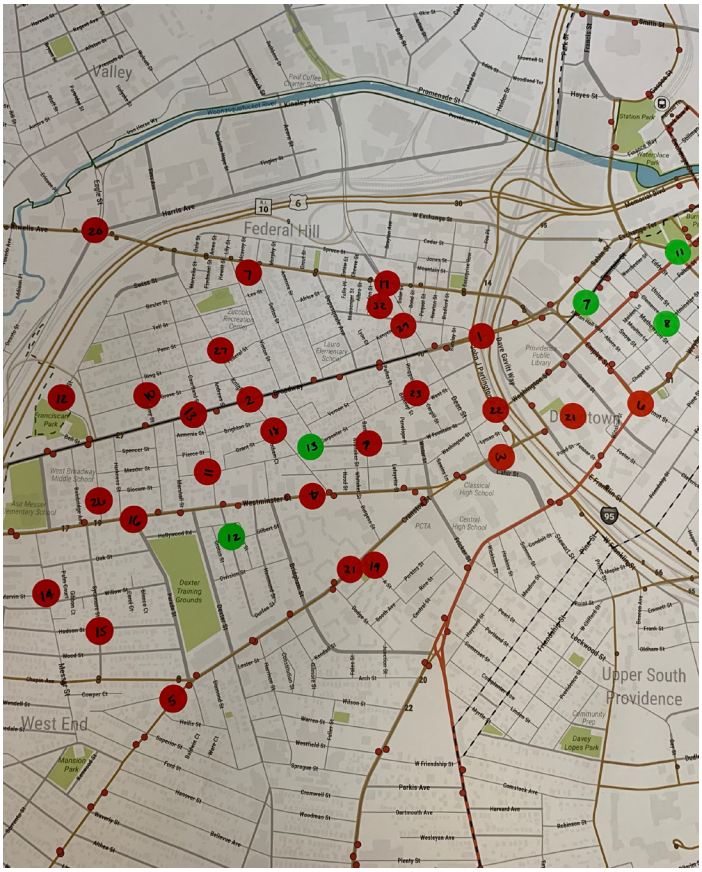
"Speeding issues on Mt Pleasant [Avenue]."
(Mount Pleasant Avenue at Old Road, Mount Pleasant)

"Need crosswalk from parking lot to post office building."
(Hartford Avenue at Atwood Street, Olneyville)

"Add raised crosswalk to park or speed bumps to reduce travel speeds."
(Woonasquatucket River Greenway at Aleppo Street, Olneyville)

"Fear of being hit by a car, bad visibility, use of Ruggles as cut-through, speeding"
(Smith Street at Ruggles Street, Smith Hill)

"Speed limit does not equal design speed. Streets too wide."
(Roger Williams Park, South Elmwood)



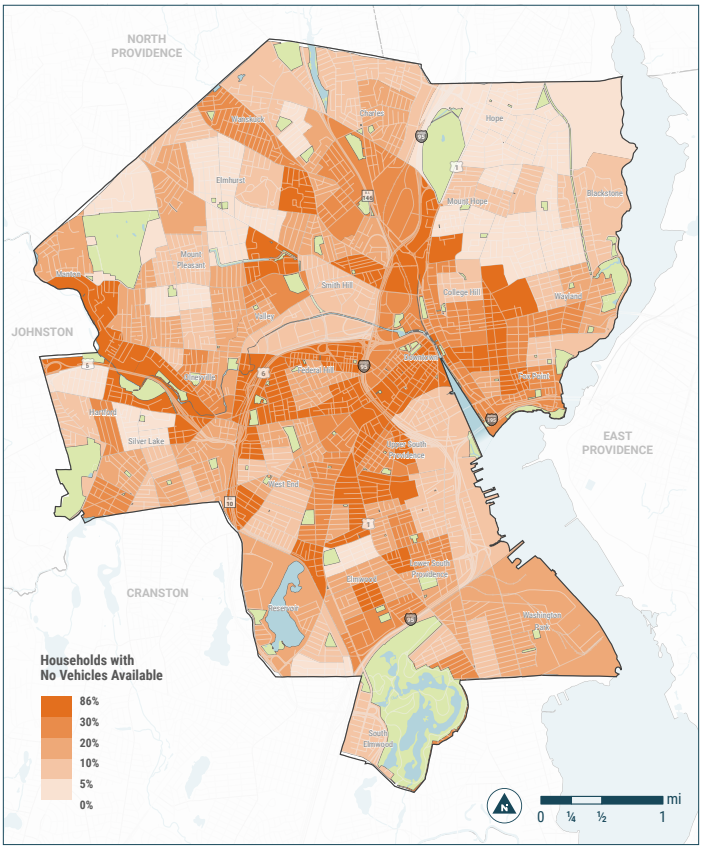
"So congested! Very narrow bridge @ Wanskuck building. People pass through here to detour. Makes it hard to pass through on a bike because it's so congested."
(Branch Avenue at Woodward Road, Wanskuck)

"Burns St is one way, but stop bar @ stop signs only goes half way across street – makes it appear 2 way and encourages wrong way driving."
(Burns Street, Wanskuck)

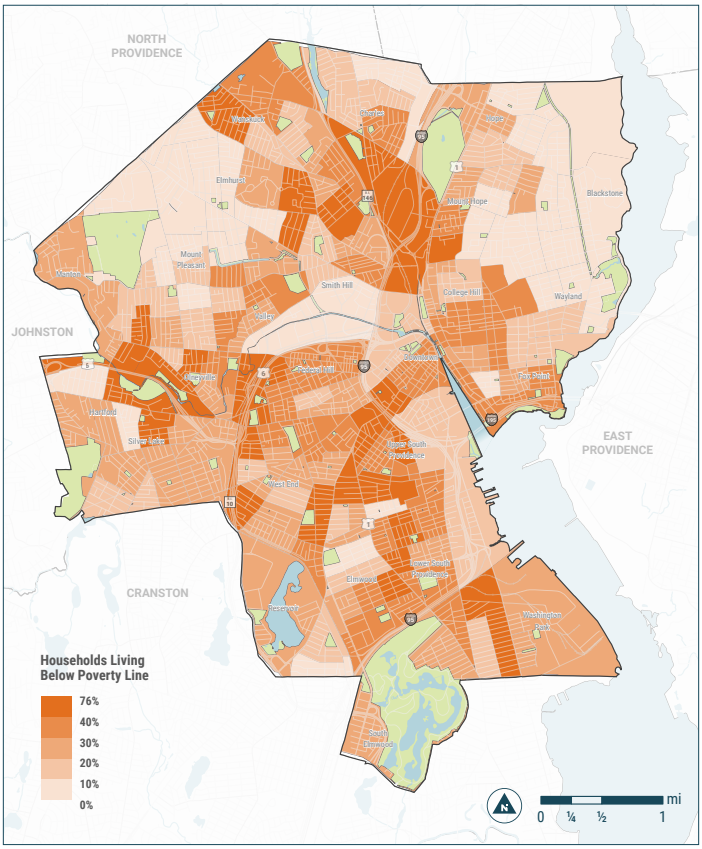
"Too fast – too wide. People don't obey 35 mph speed limit, which is also too high. High traffic volumes. Lots of trucks. Poor lighting. Not safe at night. Dirty."
(Allens Avenue at Chapman Street, Washington Park)

Existing Conditions

Household Vehicle Availability

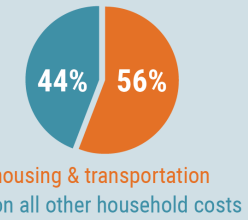


Household Poverty



- Nearly 20 percent of households do not have a personal car available. This percentage is even higher in Olneyville, Upper South Providence, and Hartford, where 42, 40, and 39 percent of households, respectively, do not have a car available.
- JUMP is contracted to provide electric pedal-assist bicycles for use across the city.
- The City's E-Scooter Share Program issues permits for companies to operate shared e-scooters ciywide.
- There are approximately 11.2 centerline miles of existing Urban Trails and 6.6 centerline miles of existing bike lanes in Providence. This includes facilities in Roger Williams Park as part of the existing Urban Trail network.
- While over 10 percent of Providence residents currently walk to work, and 1 percent ride a bicycle as their primary mode of travel to work, almost two-thirds drive alone. The percentage of people who do not drive to work is significantly higher in College Hill, Fox Point, and Wayland, where 69, 64, and 55 percent of commuters, respectively, do not drive to work.

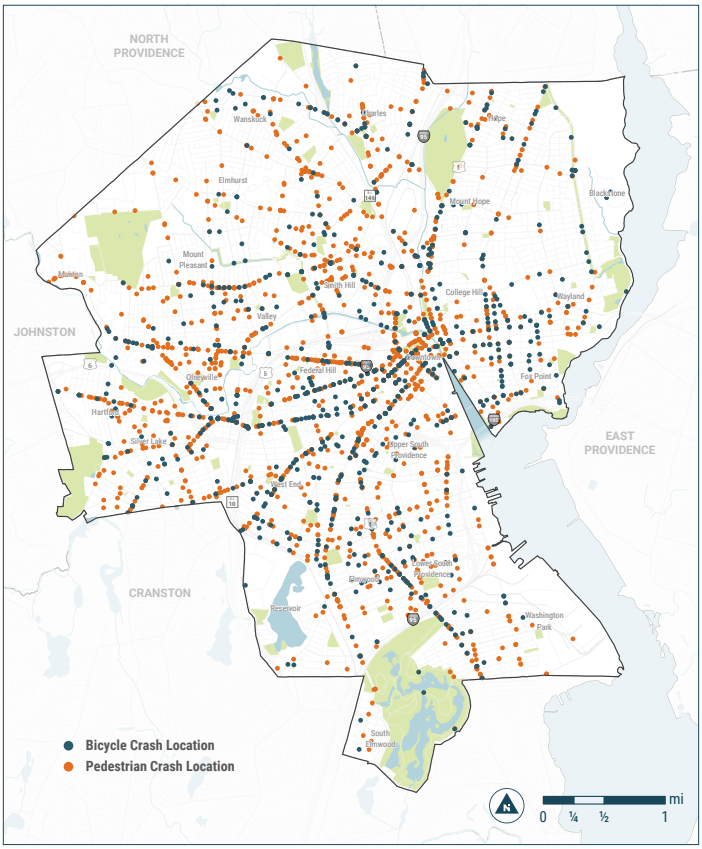
Providence households spend **56%** of their income on housing & transportation
(More than 45% is considered unaffordable)



30% of all citywide emissions **come from vehicles**

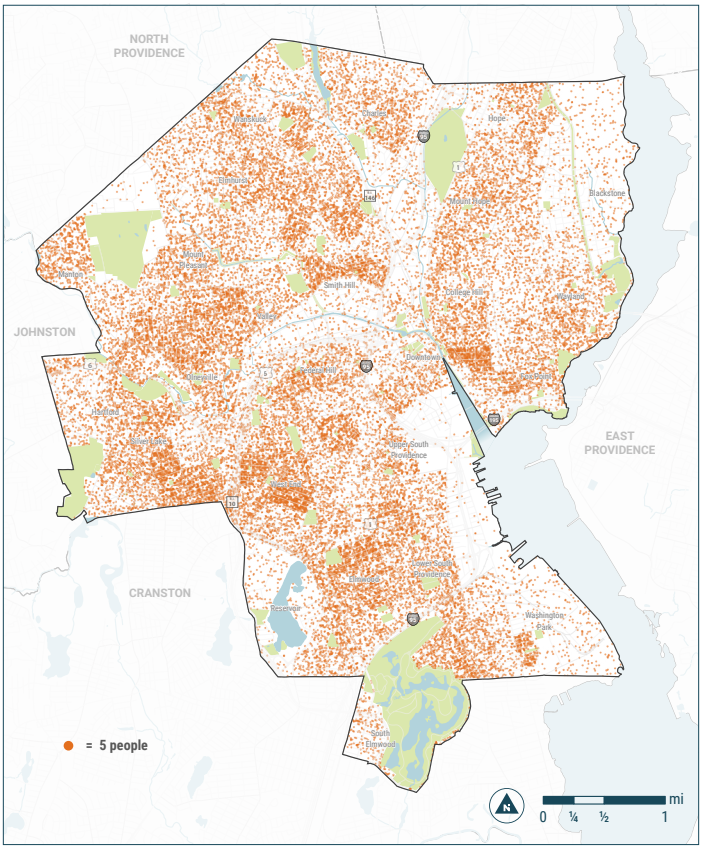
1st Providence County is the **most polluted** county in New England

Crashes Involving People Walking and Bicycling (2009-17)



- Every year, on average, from 2009 to 2017, over 150 people walking and over 60 people riding bicycles were hit by cars in Providence.

Population Density

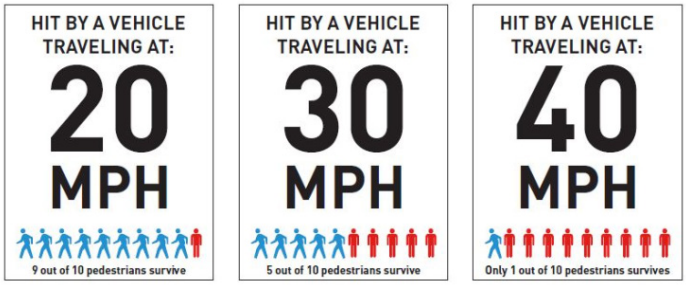


- Providence's compact size and population density (over 9,000 people per square mile) makes it easy to walk, ride a bicycle, and use other micromobility options to get around.
- The average Providence household creates over 18,000 vehicle miles traveled (VMT) per year, which contributes to traffic congestion, noise, physical inactivity, and more than 500,000 tons of carbon dioxide equivalent (CO_2e) emissions from transportation and mobile sources each year.

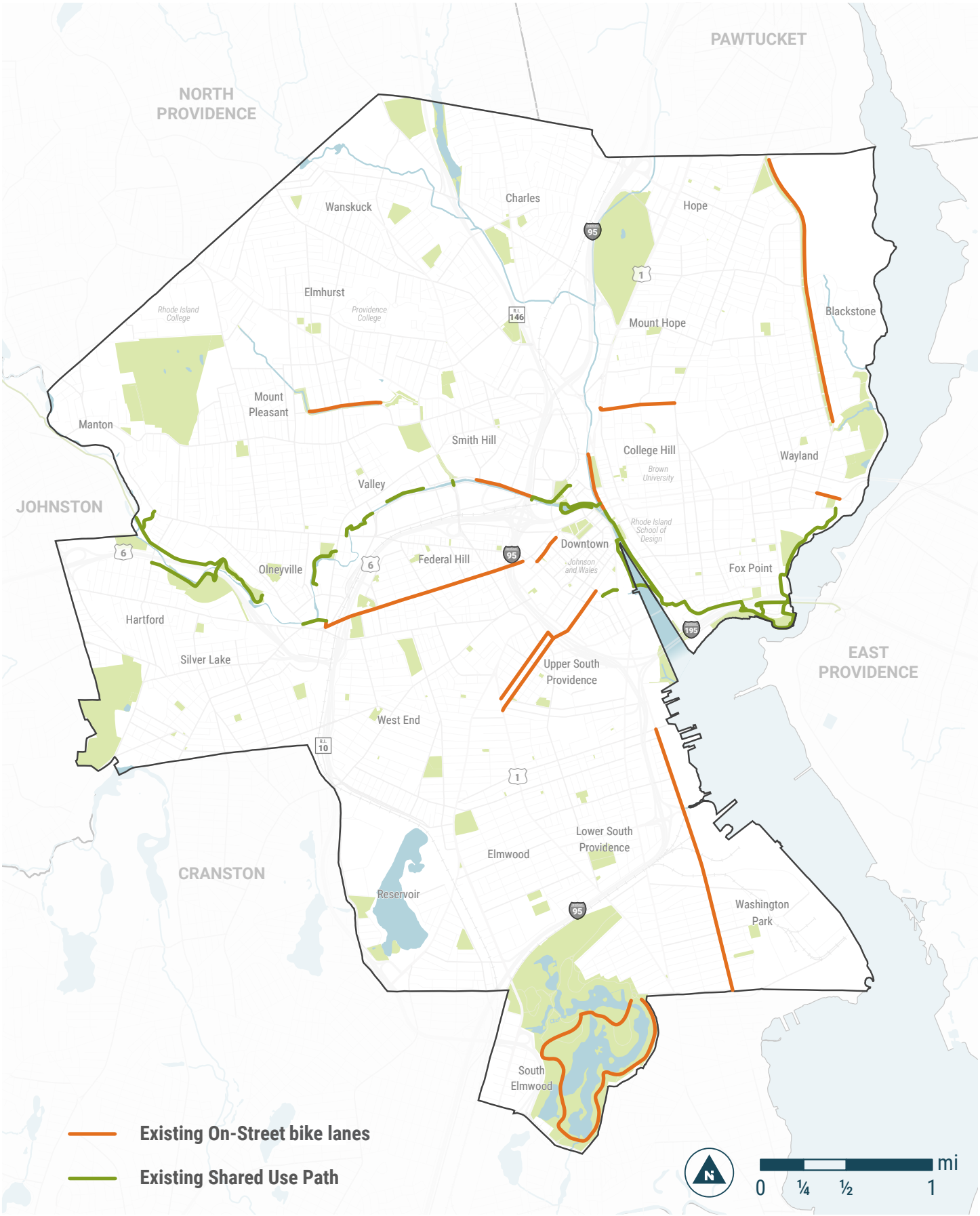
Lower speeds = fewer roadway fatalities

Slower driving speeds increase the chance that drivers will see people walking or biking in time to stop and avoid injuring them. A large body of national and international research shows that even small changes in driving speeds can significantly reduce fatalities and injuries. Lowering speed limits is a good idea, but most people pick a speed based on the street configuration and the speed of other cars around them regardless of the speed limit. That's why we need to design our streets for people not just cars to create a city that is safe for everyone.

Graphic: Seattle Vision Zero plan, Data: NACTO



Existing Network



People For Bikes Bike Network Analysis

National nonprofit People For Bikes created the Bicycle Network Analysis tool to help communities measure the quality of our low-stress bike networks. It assesses the degree to which people can comfortably bike to the places they want to go. The below is the result of the analysis for Providence.

Providence, RI | CITY SCORECARD

placesforbikes

2019 OVERALL SCORE

3.0 ★★★☆☆

The overall score is based on Ridership, Safety, Network, Reach and Acceleration. It includes publicly available data and data gathered from our Community Survey, City Snapshot, and Bike Network Analysis.

RIDERSHIP

Measures how many people are riding.

1.8 ★☆☆☆☆

Bicycle commuting	0.3
Recreational bike riding	2.8
Perceptions of bike use	2.7

SAFETY

Measures how safe it is and feels to ride a bike.

2.1 ★★☆☆☆

All mode fatalities and injuries	1.5
Bicycle fatalities and injuries	2.5
Perceptions of safety	2.3

NETWORK

Measures how well the bike network connects people to destinations.

2.1 ★★☆☆☆

Bicycle Network Analysis (BNA)	2.0
Perceptions of network quality	2.5

REACH

Measures how well the bike network serves everyone equally.

2.1 ★★☆☆☆

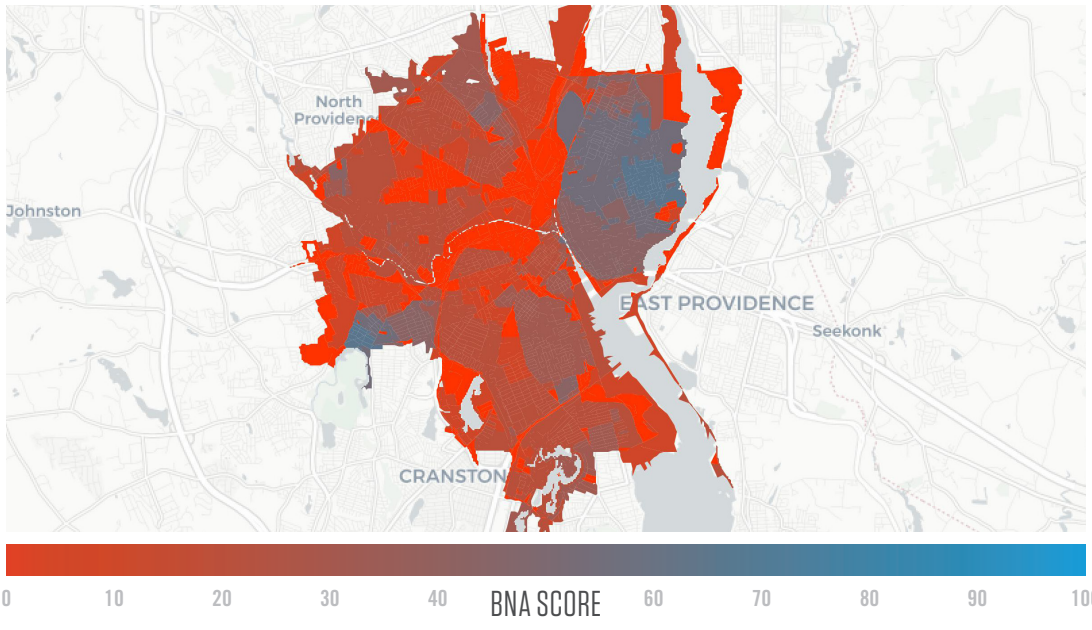
Demographic gap in BNA	1.7
Bicycle commuting rates by gender	3.1

ACCELERATION

Measures the city's commitment to growing bicycling quickly.

4.3 ★★★★☆

Growth in bike facilities and events	4.7
Perceptions of progress	2.7



More information at https://bna.peopleforbikes.org/

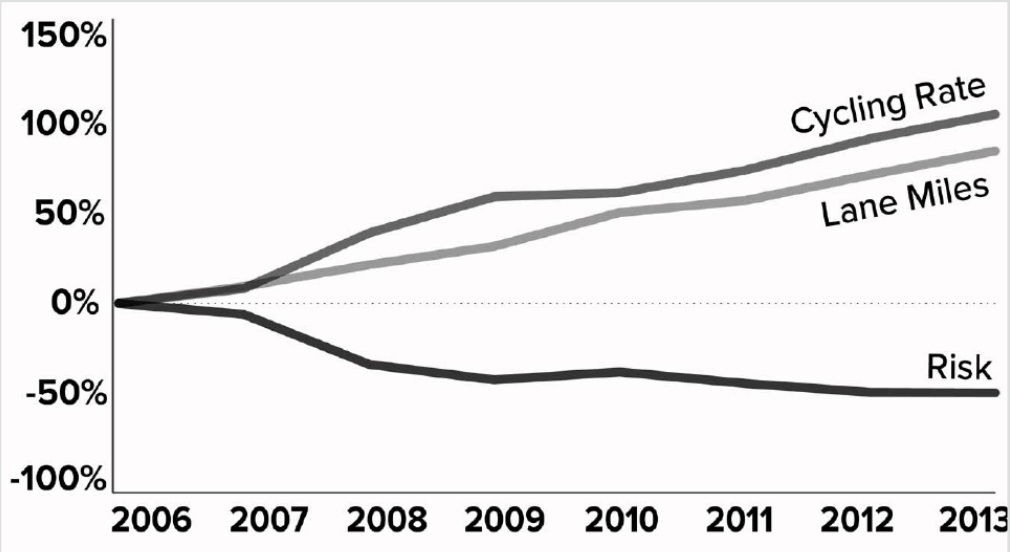
Citywide Urban Trail Network

A central principle of the Providence Great Streets Master Plan is to connect every neighborhood to a complete and intuitive Urban Trail Network. The Urban Trail Network proposed within this Master Plan comprises:

- Over 150 projects along corridors
- Over 300 intersections prioritized for improvements. Other neighborhood comments are embedded in Urban Trail projects to mark important intersections to be addressed in project development.
- 78 miles of new projects (43 miles of new separated on-street or off-street/shared use path Urban Trails, 22 miles of new neighborhood greenways, 6 miles of walkability projects, and 6 miles of upgrades to existing bike lanes and shared use paths to improve conditions for people walking, cycling, and using micromobility)

The proposed Urban Trail Network touches every part of Providence, bringing 93 percent of residents and 93 percent of jobs within easy walking distance. The Urban Trail Network:

- Connects 166,792 Providence residents living within ¼-mile of the proposed network (compared to 36,452 living within ¼-mile of the existing network), resulting in a 458 percent increase in the number living within easy walking distance of the Urban Trail Network
- Connects 99,324 people who work within ¼-mile of the proposed network (compared to 38,596 working within ¼-mile of the existing network), resulting in a 257 percent increase in the number of people working within easy walking distance of the Urban Trail Network



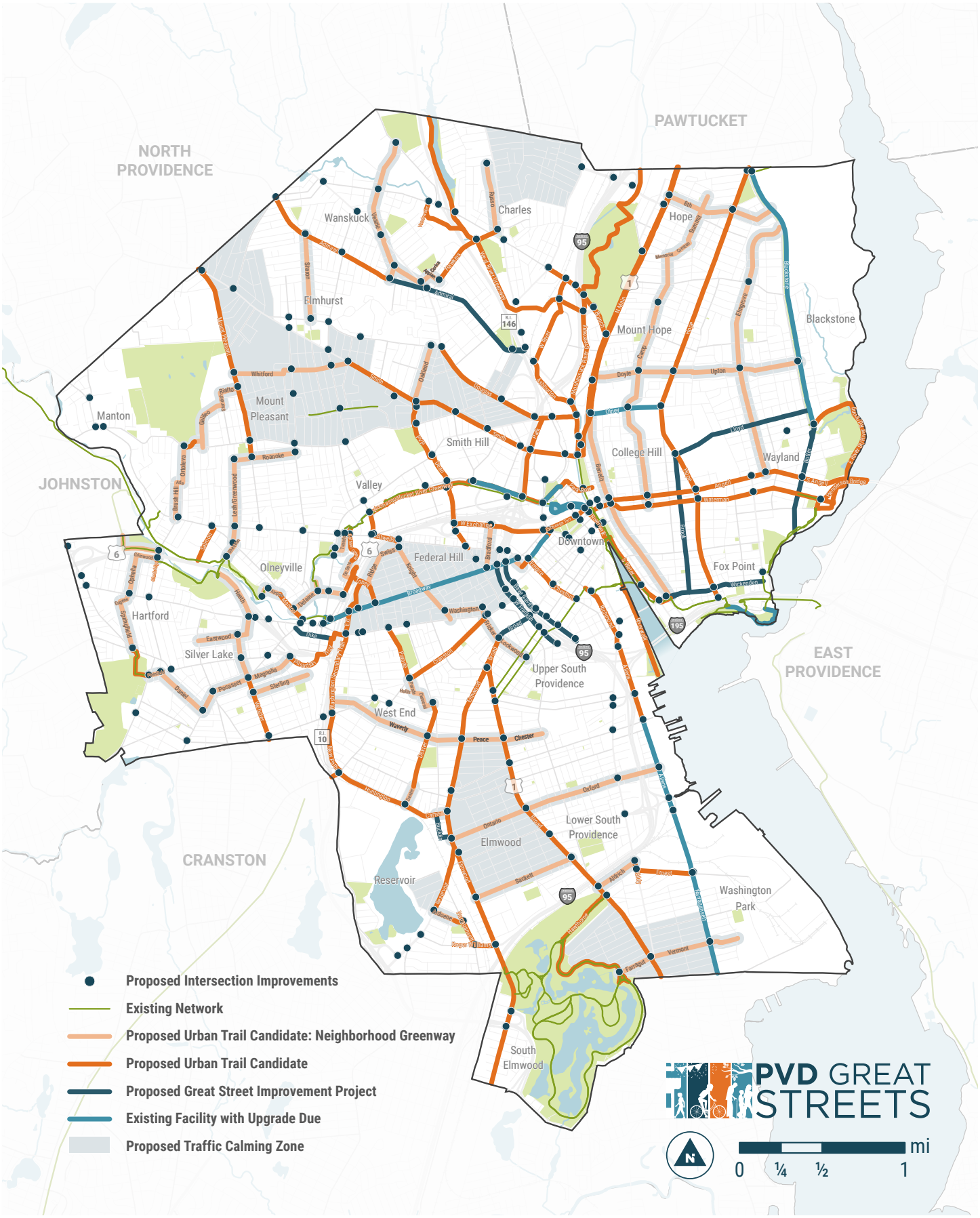
Aggregate data from Portland, New York City, Chicago, San Francisco, and Philadelphia

Source: NACTO

Urban Trails reduce risk of bicycling

Data compiled by the National Association of City Transportation Officials and visualized above shows a clear correlation between lane-miles of urban trails and safety. While helmets often dominate the discourse about bicycling safety, and crash data is often presented without context, this analysis shows that more urban trails get more people biking, and when more people are biking, everybody's safety improves. In order to improve the safety of our neighbors who already bike, and to give another option for safely getting around our city to more people, this plan calls for connecting every neighborhood to the Urban Trail Network.

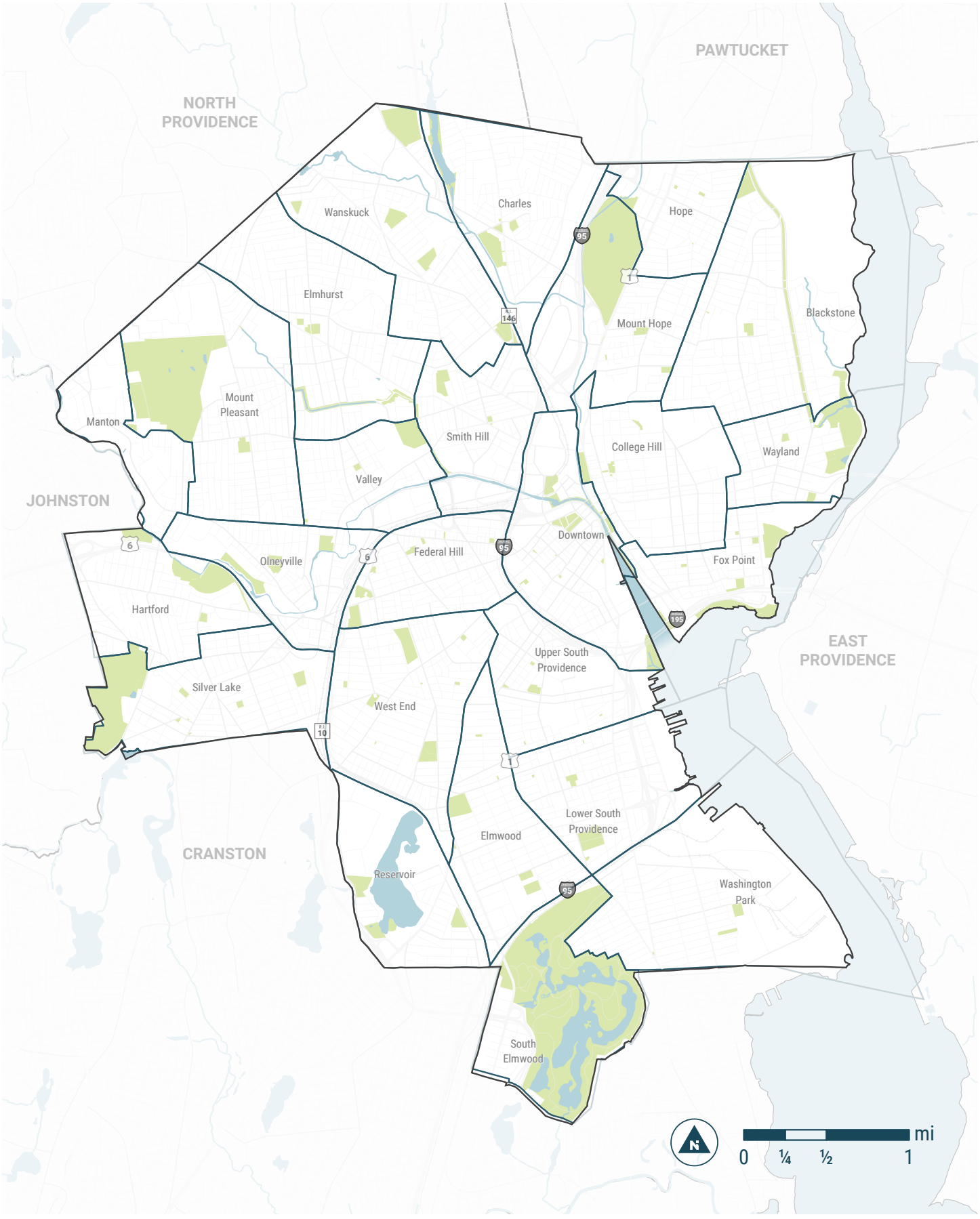
Proposed Citywide Urban Trail Network



Neighborhood Visions

It should be safe, intuitive, and easy for residents and visitors to get around every neighborhood in Providence. Recommended improvements in each neighborhood include investments that build toward the community's vision for Great Streets that are safe, clean, healthy, inclusive, and vibrant. During the 12 neighborhood meetings held throughout March and April 2019, community members provided 275 mapped comments, as well as other general feedback, which informed these neighborhood visions. Many ideas and comments have been translated into specific improvement projects. Other comments that were outside of the purview of the Great Streets Master Plan have been catalogued in Appendix B.

Providence Neighborhoods



Blackstone

Key Urban Trail Recommendations

Create north-south Urban Trails on Hope Street and Blackstone Boulevard. Address north-south connectivity for people walking, riding bicycles, and using other micromobility options on these three corridors, while responding to each of the their contexts with different conceptual designs.

- *Hope Street:* Hope Street is a major north-south route. It is a primarily residential street with commercial nodes at Rochambeau Avenue, Ninth Street, and Blackstone Boulevard. Continuing the Urban Trail on Hope Street north of College Hill was one of the most frequently-made suggestions from public comments on the Draft Urban Trail Network.
- *Blackstone Boulevard:* Blackstone Boulevard is a key segment on the Statewide Bicycle System and East Coast Greenway. It already provides space for people to walk via the boulevard and ride bicycles via conventional striped bike lanes. The plan envisions minor upgrades to the bike lanes to better buffer and separate them from the adjacent travel lane.

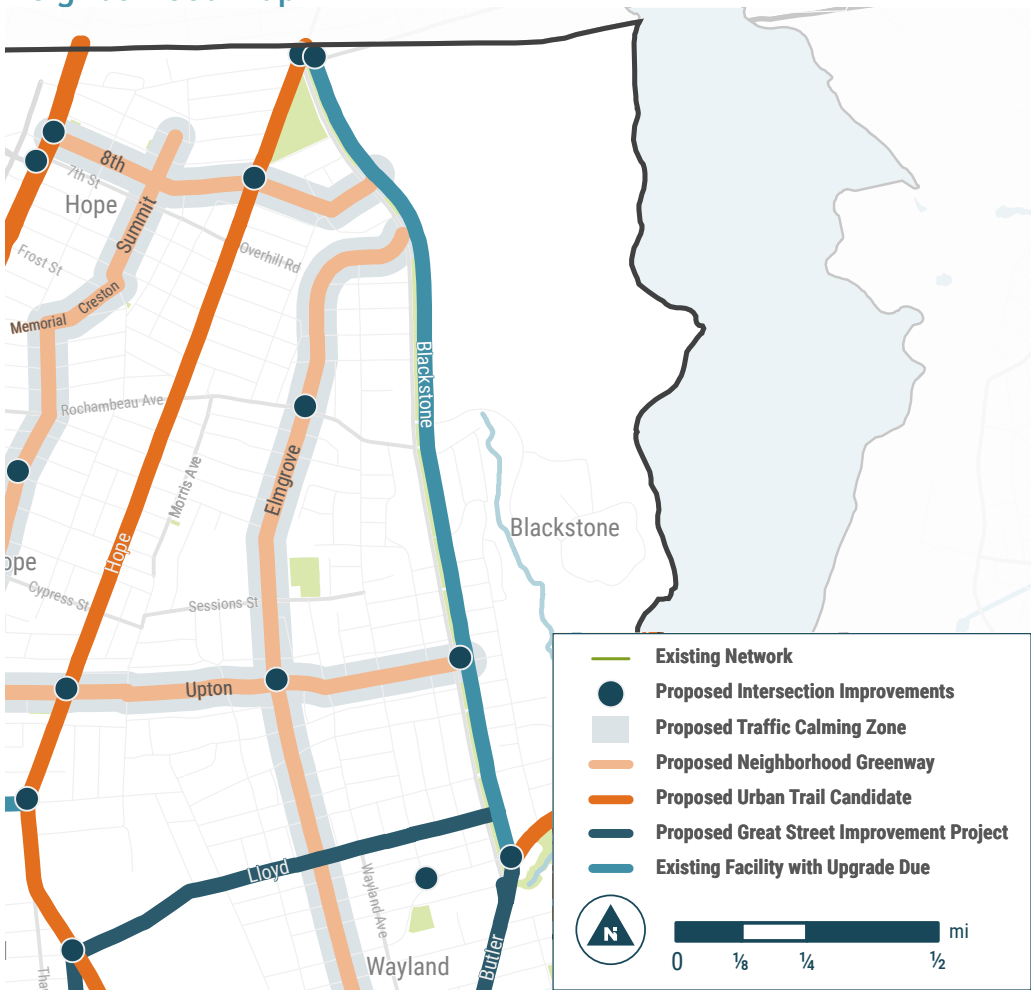
Create neighborhood greenways for greater network density. A neighborhood greenway on Elmgrove Avenue would supplement the connectivity provided by the north-south Urban Trails. Neighborhood greenways along Doyle and Upton avenues in the southern part of the neighborhood and along Eighth Street and Lorimer Avenue in the northern part would provide east-west connectivity between Hope and Blackstone.

Key Traffic Calming Recommendations

Areas along and around proposed neighborhood greenways:

- Doyle and Upton avenues
- Elmgrove Avenue
- 8th Street and Lorimer Avenue

Neighborhood Map



Project List

Street or Trail Name	From	To	Project Type	Why is this important?	Recommendation	Implementation Action
Hope	Doyle	Lloyd	Urban Trail	Connects proposed Doyle Urban Trail to Olney Urban Trail and further south to Waterman; enhances access to schools and Brown University	Two-Way Urban Trail with Accessible Sidewalk	Consolidate parking one side
Hope	Blackstone Blvd	Doyle	Urban Trail	Serves three neighborhoods; creates a regional connection to North Providence; enhances micromobility access to parks, schools, and retail districts	Two-Way Urban Trail with Accessible Sidewalk	Consolidate parking one side, Move curbs
Alfred Stone	Blackstone Blvd	City limit	Urban Trail	Connects Blackstone Blvd path to Pawtucket	Two-Way Shared Use Path	Narrow travel or parking lane (Lane Diet), Move curbs
Doyle/Upton	Blackstone Blvd	Hope	Urban Trail	Provides central east-west Urban Trail for the east side of the City; connects several neighborhoods and proposed Hope and Elmgrove Urban Trails with the Blackstone River path	Neighborhood Greenway	Neighborhood Greenway Toolbox (Speed management, major intersections, wayfinding)
8th	N Main	Lorimer	Urban Trail	Connects Hope and Blackstone; connects to proposed N Main, Summit, Hope, and Lorimer Urban Trails	Neighborhood Greenway	Neighborhood Greenway Toolbox (Speed management, major intersections, wayfinding)
Lorimer	8th	Blackstone Blvd	Urban Trail	Completes proposed 8th St Urban Trail connection to Blackstone Blvd path	Neighborhood Greenway	Neighborhood Greenway Toolbox (Speed management, major intersections, wayfinding)
Elmgrove	Blackstone Blvd	Lloyd	Urban Trail	Provides traffic calming and a north-south connection between Blackstone and Wayland; connects Blackstone Blvd path to proposed Doyle/ Upton Urban Trail	Neighborhood Greenway	Neighborhood Greenway Toolbox (Speed management, major intersections, wayfinding)
E River St/ River Rd/ Irving	Blackstone River Bikeway/Pitman	Irving/ Blackstone Blvd	Urban Trail	Fills in a gap in the Blackstone River Bikeway and East Coast Greenway; connects to future Henderson Bridge path and proposed Waterman Urban Trail	Two-Way Shared Use Path	Move curbs, Independent ROW
Blackstone	Hope	Irving	Upgrade Due	Improves conditions for people bicycling and using micromobility with additional separation from motor vehicle traffic	One-Way Urban Trail with Accessible Sidewalk	Enhance quality of existing facility

Key Intersection Improvement Recommendations

Street 1	Street 2	Type
Blackstone	Hope	Priority from draft map comments Neighborhood comment
Blackstone	Alfred Stone	Large or complicated intersection Pedestrian/bicycle crash focus intersection
Blackstone	Lorimer	Network crossing
Blackstone	Elmgrove	Neighborhood comment
Blackstone	Upton	Network crossing
Blackstone	Irving/Butler	Network crossing Large or complicated intersection
Elmgrove	Doyle/Upton	Network crossing
Firglade	Elgin	Neighborhood comment
Hope	8th	Network crossing
Hope	Olney	Network crossing Large or complicated intersection
Hope	Doyle	Network crossing Large or complicated intersection
Rochambeau	Cole	Neighborhood comment

Project Highlight: Hope Street

The most frequent request made during public outreach for this plan was to implement an Urban Trail on Hope Street, especially north of Olney Street. Hope Street is long and while in many places it is predominantly residential and of adequate width to create an Urban Trail, there are less clear-cut sections. The commercial area north of Rochambeau Avenue and the area between Lloyd Ave and Angell Street are busier. In these busy areas, the City will need to conduct a thorough process to evaluate the best compromises to satisfy this need while sufficiently accommodating existing uses.

Charles

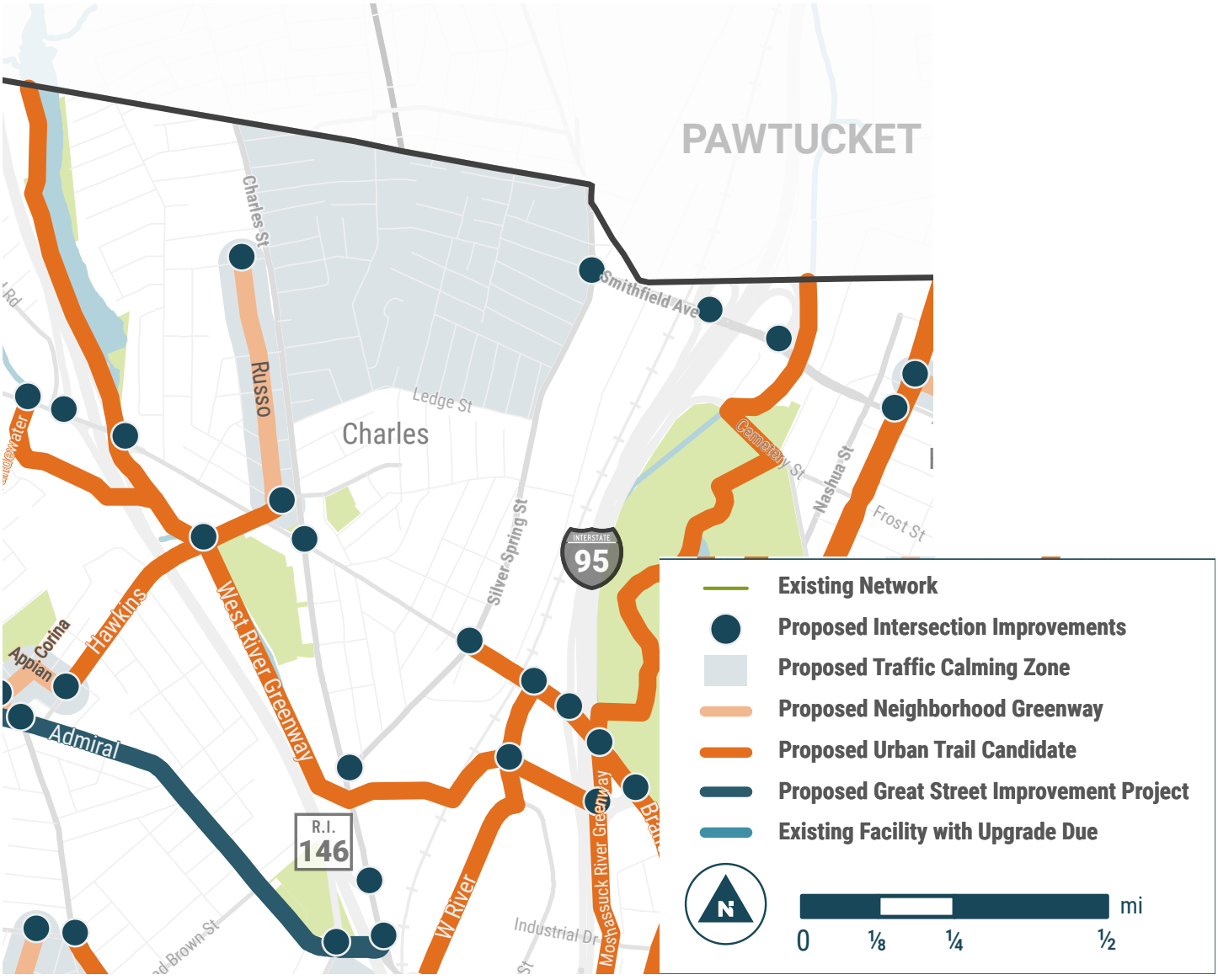
Key Urban Trail Recommendations

Implement a neighborhood greenway on Russo Street as a parallel route to Charles Street. In coordination with residents, property owners, and other stakeholders, study the feasibility of making the informal path north of Paul Street more accessible to people with limited mobility and enhancing access north to Hagan Street by widening the path to 5-10 feet wide, installing a firm, stable, and slip-resistant surface, and installing an ADA-compliant ramp at Paul Street.

Implement an Urban Trail on Hawkins Street, whose bridge over Route 146 is being replaced in 2020, to connect the two neighborhoods. This project would extend to Hawkins Square.

Establish off-road Urban Trails along the West and Moshassuck rivers. A long-term vision is for Mount Hope, Charles, and Wanskuck to one day be connected to the Urban Trail Network with an off-road path and greenway along the West and Moshassuck rivers. The West River primarily flows through Charles and Wanskuck. The City should begin collaboration with property owners, residents, and other stakeholders to establish a concept and bring these segments from vision to reality. The City should also work with the State, City of North Providence, and other stakeholders to study alignment alternatives for a path along State Route 146 and Canada Pond that would establish an Urban Trail connection between Providence and the eastern part of North Providence.

Neighborhood Map



Project List

Street or Trail Name	From	To	Project Type	Why is this important?	Recommendation	Implementation Action
West River Greenway	Vandewater	I-95	Urban Trail	Long-term recommendation for a continuous east-west greenway connecting Charles and Wanskuck	Two-Way Shared Use Path	Independent ROW
Canada Pond Path	West River Greenway	City limit	Urban Trail	Long-term recommendation for a north-south greenway parallel to SR 146 and Canada Pond (alignment to be studied) to connect Providence and North Providence	Two-Way Shared Use Path	Independent ROW
Hawkins	Appian	Monticello	Urban Trail	Key connection between Charles and Wanskuck, enhancing access to parks, schools, and neighborhood business districts	Two-Way Urban Trail with Accessible Sidewalk	Remove parking one side
Russo/ Monticello	Hawkins	Hagan	Urban Trail	Provides traffic-calmed Urban Trail route parallel to Charles St	Neighborhood Greenway	Neighborhood Greenway Toolbox (Speed management, major intersections, wayfinding)

Key Traffic Calming Recommendations

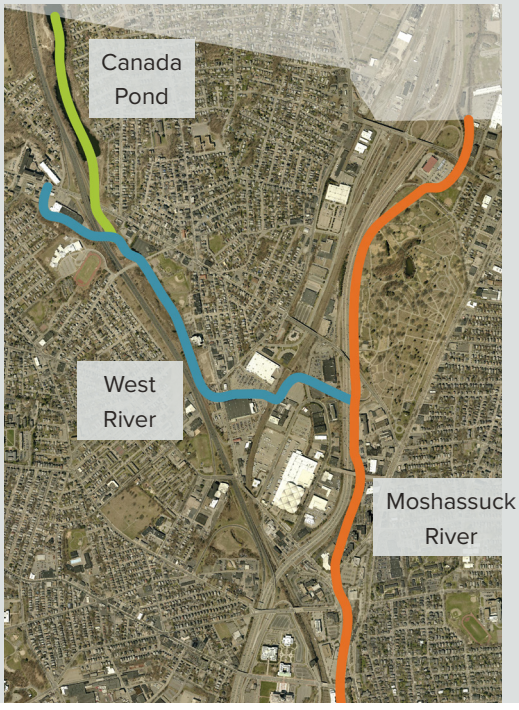
- Neighborhood meeting comments included concerns about speeding on Windmill and Ledge streets
- Areas along and around proposed neighborhood greenway on Russo Street

Key Intersection Improvement Recommendations

Street 1	Street 2	Type
Branch	Silver Spring	Large or complicated intersection
Branch	West River Greenway	Network crossing
Branch	Rt 146 NB ramps	Large or complicated intersection
Charles	Admiral	Large or complicated intersection
Charles	Branch	Large or complicated intersection Pedestrian/bicycle crash focus intersection
Charles	Hawkins	Neighborhood comment Network crossing
Charles	Rt 146 NB on-ramp	Large or complicated intersection
Charles	Rt 146 SB off-ramp/ Whipple	Large or complicated intersection
Charles	Silver Spring	Large or complicated intersection
Greenley	Alaska	Neighborhood comment
Hawkins	Monticello	Network crossing
Hawkins	West River Greenway	Network crossing
Job	Bismark	Neighborhood comment
Russo	Hagan	Network crossing
Smithfield	Silver Spring/ Foch	Large or complicated intersection
West River Greenway	Hawkins	Network crossing

Project Highlight: new river greenways

The most ambitious projects proposed as part of this plan, the Moshassuck, West River, and Canada Pond greenways seek to replicate the Woonasquatucket River Greenway's success at bringing Providence residents closer to the city's sometimes-hidden natural beauty. Currently, these three water bodies are often overshadowed by I-95 and Route 495, which they parallel respectively, and overlooked behind commercial plazas and industrial parks. Besides access to nature, these paths offer the opportunity to connect Charles and its adjacent neighborhoods to the Urban Trail Network when the street network provides relatively few opportunities to make on-road connections. While these paths are purely conceptual at this time, it is recommended that the City study their feasibility.



College Hill

Key Urban Trail Recommendations

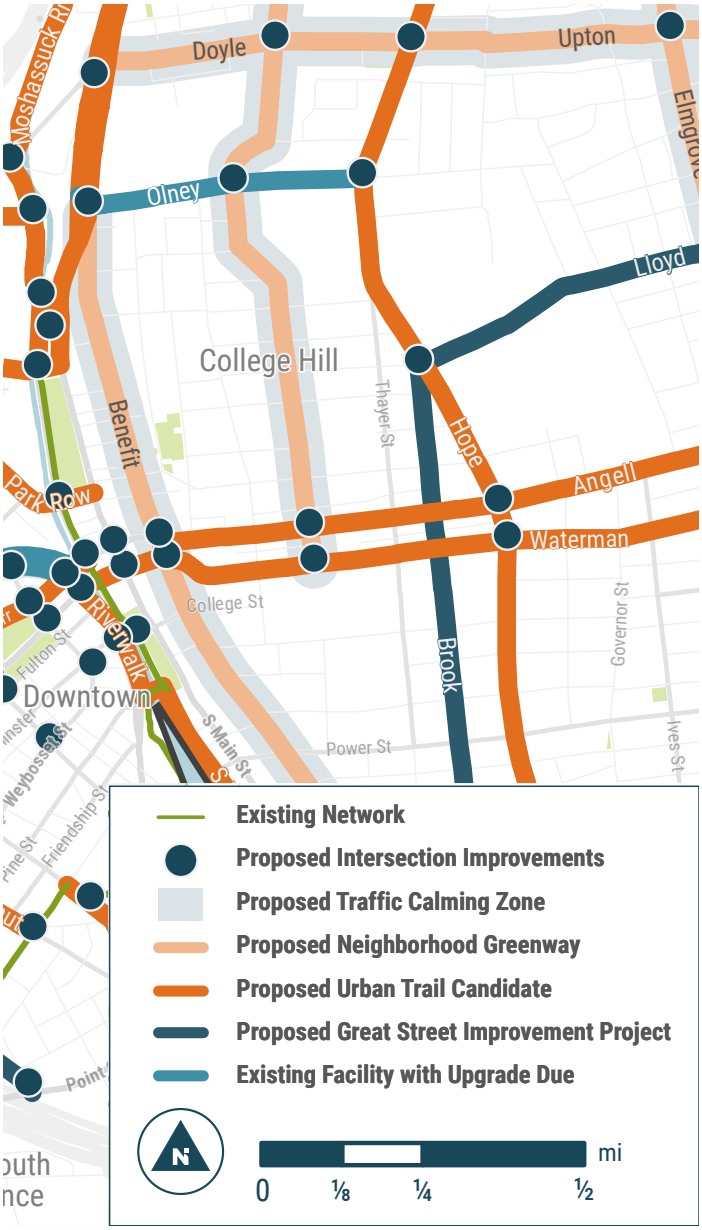
Implement Urban Trails on Angell and Waterman streets to serve as a one-way couplet connecting College Hill, RISD, and Brown University with Wayland, the Blackstone Bike Path, and the Henderson Bridge.

Implement an Urban Trail on Hope Street between Blackstone Boulevard and George M. Cohan Boulevard to connect the Hope, Mount Hope, Blackstone, College Hill, and Fox Point neighborhoods. In College Hill, this project will enhance access to India Point Park and the East Bay Bike Path in the south and join together several east-west Urban Trails. This also provides an opportunity to reduce speeding and improve safety for people walking along Angell and Waterman streets. The City should work closely with community members, Brown University, and other stakeholders to investigate converting Brook and Hope into a one-way pair for vehicular circulation and providing angled parking along Brook Street to increase local parking capacity.

Improve walkability on Brook Street to supplement the connectivity provided by the recommended Urban Trail Network.

Study uphill routes from the Providence River. A remaining challenge is topography, especially with regard to identifying relatively direct routes up the hill from the river to Brown University. Further study of potential solutions to help people riding bicycles overcome the steep incline of College Hill along streets such as Meeting, Thomas, Angell, Waterman, and College streets is suggested. In addition to on-road solutions discussed in this plan, creative ideas implemented elsewhere in the world such as Trondheim, Norway's bicycle escalator could be considered.

Neighborhood Map



Key Intersection Improvement Recommendations

Street 1	Street 2	Type
Angell	Benefit/Thomas	Large or complicated intersection
Angell	Brown	Network crossing
Benefit	Benevolent	Neighborhood comment
Brook	Angell	Network crossing
Brook	Waterman	Network crossing
Canal	Mill	Large or complicated intersection
Canal	Smith	Large or complicated intersection
Canal	Steeple	Large or complicated intersection
Canal	Park Row	Network crossing Pedestrian/bicycle crash focus intersection
Hope	Angell	Network crossing
Hope	Waterman	Network crossing
Hope	George	Pedestrian/bicycle crash focus intersection
Hope	Lloyd/Brook	Network crossing
Hope	Olney	Network crossing
N Main	College	Pedestrian/bicycle crash focus intersection
N Main	Mill/Canal	Large or complicated intersection
N Main	Thomas/Steeple	Large or complicated intersection
N Main	Olney	Network crossing
N Main	Waterman/ Washington	RISD Priority
Olney	Camp/Brown	Network crossing
Thayer	Meeting	Neighborhood comment
Waterman	Benefit	RISD Priority
Waterman	Brown	Network crossing Pedestrian/bicycle crash focus intersection

Project List

Street or Trail Name	From	To	Project Type	Why is this important?	Recommendation	Implementation Action
Benefit	Wickenden	Waterman	Urban Trail	Connects Fox Point and College Hill; enhances north-south access to the existing path at Wickenden	Neighborhood Greenway	Neighborhood Greenway Toolbox (Speed management, major intersections, wayfinding)
Benefit	Waterman	Main	Urban Trail	Connects College Hill and Mount Hope; connects proposed Waterman and Olney Urban Trails	Neighborhood Greenway	Neighborhood Greenway Toolbox (Speed management, major intersections, wayfinding)
Hope	Doyle	Lloyd	Urban Trail	Connects proposed Doyle Urban Trail to Olney Urban Trail as it extends further south to Waterman; enhances access to schools and Brown University	Two-Way Urban Trail with Accessible Sidewalk	Consolidate parking one side
Hope	Lloyd	Waterman	Urban Trail	Extends proposed Waterman Urban Trail to Brown University destinations and schools	Two-Way Urban Trail with Accessible Sidewalk	Remove parking one side, Narrow travel or parking lane (Lane Diet)
Hope	Waterman	George M Cohan Blvd	Urban Trail	Connects College Hill and Fox Point; links proposed Angell and Waterman Urban Trails with India Point Park	Two-Way Urban Trail with Accessible Sidewalk	Consolidate parking one side
Charles/Mill/ Canal	Ashburton/ Randall	Smith	Urban Trail	Connects to one-way Urban Trail on Canal and proposed W. River St. Urban Trail; moves toward better access to Downtown from Charles and Mount Hope	Two-Way Urban Trail with Accessible Sidewalk	Remove travel lane (Road Diet), Move curbs
Canal	Smith	Washington	Urban Trail	Enhances access to Downtown, the train station, and the Providence and Woonasquatucket Rivers	Two-Way Urban Trail with Accessible Sidewalk	Narrow travel or parking lane (Lane Diet)
Brook	Lloyd	Wickenden	Great Street	Serves as parallel to Hope St. to enhance micromobility connectivity and parking for commercial areas and Brown University	Other Great Street Improvement	Enhance quality of existing facility
S Angell/Angell	Henderson Bridge	Hope	Urban Trail	Connects in-progress Henderson Bridge path, proposed Elmgrove and Hope St. Urban Trails; enhances access to schools, parks, and Brown University	One-Way Urban Trail with Accessible Sidewalk	Remove travel lane (Road Diet)
Angell	Hope	Prospect	Urban Trail	Connects to proposed Hope St. Urban Trail; enhances access to Brown University	One-Way Urban Trail with Accessible Sidewalk	Narrow travel or parking lane (Lane Diet)
Waterman	Hope	Butler	Urban Trail	Connects College Hill and Wayland	One-Way Urban Trail with Accessible Sidewalk	Remove travel lane (Road Diet)
Waterman	Prospect	Hope	Urban Trail	Provides a central micromobility route for Brown University and College Hill; connects to proposed Hope St. Urban Trail	One-Way Urban Trail with Accessible Sidewalk	Narrow travel or parking lane (Lane Diet)
Waterman	Benefit	Prospect	Urban Trail	Allows separated space for micromobility users to climb the hill	One-Way Urban Trail with Accessible Sidewalk	Remove travel lane (Road Diet)
Brown	Olney	Waterman	Urban Trail	Connects College Hill and Mount Hope and several proposed Urban Trails	Neighborhood Greenway	Neighborhood Greenway Toolbox (Speed management, major intersections, wayfinding)
Lloyd	Hope	Blackstone	Great Street	Enhances walkability along this route connecting several schools, recreational areas, and the Blackstone Blvd path	Other Great Street Improvement	Enhance quality of existing facility

Key Traffic Calming Recommendations

Using the Implementation Guide as a reference, install traffic calming elements as part of walkability projects on Lloyd and Brook streets.

Areas along and around proposed neighborhood greenways:

- Benefit Street
- Brown Street

Downtown

Key Urban Trail Recommendations

Build on the momentum of new Urban Trails.

- The completion of the Providence River Bridge project provides a new connection for people walking, riding bicycles, and using other micromobility options between Downtown, Fox Point, and College Hill and helps link the Providence Riverwalk, City Walk, and the East Bay Bike Path.
- The completion of the Urban Trail and bike lane segments along Canal Street and Canal Walk between Smith and Washington streets provides an important north-south route connecting part of the East Side to Downtown.

Complete in-progress Urban Trails.

- Improvements to Kennedy Plaza will include an Urban Trail on Exchange Terrace.
- Convert the existing separated bike lane on Fountain Street to a permanently protected two-way Urban Trail and extend it from Union Street through the Dorrance Street intersection to connect to the planned Exchange Terrace project.

Create a continuous Urban Trail route on Greene, Empire, Chestnut, and Richmond streets to offer enhanced north-south connectivity within Downtown. The Empire/Chestnut/Richmond Urban Trail will perpendicularly intersect the newly-completed City Walk project on Clifford Street and connect to the north and south with the Broadway (via one-block segments on Greene and Fountain streets) and Allens Avenue (via a one-block segment on Eddy Street) proposed Urban Trails.

Enhance and extend the Riverwalk. Enhance the accessibility of the Providence Riverwalk and access points to it for people with limited mobility and for people riding bicycles. Study an extension of the Riverwalk to Collier Point Park.

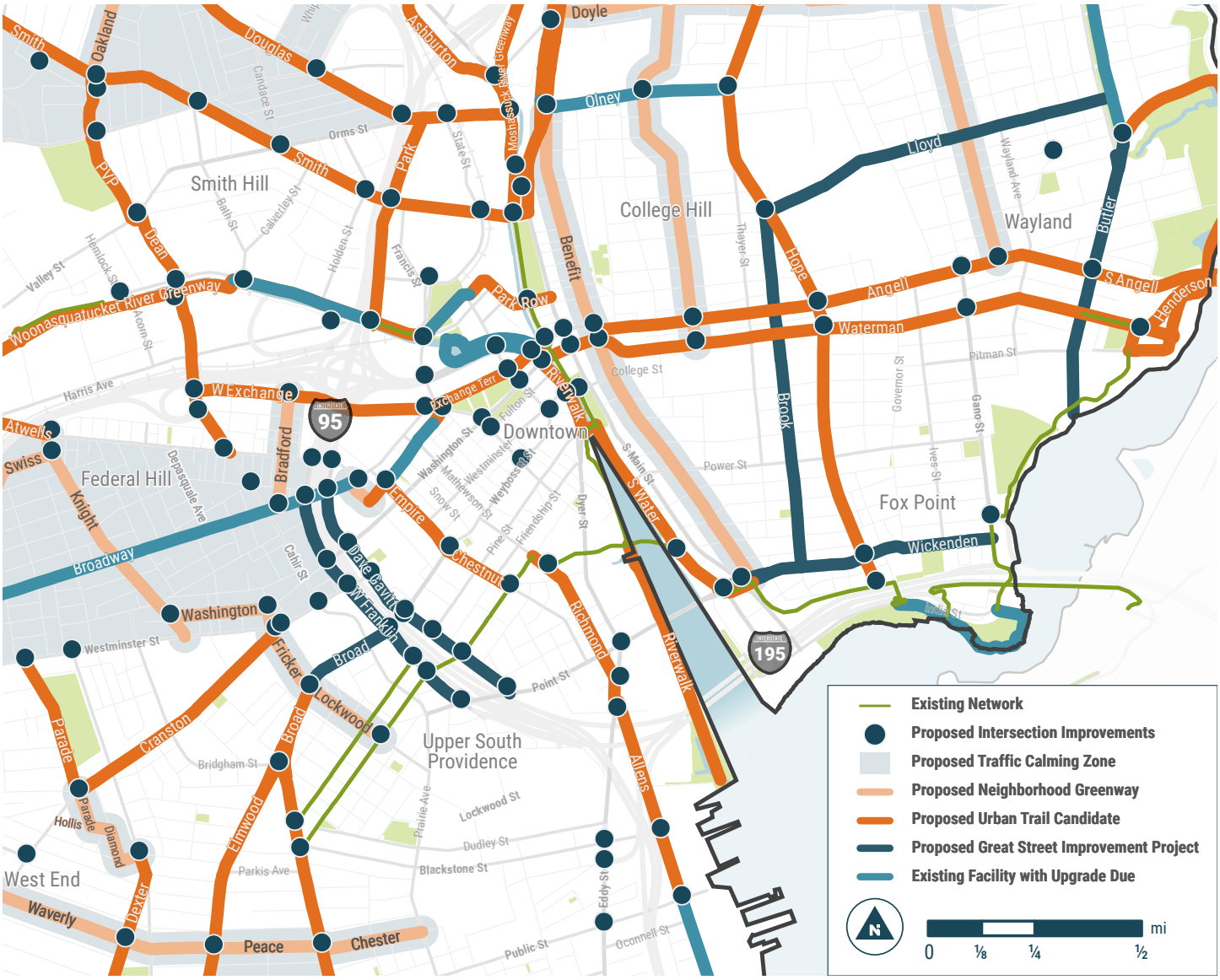
Connect the Urban Trail Network to Transit Priority Corridors. RIPTA has identfied parts of Broad, Dorrance, Dyer, Eddy, Exchange, Washington, and Weybosset streets as Transit Priority Corridors. These corridors will enhance bus access to and from Downtown. The Urban Trail Network does not overlap the Transit Priority Corridors but the combination and intersection of the two substantially enhance options for people who cannot or do not prefer to drive Downtown. Continued coordination between RIPTA's Transit Master Plan and the recommendations of this plan is suggested in order to ensure investments are made in ways that advance the goals of both plans.

Project Highlight: Fountain Street

The first protected bike lane in the city was on Fountain Street, which opened in October 2016. The project was integrated into the end of the "Downtown Circulator" project which reconfigured several major downtown streets. The bike lane terminated at Union Street due to the complexity of the intersection with Dorrance Street.

Initially separated from vehicular traffic only by parked cars and pavement markings, in May 2017 a community activist placed toilet plungers in the buffer area to draw attention to the need for vertical separation to keep cars from parking in the bike lane. The City embraced the point, and in June 2017 installed flexible delineators in the buffer. During the winters of 2017 and 2018, the flexposts were removed so that the street could be plowed. In winter 2019 they were left in, and plans were made to replace them with more durable rubber car stops in 2020, and for the bike lane itself to be plowed as well.

Neighborhood Map



Project Highlight: Providence River Pedestrian and Bicycle Bridge

In 2010, the City held a design competition to create a car-free bridge using the bridge footings of the former I-195 bridge that was relocated as part of the I-195 Redevelopment project. The new Providence River Pedestrian and Bicycle Bridge officially opened in August 2019 and was immediately a popular attraction for transportation and passive recreation purposes.

Project List

Street or Trail Name	From	To	Project Type	Why is this important?	Recommendation	Implementation Action
Chestnut	Weybosset	Clifford	Urban Trail	In-progress project that extends proposed Empire and new Clifford Urban Trails	Two-Way Urban Trail with Accessible Sidewalk	Remove parking one side, Consolidate parking one side
Richmond	Clifford	Eddy	Urban Trail	In-progress project that serves as part of an Urban Trail route through Downtown; connects new Clifford Urban Trail segment with new path through Wexford development and Providence River Bridge	Two-Way Urban Trail with Accessible Sidewalk	Consolidate parking one side, Remove travel lane (Road Diet)
Exchange Terr	Fountain	Exchange St	Urban Trail	In-progress Downtown Urban Trail and transit improvements as part of Kennedy Plaza Project	Two-Way Urban Trail with Accessible Sidewalk	Remove travel lane (Road Diet)
Exchange Terr/ Steeple	Exchange St	Canal	Urban Trail	Provides a cross-river connection between Downtown and College Hill; connects in-progress Exchange Terrace Urban Trail with proposed Memorial Boulevard Urban Trail, Riverwalk, Canal Walk, and Canal Street bike lane	Two-Way Urban Trail with Accessible Sidewalk	Remove travel lane (Road Diet)
Empire	Fountain	Broad/ Weybosset	Urban Trail	Serves as part of an Urban Trail route through Downtown; connects to existing Fountain Urban Trail and proposed Broadway Urban Trail	Two-Way Urban Trail with Accessible Sidewalk	Remove travel lane (Road Diet)
Riverwalk	Existing southern terminus	Collier Point Park	Urban Trail	Extends existing Riverwalk south to serve Collier Point Park; expanding riverfront access	Two-Way Shared Use Path	Independent ROW
Broadway	Westminister	Greene	Upgrade Due	Key connection for Downtown, Federal Hill, and Olneyville neighborhoods	Two-Way Urban Trail with Accessible Sidewalk	Narrow travel or parking lane (Lane Diet)
Park Row	Railroad St	N Main	Urban Trail	Provides a cross-river connection between Downtown and College Hill; connects the Canal Street Urban Trail to the train station	One-Way Urban Trail with Accessible Sidewalk	Remove parking two sides
Memorial Blvd/ Riverwalk	Dyer/S Water	Park	Upgrade Due	Connects to several Downtown proposed Urban Trails and destinations, enhances micromobility options along the river	Two-Way Shared Use Path	Enhance quality of existing facility, Move curbs, Remove travel lane (Road Diet)
Enhance existing path	Francis/Finance Way intersection	Amtrak station	Upgrade Due	Better connects existing path along River under Providence Place Mall	Two-Way Shared Use Path	Enhance quality of existing facility
Eddy	Allens	Richmond	Urban Trail	Key link between Downtown Urban Trail network and proposed Allens Urban Trail	Two-Way Urban Trail with Accessible Sidewalk	Narrow travel or parking lane (Lane Diet)
Fountain	Greene	Union	Urban Trail	Convert existing one-way separated bike lane to a permanently protected two-way Urban Trail; new Urban Trail would connect to proposed Broadway Urban Trail (via Greene) and in-progress Exchange Terrace Urban Trail (via Fountain/Emmet Square project)	Two-Way Urban Trail with Accessible Sidewalk	Enhance quality of existing facility, Consolidate parking one side
Greene	Broadway	Fountain	Urban Trail	Connects the proposed Broadway and Fountain Urban Trails	Two-Way Urban Trail with Accessible Sidewalk	Remove parking one side
Fountain/Emmet Square	Union	Exchange	Great Street	Fills a gap by connecting the Fountain Street and future Exchange Terrace Urban Trails	Buffered Bike Lanes	Remove parking one side
Park	Promenade	Smith	Urban Trail	Longer-term recommendation to connect Downtown and Smith Hill	Two-Way Urban Trail with Accessible Sidewalk	Move curbs, Remove travel lane (Road Diet)
W Exchange	Bradford	Exchange Terr/Sabin	Urban Trail	Connects Federal Hill and Downtown; connects to proposed W Exchange (Dean-Bradford), Bradford, and Exchange Terr Urban Trails	Two-Way Urban Trail with Accessible Sidewalk	Narrow travel or parking lane (Lane Diet), Remove travel lane (Road Diet), Consolidate parking one side
E Franklin	Broadway	Point	Great Street	Improves walking, bicycling, and micromobility conditions on a route connecting the proposed Broadway and new Clifford Urban Trails	Other Great Street Improvement	Enhance quality of existing facility

Key Traffic Calming Recommendations

Although all Downtown streets should be designed for slow movement of motor vehicles, focus corridors for traffic calming interventions in Downtown include:

- Washington Street: Five intersections with crash clusters involving people walking and riding bicycles (six or more crashes per intersection between 2009-17): Dorrance Street, Union Street, Mathewson Street, Empire Street, and Greene Street
- Dorrance Street: Three intersections with crash clusters involving people walking and riding bicycles: Washington Street, Fulton Street, Weybosset Street; the complex intersection with Fountain and Sabin Streets and Exchange Terrace (Emmet Square)
- Greene Street: Two intersections with crash clusters involving people walking and riding bicycles: Washington Street, Broad Street
- Memorial Boulevard: Two intersections with crash clusters involving people walking and riding bicycles: Francis Street, Westminster Street; Neighborhood meeting comments regarding traffic calming, crossing concerns, and conditions for people riding bicycles at College/Westminster streets and Exchange Terrace
- I-95 service roads: The East Franklin Street/Broad Street intersection is a crash cluster for people walking and riding bicycles; Neighborhood meeting comments regarding general safety concern with I-95 crossings and a specific concern about speeding and pedestrian safety at the I-95 off-ramp/ Point Street intersection

Key Intersection Improvement Recommendations

Street 1	Street 2	Type
Allens	Eddy/Globe	Priority from draft map comments
Atwells	E Franklin	Large or complicated intersection
Broad	Greene	Pedestrian/bicycle crash focus intersection
Broad	E Franklin	Large or complicated intersection Priority from draft map comments Pedestrian/bicycle crash focus intersection
Broad	Claverick	Pedestrian/bicycle crash focus intersection
Broadway	Atwells	Large or complicated intersection
Broadway	E Franklin	Priority from draft map comments
Chestnut	Clifford	Network crossing
Chestnut	Bassett	Neighborhood comment
Clifford	Dyer	Neighborhood comment
Eddy	Point	Large or complicated intersection
Eddy	Richmond/ Marengo	Priority from draft map comments
E Franklin	Clifford	Priority from draft map comments
E Franklin	Pine	Priority from draft map comments
Empire	Fountain	Network crossing Large or complicated intersection
Exchange St	Exchange Terr	Large or complicated intersection
W Exchange St	Exchange Terr/ Sabin	Large or complicated intersection
Fountain	Dorrance	Priority from draft map comments
Francis	Finance/Path to Providence Station	Network crossing Priority from draft map comments
Francis	Gaspee	Large or complicated intersection
Fulton	Dorrance	Large or complicated intersection Pedestrian/bicycle crash focus intersection
I-95 NB ramps	Point	Priority from draft map comments Neighborhood comment
Memorial Blvd	Francis	Large or complicated intersection Pedestrian/bicycle crash focus intersection
Memorial Blvd	Exchange Terr	Network crossing RISD priority
Memorial Blvd	Exchange St	Network crossing
Memorial Blvd	Washington	RISD priority
Memorial Blvd	Westminster	Large or complicated intersection Pedestrian/bicycle crash focus intersection
Promenade	Park	Priority from draft map comments
Richmond	Wexford path	Network crossing
Riverwalk	Providence River Bridge	Network crossing
Riverwalk	Waterplace Park	Network crossing
Smith	State	Priority from draft map comments
Smith	Park	Network crossing
Washington	Exchange St	Priority from draft map comments
Washington	Dorrance	Large or complicated intersection Pedestrian/bicycle crash focus intersection
Washington	Union	Pedestrian/bicycle crash focus intersection
Washington	Mathewson	Pedestrian/bicycle crash focus intersection
Washington	Empire	Pedestrian/bicycle crash focus intersection
Washington	Greene	Pedestrian/bicycle crash focus intersection
Westminster	Cathedral Square	Neighborhood comment
Westminster	E Franklin	Priority from draft map comments
Westminster	Weybosset	Large or complicated intersection
Weybosset	Empire	Large or complicated intersection
Weybosset	Dorrance	Large or complicated intersection Pedestrian/bicycle crash focus intersection

Elmhurst

Key Urban Trail Recommendations

Create an Urban Trail along Smith Street. With with RIDOT to implement an Urban Trail on Smith Street (a state-owned and state-maintained street) from Oakland Avenue to the Wyndham Avenue-Whitford Avenue intersection. This project will connect Elmhurst with Smith Hill and tie together several in-progress or proposed Urban Trails.

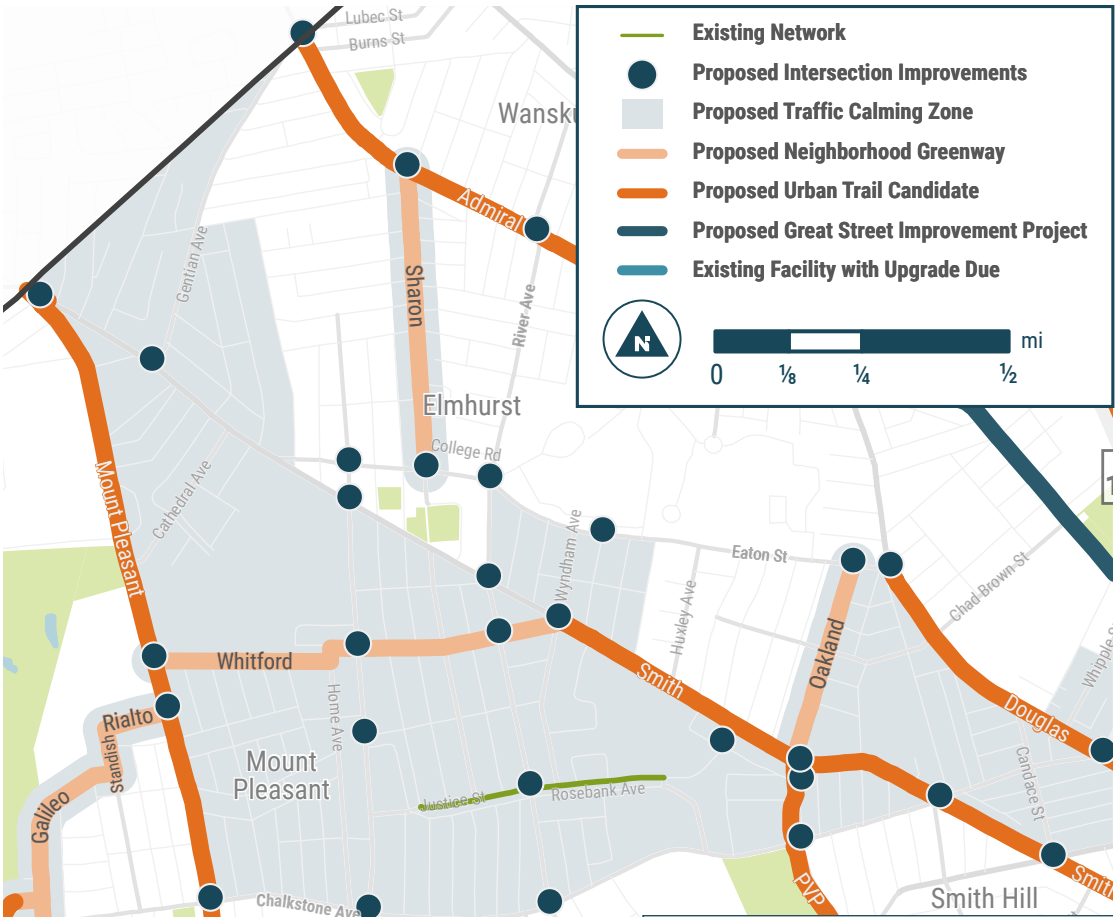
Create neighborhood greenways on Sharon Street, Oakland Avenue, and Whitford Avenue. Implement neighborhood greenways to better connect the neighborhood to adjacent neighborhoods and key destinations on traffic-calmed routes.

- *Sharon Street* will connect Wanskuck and Elmhurst, connect to the proposed Admiral Street Urban Trail, and enhance access to schools and a park.
- *Oakland Avenue* will extend the Dean Street/Pleasant Valley Parkway Urban Trail north, connecting to the Smith Street Urban Trail and enhancing access to Providence College.
- *Whitford Avenue* will connect the proposed Smith Street Urban Trail to the proposed Mount Pleasant Avenue Urban Trail.

Project Highlight: Whitford Avenue

Neighborhood greenways such as the one proposed on Whitford Avenue are great opportunities to meet several demands at the same time. Whitford Avenue has been the location of a number of traffic calming requests in recent years and is also a valuable connector route between the Urban Trails proposed on Mt Pleasant Avenue and Smith Street. Since neighborhood greenways involve traffic calming to reduce traffic speed and traffic volume to a level that is safe and comfortable for all ages and abilities of people walking and bicycling, along with signage and pavement markings to clearly designate the street as part of the Urban Trail Network, the neighborhood's quality of life may be improved in multiple ways at once.

Neighborhood Map



Project List

Street or Trail Name	From	To	Project Type	Why is this important?	Recommendation	Implementation Action
Whitford	Mount Pleasant	Smith	Urban Trail	Connects to in-progress Mount Pleasant Urban Trail with proposed Smith Urban Trail; enhances access to schools and Rhode Island College	Neighborhood Greenway	Neighborhood Greenway Toolbox (Speed management, major intersections, wayfinding)
Smith	Oakland	Wyndham/ Whitford	Urban Trail	Connects the southern part of Elmhurst with Smith Hill and ties together several Urban Trails	Two-Way Urban Trail with Accessible Sidewalk	Remove parking one side
Admiral	City Limit near Gentian Ave	Eva	Urban Trail	Longer-term recommendation to enhance Urban Trail connectivity to North Providence	Two-Way Urban Trail with Accessible Sidewalk	Remove parking one side
Sharon	Admiral	Eaton	Urban Trail	Connects Elmhurst and Wanskuck; connects to proposed Admiral Urban Trail; enhances access to schools and a park	Neighborhood Greenway	Neighborhood Greenway Toolbox (Speed management, major intersections, wayfinding)
Oakland	Smith	Eaton	Urban Trail	North-south connection between neighborhoods; enhances access to Providence College, Davis Park, and schools; extends proposed Dean/PVP Urban Trail north	Neighborhood Greenway	Neighborhood Greenway Toolbox (Speed management, major intersections, wayfinding)

Key Traffic Calming Recommendations

The area bordered by Mount Pleasant Avenue, Smith Street, and Chalkstone Avenue

- Includes proposed Urban Trail/traffic calming on Mount Pleasant Avenue and neighborhood greenway/traffic calming on Whitford Avenue
- Area has seen over 20 traffic calming requests over the last 10 years

The area bordered by River Avenue, Eaton Street, Hilltop Avenue, and Smith Street

- Area has seen two traffic calming requests over the last 10 years
- Online map comments received for Fairoaks Avenue and Quincy Street focused on traffic calming and improvements for people walking
- Area includes St. Pius V Elementary School and is adjacent to Providence College

Northwest Elmhurst centered around Gentian Avenue

- Comments on speeding and wide intersection geometry along Gentian Avenue. Consider coordination with North Providence.

Areas along and around proposed neighborhood greenways:

- Sharon Street
- Oakland Avenue

Key Intersection Improvement Recommendations

Street 1	Street 2	Type
Academy	Pleasant Valley	Large or complicated intersection
Academy	Chalkstone	Priority from draft map comments
Admiral	Gentian	Priority from draft map comments
Admiral	Sharon	Network crossing
Admiral	River	Large or complicated intersection
Admiral	Eva	Network crossing
Chalkstone	Canton	Pedestrian/bicycle crash focus intersection
Chalkstone	Tiffany	Pedestrian/bicycle crash focus intersection
Chalkstone	River	Large or complicated intersection
Gentian	Hillside	Neighborhood comment
Gentian	Isabella	Neighborhood comment
Oakland	Pleasant Valley	Priority from draft map comments
Pleasant Valley	Convent	Priority from draft map comments
River	Eaton	Priority from draft map comments
Smith	Mount Pleasant	Large or complicated intersection
Smith	Longwood	Neighborhood comment
Smith	Gentian	Priority from draft map comments
Smith	Eaton	Neighborhood comment
Smith	Academy	Priority from draft map comments
Smith	River	Large or complicated intersection
Smith	Wyndham	Priority from draft map comments
Smith	Oakland	Network crossing Priority from draft map comments

Elmwood

Key Urban Trail Recommendations

Implement City Walk along Broad Street and extend it along all of Elmwood Avenue. City Walk is an in-progress Urban Trail project on Broad, Pine, Friendship, and Clifford streets that will: strengthen connections between South Providence, other neighborhoods, parks, and civic institutions; improve safety for people traveling by all modes; and celebrate the diversity and culture of Providence neighborhoods through public art, wayfinding signage, and vibrant public places. City Walk Phase 1 on Clifford, Pine, and Friendship streets is now complete. City Walk should be extended along all of Elmwood Avenue as envisioned by the 2014 City Walk study.

Create east-west neighborhood greenways on Peace, Ontario, and Sackett streets, and Chester Avenue, to connect surrounding neighborhoods, City Walk, and other Urban Trails and reduce speeding on these neighborhood streets.

Key Traffic Calming Recommendations

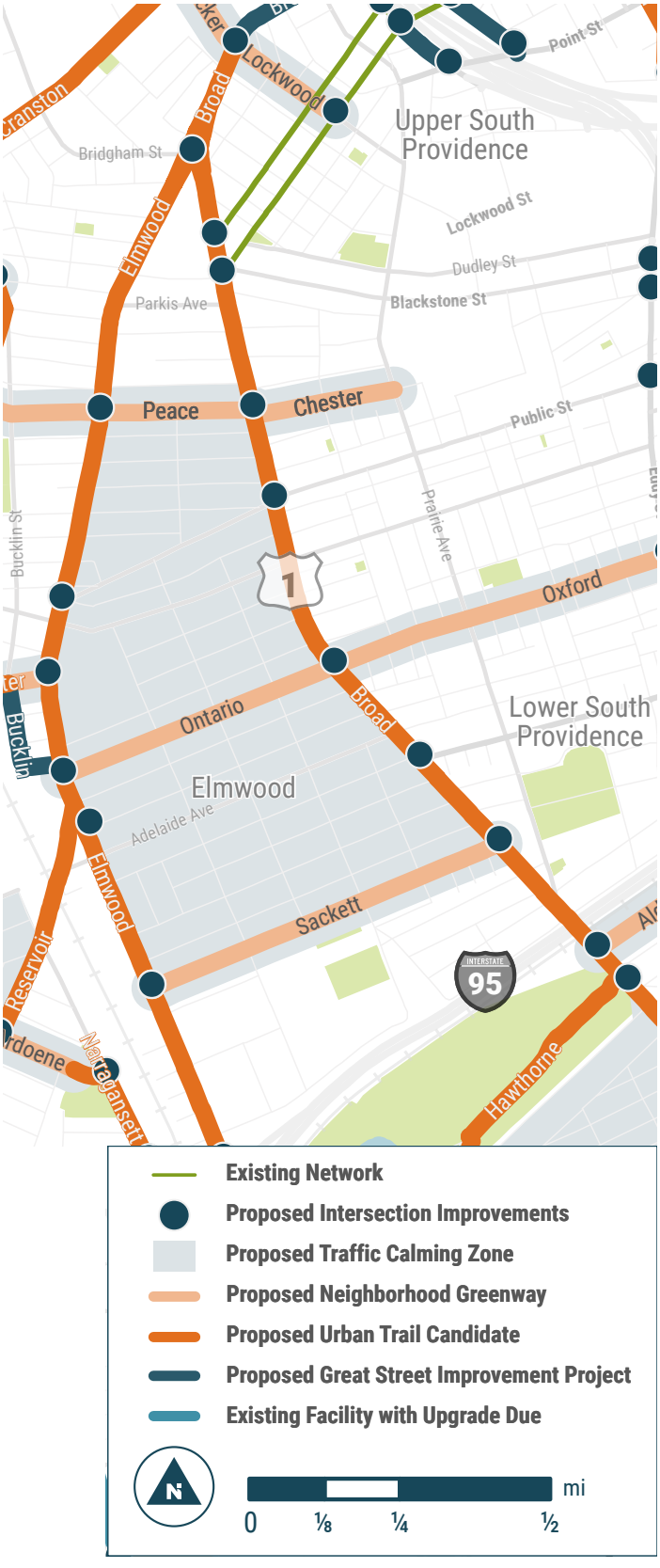
Areas along and around proposed neighborhood greenways:

- Ontario/Oxford Streets
- Sackett Street
- Peace Street/Chester Avenue

The area between Elmwood Avenue, Plenty Street, Broad Street, and Sackett Street:

- Area has seen at least eight traffic calming requests over the last 10 years
- Area includes Peace, Ontario, and Sackett neighborhood greenways

Neighborhood Map



Project List

Street or Trail Name	From	To	Project Type	Why is this important?	Recommendation	Implementation Action
Broad	Hawthorne	Fricker/ Lockwood	Urban Trail	City Walk project	Two-Way Urban Trail with Accessible Sidewalk	Remove travel lane (Road Diet)
Broad	City Limit	Hawthorne	Urban Trail	Future City Walk phase; enhances access from Washington Park to Roger Williams Park	Two-Way Urban Trail with Accessible Sidewalk	Remove travel lane (Road Diet)
Carter	Bucklin	Elmwood	Urban Trail	Part of link between proposed Huntington and Elmwood Urban Trails; provides contraflow connection for micromobility users along this one-block, one-way segment	Neighborhood Greenway	Neighborhood Greenway Toolbox (Speed management, major intersections, wayfinding)
Carter	Mashapaug	Bucklin	Urban Trail	Part of link between proposed Huntington and Elmwood Urban Trails	Two-Way Urban Trail with Accessible Sidewalk	Move curbs
Ontario	Elmwood	Broad	Urban Trail	Connects Elmwood and South Providence; connects to proposed Elmwood Urban Trail and City Walk; uses route with existing traffic calming	Neighborhood Greenway	Neighborhood Greenway Toolbox (Speed management, major intersections, wayfinding)
Elmwood	City limit	Broad	Urban Trail	Key north-south connection for West End and Elmwood; connects to several Urban Trails and enhances access to Trinity Square in the north, Roger Williams Park in the south, and many destinations in between	Two-Way Urban Trail with Accessible Sidewalk	Remove travel lane (Road Diet)
Sackett	Elmwood	Broad	Urban Trail	Provides east-west connection in south Elmwood between proposed Elmwood Urban Trail and City Walk	Neighborhood Greenway	Neighborhood Greenway Toolbox (Speed management, major intersections, wayfinding)
Peace/Chester	Elmwood	Prairie	Urban Trail	Connects West End and South Providence	Neighborhood Greenway	Neighborhood Greenway Toolbox (Speed management, major intersections, wayfinding)

Key Intersection Improvement Recommendations

Street 1	Street 2	Type
Broad	Elmwood	Network crossing Large or complicated intersection
Broad	Friendship	Network crossing Large or complicated intersection
Broad	Ontario/Oxford	Network crossing Pedestrian/bicycle crash focus intersection
Broad	Peace/Chester	Network crossing
Broad	Pennsylvania	Pedestrian/bicycle crash focus intersection
Broad	Pine	Network crossing
Broad	Public	Priority from draft map comments Pedestrian/bicycle crash focus intersection
Broad	Sackett	Network crossing

Street 1	Street 2	Type
Broad	Thurbers/Lenox	Large or complicated intersection Pedestrian/bicycle crash focus intersection
Elmwood	Atlantic	Neighborhood comment Priority from draft map comments
Elmwood	Carter	Network crossing
Elmwood	Ontario	Network crossing Large or complicated intersection
Elmwood	Peace	Network crossing
Elmwood	Plenty	Pedestrian/bicycle crash focus intersection
Elmwood	Public/Stanwood	Large or complicated intersection
Elmwood	Sackett	Network crossing
Whitmarsh	Updike	Neighborhood comment

Federal Hill

Key Urban Trail Recommendations

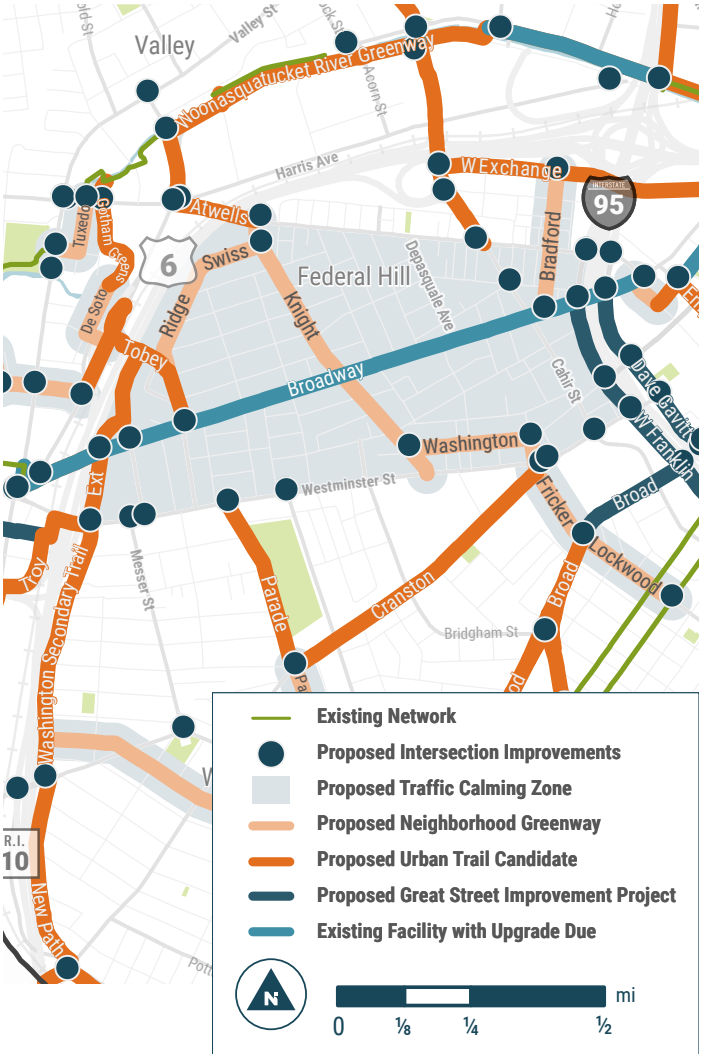
Create an Urban Trail along Broadway. Convert the existing bike lanes on Broadway to an Urban Trail to create a primary route for people walking, riding bicycles, and using micromobility options within and through the neighborhood, connecting with Olneyville and Downtown as well as new 6/10 Connector Project Urban Trails.

Create new Urban Trail connections to adjacent neighborhoods. Implement Urban Trails on Dean Street north of Atwells Avenue, Atwells Avenue west of Knight Street, and West Exchange Street east of Dean Street to better connect Federal Hill to Smith Hill, Valley, and Downtown respectively.

Complete the Urban Trail along the 6/10 Connector. The project that involves an off-road shared-use path along the west side of the neighborhood from Westminster Street to Tobey Street is planned to be complete as part of the State's 6-10 Connector project. The project will also complete an Urban Trail connection between the shared-use path and the terminus of the planned Gotham Greens path on De Soto Street.

Create neighborhood greenways. Create neighborhood greenways on Knight, Bradford, Washington, Winter, Ridge and Swiss streets to fill the gaps in the neighborhood's Urban Trail network.

Neighborhood Map



Key Traffic Calming Recommendations

The area between Westminster Street and Atwells Avenue:

- Includes several neighborhood greenways
- Neighborhood meeting comments received on speeding and cut-through traffic on multiple streets, including Almy, America, Courtland, Marshall, Sutton, and Vinton streets, and Bainbridge Avenue
- Neighborhood comments also included traffic calming requests at the intersections of Carpenter and Ringgold streets and West Fountain and Battey streets

Areas along and around proposed neighborhood greenways:

- Bradford Street
- Fricker Street

Key Intersection Improvement Recommendations

Street 1	Street 2	Type
Atwells	De Pasquale	Pedestrian/bicycle crash focus intersection
Atwells	Knight	Network crossing Priority from draft map comments
Atwells	W Franklin	Priority from draft map comments
Broadway	Barton	Large or complicated intersection
Broadway	W Franklin	Priority from draft map comments
Broadway	Knight	Network crossing
Broadway	Vinton	Pedestrian/bicycle crash focus intersection
Broadway	Dean	Pedestrian/bicycle crash focus intersection
Broadway	Bradford	Network crossing
Broadway	Tobey/Ridge	Network crossing Priority from draft map comments

Key Intersection Improvement Recommendations (continued)

Street 1	Street 2	Type
Broadway	US 6-10 NB ramps/path	Network crossing Priority from draft map comments
Carpenter	Ringgold	Neighborhood comment
Carpenter	W Franklin	Neighborhood comment
Cranston	Dexter	Pedestrian/bicycle crash focus intersection
Dean	Atwells	Priority from draft map comments
Dean	Federal/Kenyon	Large or complicated intersection
Dean	US 6-10 EB ramps	Large or complicated intersection
Knight	Swiss	Network crossing
Knight	Washington	Network crossing
Tobey	Wash Trail Ext	Network crossing
W Exchange	Bradford	Network crossing
W Exchange	Dean	Network crossing

Street 1	Street 2	Type
W Fountain	Battey	Neighborhood comment
Washington	W Franklin	Priority from draft map comments
Washington	Winter	Network crossing
Westminster	Cranston/ Winter/Fricker	Network crossing Large or complicated intersection Priority from draft map comments
Westminster	Bridgham	Pedestrian/bicycle crash focus intersection
Westminster	Wash Trail Ext	Network crossing
Westminster	Dexter	Priority from draft map comments
Westminster	US 6-10 NB ramps	Large or complicated intersection
Westminster	Messer	Large or complicated intersection
Westminster	Barton	Large or complicated intersection
Westminster	Parade	Priority from draft map comments

Project List

Street or Trail Name	From	To	Project Type	Why is this important?	Recommendation	Implementation Action
Dean	Atwells	Valley	Urban Trail	Connects across key gap in pedestrian, bicycle, and micromobility access between Federal Hill, Valley, and Smith Hill	Two-Way Urban Trail with Accessible Sidewalk	Move curbs
Washington Sec Trail Ext	Union	Tobey	Urban Trail	New extension of existing trail to be completed by 6/10 Reconstruction Project	Two-Way Shared Use Path	Move curbs
Tobey	Helme	Broadway	Urban Trail	New connection between Federal Hill and Olneyville neighborhoods to be partially completed by 6/10 Reconstruction Project	Two-Way Shared Use Path	Move curbs
Ridge/Swiss	Knight	Tobey	Urban Trail	Connects proposed Knight and Tobey Urban Trails and in-progress path related to the 6/10 Reconstruction Project	Neighborhood Greenway	Neighborhood Greenway Toolbox (Speed management, major intersections, wayfinding)
Washington/ Winter	Knight	Westminster	Urban Trail	Connects proposed Knight and Fricker Urban Trails	Neighborhood Greenway	Neighborhood Greenway Toolbox (Speed management, major intersections, wayfinding)
Atwells	Eagle	Knight	Urban Trail	Uses bridge over 6-10 Connector to connect proposed Eagle and Knight Urban Trails and Olneyville and Federal Hill	Two-Way Urban Trail with Accessible Sidewalk	Consolidate parking one side, Narrow travel or parking lane (Lane Diet)
Knight	Atwells	Westminster	Urban Trail	Connects proposed Atwells, Swiss, Broadway, and Washington Urban Trails; enhances connections between Olneyville, Federal Hill, and West End neighborhoods	Neighborhood Greenway	Neighborhood Greenway Toolbox (Speed management, major intersections, wayfinding)
Broadway	Westminister	Greene	Upgrade Due	Key connection for Downtown, Federal Hill, and Olneyville neighborhoods	Two-Way Urban Trail with Accessible Sidewalk	Narrow travel or parking lane (Lane Diet)
New path/ bridge	Washington Sec Trail Ext	Dike	Urban Trail	6/10 Reconstruction Project path connecting Olneyville and West End	Two-Way Shared Use Path	Move curbs
W Exchange	Dean	Bradford	Urban Trail	Connects proposed Dean and Bradford Urban Trails	Two-Way Urban Trail with Accessible Sidewalk	Consolidate parking one side, Move curbs
Bradford	W Exchange St	Broadway	Urban Trail	Connects proposed W Exchange St Urban Trail with proposed Broadway Urban Trail; enhances access to park and retail	Neighborhood Greenway	Neighborhood Greenway Toolbox (Speed management, major intersections, wayfinding)
W Franklin	Broadway	Point	Great Street	Connects Federal Hill and South Providence	Other Great Street Improvement	Enhance quality of existing facility

Fox Point

Key Urban Trail Recommendations

Complete in-progress Urban Trails. The completion of the Providence River Bridge project provides a new connection for people walking, riding bicycles, and using other micromobility options between Downtown, Fox Point, and College Hill and helps link the Providence Riverwalk, City Walk, and the East Bay Bike Path. The India Point Park bridge overpass and George Redman Linear Park continue this east-west connectivity and directly tie the East Bay Bike Path, which runs nearly 15 miles southeast to Bristol, into Fox Point. Wayfinding will be an important strategy for the navigability of this connection. RIDOT has just completed an important north-south connection on the east side of Fox Point, where the Gano Gateway project has connected the Blackstone Bikeway with India Point Park and the East Bay Bike Path.

Create an Urban Trail on South Water Street. The completion of the Providence River Bridge emphasizes the need for safer conditions for walking and bicycling on South Water Street. This Urban Trail would create a valuable connection between Wickenden and the Canal Walk shared use path.

Implement an Urban Trail on Hope Street between Blackstone Boulevard and George M. Cohan Boulevard to connect the Hope, Mount Hope, Blackstone, College Hill, and Fox Point neighborhoods. In Fox Point and College Hill, this project will enhance access to India Point Park and the East Bay Bike Path in the south and join together several east-west Urban Trails. The City should work closely with community members and other stakeholders to investigate converting Brook and Hope into a one-way pair for vehicular circulation.

Improve walkability on Wickenden and Brook streets and supplement the connectivity provided by the recommended Urban Trail Network.

Implement a neighborhood greenway on Benefit Street. This historically significant corridor is an important connection between Wickenden Street and North Main Street for those walking and bicycling.

Neighborhood Map

Project List

Street or Trail Name	From	To	Project Type	Why is this important?	Recommendation	Implementation Action
Benefit	Wickenden	Waterman	Urban Trail	Connects Fox Point and College Hill; enhances north-south access to the existing path at Wickenden	Neighborhood Greenway	Neighborhood Greenway Toolbox (Speed management, major intersections, wayfinding)
Wickenden	Benefit	Gano	Great Street	Enhances walkability along this key east-west street	Other Great Street Improvement	Enhance quality of existing facility
Brook	Lloyd	Wickenden	Great Street	Serves as parallel to Hope St. to enhance micromobility connectivity and parking for commercial areas and Brown University	Other Great Street Improvement	Enhance quality of existing facility
S Water	Memorial Park	Wickenden	Urban Trail	Separates micromobility users from adjacent motor vehicle traffic and parking	Two-Way Urban Trail with Accessible Sidewalk	Remove travel lane (Road Diet)

Key Traffic Calming Recommendations

Using the Implementation Guide as a reference, install traffic calming elements as part of walkability projects on Wickenden and Brook streets.

Areas along and around proposed neighborhood greenways:

- Benefit Street

Key Intersection Improvement Recommendations

Street 1	Street 2	Type
Brook	Wickenden	Network crossing
Gano	Amy	Neighborhood comment
Gano	Trenton	Large or complicated intersection
Hope	George M Cohan Blvd	Network crossing
Hope	Wickenden	Large or complicated intersection
Ives	Williams	Neighborhood comment
S Main	Wickenden	Large or complicated intersection
S Water	Providence River Bridge	Network crossing
S Water	Wickenden	Priority from draft map comments
Wickenden	Gano	Network crossing

Project Highlight: Gano Gateway

When the Gano Park path, otherwise known as Blackstone River Bikeway Segment 1A, opened in August 2017, there was a clear gap between the new path, which ended at the intersection of Gano Street and Trenton Street, and India Point Park and the connection there to the East Bay Bike Path. Neighborhood residents requested that the Rhode Island Department of Transportation incorporate a safe urban trail connection into the realigment of the southern end of Gano Street planned as the last piece of the I-195 Relocation project. The connection, called Gano Gateway and completed in Fall 2019, parallels the bank of the Seekonk River under I-195.

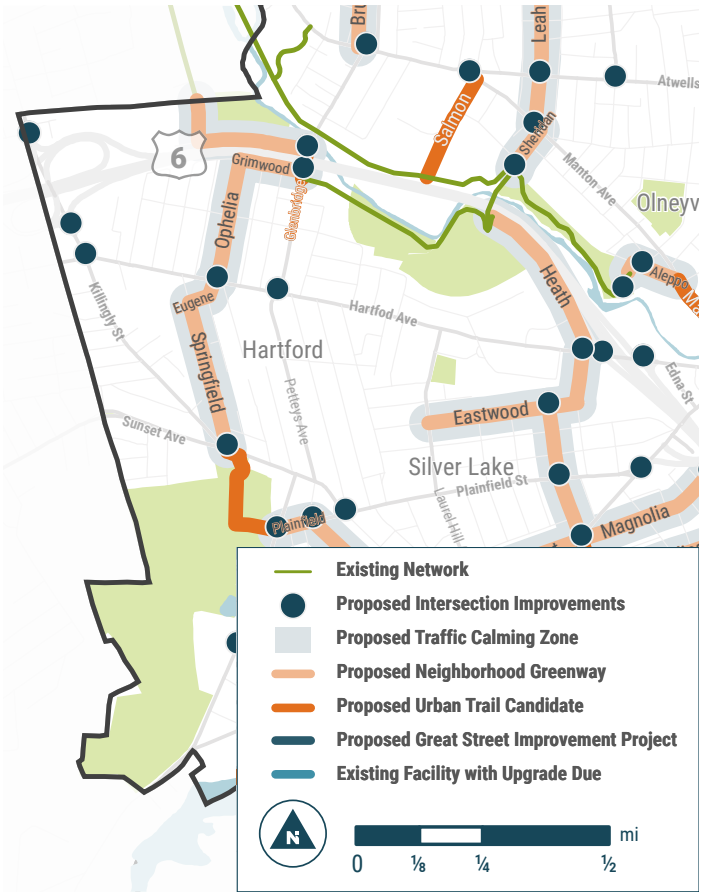
Hartford

Key Urban Trail Recommendations

Create neighborhood greenways to connect Hartford to Merino Park and the Woonasquatucket River Greenway. These projects leverage the existing Hartford-Olneyville connection of the Woonasquatucket River Bridge over US 6 in Merino Park with proposed neighborhood greenways leading to it from the southwest and southeast. The traffic-calmed route along Grimwood, Ophelia, Eugene, and Springfield streets will not only better connect both Hartford to the Greenway but will also enhance Safe Routes to Schools for DelSesto Middle School and Anthony Carnevale Elementary School, as well as connectivity to Neutaconkanut Park. A new neighborhood greenway on Heath Street and Eastwood Avenue would connect the east sides of Hartford and Silver Lake to Merino Park and the Greenway.

Create an Urban Trail along Glenbridge Avenue over US-6 as part of RIDOT's planned replacement of the Glenbridge Avenue bridge over US 6. This will enhance connectivity for people walking, riding bicycles, and using other micromobility options between Hartford, Olneyville, and Manton and serve as a parallel route to the Woonasquatucket River Greenway crossing of US 6. This connection would also involved neighborhood greenway improvements on Buttonhole Drive to connect to the Woonasquatucket Greenway around the golf course.

Neighborhood Map



Project List

Street or Trail Name	From	To	Project Type	Why is this important?	Recommendation	Implementation Action
Grimwood	Glenbridge	Ophelia	Urban Trail	Connects Merino Park path to proposed Ophelia/Eugene Urban Trail	Neighborhood Greenway	Neighborhood Greenway Toolbox (Speed management, major intersections, wayfinding)
Ophelia/Eugene	Grimwood	Springfield	Urban Trail	Connects to proposed Grimwood and Springfield Urban Trails; enhances access to Merino Park, the Woonasquatucket River Greenway, and schools	Neighborhood Greenway	Neighborhood Greenway Toolbox (Speed management, major intersections, wayfinding)
Springfield	Eugene	Killingly	Urban Trail	Enhances access to schools and Neutaconkanut Park; connects proposed Ophelia-Eugene and Plainfield/Daniel Urban Trails (via park paths)	Neighborhood Greenway	Neighborhood Greenway Toolbox (Speed management, major intersections, wayfinding)
Eastwood	Laurel Hill	Heath	Urban Trail	Connects proposed Webster and Heath/ Merino Park Urban Trails; enhances access to schools	Neighborhood Greenway	Neighborhood Greenway Toolbox (Speed management, major intersections, wayfinding)
Heath	Eastwood	Merino Park (trailhead in parking lot)	Urban Trail	Enhances access to Merino Park	Neighborhood Greenway	Neighborhood Greenway Toolbox (Speed management, major intersections, wayfinding)
Glenbridge	Merino Park Path	Button Hole	Urban Trail	Proposed long-term recommendation for enhancing connectivity between Manton, Olneyville, Mount Pleasant, and Hartford, potentially when the bridge is rebuilt	Two-Way Urban Trail with Accessible Sidewalk	Enhance quality of existing facility

Key Traffic Calming Recommendations

Along and around the proposed Grimwood Street, Ophelia/ Eugene Street, Springfield Street, Heath Street, and Eastwood Avenue neighborhood greenways

Key Intersection Improvement Recommendations

Street 1	Street 2	Type
Glenbridge	Button Hole	Network crossing
Glenbridge	Grimwood	Network crossing
Hartford	Heath	Network crossing
Hartford	Kinfield	Neighborhood comment
Hartford	Killingly	Large or complicated intersection
Hartford	Ophelia	Network crossing
Hartford	Ponagansett	Neighborhood comment
Hartford	US-6 EB ramps	Large or complicated intersection
Killingly	Springfield/ Sunset	Large or complicated intersection
Killingly	US-6 ramps	Large or complicated intersection
Plainfield	Daniel	Network crossing
Plainfield	Duxbury	Network crossing
Plainfield	Killingly/Lowell	Large or complicated intersection
Webster	Eastwood	Network crossing

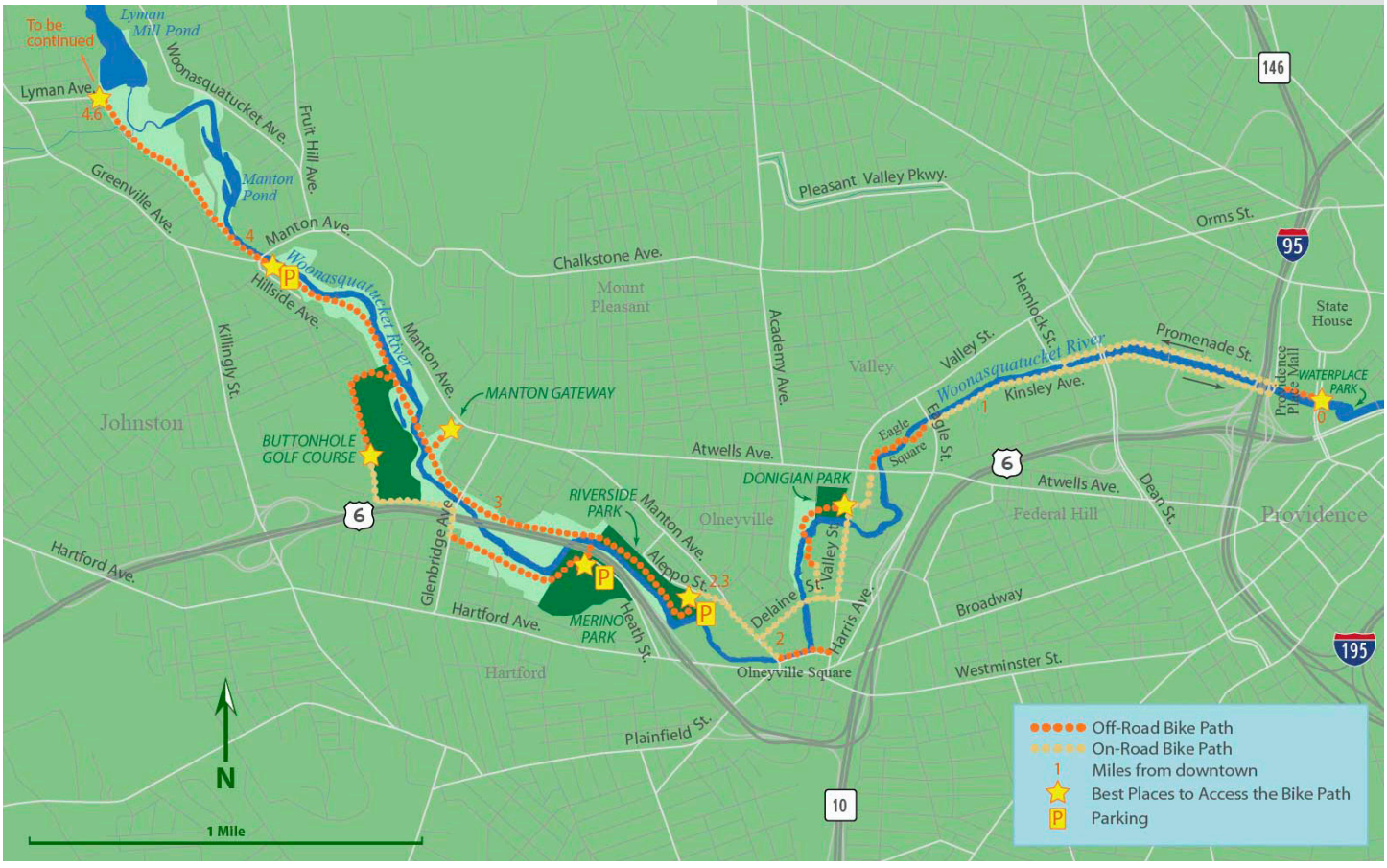
Project Highlight: Connecting the Woonasquatucket Greenway to Neutaconkanut Park

The Woonasquatucket Greenway has a number of segments throughout Hartford, Manton, Olneyville, and Valley. The Greenway, advocated for by the Woonasquatucket River Watershed Council for many years, has raised awareness of the River, improved access to sustainable transportation for surrounding neighborhoods, and led to the clean up and redevelopment of numerous properties along the River.

Connecting other neighborhood destinations such as Neutaconkanut Park, Delsesto Middle School, and Carnevale Elementary School to the Greenway will create a safe, walkable, and bikeable network within Hartford that people of all ages and abilities can enjoy.

Much of this connectivity can be accomplished by creating neighborhood greenways along Grimwood, Ophelia, and Springfield streets, which do not require significant changes. Neighborhood greenways along these streets would likely consist of traffic calming (if deemed necessary in consultation with residents) as well as minor directional signs and roadway markings designating the street as part of the Urban Trail Network.

Watershed Council map of the Greenway



Hope

Key Urban Trail Recommendations

Create north-south Urban Trails on North Main Street and Hope Street. Address north-south connectivity for people walking, riding bicycles, and using other micromobility options on these three corridors, while responding to each of the their contexts with different conceptual designs.

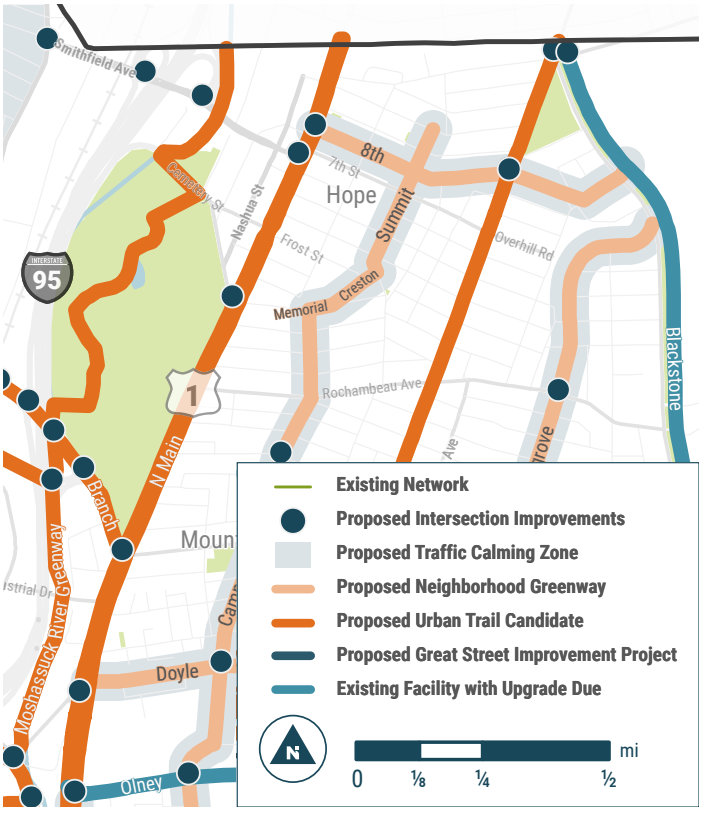
- *North Main Street:* North Main Street is a commercial street, RIPTA R-Line route, and high-ranking crash corridor in the City's Vulnerable Road User Safety Action Plan (2009-15). Implement an on-road Urban Trail from Smith Street to the northern city limit. Additionally, consider the potential for a north-south route using the existing paths in North Burial Ground. Coordinate with RIPTA to integrate transit improvements along North Main Street such as light rail or bus rapid transit.
- *Hope Street:* Hope Street is a major north-south route shared by the three neighborhoods. It is a primarily residential street with commercial nodes at Rochambeau Avenue, Ninth Street, and Blackstone Boulevard. Continuing the Urban Trail on Hope Street north of College Hill was one of the most frequently-made suggestions from public comments on the Draft Urban Trail Network.

Establish an off-road Urban Trail along the Moshassuck River. A long-term vision is for Mount Hope, Charles, and Wanskuck to one day be connected to the Urban Trail Network with an off-road path and greenway along the West and Moshassuck rivers. North of Cemetery Street, which is the southern boundary of the Hope neighborhood, the river flows past the Peter Pan bus station, under Smithfield Avenue near the highway ramps, and past a shopping center before crossing into Pawtucket. The City should begin collaboration with property owners, residents, and other stakeholders to establish a concept and bring these segments from vision to reality.

Create a neighborhood greenway on Camp Street and Summit Ave. These neighborhood greenways would supplement the connectivity provided by the north-south Urban Trails and provide a greater resolution in the Urban Trail Network. Coordinate with stakeholders such as RIPTA and The Miriam Hospital on project designs.

Create a neighborhood greenway on 8th Street. The connection over the hill between North Main Street and Hope Street is an important one for the Urban Trail Network, and 8th Street is recommended to make it because it connects to Lorimer Ave on the other side of Hope Street, and ultimately to Blackstone Boulevard.

Neighborhood Map



Project Highlight: North Main Street

North Main Street is an important commercial and transportation corridor connecting Pawtucket and Providence, and it is currently designed primarily for motor vehicles, with inhospitable conditions for walking and bicycling and despite being a critical transit corridor, putting buses in the same traffic as cars. In RIPTA's Transit Forward RI master plan, enhanced transit infrastructure is proposed on the corridor. In collaboration with RIPTA's plans, the City and State should evaluate how North Main Street can become a more welcoming place for everyone, no matter how they're getting around.

Project List

Street or Trail Name	From	To	Project Type	Why is this important?	Recommendation	Implementation Action
Hope	Blackstone Blvd	Doyle	Urban Trail	Serves three neighborhoods; creates a regional connection to North Providence; enhances micromobility access to parks, schools, and retail districts	Two-Way Urban Trail with Accessible Sidewalk	Consolidate parking one side, Move curbs
N Main	City limit	Branch/ Cypress	Urban Trail	Long-term recommendation to improve connectivity between Hope, Mount Hope, College Hill, and Downtown, as well as north to Pawtucket	Two-Way Urban Trail with Accessible Sidewalk	Remove travel lane (Road Diet)
8th	N Main	Lorimer	Urban Trail	Connects Hope and Blackstone; connects to proposed N Main, Summit, Hope, and Lorimer Urban Trails	Neighborhood Greenway	Neighborhood Greenway Toolbox (Speed management, major intersections, wayfinding)
Camp/Creston/ Summit	10th	Olney	Urban Trail	Provides north-south connectivity for Mount Hope, Hope, and College Hill; connects to multiple Urban Trails; enhances access to parks, schools, and Brown University	Neighborhood Greenway	Neighborhood Greenway Toolbox (Speed management, major intersections, wayfinding)

Key Traffic Calming Recommendations

Areas along and around proposed neighborhood greenways:

- Camp Street, Creston Way, and Summit Avenue
- 8th Street and Lorimer Avenue

Key Intersection Improvement Recommendations

Street 1	Street 2	Type
Blackstone	Hope	Priority from draft map comments Neighborhood comment
Blackstone	Alfred Stone	Large or complicated intersection Pedestrian/bicycle crash focus intersection
Hope	8th	Network crossing
N Main	8th	Network crossing
N Main	Smithfield	Priority from draft map comments
N Main	Stenton/ Cemetery	Large or complicated intersection
Smithfield	I-95 NB ramps	Large or complicated intersection
Smithfield	I-95 SB ramps	Large or complicated intersection
Summit	Edgehill	Neighborhood comment
Summit	7th	Neighborhood comment
West River Greenway	Moshassuck River Greenway	Network crossing

Project Highlight: Summit Avenue

During the community engagement phase of the Great Streets planning process, North Main and Hope streets were two of the most commonly requested Urban Trail routes in the city. Given the complexity of both projects, Summit Avenue (along with its extensions to the south on Camp and Brown streets) is included in the plan as a neighborhood greenway to provide north-south connectivity until the more complex North Main and Hope street improvements can be completed.

Neighborhood greenways do not require significant changes to streets that, like Summit Avenue, are already fairly comfortable places to walk and bike. Because Summit is already a pleasant route to take, it was suggested by some members of the public for inclusion. The neighborhood greenway improvements in this case would likely consist of any necessary traffic calming to ensure cars are driving a safe speed on the street, as well as signage and road markings designating the street as a quiet and comfortable place to walk or bike.

Lower South Providence

Key Urban Trail Recommendations

Implement City Walk along Broad Street. City Walk is an in-progress Urban Trail project on Broad, Pine, Friendship, and Clifford streets that will: strengthen connections between South Providence, other neighborhoods, parks, and civic institutions; improve safety for people traveling by all modes; and celebrate the diversity and culture of Providence neighborhoods through public art, wayfinding signage, and vibrant public places. City Walk Phase 1 on Clifford, Pine, and Friendship streets is now complete.

Create a neighborhood greenway on Oxford Street to connect the neighborhood to City Walk, Elmwood Avenue via Ontario Street, and Allens Avenue and reduce speeding on a neighborhood street.

Upgrade Allens Avenue for people walking, bicycling, and using micromobility and create an Urban Trail. An Urban Trail and other walking, bicycling, and micromobility improvements on this major street will help residents connect to Downtown, the Hospital District, and Washington Park. Since it is a state-maintained road, an Urban Trail on Allens Avenue will require partnership and coordination with RIDOT.

Key Traffic Calming Recommendations

Areas along and around the proposed neighborhood greenway on Oxford Street

Key Intersection Improvement Recommendations

Street 1	Street 2	Type
Allens	Oxford	Network crossing
Allens	Thurbers/I-95 ramps	Large or complicated intersection Priority from draft map comments
Broad	Ontario/Oxford	Network crossing Pedestrian/bicycle crash focus intersection
Broad	Pennsylvania	Pedestrian/bicycle crash focus intersection
Broad	Sackett	Network crossing
Broad	Thurbers/Lenox	Large or complicated intersection Pedestrian/bicycle crash focus intersection
Eddy	Thurbers/I-95 ramps	Priority from draft map comments
Eddy	Willard/I-95 SB off-ramp	Large or complicated intersection

Project List

Street or Trail Name	From	To	Project Type	Why is this important?	Recommendation	Implementation Action
Broad	Hawthorne	Fricker/ Lockwood	Urban Trail	City Walk project	Two-Way Urban Trail with Accessible Sidewalk	Remove travel lane (Road Diet)
Oxford	Broad	Allens	Urban Trail	Along with proposed Ontario Urban Trail, provides east-west Urban Trail connection between Elmwood and Lower South Providence	Neighborhood Greenway	Neighborhood Greenway Toolbox (Speed management, major intersections, wayfinding)
Allens/ Narragansett	City limit	Public	Upgrade Due	North-south connection between South Providence and Washington Park	Two-Way Urban Trail with Accessible Sidewalk	Narrow travel or parking lane (Lane Diet), Move curbs

Neighborhood Map

Manton

Key Urban Trail Recommendation

Create north-south neighborhood greenway route on Ortoleva Drive, Ada Street, and Brush Hill Road. This will enhance north-south connectivity for the neighborhood and calm traffic on these residential streets.

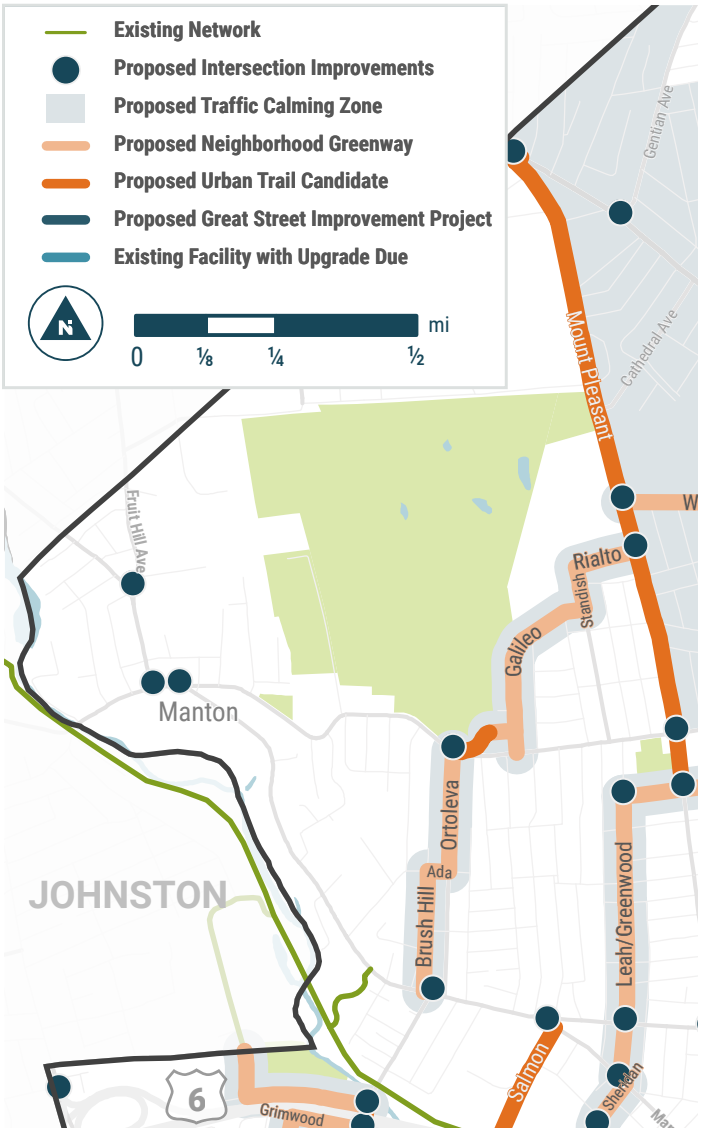
Key Traffic Calming Recommendations

Areas along and around proposed neighborhood greenways on Brush Hill Road, Ada Street, and Ortoleva Drive.

Project List

Street or Trail Name	From	To	Project Type	Why is this important?	Recommendation	Implementation Action
Brush Hill/Ada/ Ortoleva	Manton	Chalkstone	Urban Trail	Connects Manton, Mount Pleasant, and Olneyville; southern portion of a proposed Urban Trail route extending over one mile between in-progress Mount Pleasant Urban Trail and Manton Avenue	Neighborhood Greenway	Neighborhood Greenway Toolbox (Speed management, major intersections, wayfinding)

Neighborhood Map



Key Intersection Improvement Recommendations

Street 1	Street 2	Type
Chalkstone	Ortoleva	Network crossing
Manton	Glenbridge	Large or complicated intersection
Manton	Baltimore	Neighborhood comment
Manton	Ortoleva	Neighborhood comment
Manton	Chalkstone	Large or complicated intersection
Manton	Fruit Hill	Large or complicated intersection
Woonasquatucket	Fruit Hill	Priority from draft map comments

Mount Hope

Key Urban Trail Recommendations

Create Urban Trails on North Main Street and Hope Street. Address north-south connectivity for people walking, riding bicycles, and using other micromobility options on these three corridors, while responding to each of the their contexts with different conceptual designs.

- *North Main Street* is a commercial street, RIPTA R-Line route, and high-crash corridor. Implement an on-road Urban Trail from Smith Street to the Pawtucket city line. Coordinate with RIPTA to integrate transit improvements along North Main Street such as light rail or bus rapid transit.
- *Hope Street* is a major north-south route. Continuing the Urban Trail on Hope Street north of College Hill was one of the most frequently-made suggestions from public comments on the Draft Urban Trail Network.

Create a neighborhood greenway on Camp Street. This would supplement the connectivity provided by the north-south Urban Trails and provide a greater resolution in the Urban Trail Network.

Create a neighborhood greenway on Doyle Avenue to provide east-west connectivity in the southern part of Mount Hope that, via extending on Upton Avenue, connects from North Main Street all the way to Blackstone Boulevard.

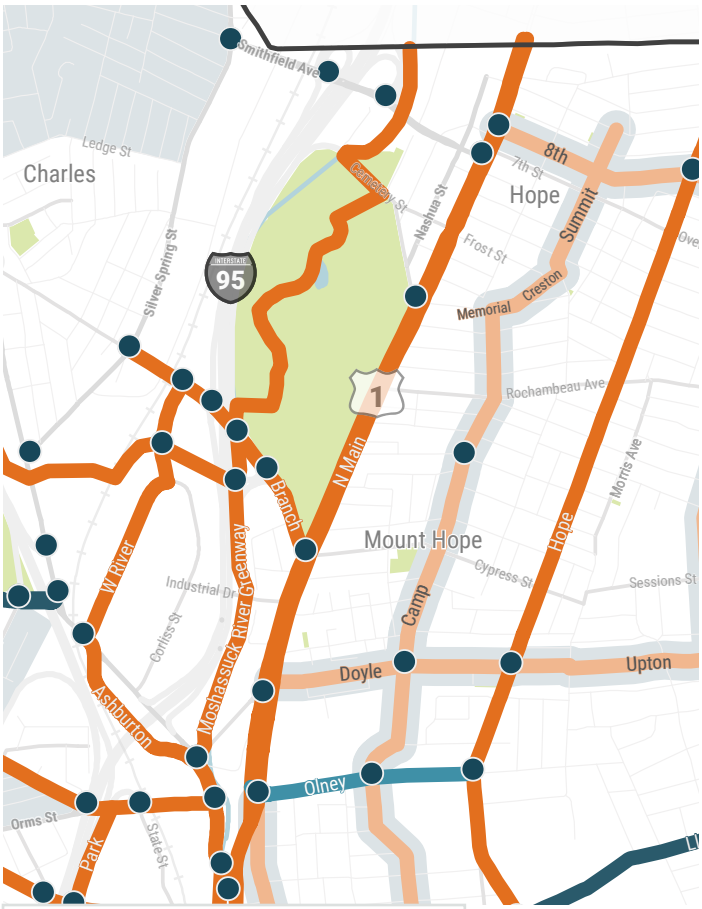
Establish an off-road Urban Trail along the Moshassuck River. A long-term vision is for Mount Hope, Charles, and Wanskuck to one day be connected with an off-road greenway along the West and Moshassuck rivers. Through Mount Hope, the river runs from Charles Street alongside I-95. Due to space constraints between North Burial Ground and I-95, enhance portions of the existing path system through North Burial Ground to connect through to Cemetery Street. The City should begin collaboration with property owners, residents, and other stakeholders to establish a concept and bring these segments from vision to reality. Near the Branch Avenue ramps to I-95, this long-term vision would see a path branching off from the Moshassuck River there to follow the West River and connect to Charles and Wanskuck.

Reduce barriers to Urban Trail connectivity. Implement Urban Trails on Branch Avenue, West River Street, and Ashburton Street to increase overall connectivity within Mount Hope and mitigate the east-west barrier posed by I-95.

Project List

Street or Trail Name	From	To	Project Type	Why is this important?	Recommendation	Implementation Action
Hope	Doyle	Lloyd	Urban Trail	Connects proposed Doyle Urban Trail to Olney Urban Trail and further south to Waterman; enhances access to schools and Brown University	Two-Way Urban Trail with Accessible Sidewalk	Consolidate parking one side
Doyle	N Main	Hope	Urban Trail	Enhances walking conditions; connects to propoesd N Main, Camp, and Hope Urban Trails; enhances access to parks and schools	Neighborhood Greenway	Neighborhood Greenway Toolbox (Speed management, major intersections, wayfinding)
N Main	City limit	Branch/ Cypress	Urban Trail	Long-term recommendation to improve connectivity between Hope, Mount Hope, College Hill, and Downtown, as well as north to Pawtucket	Two-Way Urban Trail with Accessible Sidewalk	Remove travel lane (Road Diet)
Olney	N Main	Hope	Upgrade Due	Connects proposed N Main, Camp, Brown, and Hope Urban Trails (corridor includes existing striped bike lanes)	One-Way Urban Trail with Accessible Sidewalk	Consolidate parking one side, Narrow travel or parking lane (Lane Diet)
Ashburton	W River St	Randall/ Charles	Urban Trail	Links proposed W River St and Charles/Mill/Canal Urban Trails	Two-Way Urban Trail with Accessible Sidewalk	Remove parking one side, Remove travel lane (Road Diet)
W River St	Charles	Branch	Urban Trail	Connects proposed Ashburton and Branch Urban Trails; potential for a long-term connection to West River Greenway	Two-Way Urban Trail with Accessible Sidewalk	Narrow travel or parking lane (Lane Diet), Move curbs
Branch	N Main	Silver Spring	Urban Trail	Connects Charles and Mount Hope neighborhoods and proposed N Main and W River St Urban Trails	Two-Way Urban Trail with Accessible Sidewalk	Narrow travel or parking lane (Lane Diet), Move curbs
N Main	Branch	Smith	Urban Trail	Key north-south Urban Trail connection; enhances access to Downtown; connects to existing Urban Trail on Canal and proposed Urban Trail on Smith	One-Way Urban Trail with Accessible Sidewalk	Remove travel lane (Road Diet)
Camp/Creston/ Summit	10th	Olney	Urban Trail	Provides north-south connectivity for Mount Hope, Hope, and College Hill; connects to multiple Urban Trails; enhances access to parks, schools, and Brown University	Neighborhood Greenway	Neighborhood Greenway Toolbox (Speed management, major intersections, wayfinding)

Neighborhood Map



Key Traffic Calming Recommendations

Areas along and around proposed neighborhood greenways:

- Doyle Avenue
- Camp Street
- 8th Street and Lorimer Avenue

Key Intersection Improvement Recommendations

Street 1	Street 2	Type
Branch	W River	Network crossing
Branch	I-95 NB ramps	Large or complicated intersection Pedestrian/bicycle crash focus intersection
Branch	I-95 SB ramps	Large or complicated intersection
Branch	Moshassuck River Greenway	Network crossing
Branch	N Main	Network crossing Large or complicated intersection Pedestrian/bicycle crash focus intersection
Camp	Abbott	Neighborhood comment
Camp	Doyle	Network crossing
Camp	Evergreen	Priority from draft map comments
Charles	Ashburton/ Randall	Network crossing Large or complicated intersection
Charles	Orms	Network crossing
Firglade	Elgin	Neighborhood comment
Hope	Olney	Network crossing Large or complicated intersection
Hope	Doyle	Network crossing Large or complicated intersection
N Main	8th	Network crossing
N Main	Randall/Doyle	Network crossing Large or complicated intersection
N Main	Olney	Network crossing Large or complicated intersection
N Main	Smithfield	Priority from draft map comments
N Main	Stenton/ Cemetery	Large or complicated intersection
Olney	Camp	Network crossing
Orms	State	Pedestrian/bicycle crash focus intersection Large or complicated intersection
West River Greenway	W River	Network crossing
West River Greenway	Moshassuck River Greenway	Network crossing
W River	Ashburton	Network crossing

Mount Pleasant

Key Urban Trail Recommendations

Create an Urban Trail along Mount Pleasant Avenue between Smith Street and Roanoke Street. This project will enhance Safe Routes to School for Mount Pleasant High School, George West Elementary School, and Saint Augustine's School, and connect to neighborhood greenways proposed along Whitford Avenue, Rialto Street, Roanoke Street, and Leah Street.

Create north-south neighborhood greenways. Implement primarily north-south neighborhood greenways to better connect the three neighborhoods to each other, adjacent neighborhoods, and key destinations on traffic-calmed routes.

- *Leah Street* south of Roanoke Street will provide a traffic-calmed route connecting Mount Pleasant to Olneyville and the Woonasquatucket River Greenway.
- *Rialto Street, Standish Avenue, Galileo Avenue, and Marconi Street* will help connect to Chalkstone Avenue and destinations further south. A short off-road connector path through the fringe of Triggs Golf Course would create a safe and comfortable connection to another neighborhood greenway on Ortoleva Drive.

Create east-west neighborhood greenways. Implement east-west neighborhood greenways on Whitford Avenue and Roanoke Street to fill in the Urban Trail network and better connect Mount Pleasant, Elmhurst, and Valley. These projects will benefit access to Mount Pleasant High School, La Salle Academy, George J. West Elementary School, Mount Pleasant Academy, and Rhode Island College.

Key Traffic Calming Recommendations

The area bordered by Mount Pleasant Avenue, Smith Street, and Chalkstone Avenue

- Includes proposed Urban Trail/traffic calming on Mount Pleasant Avenue and neighborhood greenway/traffic calming on Whitford Avenue
- Area has seen over 20 traffic calming requests over the last 10 years

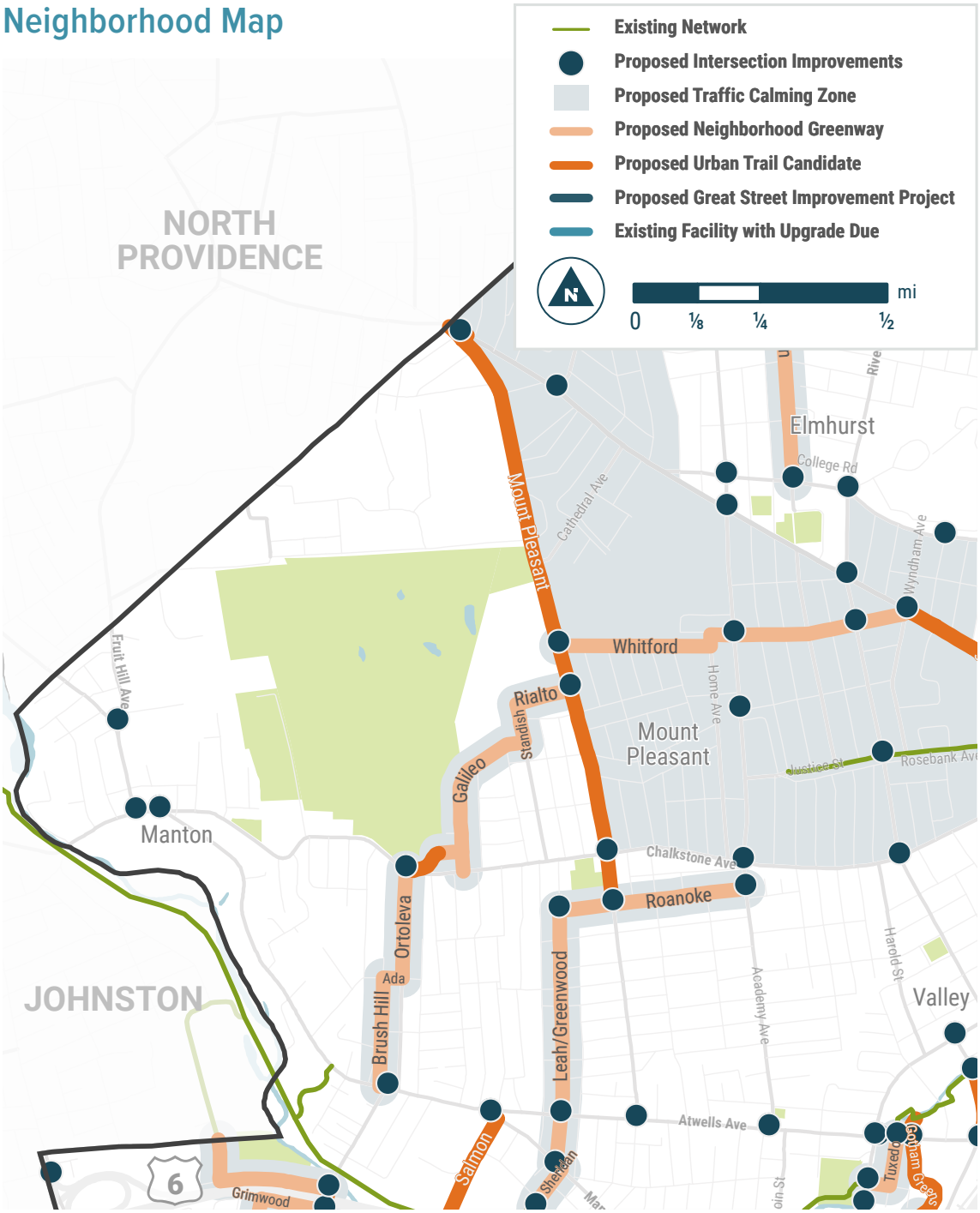
Areas along and around proposed neighborhood greenways:

- Leah Street
- Rialto Street, Standish Avenue, Galileo Avenue, and Marconi Street

Project List

Street or Trail Name	From	To	Project Type	Why is this important?	Recommendation	Implementation Action
Mount Pleasant	Smith	Roanoke	Urban Trail	In-progress RIDOT project to provide traffic calming and enhance conditions for micromobility users	Two-Way Urban Trail with Accessible Sidewalk	Consolidate parking one side, Narrow travel or parking lane (Lane Diet)
Whitford	Mount Pleasant	Smith	Urban Trail	Connects to in-progress Mount Pleasant Urban Trail with proposed Smith Urban Trail; enhances access to schools and Rhode Island College	Neighborhood Greenway	Neighborhood Greenway Toolbox (Speed management, major intersections, wayfinding)
Roanoke	Leah	Academy	Urban Trail	Connects in-progress Mount Pleasant and proposed Leah Urban Trails; enhances access to schools	Neighborhood Greenway	Neighborhood Greenway Toolbox (Speed management, major intersections, wayfinding)
Leah/ Greenwood/ Sheridan	Roanoke	Woonasquatucket River Greenway	Urban Trail	Provides connections to schools and the Woonasquatucket River Greenway	Neighborhood Greenway	Neighborhood Greenway Toolbox (Speed management, major intersections, wayfinding)
Rialto/Standish/ Galileo/Marconi	Mount Pleasant	Chalkstone/Triggs Golf Course path	Urban Trail	Connects in-progress Mount Pleasant Urban Trail to proposed Triggs Golf Course path; enhances access to schools	Neighborhood Greenway	Neighborhood Greenway Toolbox (Speed management, major intersections, wayfinding)
Triggs Golf Course path	Chalkstone	Marconi	Urban Trail	Connects proposed Brush Hill/Ada/ Ortoleva and Rialto/Standish/Galileo/ Marconi Urban Trails	Two-Way Shared Use Path	Independent ROW

Neighborhood Map



Key Intersection Improvement Recommendations

Street 1	Street 2	Type
Academy	Pleasant Valley	Large or complicated intersection
Academy	Chalkstone	Priority from draft map comments
Atwells	Manton	Neighborhood comment
Atwells	Mount Pleasant	Large or complicated intersection
Atwells	Academy	Priority from draft map comments
Chalkstone	Ortoleva	Network crossing
Mount Pleasant	Rialto	Network crossing
Mount Pleasant	Whitford	Network crossing

Street 1	Street 2	Type
Mount Pleasant	Chalkstone	Pedestrian/bicycle crash focus intersection Large or complicated intersection
Mount Pleasant	Roanoke	Network crossing
Smith	Mount Pleasant	Large or complicated intersection
Smith	Longwood	Neighborhood comment
Smith	Gentian	Priority from draft map comments
Smith	Eaton	Neighborhood comment
Smith	Academy	Priority from draft map comments

Olneyville

Key Urban Trail Recommendations

Create new Urban Trail segments to extend and fill in gaps along the Woonasquatucket River Greenway. Extend access for people walking, riding bicycles, and using micromobility options along the Woonasquatucket River by implementing several new segments.

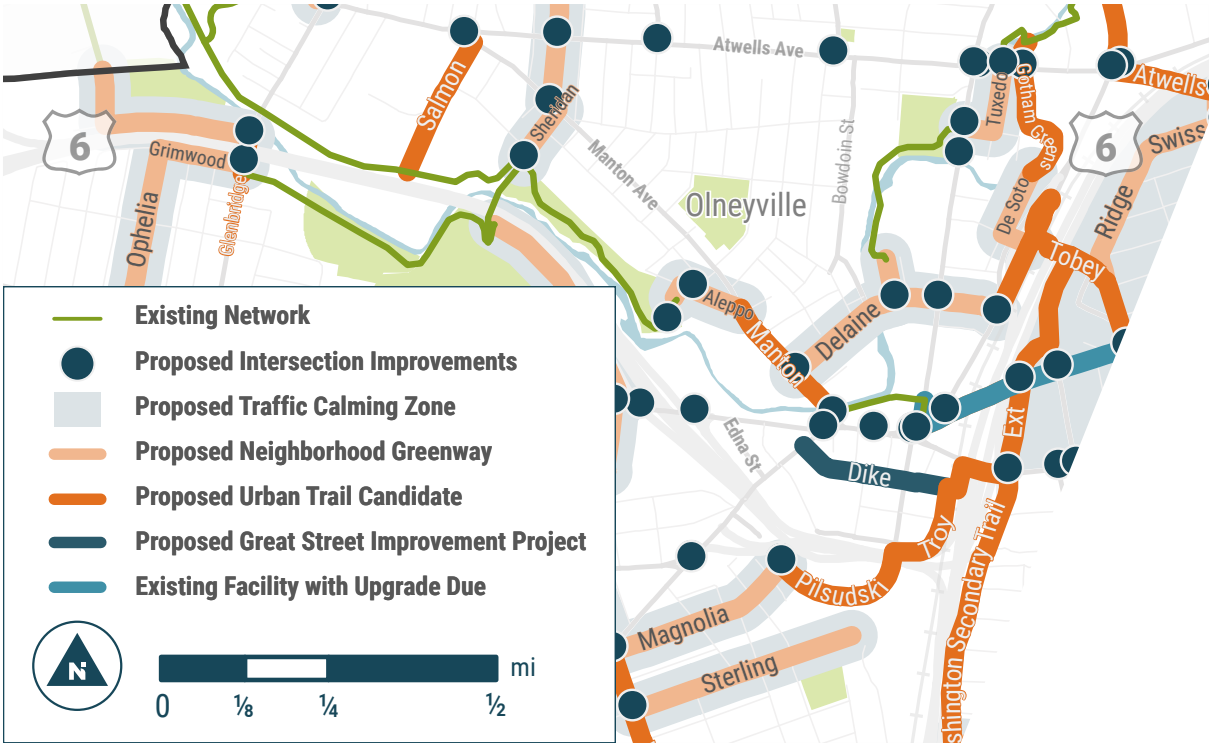
- *An off-road path along the Woonasquatucket River at the Gotham Greens site:* This project, the groundwork for which was laid as part of the Gotham Greens development, will connect the existing Woonasquatucket Greenway segment across Atwells Avenue at Eagle Square to the Urban Trail on the future Tobey Street bridge being constructed as part of the 6/10 Reconstruction project.
- *Neighborhood greenway improvements on Delaine Street, Sonoma Court, Tuxedo Ave, Amherst St, and Aleppo Street* to make existing on-road Woonasquatucket Greenway routes clearer and safer.
- *Create an on-road Urban Trail on Manton Avenue* between Olneyville Square and Aleppo Street. If a feasible off-road alternative connection between the Square and Riverside Park is available, this connection may be unnecessary.
- *Create a new access path to the Woonasquatucket Greenway near Manton Heights.* Salmon Street is the backbone of a potential new connection between Manton Avenue and the Greenway.

Create new Urban Trail connections to adjacent neighborhoods.

- Convert the existing bike lanes on Broadway (between Downtown and Olneyville) to an Urban Trail and extend the trail to Valley Street.
- The 6/10 Reconstruction Project will provide new Urban Trail connections to Federal Hill via a new Tobey Street bridge and to the West End via a new bicycle and pedestrian bridge to Westminster Street from Dike Street.
- Create a new on-road Urban Trail connecting to Silver Lake along Pilsudski streets. Because Troy Street is narrow and high-traffic, also create a new off-road connection paralleling the reconstructed US-6 ramp to connect to the new bicycle and pedestrian bridge at Dike Street.
- Extend the proposed Leah Street neighborhood greenway from Mount Pleasant into Olneyville via Greenwood Street, Manton Avenue, and Sheridan Street to provide access to the Woonasquatucket River Greenway.
- Connect Valley to Federal Hill via an on-road Urban Trail on Atwells Avenue between Eagle and Knight streets.

Improve pedestrian environment within Olneyville. During the neighborhood meetings for this plan, improved lighting on Dike Street was suggested to enhance walkability.

Neighborhood Map



Project List

Street or Trail Name	From	To	Project Type	Why is this important?	Recommendation	Implementation Action
Manton	San Souci	Aleppo	Urban Trail	Helps connect San Souci Urban Trail to Woonasquatucket River Greenway via Aleppo St.	Two-Way Urban Trail with Accessible Sidewalk	Consolidate parking one side
Tobey	Washington Sec Trail Ext	Helme	Urban Trail	New connection between Federal Hill and Olneyville neighborhoods to be completed by 6/10 Reconstruction Project	Two-Way Shared Use Path	Move curbs
Broadway	Valley	Greene	Urban Trail	Key connection for Downtown, Federal Hill, and Olneyville neighborhoods	Two-Way Urban Trail with Accessible Sidewalk	Narrow travel or parking lane (Lane Diet)
Valley	San Souci	Broadway	Upgrade Due	Connects new San Souci Urban Trail with in-progress Broadway Urban Trail	Two-Way Shared Use Path	Move curbs
Aleppo	Manton	Woonasquatucket River Greenway	Urban Trail	Key Woonasquatucket River Greenway access point	Neighborhood Greenway	Neighborhood Greenway Toolbox (Speed management, major intersections, wayfinding)
New path/ bridge	Washington Sec Trail Ext	Dike	Urban Trail	As part of 6/10 Reconstruction Project, enhances connectivity between Olneyville and West End	Two-Way Shared Use Path	Move curbs
Woonasquatucket River Greenway	Riverside Park	Manton	Urban Trail	Longer-term project, subject to available right-of-way, to extend the greenway south and enhance access to Olneyville destinations	Two-Way Shared Use Path	Independent ROW
Salmon/new path	Woonasquatucket River Greenway	Manton	Urban Trail	Enhances access to the Woonasquatucket River Greenway	Neighborhood Greenway	Neighborhood Greenway Toolbox (Speed management, major intersections, wayfinding)
Dike	Plainfield	New path/ bridge	Great Street	Aligns with recommendations in Dike St. Special Area Plan; street will lead to and from new path over 6/10 Connector	Other Great Street Improvement	Enhance quality of existing facility
Gotham Greens path	De Soto	Atwells	Urban Trail	Extends Woonasquatucket River Greenway south of Atwells and connects to Tobey path being built as part of the 6/10 Reconstruction Project	Two-Way Shared Use Path	Independent ROW
Woonasquatucket River Greenway	Future Gotham Greens bike path/De Soto	Donigian Park	Urban Trail	Links Donigian Park path to the future Woonasquatucket River Greenway segment on Gotham Greens site and new Tobey path being built as part of 6/10 Reconstruction Project	Two-Way Shared Use Path	Independent ROW
Leah/ Greenwood/ Sheridan	Roanoke	Woonasquatucket River Greenway	Urban Trail	Provides connections to schools and the Woonasquatucket River Greenway	Neighborhood Greenway	Neighborhood Greenway Toolbox (Speed management, major intersections, wayfinding)
New path	Dike/6-10 Connector	Pilsudski	Urban Trail	Connects proposed Pilsudski Urban Trail with 6/10 Reconstruction Project in-progress path connection	Two-Way Shared Use Path	Independent ROW
Amherst/Tuxedo	Valley	Atwells	Urban Trail	Connects Donigian Park path to Woonasquatucket River Greenway at Atwells	Neighborhood Greenway	Neighborhood Greenway Toolbox (Speed management, major intersections, wayfinding)
Delaine	Manton	Harris	Urban Trail	Connects in-progress Manton Urban Trail to 6/10 Reconstruction Project path	Neighborhood Greenway	Neighborhood Greenway Toolbox (Speed management, major intersections, wayfinding)
Sonoma	Delaine	Donigian Park Bikeway	Urban Trail	Connects proposed Delaine Urban Trail with existing bike path	Neighborhood Greenway	Neighborhood Greenway Toolbox (Speed management, major intersections, wayfinding)

Key Traffic Calming Recommendations

Areas along and around proposed neighborhood greenways: Aleppo Street, Amherst Street and Tuxedo Avenue, Greenwood and Sheridan streets, Delaine Street

Key Intersection Improvement Recommendations

Street 1	Street 2	Type
6/10 Connector path	Dike	Network crossing
Atwells	Academy	Priority from draft map comments
Atwells	Manton	Large or complicated intersection Neighborhood comment
Atwells	Mount Pleasant	Large or complicated intersection
Atwells	Bowdoin	Neighborhood comment
Atwells	Valley	Pedestrian/bicycle crash focus intersection Large or complicated intersection
Atwells	Eagle	Pedestrian/bicycle crash focus intersection Large or complicated intersection
Atwells	Gotham Greens path	Network crossing
Atwells	Tuxedo	Network crossing
Broadway	Westminster	Large or complicated intersection Pedestrian/bicycle crash focus intersection
Delaine	Harris	Network crossing
Delaine	Sonoma	Network crossing
Donigian Park path	Amherst	Network crossing
Florence	Amherst	Neighborhood comment
Hartford	Atwood	Neighborhood comment
Hartford	US 6 WB ramps	Large or complicated intersection
Manton	Delaine	Network crossing Pedestrian/bicycle crash focus intersection
Manton	Greenwood/ Sheridan	Network crossing
Manton	San Souci	Network crossing Large or complicated intersection
Manton	Hyat	Neighborhood comment
Plainfield	Hartford	Large or complicated intersection
Westminster	Stokes	Neighborhood comment
Woonasquatucket River Greenway	Aleppo	Network crossing
Woonasquatucket River Greenway	Sheridan	Network crossing

Project Highlight: San Souci Greenway

In 2016, the Woonasquatucket River Watershed Council advocated for San Souci Drive to be included for funding in the statewide Green Economy Bond along with other bicycle projects around the state. The bond passed, and the City took on management of the project in collaboration with the Watershed Council. After extensive community engagement in 2018 and 2019, the project was substantially completed in December 2019. Once other sections of the Greenway are completed, the San Souci project will connect the rest of the Woonasquatucket Greenway directly to Olneyville Square.

Before: *Google Street View from 2016*

During: *Rendering presented to neighbors in October 2018*

After: *Substantial completion in October 2019*

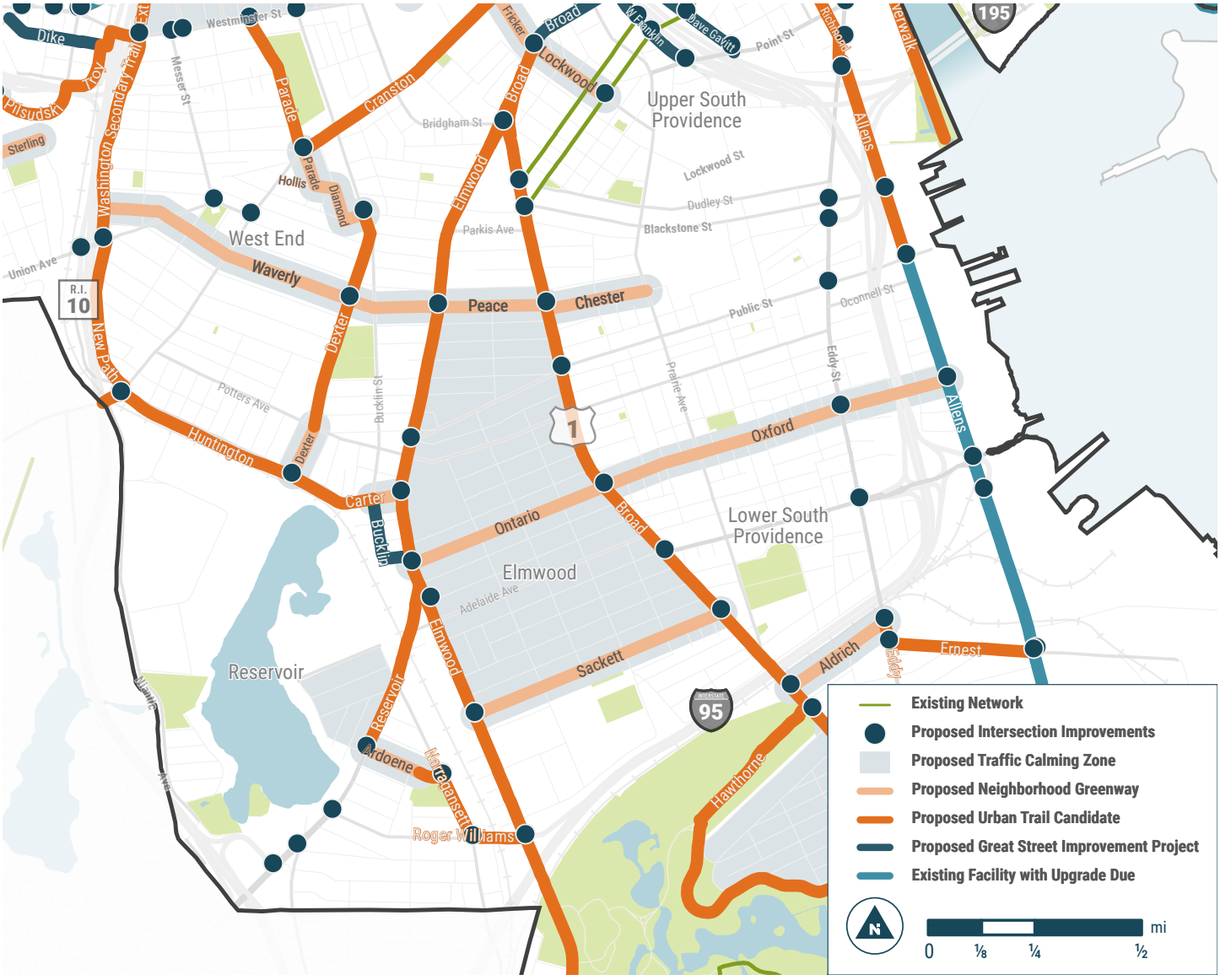
Reservoir

Key Urban Trail Recommendations

Create Urban Trails along the 6/10 Connector and Huntington Avenue. Urban Trails along Salvati Way and Huntington Avenue will combine with the Washington Secondary Trail to create an Urban Trail arc that threads together Elmwood, Reservoir, and West End.

Create Urban Trails on Reservoir, Narragansett, and Roger Williams avenues. Along with a neighborhood greenway on Ardoene Street, these projects would complete a loop of trails serving the Reservoir neighborhood and connect to the Elmwood Avenue Urban Trail.

Neighborhood Map



Project List

Street or Trail Name	From	To	Project Type	Why is this important?	Recommendation	Implementation Action
Reservoir	Elmwood	Ardoene	Urban Trail	Connects Reservoir and Elmwood; connects to proposed Urban Trails on Elmwood and Ardoene	Two-Way Urban Trail with Accessible Sidewalk	Narrow travel or parking lane (Lane Diet), Remove travel lane (Road Diet)
Ardoene	Reservoir	Ardoene Park	Urban Trail	Connects proposed Reservoir Urban Trail with Ardoene Park; provides traffic calming between a park and a school	Neighborhood Greenway	Neighborhood Greenway Toolbox (Speed management, major intersections, wayfinding)
Ardoene Park path	Ardoene	Narra-gansett	Urban Trail	Connects the proposed Ardoene and Narragansett Urban Trails, potentially through enhancing the existing park path and access at each end	Two-Way Shared Use Path	Independent ROW
Narragansett	Ardoene Park	Roger Williams	Urban Trail	Connects proposed Ardoene Urban Trail (via Ardoene Park) with proposed Roger Williams Urban Trail	Two-Way Urban Trail with Accessible Sidewalk	Consolidate parking one side, Move curbs
Roger Williams	Narragansett	Elmwood	Urban Trail	Connects proposed Narragansett and Elmwood Urban Trails; enhances access to Roger Williams Park	Two-Way Urban Trail with Accessible Sidewalk	Remove parking one side

Key Traffic Calming Recommendations

The area between Reservoir Avenue and Mashapaug Pond:

- Includes Dr. Jorge Alvarez High School
- Area has seen traffic calming requests on Algonquin, Crescent, and Sibley streets
- As part of the proposed Reservoir Avenue Urban Trail project, prioritize improvements at intersections in the vicinity of Reservoir Avenue Elementary School for people walking, including crossing improvements for students walking to school and people accessing bus stops

Key Intersection Improvement Recommendations

Street 1	Street 2	Type
Elmwood	Reservoir	Network Crossing
Narragansett	Roger Williams	Network Crossing
Narragansett	Ardoene Park Path	Network Crossing
Reservoir	Ardoene	Network Crossing
Reservoir	Pontiac/Rounds	Large or complicated intersection
Reservoir	Pontiac/US-10 NB ramps	Large or complicated intersection
Reservoir	Roger Williams	Large or complicated intersection

Project Highlight: Ardoene Park Connector

One of the values of having a connected Urban Trail Network is that existing community resources such as parks become more accessible to the members of the community who might use them. That access is valuable in bigger parks such as Roger Williams Park, Neutaconkanut Park, and India Point Park, but also for smaller parks such as Ardoene Park. Featuring a ballfield and playground, Ardoene Park lies at the heart of the neighborhood, yet access is restricted by nearby Reservoir and Elmwood avenues. Both of those streets are proposed to include separated, two-way Urban Trails, but an important part of making sure neighborhood residents can get safely to Ardoene Park and elsewhere are connections to the park on Roger Williams Avenue, Narragansett Avenue (both also separated two-way Urban Trails) and Ardoene Street (a proposed neighborhood greenway).

Silver Lake

Key Urban Trail Recommendations

Create neighborhood greenways through Silver Lake on Daniel, Pocasset, Eastwood, and Sterling avenues, and Magnolia Street, to fill in the network and improve access between Silver Lake and Hartford, Olneyville, the West End, and Federal Hill.

Create an Urban Trail along Pilsudski Street from Magnolia Street in Silver Lake to Troy Street to connect Silver Lake and Olneyville. Activate the Troy Street underpass of US 6 with lighting and placemaking elements to make it more comfortable for people walking, riding bicycles, and using other micromobility options. This Urban Trail will connect to the recommended off-road path connection to the west of the railroad tracks from Dike Street to Magnolia Street in Olneyville. Work with the property owner of the vacant parcel between Pilsudski Street and the end of Sterling Avenue to determine the feasibility of an off-street path connecting the two Urban Trails.

Create an Urban Trail connection on Plainfield Street between Duxbury Street and Daniel Avenue to connect to the proposed Daniel Avenue neighborhood greenway and enhance access to Neutaconkanut Park.

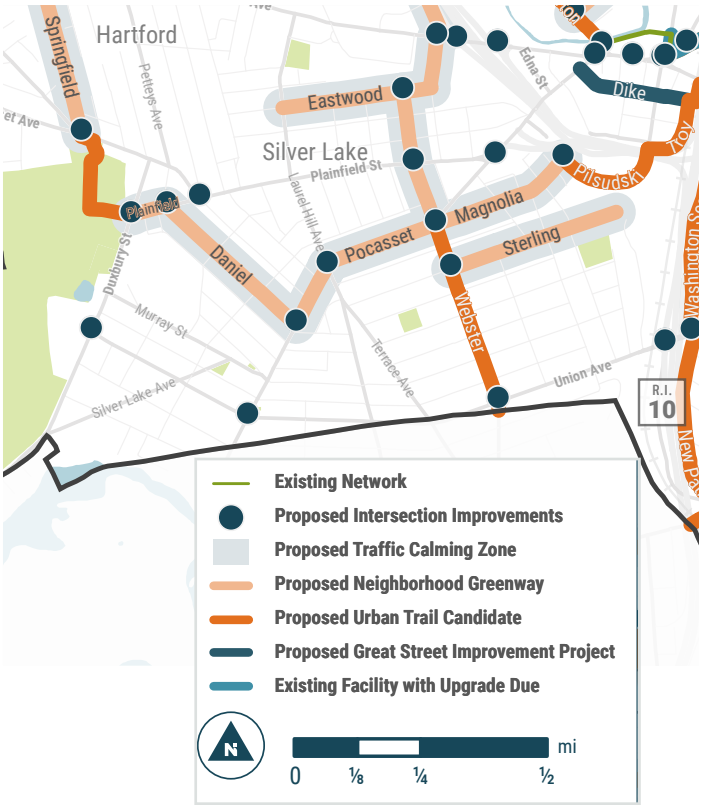
Make a north-south Urban Trail on Webster Avenue. South of Pocasset Avenue, Webster Avenue has the width and traffic volume to recommend a separated Urban Trail. North of Pocasset Avenue, a neighborhood greenway may be more suitable.

Create an off-road Urban Trail through Neutaconkanut Park. The popular neighborhood park features a recreation center, a skate park, and baseball fields. There are existing paths connecting many of these features, and those paths could be enhanced to create an Urban Trail Network connection between Silver Lake and the proposed neighborhood greenway on Springfield Street.

Key Traffic Calming Recommendations

Along and around the proposed neighborhood greenways on Daniel, Sterling, Pocasset, and Lowell avenues, and on Plainfield Street

Neighborhood Map



Key Intersection Improvement Recommendations

Street 1	Street 2	Type
Daniel	Ethan	Neighborhood comment
Dorchester	Daniel	Neighborhood comment
Killingly	Springfield/ Sunset	Large or complicated intersection
Mercy	Ethan	Neighborhood comment
Pilsudski	Magnolia	Network crossing
Plainfield	Daniel	Network crossing
Plainfield	Duxbury	Network crossing
Plainfield	Killingly/Lowell	Large or complicated intersection
Plainfield	Pocasset/US-6 EB on-ramp	Large or complicated intersection
Plainfield	Union	Large or complicated intersection
Pocasset	Daniel	Network crossing
Pocasset	Laurel Hill	Priority from draft map comments
Pocasset	Union	Large or complicated intersection
Union	US-6 SB ramps	Large or complicated intersection
Webster	Eastwood	Network crossing
Webster	Plainfield	Network crossing
Webster	Pocasset/ Magnolia	Network crossing
Webster	Sterling	Network crossing

Project List

Street or Trail Name	From	To	Project Type	Why is this important?	Recommendation	Implementation Action
Grimwood	Glenbridge	Ophelia	Urban Trail	Connects Merino Park path to proposed Ophelia/Eugene Urban Trail	Neighborhood Greenway	Neighborhood Greenway Toolbox (Speed management, major intersections, wayfinding)
Ophelia/Eugene	Grimwood	Springfield	Urban Trail	Connects to proposed Grimwood and Springfield Urban Trails; enhances access to Merino Park, the Woonasquatucket River Greenway, and schools	Neighborhood Greenway	Neighborhood Greenway Toolbox (Speed management, major intersections, wayfinding)
Plainfield/Daniel	Duxbury	Pocasset	Urban Trail	Enhances access to Neutaconkanut Park and Paul Grande Park; connects to proposed Pocasset and Springfield (via park paths) Urban Trails	Neighborhood Greenway	Neighborhood Greenway Toolbox (Speed management, major intersections, wayfinding)
Pocasset	Daniel	Webster/ Magnolia	Urban Trail	Connects proposed Daniel, Webster, and Magnolia Urban Trails	Neighborhood Greenway	Neighborhood Greenway Toolbox (Speed management, major intersections, wayfinding)
Pilsudski/Troy	Magnolia (s/o US 6)	Magnolia (n/o US 6)	Urban Trail	Key connection between Silver Lake and Olneyville underneath US 6	Two-Way Urban Trail with Accessible Sidewalk	Move curbs
Webster	Eastwood	Pocasset/ Magnolia	Urban Trail	Provides a north-south connection between the Hartford and Silver Lake neighborhoods	Neighborhood Greenway	Neighborhood Greenway Toolbox (Speed management, major intersections, wayfinding)
Webster	Pocasset/ Magnolia	City limit	Urban Trail	Provides a north-south connection between Silver Lake and Cranston	Two-Way Urban Trail with Accessible Sidewalk	Consolidate parking one side
Springfield	Eugene	Killingly	Urban Trail	Enhances access to schools and Neutaconkanut Park; connects proposed Ophelia-Eugene and Plainfield/Daniel Urban Trails (via park paths)	Neighborhood Greenway	Neighborhood Greenway Toolbox (Speed management, major intersections, wayfinding)
Sterling	Eastern terminus	Webster	Urban Trail	Connects proposed Webster Urban Trail with proposed trail connection near Forys Playground; enhances access to playground and school	Neighborhood Greenway	Neighborhood Greenway Toolbox (Speed management, major intersections, wayfinding)
Eastwood	Laurel Hill	Heath	Urban Trail	Connects proposed Webster and Heath/ Merino Park Urban Trails; enhances access to schools	Neighborhood Greenway	Neighborhood Greenway Toolbox (Speed management, major intersections, wayfinding)
Heath	Eastwood	Merino Park (trailhead in parking lot)	Urban Trail	Enhances access to Merino Park	Neighborhood Greenway	Neighborhood Greenway Toolbox (Speed management, major intersections, wayfinding)
Glenbridge	Merino Park Path	Button Hole	Urban Trail	Proposed long-term recommendation for enhancing connectivity between Manton, Olneyville, Mount Pleasant, and Hartford, potentially when the bridge is rebuilt	Two-Way Urban Trail with Accessible Sidewalk	Enhance quality of existing facility

Project Highlight: Neutaconkanut Park

Most of the proposed Urban Trail routes in Silver Lake are neighborhood greenways, which would mostly involve traffic calming and signage. While the goal of these is to provide residents with the option and access to use the Urban Trail Network, another goal is to connect residents to Neutaconkanut Park. The proposed route through the park would similarly use existing routes (around the ballfields) with only minor changes necessary: widening of the path in some places, potentially some new curb ramps, and signage. The dotted lines at right indicate alternative route options. Inclusion of this connection will provide better access to the park and allow more people to use this valued community resource.

Smith Hill

Key Urban Trail Recommendations

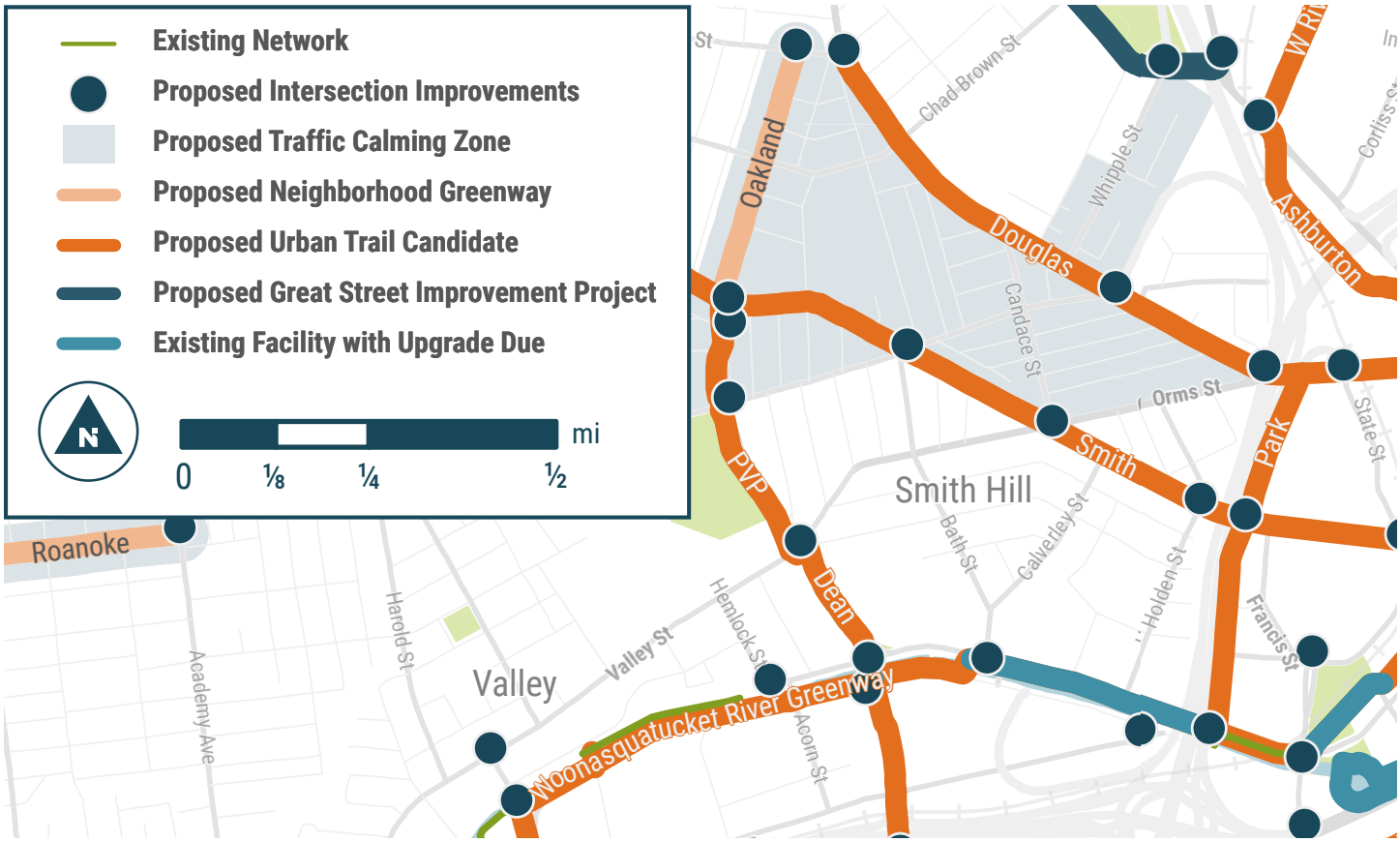
Create an Urban Trail along the Woonasquatucket River between Eagle Square and Downtown: This will fill in the largest Urban Trail gap between Olneyville and Downtown. This project has received approximately $6 million in Statewide Transportation Improvement Program funding and is expected to be completed in 2022.

Create an Urban Trail along Dean Street/Pleasant Valley Parkway. Complete an Urban Trail connection along Dean Street and Pleasant Valley Parkway from Atwells Avenue through Davis Park to Eaton Street (via the proposed Oakland Avenue Urban Trail), connecting Elmhurst, Smith Hill, Valley, and Federal Hill.

Create an Urban Trail along Smith Street. Work with RIDOT to implement an Urban Trail on Smith Street (a state-owned and state-maintained street) from Canal Street to Whitford Avenue in Elmhurst. This would connect with the new Canal Street Urban Trail, traversing the steep grade and passing over I-95, enhancing east-west connectivity for the neighborhood. A project on Smith Street would also be an opportunity to address some of the neighborhood comments related to speeding and crossing the street on Smith Street, especially between Oakland Avenue and Orms Street.

Implement an Urban Trail along Douglas Avenue. In the northern part of the neighborhood, the City will be installing an Urban Trail on Douglas Avenue to improve conditions for people walking, bicycling, and using micromobility.

Neighborhood Map



Project List

Street or Trail Name	From	To	Project Type	Why is this important?	Recommendation	Implementation Action
Dean	Atwells	Valley	Urban Trail	Connects across key gap in pedestrian, bicycle, and micromobility access between Federal Hill, Valley, and Smith Hill	Two-Way Urban Trail with Accessible Sidewalk	Move curbs
Dean/Raymond/ Oakland/Davis Park Path	Valley	Smith	Urban Trail	Connects school and major neighborhood park and fills network gap between the Woonasquatucket River and Smith Street	Two-Way Shared Use Path	Move curbs, Enhance quality of existing facility
Woonasquatucket River Greenway Extension	Eagle	Park	Urban Trail	Project in design that extends Woonasquatucket River Greenway into Downtown	Two-Way Shared Use Path	Remove travel lane (Road Diet)
Smith	Oakland	Orms	Urban Trail	Completes Smith Hill connection from Oakland to College Hill; enhancing access to schools, parks, downtown, and other destinations	Two-Way Urban Trail with Accessible Sidewalk	Consolidate parking one side
Smith	Orms	Park	Urban Trail	Extends proposed Smith Urban Trail by State Capitol west to Smith Hill neighborhood; enhances access to park	Two-Way Urban Trail with Accessible Sidewalk	Remove parking one side, Narrow travel or parking lane (Lane Diet)
Smith	Park	Canal	Urban Trail	Provides connectivity through State Capitol area to new Urban Trail on Canal St.	Two-Way Urban Trail with Accessible Sidewalk	Remove travel lane (Road Diet)
Charles/Mill/ Canal	Ashburton/ Randall	Smith	Urban Trail	Connects to new Canal Urban Trail and proposed W. River St. Urban Trail; moves toward better access to Downtown from Charles and Mount Hope	Two-Way Urban Trail with Accessible Sidewalk	Remove travel lane (Road Diet), Move curbs
Oakland	Smith	Eaton	Urban Trail	North-south connection between neighborhoods; enhances access to Providence College, Davis Park, and schools; extends proposed Dean/PVP Urban Trail north	Neighborhood Greenway	Neighborhood Greenway Toolbox (Speed management, major intersections, wayfinding)
Douglas	Orms	Eaton	Urban Trail	Enhances access to parks, schools, and Providence College	Two-Way Urban Trail with Accessible Sidewalk	Consolidate parking one side

Key Traffic Calming Recommendations

The area of Smith Hill between Smith Street and Douglas Avenue:

- Investigate speeding concerns along Camden Avenue, Wayne Street, and the area north of Douglas, including Whipple Street
- Area has seen over 10 traffic calming requests over the last 10 years, including on Candace, Goddard, Wayne, Nolan, Chalkstone, Ruggles, Camden, Osborn, Pekin, and Jefferson streets

Key Intersection Improvement Recommendations

Street 1	Street 2	Type
Dean	Kinsley	Network crossing
Dean	Promenade	Network crossing Large or complicated intersection
Orms	Candace	Large or complicated intersection
Orms	Jefferson	Neighborhood comment
Smith	Oakland	Network crossing Priority from draft map comments
Smith	Park	Network crossing
Smith	Chalkstone	Priority from draft map comments

South Elmwood

Key Urban Trail Recommendations

Implement and extend City Walk along Broad Street and Elmwood Avenue. City Walk is an in-progress Urban Trail project on Broad, Pine, Friendship, and Clifford streets that will: strengthen connections between South Providence, other neighborhoods, parks, and civic institutions; improve safety for people traveling by all modes; and celebrate the diversity and culture of Providence neighborhoods through public art, wayfinding signage, and vibrant public places. City Walk Phase 1 on Clifford, Pine, and Friendship streets is now complete. City Walk should be extended along all of Elmwood Avenue as envisioned by the 2014 City Walk study. A road diet on the sourthern portions of Elmwood Avenue paired with improved crossings would transform this from a high-speed highway access road into the great street the neighborhood has been asking for.

Connect the existing Roger Williams Park loop with City Walk on Broad Street. Hawthorne Avenue and F.C. Greene Memorial Boulevard are already popular routes for bicycling, but high-speed vehicular traffic in the park is unsafe. This proposed improvement would extend the separated Urban Trails to make the connection between them safer for park users.

Neighborhood Map

Key Intersection Improvement Recommendations

Street 1	Street 2	Type
Broad	Aldrich	Network crossing
Broad	Hawthorne	Network crossing
Elmwood	US-10 NB ramps	Large or complicated intersection
Elmwood	US-10 SB ramps/ McKinley	Large or complicated intersection
Greene Memorial Blvd	Farragut	Network crossing

Project List

Street or Trail Name	From	To	Project Type	Why is this important?	Recommendation	Implementation Action
Broad	Hawthorne	Fricker/ Lockwood	Urban Trail	City Walk project	Two-Way Urban Trail with Accessible Sidewalk	Remove travel lane (Road Diet)
Broad	City limit	Hawthorne	Urban Trail	Future City Walk phase; enhances access from Washington Park to Roger Williams Park	Two-Way Urban Trail with Accessible Sidewalk	Remove travel lane (Road Diet)
Elmwood	City limit	Broad	Urban Trail	Key north-south connection for West End, Elmwood, and South Elmwood; connects to several Urban Trails and enhances access to Trinity Square in the north, Roger Williams Park in the south, and many destinations in between	Two-Way Urban Trail with Accessible Sidewalk	Remove travel lane (Road Diet)
Hawthorne / F.C. Greene Memorial Blvd	Broad	Cladrastis	Urban Trail	Connects existing Roger Williams Park loop to City Walk project on Broad Street	Two-Way Urban Trail with Accessible Sidewalk	Narrow travel or parking lane (Lane Diet), Remove travel lane (Road Diet)

Upper South Providence

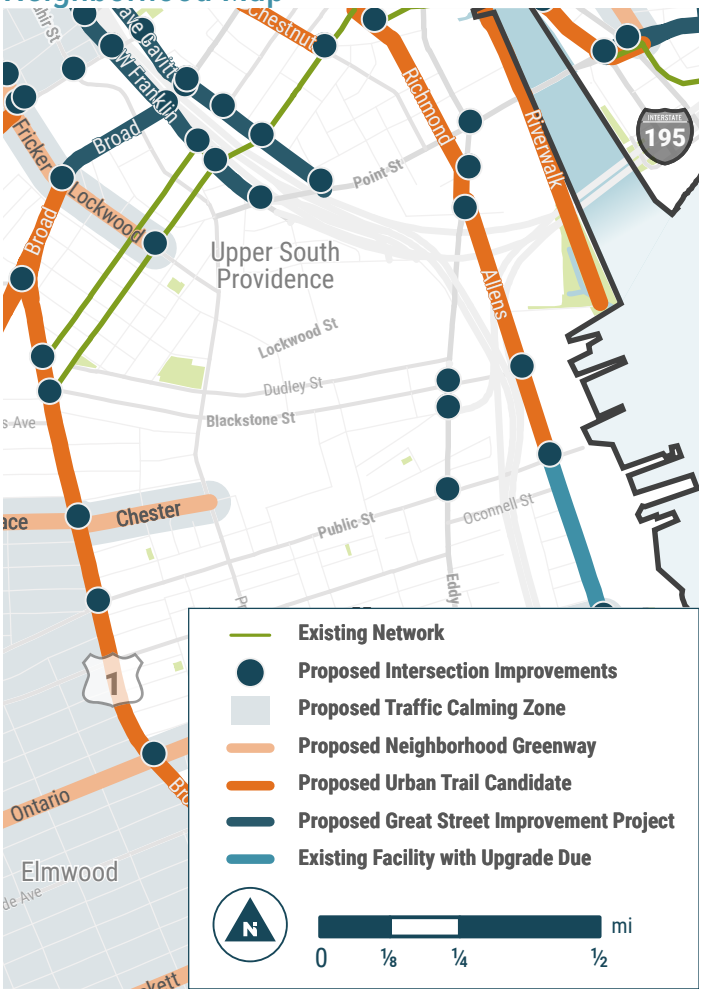
Key Urban Trail Recommendations

Implement City Walk along Broad Street. City Walk is an in-progress Urban Trail project on Broad, Pine, Friendship, and Clifford streets that will: strengthen connections between South Providence, other neighborhoods, parks, and civic institutions; improve safety for people traveling by all modes; and celebrate the diversity and culture of Providence neighborhoods through public art, wayfinding signage, and vibrant public places. City Walk Phase 1 on Clifford, Pine, and Friendship streets is now complete. City Walk Phase 2, planned for construction in 2020, will extend the improvements on Broad Street.

Create neighborhood greenways on Chester Avenue and Lockwood and Fricker streets, to connect Upper South Providence to surrounding neighborhoods and nearby Urban Trails, and to reduce speeding on these neighborhood streets.

Upgrade Allens Avenue for people walking, bicycling, and using micromobility and create an Urban Trail. An Urban Trail and other walking, bicycling, and micromobility improvements on this major street will help residents connect to Downtown, the Hospital District, and Washington Park. Since it is a state-maintained road, an Urban Trail on Allens Avenue will require partnership and coordination with RIDOT.

Neighborhood Map



Project List

Street or Trail Name	From	To	Project Type	Why is this important?	Recommendation	Implementation Action
Broad	Fricker/ Lockwood	W Franklin	Great Street	Improves walking, bicycling, and micromobility adjacent to several schools	Other Great Street Improvement	Enhance quality of existing facility
Broad	Hawthorne	Fricker/ Lockwood	Urban Trail	City Walk project	Two-Way Urban Trail with Accessible Sidewalk	Remove travel lane (Road Diet)
Allens	Public	Eddy	Urban Trail	North-south connection between Downtown and South Providence	Two-Way Urban Trail with Accessible Sidewalk	Narrow travel or parking lane (Lane Diet), Move curbs
Peace/Chester	Elmwood	Prairie	Urban Trail	Connects West End and South Providence	Neighborhood Greenway	Neighborhood Greenway Toolbox (Speed management, major intersections, wayfinding)
Lockwood	Broad	Friendship	Urban Trail	Connects West End and South Providence; connects proposed Fricker Urban Trail and City Walk	Neighborhood Greenway	Neighborhood Greenway Toolbox (Speed management, major intersections, wayfinding)

Key Traffic Calming Recommendations

Areas along and around proposed neighborhood greenways:

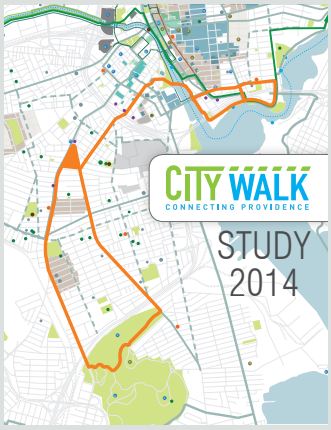
- Peace Street/Chester Avenue
- Lockwood Street

Key Intersection Improvement Recommendations

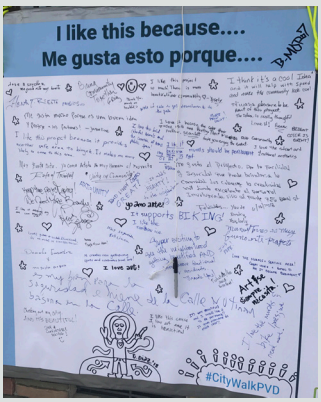
Street 1	Street 2	Type
Allens	Blackstone	Large or complicated intersection
Allens	Public	Large or complicated intersection
Broad	Cahir	Pedestrian/bicycle crash focus intersection
Broad	Elmwood	Network crossing Large or complicated intersection
Broad	Friendship	Network crossing Large or complicated intersection
Broad	Fricker/ Lockwood	Network crossing Large or complicated intersection
Broad	Peace/Chester	Network crossing
Broad	Pine	Network crossing
Broad	Public	Priority from draft map comments Pedestrian/bicycle crash focus intersection
Eddy	Blackstone	Large or complicated intersection
Eddy	Public	Large or complicated intersection
Eddy	Willard/I-95 SB off-ramp	Large or complicated intersection
Friendship	Lockwood	Large or complicated intersection
W Franklin	Broad	Neighborhood comment Priority from draft map comments
W Franklin	Friendship	Network crossing
W Franklin	Pine	Network crossing Priority from draft map comments
W Franklin	Point/I-95 SB on-ramp	Priority from draft map comments
Westminster	Cahir	Large or complicated intersection Pedestrian/bicycle crash focus intersection Neighborhood comment
Westminster	Cranston/ Winter/Fricker	Network crossing Large or complicated intersection Priority from draft map comments
Westminster	W Franklin	Priority from draft map comments

Project Highlight: City Walk

The idea for City Walk emerged in the 2006 "Old Harbor Forums" as a way to connect residents to the Providence River and cultural resources such as Roger Williams Park and India Point Park. Advocacy by the Jewelry District Association and Providence Foundation led to a design report in 2014 highlighting design challenges and ideas between the two parks. In 2016 the State allicated funding to implement safety improvements for biking and walking between the Providence River and Roger Williams Park.

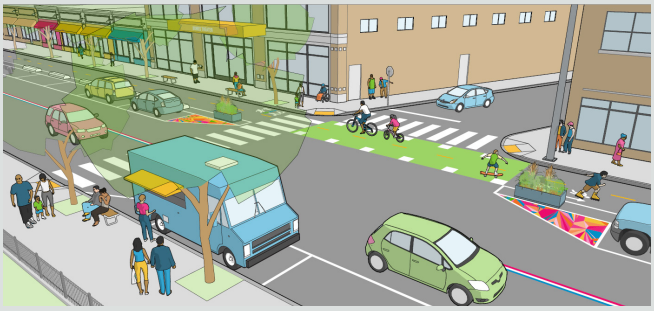


The City's implementation of the 2016-2020 City Walk improvements involved public engagement efforts that set a high standard for Great Streets projects: a demonstration project in summer 2017 created a temporary example for neighborhood passers-by to see what the proposed improvements could look like, a street team of locally-hired ambassadors attended events to talk with residents about the project, and numerous meetings (open project-wide public meetings, presentations to neighborhood groups, and an ongoing community advisory group) provided updates and opportunities for the community to weigh in on design decisions. Construction began on the Downtown and Upper South Providence phase in Fall 2019 and improvements on Broad Street are expected to be complete in Fall 2020.



Feedback poster at demonstration day

Rendering of improvements at Broad Street & Gallatin Street



Valley

Key Urban Trail Recommendations

Create new Urban Trail segments to extend and fill in gaps along the Woonasquatucket River Greenway. Extend access for people walking, riding bicycles, and using micromobility options along the Woonasquatucket River by implementing several new segments.

- *An Urban Trail along the Woonasquatucket River* between Eagle Square and Downtown: This segment will fill in the largest Urban Trail gap between Olneyville and Downtown. This project has received approximately $6 million in Statewide Transportation Improvement Program funding and is expected to be completed in 2021 and 2022.

Create new Urban Trail connections to adjacent neighborhoods.

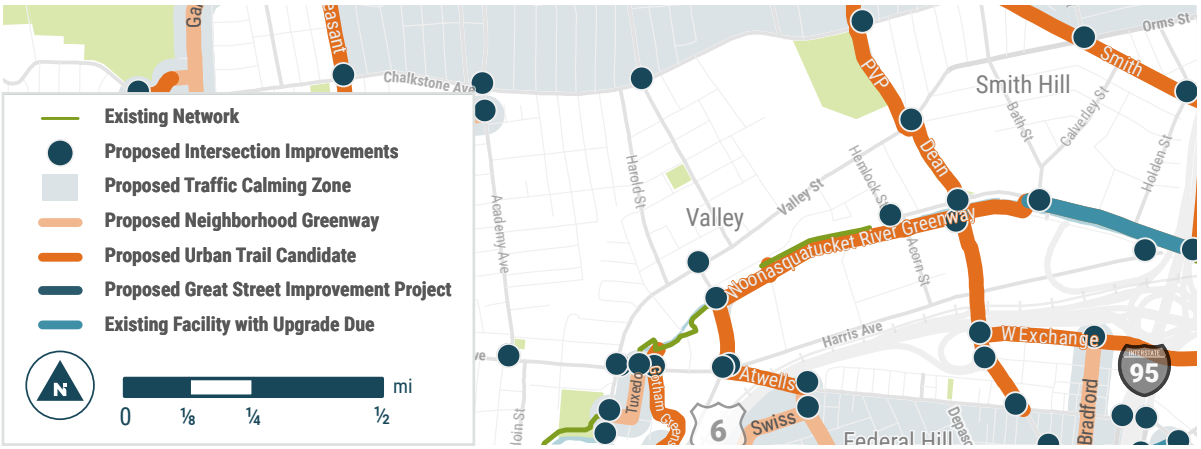
- Connect Valley to Federal Hill via on-road Urban Trails on Eagle Street and Atwells Avenue between Eagle and Knight streets.

Create an Urban Trail along Dean Street/Pleasant Valley Parkway. Complete an Urban Trail connection along Dean Street and Pleasant Valley Parkway from Atwells Avenue to Eaton Street (via the proposed Oakland Avenue Urban Trail), connecting Elmhurst, Smith Hill, Valley, and Federal Hill.

Key Intersection Improvement Recommendations

Street 1	Street 2	Type
Atwells	Academy	Priority from draft map comments
Atwells	Bowdoin	Neighborhood comment
Atwells	Valley	Pedestrian/bicycle crash focus intersection Large or complicated intersection
Atwells	Eagle	Pedestrian/bicycle crash focus intersection Large or complicated intersection
Atwells	Gotham Greens path	Network crossing
Atwells	Tuxedo	Network crossing
Dean	Kinsley	Network crossing
Dean	Promenade	Network crossing Large or complicated intersection
Eagle	Kinsley	Network crossing
Eagle	Valley	Large or complicated intersection

Neighborhood Map



Project List

Street or Trail Name	From	To	Project Type	Why is this important?	Recommendation	Implementation Action
Dean	Atwells	Valley	Urban Trail	Connects across key gap in pedestrian, bicycle, and micromobility access between Federal Hill, Valley, and Smith Hill	Two-Way Urban Trail with Accessible Sidewalk	Move curbs
Woonasquatucket River Greenway Extension	Eagle	Park	Urban Trail	Project in design that extends Woonasquatucket River Greenway into Downtown	Two-Way Shared Use Path	Remove travel lane (Road Diet)
Eagle	Kinsley	Harris/Atwells	Urban Trail	Connects current and future Woonasquatucket River Greenway segments to proposed Urban Trails leading into Federal Hill	Two-Way Urban Trail with Accessible Sidewalk	Narrow travel or parking lane (Lane Diet)

Wanskuck

Key Urban Trail Recommendations

Create a neighborhood greenway on Veazie Street to provide connectivity to schools, a library, and Wanskuck Park and serve as a parallel route to Douglas Avenue, whose narrowness creates challenges for an Urban Trail. Create neighborhood greenways on Eva, Corina, and Appian streets that will extend from the Veazie Street neighborhood greenway to enhance access to Providence College and Hawkins Street.

Implement an Urban Trail on Hawkins Street, whose bridge over Route 146 is under replacement in 2020, to connect the two neighborhoods. This project would extend to Hawkins Square.

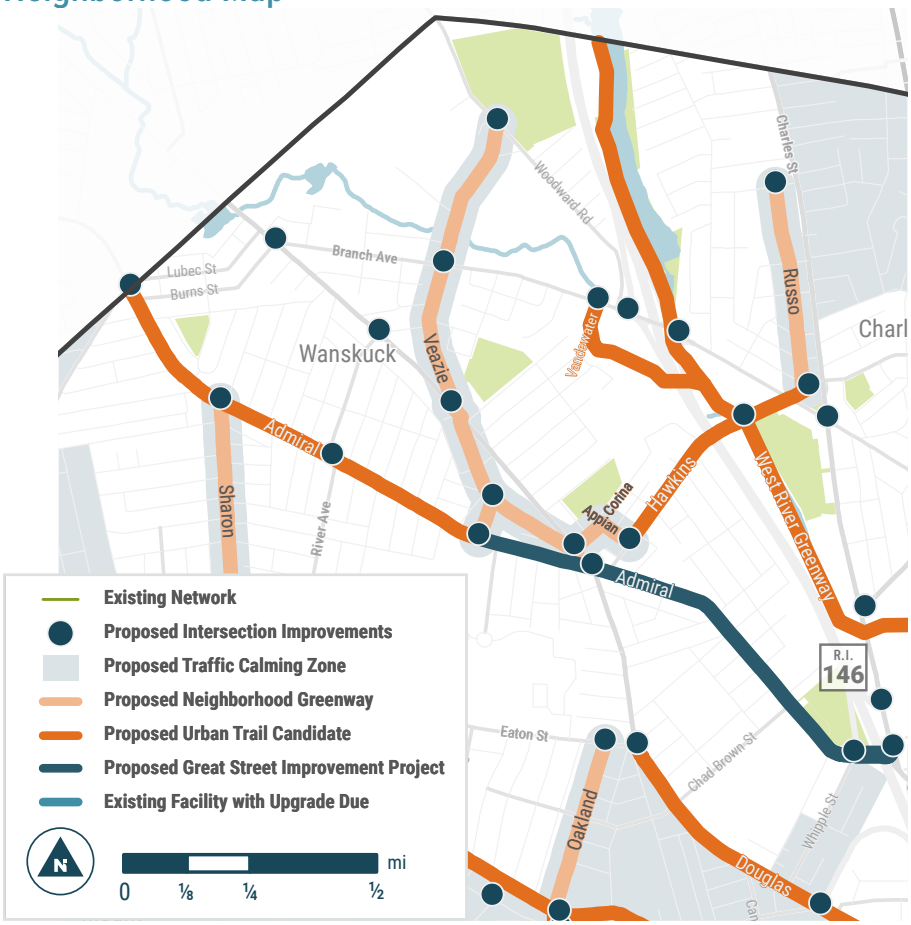
Implement an Urban Trail on Admiral Street from the North Providence city limits to Huxley Avenue adjacent to the Providence College campus. In the short term, an Urban Trail on the one-block segment of Admiral Street between Eva Street to Huxley Avenue would fully connect the Veazie/Eva neighborhood greenway to Providence College. A connection to Elmhurst through and-or around the Providence College campus should be studied further in collaboration with Providence College. Admiral Street east of Huxley Avenue is recommended for a Great Street project.

Establish off-road Urban Trails along the West River. A long-term vision is for Mount Hope, Charles, and Wanskuck to one day be connected to the Urban Trail Network with an off-road path and greenway along the West and Moshassuck rivers. The West River primarily flows through Charles and Wanskuck, and the proposed trail would terminate at Branch Avenue at Vandewater Street. The City should begin collaboration with property owners, residents, and other stakeholders to establish a concept and bring these segments from vision to reality.

Project List

Street or Trail Name	From	To	Project Type	Why is this important?	Recommendation	Implementation Action
Admiral	City limit near Gentian Ave	Huxley	Urban Trail	Longer-term recommendation to enhance urban trail connectivity to North Providence	Two-Way Urban Trail with Accessible Sidewalk	Remove parking one side
Admiral	Huxley	Charles	Great Street	Enhances micromobility connectivity between Wanskuck and Charles, Mount Hope, and Smith Hill	Other Great Street Improvement	Enhance quality of existing facility
West River Greenway	Vandewater	I-95	Urban Trail	Long-term recommendation for a continuous east-west greenway connecting Charles and Wanskuck	Two-Way Shared Use Path	Independent ROW
Hawkins	Appian	Monticello	Urban Trail	Key connection between Charles and Wanskuck, enhancing access to parks, schools, and neighborhood business districts	Two-Way Urban Trail with Accessible Sidewalk	Remove parking one side
Veazie/Eva	Woodward	Admiral	Urban Trail	Connects to proposed Urban Trails leading to Elmhurst and Charles; enhances access to parks and schools	Neighborhood Greenway	Neighborhood Greenway Toolbox (Speed management, major intersections, wayfinding)
Veazie	Eva	Douglas	Urban Trail	Connects Veazie/Eva and Corina/Appian Urban Trails and provides a parallel route to Admiral	Neighborhood Greenway	Neighborhood Greenway Toolbox (Speed management, major intersections, wayfinding)
Corina/Appian	Douglas/Veazie	Hawkins	Urban Trail	Links the proposed Veazie and Hawkins Urban Trails, bypassing the Admiral/Douglas/Hawkins intersection; enhances access to Mansion Park	Neighborhood Greenway	Neighborhood Greenway Toolbox (Speed management, major intersections, wayfinding)

Neighborhood Map



Key Traffic Calming Recommendations

Areas along and around proposed neighborhood greenways:

- Veazie Street
- Eva, Corina, and Appian streets

Key Intersection Improvement Recommendations

Street 1	Street 2	Type
Admiral	Douglas	Large or complicated intersection
Admiral	Eva	Network crossing
Branch	West River Greenway	Network crossing
Branch	Woodward/Rt 146 SB off-ramp	Large or complicated intersection Neighborhood comment
Douglas	Branch/Burns	Large or complicated intersection
Douglas	River/O'Neil	Large or complicated intersection Neighborhood comment
Hawkins	Appian	Network crossing
Veazie	Branch	Network crossing
Veazie	Douglas/Easton	Network crossing
Veazie	Douglas/Corina	Network crossing
Veazie	Eva	Network crossing
Veazie	Woodward	Network crossing

Project Highlight: West River Greenway

The envisioned greenway along the West River would connect Branch Avenue in Wanskuck with an underappreciated natural resource and along the river to Charles and Downtown. See page 29 for more details on the full proposed river greenway system. The completion of this path system would help get people biking out of traffic on busy and unsafe Branch Avenue.

Proposed end of West River Greenway at Branch Avenue & Vandewater Street

Washington Park

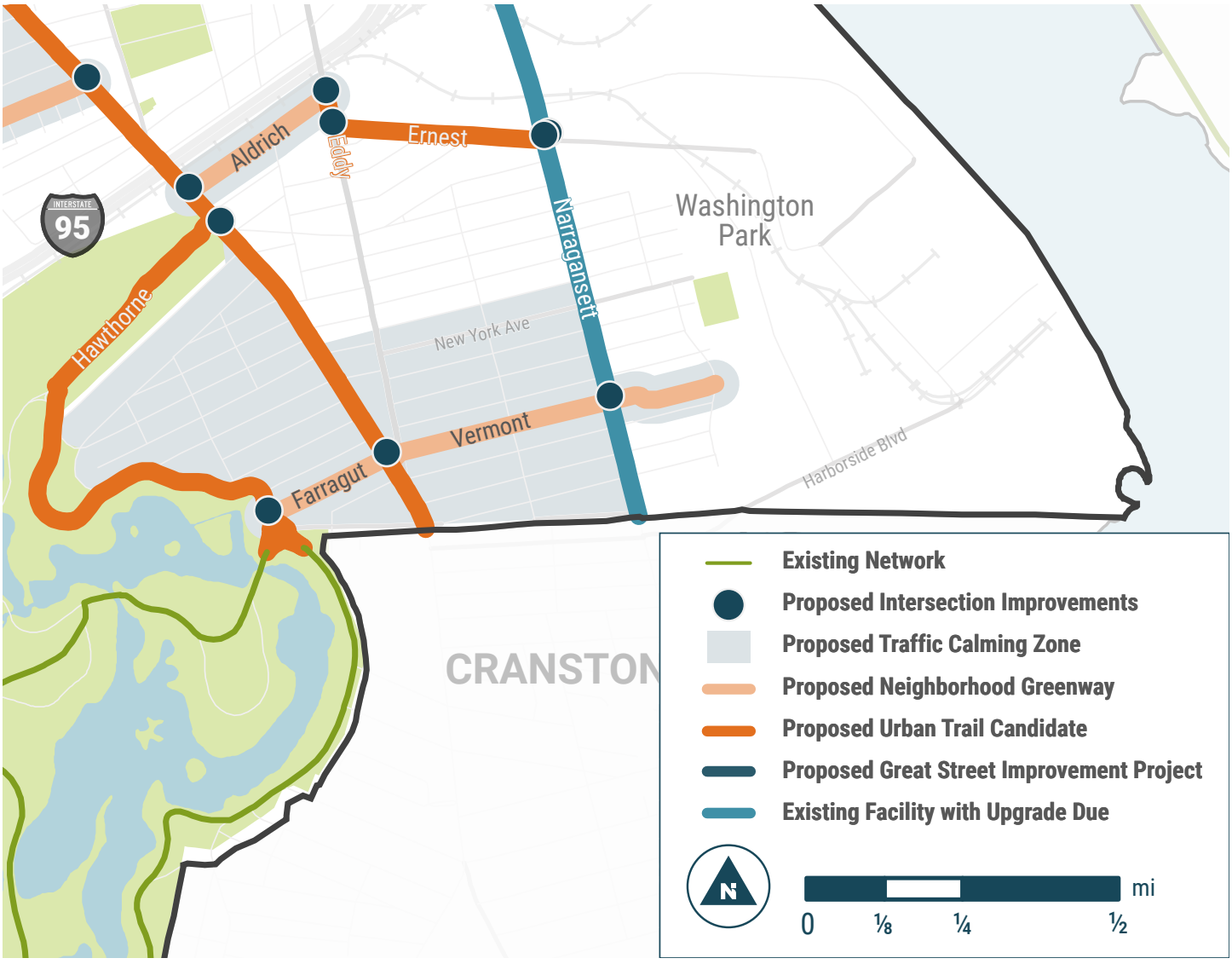
Key Urban Trail Recommendations

Implement and extend City Walk along Broad Street. City Walk is an in-progress Urban Trail project on Broad, Pine, Friendship, and Clifford streets that will: strengthen connections between South Providence, other neighborhoods, parks, and civic institutions; improve safety for people traveling by all modes; and celebrate the diversity and culture of Providence neighborhoods through public art, wayfinding signage, and vibrant public places. City Walk Phase 1 on Clifford, Pine, and Friendship streets is now complete. City Walk should be extended on Broad Street all the way to the city line as envisioned by the 2014 City Walk study.

Upgrade Allens Avenue and Narragansett Boulevard for people walking, bicycling, and using micromobility and create an Urban Trail. An Urban Trail and other walking, bicycling, and micromobility improvements on this major street will help residents connect to Downtown, the Hospital District, and Washington Park. Since they are state-maintained roads, an Urban Trail on Allens Avenue and Narragansett Boulevard will require partnership and coordination with RIDOT.

Create east-west Urban Trails. Neighborhood greenways on Aldrich Street, Farragut Avenue, and Vermont Avenue, as well as a separated Urban Trail on Ernest Street, will calm traffic, link the proposed north-south Urban Trails, and enhance access to Roger Williams Park, Johnson & Wales University's Harborside Campus, and other destinations.

Neighborhood Map



Project List

Street or Trail Name	From	To	Project Type	Why is this important?	Recommendation	Implementation Action
Broad	Hawthorne	Fricker/ Lockwood	Urban Trail	City Walk project	Two-Way Urban Trail with Accessible Sidewalk	Remove travel lane (Road Diet)
Broad	City limit	Hawthorne	Urban Trail	Future City Walk phase; enhances access from Washington Park to Roger Williams Park	Two-Way Urban Trail with Accessible Sidewalk	Remove travel lane (Road Diet)
Eddy	Ernest	Aldrich	Urban Trail	Connects proposed Ernest and Aldrich Urban Trails	Two-Way Urban Trail with Accessible Sidewalk	Move curbs
Ernest	Eddy	Allens	Urban Trail	Along with Aldrich, connects proposed Allens Urban Trail with City Walk	Two-Way Urban Trail with Accessible Sidewalk	Remove parking one side, Narrow travel or parking lane (Lane Diet)
Allens/ Narragansett	City limit	Public	Upgrade Due	North-south connection between South Providence and Washington Park	Two-Way Urban Trail with Accessible Sidewalk	Narrow travel or parking lane (Lane Diet), Move curbs
Aldrich	Eddy	Broad	Urban Trail	Along with proposed Ernest and Eddy Urban Trails, connects proposed Allens Urban Trail with City Walk; enhances access to Roger Williams Park	Neighborhood Greenway	Neighborhood Greenway Toolbox (Speed management, major intersections, wayfinding)
Farragut/ Vermont	Greene Memorial Blvd	Michigan	Urban Trail	Connects proposed Allens/Narragansett Urban Trail with proposed Broad (City Walk) Urban Trail; enhances access to Roger Williams Park, Columbia Park, and Johnson & Wales Harborside Campus	Neighborhood Greenway	Neighborhood Greenway Toolbox (Speed management, major intersections, wayfinding)

Key Traffic Calming Recommendations

The area of Washington Park west of Broad Street, adjacent to Roger Williams Park

- Comment received regarding cut-through traffic on Calla Street
- Area has seen 3 traffic calming requests in the last 10 years

The area of southern Washington Park, between Broad Street and Allens Avenue

- Comment received regarding speeding in the neighborhood

Along and around the proposed Aldrich Street and Farragut Avenue/Vermont Avenue neighborhood greenways

Key Intersection Improvement Recommendations

Street 1	Street 2	Type
Allens	Ernest	Network crossing
Broad	Aldrich	Network crossing
Broad	Farragut	Priority from draft map comments
Broad	Hawthorne	Network crossing
Eddy	Ernest	Network crossing
Eddy	Aldrich	Network crossing
Greene Memorial Blvd	Farragut	Network crossing
Narragansett	Vermont	Priority from draft map comments

Project Highlight: Allens Avenue

Allens Avenue was one of the first bike lanes built in Providence, completed in 2001. However, with time and heavy industrial use related to the Port of Providence, the corridor is due for an upgrade. The City has collaborated with and will continue to work with RIDOT on planned improvements including improved crosswalks, physical separation for the bike lanes, stopping trucks from parking in the bike lanes, and the in-road railroad tracks that cross Allens Avenue in multiple places, sometimes at hazardous angles for bicycle tires.

"Inadequate Vulnerable Road User Facilities – *With high pedestrian volumes in various locations along the corridor due to businesses, there are no marked crossings, ADA compliant wheelchair ramps or paths. Drivers do not behave with an awareness of other roadway users."*

"Inadequate Bicycle Accommodations *– The existing marked bicycle lane along Allens Avenue is poorly designated with signage and striping. The width of the bicycle lane also varies between 3' and upwards of 8' in width."*
– 2017 RIDOT Road Safety Assessment

Wayland

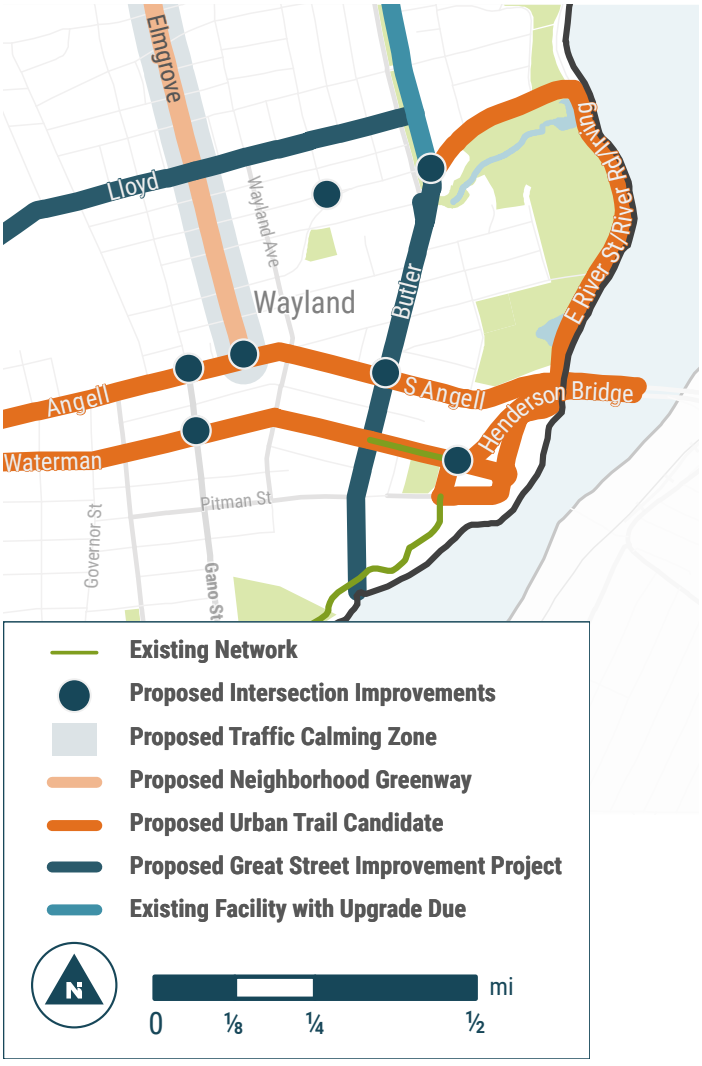
Key Urban Trail Recommendations

Integrate Urban Trails into the Henderson Bridge improvements. RIDOT's Henderson Bridge Reconstruction Project will add a new shared-use path to the Henderson Bridge, which will enhance multimodal travel options to and from East Providence.

Implement Urban Trails on Angell and Waterman streets to serve as a one-way couplet connecting Wayland to College Hill, RISD, and Brown University. A north-south path through Witherby Park is recommended as a key link between Waterman Street and the Blackstone River Bikeway.

Complete an Urban Trail on East River Street, River Road, and Irving Avenue between Richmond Square and Blackstone Boulevard to connect Wayland and Blackstone, fill in a gap on the Statewide Bicycle System, and complete a segment of the East Coast Greenway.

Neighborhood Map



Improve walkability on Lloyd and Butler avenues and supplement the connectivity provided by the recommended Urban Trail Network.

Create a neighborhood greenway on Elmgrove Avenue. Frequently requested by neighborhood comments, this north-south neighborhood greenway would supplement the proposed Urban Trail on Hope Street and the proposed improvements to the existing facility on Blackstone Boulevard.

Key Traffic Calming Recommendations

Using the Implementation Guide as a reference, install traffic calming elements as part of walkability improvements on Butler and Lloyd avenues.

Areas along and around proposed neighborhood greenway on Elmgrove Avenue.

Key Intersection Improvement Recommendations

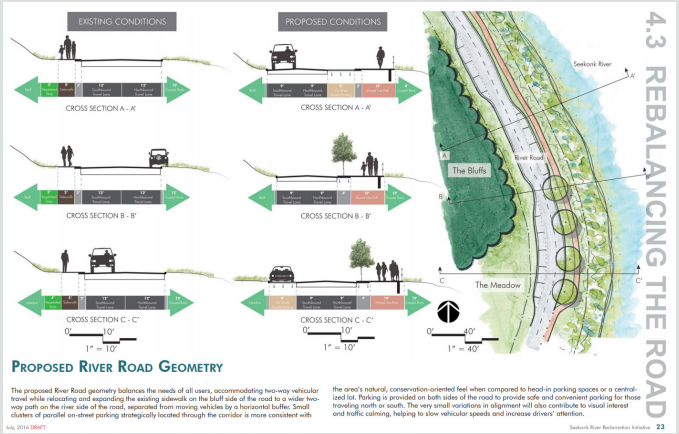
Street 1	Street 2	Type
Angell	Butler	Network crossing
Angell	Gano	Large or complicated intersection
Angell	Elmgrove	Network crossing
Gano	Amy	Neighborhood comment
Gano	Trenton	Large or complicated intersection
Irving	Humboldt/Cole	Priority from draft map comments
Waterman	Witherby Park Path	Network crossing Pedestrian/bicycle crash focus intersection
Waterman	Butler	Network crossing
Waterman	Gano	Large or complicated intersection

Project List

Street or Trail Name	From	To	Project Type	Why is this important?	Recommendation	Implementation Action
S Angell/Angell	Henderson Bridge	Hope	Urban Trail	Connects in-progress Henderson Bridge path, proposed Elmgrove and Hope St. Urban Trails; enhances access to schools, parks, and Brown University	One-Way Urban Trail with Accessible Sidewalk	Remove travel lane (Road Diet)
Henderson Bridge	Angell/ Waterman	East Providence	Urban Trail	RIDOT bridge reconstruction project, in design in 2020, will provide critical connection with East Providence	Two-Way Shared Use Path	Move curbs
Waterman	Butler	Henderson Bridge	Urban Trail	Completes connection from Brown University to Blackstone River path (via proposed Witherby Park path) and in-progress RIDOT Henderson Bridge project	One-Way Urban Trail with Accessible Sidewalk	Enhance quality of existing facility
Waterman	Hope	Butler	Urban Trail	Connects College Hill and Wayland	One-Way Urban Trail with Accessible Sidewalk	Remove travel lane (Road Diet)
Elmgrove	Angell	Lloyd	Urban Trail	Connects Wayland and Blackstone; connects proposed Angell Urban Trail with Lloyd Great Street and other projects further north in Blackstone	Neighborhood Greenway	Neighborhood Greenway Toolbox (Speed management, major intersections, wayfinding)
Butler	Pitman	Blackstone Blvd	Great Street	Enhances walkability along this street, which would connect with proposed River St. and Blackstone Bike path	Other Great Street Improvement	Enhance quality of existing facility
Witherby Park path	Waterman	Pitman	Urban Trail	Connects Blackstone River path at Pitman St., future Henderson Bridge path, and proposed Waterman Urban Trail	Two-Way Shared Use Path	Independent ROW
Lloyd	Hope	Blackstone	Great Street	Enhances walkability along this route connecting several schools, recreational areas, and the Blackstone Blvd path	Other Great Street Improvement	Enhance quality of existing facility
E River St/River Rd/Irving	Blackstone River Bikeway/Pitman	Irving/ Blackstone Blvd	Urban Trail	Fills in a gap in the Blackstone River Bikeway and East Coast Greenway; connects to future Henderson Bridge path and proposed Waterman St. Urban Trail	Two-Way Shared Use Path	Move curbs, Independent ROW

Project Highlight: River Road

The Seekonk Riverbank Revitalization Alliance has proposed a new vision for for River Road, which runs along the Seekonk River from underneath the Henderson Bridge to Irving and Gulf avenues. River Road provides access to waterfront recreational activities including fishing and the Narragansett Boat Club, yet it is vulnerable to erosion and sea level rise and is used as a vehicular cut-through. The neighborhood vision to create a shared-use path by narrowing the roadway fits well with the Great Streets plan goals.



Graphic: Seekonk River Revitalization Alliance

West End

Key Urban Trail Recommendations

Create new Urban Trail connections to neighborhood parks. Implement Urban Trails on Dexter, Parade, Cranston, Waverly, and Peace streets to better connect neighborhood residents to Dexter Training Ground and Bucklin Park. Create neighborhood greenways on Parade, Hollis, Diamond, and Superior streets to calm traffic and provide a connection around the narrow, busy part of Dexter Street just south of Cranston Street.

Create Urban Trails along the 6/10 Connector and Huntington Avenue. Create an Urban Trail on Salvati Way to extend the Washington Secondary Trail from its terminus in Cranston to connect with the new off-road Urban Trail being constructed to the east of the 6/10 Connector between Union and Tobey streets. Connect the West End to Elmwood and Reservoir via a new off-road Urban Trail along Huntington Avenue.

Key Traffic Calming Recommendations

The area between Union Avenue, Waverly Street, Dexter Street, and Waldo Street:

- Area has seen two traffic calming requests over the last 10 years

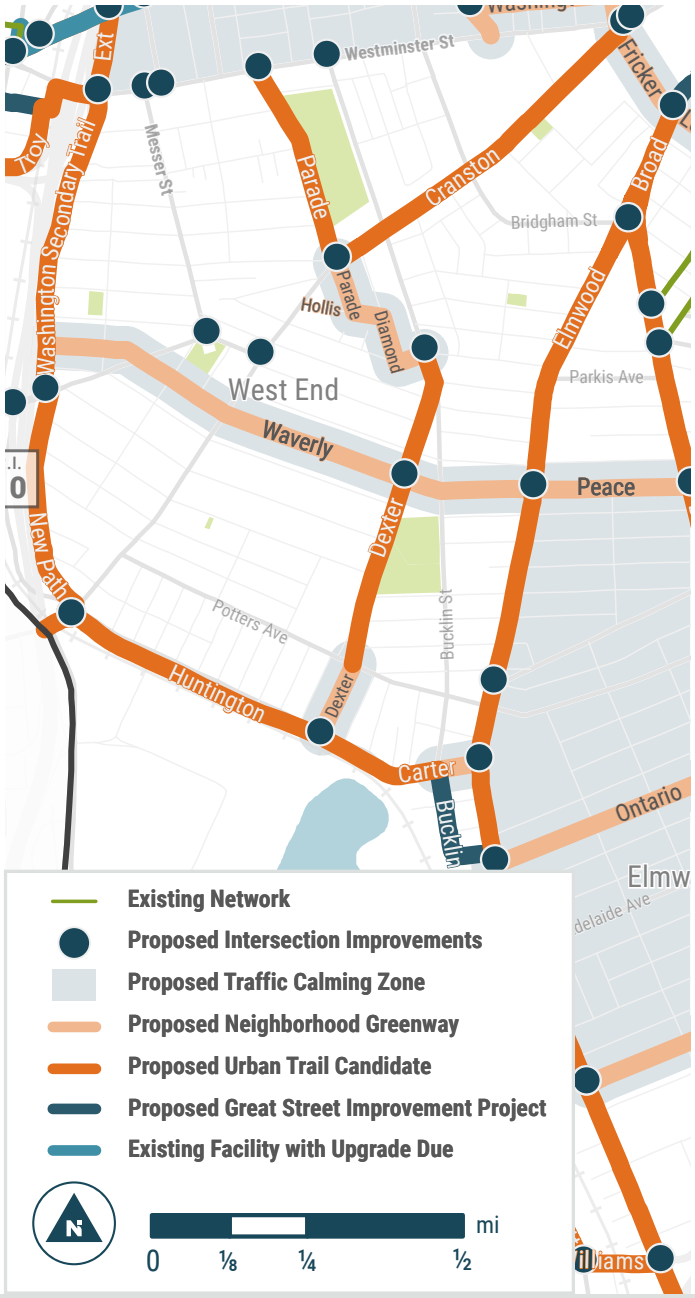
Areas along and around proposed neighborhood greenways:

- Dexter Street between Huntington and Potters avenues
- Fricker Street
- Parade, Hollis, Diamond, and Sprague streets
- Peace and Waverly streets

Project List

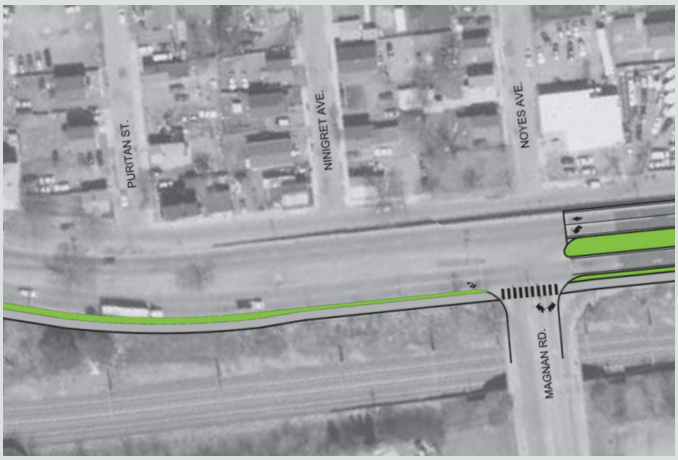
Street or Trail Name	From	To	Project Type	Why is this important?	Recommendation	Implementation Action
Washington Sec Trail Ext	Union	Tobey	Urban Trail	New extension of existing trail to be completed by 6/10 Reconstruction Project	Two-Way Shared Use Path	Move curbs
Ridge/Swiss	Knight	Tobey	Urban Trail	Connects proposed Knight and Tobey Urban Trails and in-progress path related to the 6/10 Reconstruction Project	Neighborhood Greenway	Neighborhood Greenway Toolbox (Speed management, major intersections, wayfinding)
Parade	Westminster	Cranston	Urban Trail	Connects West End to Federal Hill; connects to proposed Cranston and Dexter Urban Trails	Two-Way Urban Trail with Accessible Sidewalk	Remove travel lane (Road Diet), Consolidate parking one side
Parade/Hollis/ Diamond/ Sprague	Cranston	Dexter	Urban Trail	Connects proposed Parade Urban Trail (Westminster to Cranston) with proposed Dexter Urban Trail	Neighborhood Greenway	Neighborhood Greenway Toolbox (Speed management, major intersections, wayfinding)
Dexter	Huntington	Potters	Urban Trail	With other Dexter project, provides north-south connection between West End and Federal Hill	Neighborhood Greenway	Neighborhood Greenway Toolbox (Speed management, major intersections, wayfinding)
Dexter	Potters	Sprague	Urban Trail	Part of a north-south Urban Trail connection between West End and Federal Hill; enhances school access	Two-Way Urban Trail with Accessible Sidewalk	Consolidate parking one side
Cranston	Fricker	Parade	Urban Trail	Threads together multiple proposed Urban Trails in West End; enhances school access	Two-Way Urban Trail with Accessible Sidewalk	Consolidate parking one side, Narrow travel or parking lane (Lane Diet)
Huntington	Mashapaug	Cranston	Urban Trail	Provides key east-west connection for West End and Elmwood; connects to proposed Dexter and Elmwood Urban Trails and Anthony Avenue/Salvati Way path	Two-Way Shared Use Path	Narrow travel or parking lane (Lane Diet)
Salvati	Cranston	Union	Urban Trail	Connects proposed Huntington Urban Trail with in-progress Washington Secondary Trail Ext as part of 6/10 Reconstruction Project	Two-Way Shared Use Path	Narrow travel or parking lane (Lane Diet)
Fricker	Cranston/ Westminster	Broad	Urban Trail	Connects to multiple proposed Urban Trails; enhances access to schools	Neighborhood Greenway	Neighborhood Greenway Toolbox (Speed management, major intersections, wayfinding)
Peace/Waverly	Washington Sec Trail Ext	Elmwood	Urban Trail	Connects in-progress Washington Secondary Trail Extension with proposed, Dexter and Elmwood Urban Trails	Neighborhood Greenway	Neighborhood Greenway Toolbox (Speed management, major intersections, wayfinding)

Neighborhood Map



Key Intersection Improvement Recommendations

Street 1	Street 2	Type
Cranston	Dexter	Pedestrian/bicycle crash focus intersection
Cranston	Messer	Large or complicated intersection
Cranston	Parade	Network crossing Priority from draft map comments
Dexter	Sprague	Network crossing
Dexter	Waverly	Network crossing
Elmwood	Greenwich	Neighborhood comment
Huntington	Dexter	Network crossing
Huntington	Cranston	Large or complicated intersection Network crossing
Messer	Marvin	Neighborhood comment
Sycamore	Hudson	Neighborhood comment
Union	Messer	Large or complicated intersection
Union	US 10 NB ramps	Large or complicated intersection
Westminster	Cranston/ Winter/Fricker	Network crossing Large or complicated intersection Priority from draft map comments
Westminster	Bridgham	Pedestrian/bicycle crash focus intersection
Westminster	Wash Trail Ext	Network crossing
Westminster	Dexter	Priority from draft map comments
Westminster	US 6-10 NB ramps	Large or complicated intersection
Westminster	Messer	Large or complicated intersection
Westminster	Barton	Large or complicated intersection
Westminster	Parade	Priority from draft map comments



Project Highlight: Huntington Greenway

Huntington Avenue is currently built to encourage driving fast: multiple lanes of traffic in each direction that are a width similar to a highway are a subtle signal to drive 40 mph or more. This street is at the edge of a dense residential neighborhood, and could provide safe access for everyone and actually improve mobility in the neighborhood. A conceptual design that the City collaborated with RIDOT on in 2017-18 involves reducing the number of travel lanes and providing a separated, shared-use path along one side of the street. This would provide an important connection between Elmwood Avenue and the extension of the Washington Secondary Trail at Cranston Street and would also absorb stormwater runoff into a widened linear park.

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Assessment of Regulations, Programs, and Policies

This chapter includes an assessment of and recommendations regarding policies, processes, and regulations that govern and provide context for Great Streets and Urban Trails in the City of Providence. This includes descriptions of the existing framework of regulations, policies, programs, and stakeholders, identification of gaps in the current process, and recommendations for improvement. The recommendations derive from a number of sources, including document review, interviews and discussions with key stakeholders, and best practices research. Although this chapter includes many recommendations related to a variety of needed improvements to policies, processes, and regulations, the recommendations generally align with five key areas of focus:

- Revise outdated and enact new City ordinances related to mobility
- Align City policies and procedures to invest in and preserve great streets
- Prioritize safety and comfort for people who walk, ride bicycles, and use public transit
- Advocate for friendlier state laws and policies related to mobility
- Expand opportunities for engagement, education, and encouragement

Legal Framework

The legal framework for City departments profiled in this chapter is City Charter Article X – City Departments (Providence, RI Code of Ordinances). Ordinance Articles VII–IX½ cover Public Works, the City Engineer, Traffic Engineering, and Planning and Development. Appendix A[1] presents relevant ordinance language. The City Departments section of this chapter contains additional discussion of ordinances governing each profiled department.

Several other City Ordinance sections are flagged and recommended to be updated to further support the Great Streets Initiative. See the actual ordinance language for specifics and Appendix A for more detail.

2014 Zoning Ordinance

The City's current Zoning Ordinance became effective on December 24, 2014, and contains amendments up to and including July 27, 2018. The Zoning Ordinance guides building dimensions, design, and uses in established zoning districts. Sections of the Ordinance important to Great Streets govern off-street parking requirements – including shared vehicular parking, bicycle parking requirements, placement and dimensions of driveways and curb cuts, trees and landscaping, signs, and lighting.

City of Providence Code of Ordinances Chapter 14 – Licenses

Vendors

Article IX, last revised in 2015, regulates temporary vendors, including those operating in the public realm. Section 14-171 assigns the Department of Public Works with responsibility for reviewing and confirming that proposed locations do not "interfere with public access to and along the sidewalk" before granting approval.

Registration and Licensing of Bicycles

While Article XI is titled, "Registration and Licensing of Bicycles," other than the title and definition of a bicycle, there are no requirements relating to bicycles in this article; the remainder of this article applies to pedicabs.

City of Providence Code of Ordinances Chapter 15 – Motor Vehicles and Traffic

Parking

Section 15-2 includes the following penalties for violating parking rules that are directly applicable to bicycle and pedestrian movement. There is no specific fine listed for parking in or blocking a bicycle facility.

- Parking so as to obstruct the flow of traffic: $75
- Parking within twenty-five (25) feet of corner: $30
- Parking in marked bus stop: $30
- Parking on marked crosswalk or within intersection: $30
- Parking on sidewalk: $100

1 Pending

Bus Lanes

Sections 15-55—15.57 established exclusive bus lanes on portions of Washington Street, Weybosset Street, and Empire Street in 1962 with implementation of the Westminster pedestrian mall. This is notable because many cities, including Providence, are establishing bus-only lanes to improve transit operations.

Bicycles

Sections 15-70—15-75 date from 1946 and cover a number of requirements for operating a bicycle. These requirements are out of date and likely not enforced as written. For example, Section 15-73 prohibits carrying a passenger on a bike. This effectively prohibits carrying passengers on cargo bikes, bikes with trailers, child seats, and other common desired means of bicycle transportation.

Reasonable Speeds

Sections 15-108–15-109 include provisions for reducing speeds at intersections, and when geometry dictates care. Some cities have updated such ordinances to lower citywide speed limits.

Use of Motorized Devices on Sidewalks

Section 15-131 prohibits use of some motorized devices (except scooters, wheelchairs for persons with disabilities, and Segways) on sidewalks, streets, public parks, or other City-owned property.

City of Providence Ordinance Chapter 18 – Parks and Recreation

Section 18-29 (subsection a) obligates the Board of Parks Commissioners to superintend maintenance and control of public parks, including "avenues…and all other property thereon or therein."

City of Providence Ordinance Chapter 23 – Streets, Sidewalks, and Public Places

Snow and Ice Removal

Sections 23-13–23-17 cover removal of snow and ice and prohibit placement of removed snow into already plowed areas or onto streets. See Implementation Guide Chapter 4 for details on the importance of snow removal from sidewalks and Urban Trails.

Skateboards

Passed in 1965, Section 23-31 prohibits riding a skateboard on any street, highway, sidewalk, or pedestrian mall within city limits. This is antiquated and should be repealed.

City of Providence Complete Streets Resolution

The City of Providence's Complete Streets Resolution, enacted January 5, 2012, encourages the City's Department of Planning and Development and Department of Public Works to "use Complete Streets concepts in planning and redevelopment of transportation related infrastructure" and requests both departments to incorporate Complete Streets principles as it develops plans and ordinances, reviews development projects and funds transportation and other infrastructure.

As written, the 2012 resolution is supportive and encouraging but not as strong as it should be. Formal adoption of the Providence Great Streets Master Plan will dramatically expand integration of Complete Streets principles into planning and implementation processes. Recommendations for changes to policies and procedures within this chapter will address existing gaps in the process.

City of Providence Traffic Calming Guidelines and Program

Providence's Traffic Calming Design Guidelines define traffic calming as 'measures instituted to reduce traffic speeds and cut-through traffic volumes on city streets to improve public safety and neighborhood livability'. Measures are mostly physical (street width, deflecting or vertically altering vehicle paths). Regulatory measures such as stop signs and speed limit signs are not part of the current traffic calming scope.

The Guidelines are meant to assist City departments in implementing traffic calming throughout the city. An interdepartmental committee, the Traffic Calming Advisory Group (TCAG), reviews traffic calming requests and advises DPW, other City departments, and City Council on the appropriateness of traffic calming measures in response to requests. The TCAG

Current traffic calming thresholds

A traffic calming request is eligible for preliminary approval if:

- *≥ 15% of vehicles were traveling faster than 30 mph*
- *≥ 20% of vehicles were traveling faster than 35 mph during a 2-hour period on 2 days*
- *On a local road, average daily traffic was > 3000 vehicles per day*
- *On a road narrower than 18 feet, ≥ 10% of vehicles were traveling faster than 25 mph, or*
- *The past 3 years of crash history on the street shows a high incidence of speed-related crashes*

consists of the City Traffic Engineer and traffic engineering staff, the Assistant City Engineer, and representatives from DPD, Providence Police, Providence Fire, and the Providence City Council. TCAG recommendations are advisory and the DPW Director is vested with the authority to make decisions on which projects to advance to implementation.

As noted in Section II, Traffic Calming Review Process,

> *A request to the Traffic Calming Advisory Group (TCAG) for installing a traffic calming device can be initiated many ways. Requests can come through any individual, city council resolution or request, through neighborhood groups, City departments or as part of a transportation or streetscape project. At this time the TCAG will be a group that reacts to requests instead of taking a proactive role in seeking out areas needing traffic calming. The TCAG will provide recommendations to the Public Works Director on the request with the final decision being that of the Public Works Director.*

Providence's program is reactive by design, does not limit how many and from whom requests may be initiated, does not restrict where traffic calming may be implemented, and does not adequately explain the process in a transparent manner to community members. Traffic calming programs have been in place for more than 20 years in a number of U.S. cities with some dating back even longer. Because traffic calming programs are popular, to conserve resources, a number of cities have changed their programs in important ways. See the Recommendations section of this chapter for a discussion of recommended improvements to the City's traffic calming program.

Other Procedures, Policies, and Programs

Sidewalk Repair Standard Operating Procedure

Implementing Urban Trails and Great Streets presents an opportunity to improve conditions for people walking along and crossing streets. The City of Providence has a draft Sidewalk Repair Policy, which guides how the City plans, executes, and maintains sidewalk repairs. This policy considers factors such as ADA compliance, sidewalk condition, available funding, adjacent and nearby uses, volume of people walking, and existence of legal claims. As described in the Policy, the City of Providence Department of Public Works (DPW) visits each location where there is a request for sidewalk repair or legal claim related to sidewalks and assigns a condition of good, fair, or poor based on the existence and extent of cracks, defects, and trip hazards. Field notes are stored in the City's Sidewalk Repair Database.

In 2017, DPW contracted with a company to conduct a complete inventory and condition evaluation of all sidewalks in the city. This resulted in an overall condition rating for each sidewalk in the city.

As noted in the current Policy:

> *Prior to each construction season, the DPW will decide which sidewalks are assigned to be repaired based on a balance of these factors, with the goal being to improve overall safety for pedestrians on a macro level, while at the same time decreasing the City's exposure to claims for trips and fall claims attributed to known sidewalk defects. Additionally, directing assets to repair a pedestrian corridor or block rather than spot fixes results in cost efficiencies in construction.*

Each Urban Trail or Great Streets project is an opportunity for coordination where a scheduled sidewalk repair could be accomplished in conjunction with an Urban Trail project. Because the Sidewalk Repair Policy already articulates prioritization factors specific to sidewalks, an Urban Trail or Great Street recommendation in the same corridor should not be a sidewalk repair prioritization factor. Rather, an Urban Trail or Great Street project can supplement the list of sidewalk repairs identified by DPW for each construction season. As stated in the current Policy:

> *Occasionally, a project funded and constructed by the Rhode Island Department of Transportation, the Providence Department of Planning and Development or the City's Capital Improvement Plan will include sidewalk repairs in the project scope.*

Capital Improvement Program

The Capital Improvement Program (CIP)—as applied to Great Streets—includes street, sidewalk, traffic calming, Complete Streets, off-road path, parks, and sewer projects. Street and sidewalk projects are typically paving or maintenance. The City's pavement management program is currently part of the CIP. Sewer projects include proactive and reactive repairs and some of these can include associated restoration work of roads and sidewalks.

See discussion of CIP under DPD and Department of Public Properties in the City Departments section of this chapter for more information.

Community Development Block Grant (CDBG)

Through these annual federal formula funds, the City funds projects and programs related to housing affordability, parks and open space, transportation infrastructure, quality of life issues, economic development, and workforce development. This program is an important potential funding source for special Great Streets projects and appropriate coordination is needed to ensure Great Streets principles are considered for all applicable projects.

Speed Camera Location Selection Criteria Memorandum

According to this draft document, prior speed camera placements on low-volume streets throughout Providence did not produce many violations while results on arterial streets were better. The proposed strategy prioritizes schools, arterials or collectors, and vulnerable crash corridors identified in the 2017 Vulnerable Road User Safety Action Plan. The strategy also identifies camera placement on streets with an identified speeding issue confirmed by studies. Speeding is defined as when traffic counts show 1 percent of traffic exceeding 30 mph or when enforcement yields at least two violations in four hours of enforcement. The memo also lays out procedures for formally relocating speed enforcement cameras. The placement of future speed cameras appropriately prioritizes critical locations.

Right-of-Way Encroachment Rules

DPW rules adopted on March 5, 2012, govern excavation and construction of encroachments not for habitation (e.g., awnings, canopies, marquees, signs, architectural embellishments, foundations, wheelchairs, etc.) and encroachments for habitation (balconies, bay windows, arcades, overhangs, basements vaults, subterranean parking garages, etc.). DPW must find the encroachment will not impair public health, safety, or welfare and — if supported by the ground within the public right-of-way — does not have an adverse impact on access for people walking or using wheelchairs.

These rules are consistent with Great Streets. City staff resources are needed to ensure compliance. This includes internally communicating planned and ongoing construction activities.

Overnight Resident Parking Permit Program

This permit program allows vehicle owners/lessees to purchase a permit ($100 for Providence-registered vehicles and $200 for non-Providence vehicles) to park overnight on local streets as designated by the City Traffic Engineer. Other parking restrictions (daytime prohibitions or time limits, snow emergencies, and street sweeping) still apply. If two-thirds of a street's residents sign a petition in opposition, the City may exclude the street from the program and the overnight parking ban continues.

Public Utilities Agreement

This agreement incorporates Standards to be Employed by Public Utility Operators when Restoring any of the Streets, Lanes and Highways in Providence, applicable ordinances, and A Plan for Supervision of Utility Cuts.

As noted in Appendix A, "Under the Standards, [utility companies] are required to obtain permits for work in City streets and guarantee the work for a period of Five (5) years. The Standards impose a permit fee of Seventy Five Dollars ($75) per excavation and include work standards and safety requirements. They include provisions governing excavation, backfill and compaction, and pavement restoration. Finally, the Standards include two provisions that are designed to lead to better coordination between the Utilities and Providence. The first is the Street Paving Program under which the Utilities will receive advance notice of Providence's paving plans. The second is the Utility Coordinating Committee which will be composed of representatives of City departments and the Utilities and will meet regularly to coordinate utility work in City streets."

Utility projects, particularly those that affect sidewalks, present an opportunity to piggyback improvements to the public realm. In general, larger planned projects present the greatest opportunity. Note the current agreement does not explicitly address bicycles. As discussed below, the 2014 Bicycle Master Plan recommended adding provisions to this permit process to prevent roadway patches from creating hazards for people riding bicycles, providing bicycle detours when temporarily closing roads, and pavement marking replacement.

Road and Sidewalk Opening Standards for Contractors

A November 20, 2017, Public Works document outlines rules and regulations to assist contractors on proper standards to be employed for public roadway and sidewalk opening. The City requires contractors excavating or constructing within the public right-of-way to obtain a road opening permit. Unlike the utility agreement, bicycle-related provisions are included. Similar to utility projects, contractor activities present an opportunity to piggyback improvements to the public realm.

Valet Parking Guidelines

The Traffic Engineering Division has established guidance for valet parking licensing and operation that requires among other things, all cars to be parked in an off-street lot that the applicant controls and not on a city street. It also prohibits blocking the public right-of-way. The potential blocking of bike lanes, sidewalks, Urban Trail crossings, or other important facilities requires enforcement.

Vulnerable Road Users Safety Action Plan

The purpose of the January 2017 Vulnerable Road Users Safety Action Plan, is to "identify and utilize available data to evaluate crash patterns involving people walking or riding bicycles and develop a citywide approach that improves safety and complements ongoing initiatives in the City of Providence. By effectively using data to identify problem areas and risk factors, funding can be focused on areas and approaches with the greatest potential to reduce fatal and serious injuries to vulnerable roadway users." The Action Plan includes strategies aimed at improving young user safety, improving older user safety, improving infrastructure, increasing compliance with traffic laws, and focusing on specific corridors. Corridors with data and identified countermeasures include Broad Street, Chalkstone Avenue, North Main Street, Westminster Street, Smith Street, Washington Street, Cranston Street, Francis Street, Hope Street, Angell Street, Branch Avenue, Elmwood Avenue, Manton Avenue, Allens Avenue, Pine Street, Steeple Street/Memorial Boulevard, Douglas Avenue, Hartford Avenue, Admiral Street, and Dorrance Street.

2014 Bicycle Master Plan

Bike Providence[2] is Providence's 2014 Bicycle Master Plan. The plan's intent was to "provide the framework to identify, prioritize and implement bicycle facilities in the City of Providence." The plan provided an existing bikeways inventory, compiled crash data, listed ongoing and planned bicycle facility projects, and evaluated level of traffic stress, among other tasks. In addition to recommending projects, recommendations applicable to the City's Great Streets Initiative included the following discussion. Items with a check mark (✓) indicate those which have been completed since 2014. Recommendations not yet completed have been incorporated into the recommendations of the Great Streets Master Plan and updated as needed.

General recommendations include:

- Modify the current City roadway design standards and regulations to include a Complete Streets approach.
- Modify the City pavement management program to include consideration for City streets that are on the bike network. Evaluations of pavement surface conditions should take into account defects that may impact bicycles such as longitudinal cracks and unsafe drainage grates.
- Include provisions in the City's utility/roadway opening permit process to consider roadways in the bike network. For example, utility patches must not create a hazard for bicycles, and temporary road closures and detours must accommodate bicyclists. Bikeways pavement markings that are covered over or damaged by road/utility repairs must be replaced.
- (✓) Modify the City's current zoning and development regulations to include provisions for a Complete Streets approach and for bicycle parking in new and redevelopment projects.
- Develop a policy and designs to permit commercial establishments to replace on-street parking with on-street bike parking stalls/bike corrals.
- In addition to recommendations on education and evaluation, the plan recommended enhancements to enforcement activities. See discussion of Public Safety.

The Big Jump

The City of Providence is one of several US cities selected to participate in PeopleForBikes' Big Jump project. The Big Jump project, which includes technical assistance and professional development assistance, is helping ten cities radically reimagine their bicycling infrastructure, while at the same time helping propel communities nationwide into a better future for biking. During the coming years, the Big Jump effort will continue to assist the City with additional technical assistance, professional development, and implementation of the Great Streets Initiative.

Bike Share

Launched in 2018, JUMP bikes, in partnership with the City of Providence and private sponsors, is a membership-based dockless bike share program. The bikes have a pedal-assist motor. Although the bikes can be locked to any public bike rack, street sign, or parking meter (as long as it does not block accessibility on sidewalks), the system also includes 40 JUMP-branded bike racks. JUMP redistributes bikes throughout the day to balance supply with demand.

E-Scooter Share

Providence's E-Scooter Share Program launched in October 2018. Two companies, Spin and VeoRide, received permits to operate 300 e-scooters each during the 2019-20 second year of the program. Operators are responsible for meeting requirements specific to safety, distribution, equity, maintenance, operations, parking, and data sharing as outlined in updated regulations DPW issued in December 2018.

Shared Mobility: Insights from data

- In the first year of the scooter pilot, 169,000 trips were taken on scooters and 282,500 on JUMP bikes. 50,000 people rode JUMP bikes and 25,000 rode scooters.
- JUMP trips averaged 2 miles, 10-15 minutes, and 8-12 miles per hour. Scooter trips averaged half a mile, 6 minutes, and 4 miles per hour.
- The biggest factor correlating to high ridership in 2017-8 was temperature. The second biggest factor was whether colleges were in session.

2 Bike Providence: A Bicycling Master Plan for Providence, November 2013

City Commissions Directly or Indirectly Involved with the Public Realm

Bicycle and Pedestrian Advisory Commission

This Providence Bicycle and Pedestrian Advisory Commission (BPAC) is charged with serving as the advisory body to the Mayor, City Plan Commission, Department of Public Works, Department of Planning and Development, and Office of Sustainability on matters pertaining to bicycling and walking in the City. The BPAC is comprised of seven public members appointed by the Mayor. Staff of the Department of Planning and Development, Department of Public Works, and Office of Sustainability serve as non-voting Ex-Officio members. The BPAC may also: examine the need for transportation related to people walking or riding bicycles; promote programs and facilities for people walking and riding bicycles; educate and inform the public and local officials on issues related to people walking or riding bicycles; perform special studies and projects as requested by the City, including reviewing development plans and site plans which may have a significant impact on people walking or riding bicycles; facilitate citizen participation; study changes in laws, regulations, and best practices and advise the City with respect to such changes; promote intergovernmental and public/private cooperation and coordination; and advise the public and City on matters affecting the relationship between public realm improvements and parks, schools, transit stops, and other major facilities.

Enacted in 2012, Executive Order 2012-1 (Creating the Bicycle and Pedestrian Advisory Commission) established the Providence Bicycle and Pedestrian Advisory Commission (BPAC). Enacted in 2016, Executive Order 2016-1 (Creation of a Review Process for Road and Sidewalk Projects and Complying with the City's Complete Streets Resolution) requires DPW and DPD to present all significant street, sidewalk, or trail repair or construction projects to the BPAC for review during both the project's initial scoping phase and preliminary design phase. Significant projects include those identified in Bike Providence, any street categorized as an arterial or collector road, or any project within 300 feet of a school or City recreation center. BPAC also reviews projects under RIDOT jurisdiction. (See RIDOT discussion in External Agencies section of this chapter.)

The establishment of BPAC and subsequent expansion of its role has increased project coordination and implementation of new facilities. The requirement for two BPAC reviews ensures sufficient community input on final plans. However, for non-controversial projects, a second review may be unnecessary. The Department of Planning and Development currently assists and staffs the BPAC.

City Plan Commission

The City Plan Commission (CPC) is a citizen board charged with developing the City's plans for preservation, revitalization and growth. With the assistance of DPD staff and general public, the City Plan Commission develops the City's Comprehensive Plan and ensures that all planning documents are consistent with the goals and policies of the Plan. The commission reviews all land development projects, applications for changes, requests for street abandonment, and the City's Capital Improvement Program. The Department of Planning and Development currently assists and staffs the CPC.

Downtown Design Review Committee

The Downtown Design Review Committee (DDRC) conducts development plan review in the D-1 zoning district. The D-1 zone encourages and directs development in Downtown to ensure that new development complements the existing historic building fabric and character, historic buildings are preserved and maintained in keeping with the historic nature of Downtown, development encourages active street life, and that greenways and open spaces are incorporated into Downtown. The Department of Planning and Development currently assists and staffs the DDRC.

Capital Center Commission

The Capital Center Commission (CCC) is charged with adopting, implementing, and administering a plan of development for the Capital Center Special Development District, a 79-acre redevelopment in the heart of downtown Providence. The CCC reviews public realm improvements within the Capital Center District. The Department of Planning and Development currently assists and staffs the CCC.

Historic District Commission

The Historic District Commission (HDC), established in 1960, is charged with protecting the unique physical character, historic fabric, and visual identity of the city. The HDC reviews and regulates development and exterior renovations in Providence's designated Local Historic Districts. The Department of Planning and Development currently assists and staffs the HDC.

Board of Parks Commissioners

The Board of Parks Commissioners has jurisdiction over all green spaces of the City, all parks including Roger Williams Park Zoo and Roger Williams Park Museum, North Burial Ground, and other city-owned or controlled cemeteries, public recreational areas of all types-- including those on or adjacent to school property--, and all forestry functions including the setting out, care, and removal of trees, shrubs, and other plants on city streets as well as on properties for which it is responsible.

City Departments Directly Involved with the Public Realm

A number of City departments have regulatory and/or permitting roles that directly or indirectly involve the City's right-of-way. Two of these departments -- the Department of Planning and Development (DPD) and Department of Public Works (DPW) -- have the most substantial roles, and as such, this chapter reviews specific charter and ordinance language for these two departments.

Department of Planning and Development (DPD)

DPD develops and administers standards for land use, design, construction, and housing that are consistent with the Providence Tomorrow Comprehensive Plan. The Department provides staff support to the City Plan Commission, Downtown Design Review Committee, Capital Center Commission, Historic District Commission, and Bicycle and Pedestrian Advisory Commission (BPAC). (Some right-of-way improvements require review by one or more of these commissions as discussed in the Commissions Chapter.) Importantly, DPD is leading the Great Streets Initiative. Among other responsibilities, DPD's Special Projects Division plans and develops public realm projects in conjunction with the Department of Public Works (DPW) and other external agencies such as the Rhode Island Department of Environmental Management (RIDEM) and Rhode Island Department of Transportation (RIDOT). See Appendix A for relevant charter and ordinance language.

Based on the City Charter, DPD's role with respect to the public right-of-way is advisory. As discussed in the next section, the Department of Public Works is charged with approving all plans and granting permits. While DPD's responsibilities include developing and periodically reviewing the Capital Improvement Plan (CIP), the Director of the Department of Public Properties currently oversees the CIP.

Department of Public Works (DPW)

DPW is responsible for issuing permits for all work involving modifications to the right-of-way and public utilities. DPW's Engineering Division currently oversees inspection and construction management of streets, sewers, storm drains, traffic signals, traffic signs, pavement markings, construction projects, maintenance projects; planning, design and project management of components of the CIP. The City Traffic Engineer is charged with reviewing all traffic and public right-of-way modifications. See Appendix A for relevant charter and ordinance language.

With the exception of 2006 changes to the charter governing DPW, ordinances covering public works and traffic engineering date to either 1946 or 1948. Importantly, Sec. 2-113 assigns the DPW Director superintendent responsibility for all streets, highways, and sidewalks. Sec. 2-135 assigns the city engineer responsibility for preparing plans for construction projects.

While per Sec. 2-153, the Mayor appoints the traffic engineer, Sec. 2-152 establishes a traffic engineering advisory committee that has "no administrative or regulatory powers." Per Sec. 2-156, "the traffic engineer shall have authority to make all needful rules and regulations for the regulation and control of traffic in the city not inconsistent with the laws of the state..." Per Sec. 2-158, "All design drawings prepared by other departments of the city government for the construction of proposed highways, bridges, parking terminals and other traffic handling facilities, shall be submitted to the traffic engineer for a review and recommendation..." These rules assign all control and review responsibility to the traffic engineer. While the traffic engineer serves at the pleasure of the Mayor, at the same time because the advisory committee has no powers, the traffic engineer has no approval board with which to work.

Parks Department

The Parks Department oversees the selection, planting, and maintenance of all street trees in Providence as well as improvements within the City's public parks. Assets include neighborhood parks, downtown parks, Roger Williams Park, recreational facilities, a community sailing facility, conservation areas, playgrounds, boat launches, and community gardens. See Appendix A for relevant charter language.

School Department

Among other responsibilities, the Providence School Department oversees all school properties within the city. Some properties include playgrounds and other recreational facilities. Safe walking and bicycling access to city schools is a key consideration for Great Streets and many other project prioritization considerations, including traffic calming. City Ordinance Chapter 22 covers City Schools.

Department of Public Properties

Among other responsibilities, the Department of Public Properties is responsible for management, maintenance, upkeep, and expansion of the City's 17,000 street lights. The Director also manages the City's Capital Improvement Program (CIP). Per the City Ordinance, this function is not explicitly assigned to Public Properties but is under the purview of DPD. See Appendix A for relevant charter language.

Department of Public Safety

The Providence Department of Public Safety (DPS) includes the police, fire, communications, and homeland protection departments and an emergency management agency. The police department supports the traffic calming program by conducting speed studies, serving on the Traffic Calming Advisory Group (TCAG), and enforcing traffic and parking regulations. The fire department also serves on the TCAG.

See Appendix A for relevant charter language.

External Agencies

This section outlines the public agencies the City of Providence most often works with, including the Rhode Island Department of Transportation (RIDOT) Rhode Island Public Transportation Authority (RIPTA), and Rhode Island Department of Environmental Management (RIDEM).

Rhode Island Department of Transportation (RIDOT)

RIDOT operates and maintains much of Rhode Island's transportation infrastructure. In addition to the freeway network, roads designated as state routes fall under RIDOT jurisdiction. RIDOT reviews and issues permits (generally through the Physical Alteration Permit Process) for work done on these routes or projects that impact RIDOT-owned or maintained traffic signals. Utility companies doing work within RIDOT right-of-way must coordinate with RIDOT for utility permits.

Streets in Providence under RIDOT jurisdiction include:

- Most bridges over state and federal highways
- Broad Street (West Franklin to Elmwood)
- Elmwood Avenue (Broad to Park/City Line)
- Smith Street (North Main to Mount Pleasant/City Line)
- Charles Street (Smith to Randall)
- Randall Street (Charles to North Main)
- North Main Street (Randall to Hillside/City Line)
- Killingly Street (Hartford to Maria/City Line)
- Hartford Avenue (Route 6 to Killingly/City Line)
- Allens Avenue (Eddy to Montgomery/City Line)

Division 9 of RIDOT's Highway Design Manual has basic provisions covering the design of facilities for people walking and riding bicycles. Section 910.01 notes, "Providing for safe and efficient travel for both bicycles and pedestrians should be an integral part of the design process." However, the Highway Design Manual dates to 2008, before many new design concepts for bicycling, walking, and micromobility were well established. New and updated design resources for these modes have since been published. The State completed a Bicycle Mobility Plan (BMP) in 2019 that is scheduled for release in 2020.

Rhode Island Public Transit Authority (RIPTA)

The Rhode Island Public Transit Authority (RIPTA) is a quasi-public, independent authority. Established in 1966, RIPTA operate public transit services throughout the state. RIPTA's principal bus hub is at Kennedy Plaza in Downtown Providence. RIPTA, in close coordination with the City of Providence, is currently implementing a significant change to bus service and facilities in Downtown. The Downtown Transit Connector will provide high-frequency transit service (every 5 minutes in each direction) between the Providence Amtrak/MBTA Station in Capital Center and Hospital District in Upper South Providence. There will be six paired stops along the corridor, each designed with a unique and highly-visible identity. Stops will include shelters, real-time bus arrival signage, and other passenger amenities. The Downtown Transit Connector (DTC) will be an "enhanced bus corridor" that provides riders with improved service frequency and reliability through the inclusion of Transit Signal Prioritization (TSP) which extends the duration of green traffic signals for buses (and emergency vehicles) along the corridor, special signal phases allowing buses to "jump" the traffic queue and move ahead of regular traffic, and dedicated bus lanes.

A consideration for future Great Streets planning is the need to have accessible, properly-sized, properly-spaced, and welcoming bus stops. The 2017 RIPTA Bus Stop Design Guide establishes design principles applicable to future projects. This includes concepts for potential floating bus stops made necessary by parking-protected bike lanes or curb-adjacent separated bike lanes where buses must load and unload passengers by deploying a ramp. ADA does not permit deployment of bus ramps to the street, as the ramp slope is excessive. The RIPTA system map presents the Rapid Bus route, Key Corridor routes, and local bus routes within Providence.[3] Most of these streets are arterial roadways and a number are also RIDOT-owned.

RIPTA is releasing a statewide Transit Master Plan in 2020 and has coordinated with the City to ensure the plan complements the City's Great Streets Master Plan.

Rhode Island Department of Environmental Management (RIDEM)

The Rhode Island Department of Environmental Management (RIDEM) is charged with protecting, restoring, promoting, and managing Rhode Island's environment and natural resources to preserve and improve quality of life. Through funding and other assistance and support RIDEM helps communities support the clean up and reuse of contaminated industrial properties, improve stormwater management and water quality, protect open space, sustain and restore sustainable wildlife habitats, promote and increase outdoor recreation, develop a network of recreational facilities (including bicycle paths and trails), reduce greenhouse gas emissions, and improve resiliency.

San Souci Greenway, Gano Gateway, and several small projects especially around the Woonasquatucket Greenway were funded by the 2016 Green Economy Bond.

Existing Project Development and Delivery Processes

With the goal of developing policy and process recommendations to improve delivery of the Providence Great Streets Initiative, this section describes the existing project development and delivery process for public realm projects in Providence and identifies gaps in the process. The findings derive from staff interviews and discussions, consultant team analysis, and best practices research. Two projects selected by City staff provide examples of challenges and opportunities. This section also references important matters covered elsewhere in the report.

Existing Challenges and Gaps

The National Complete Streets Coalition's "Ideal Complete Streets Policy Framework" suggests applying Complete Streets policies to both new and retrofit projects, including design, planning, maintenance, and operations for the entire right-of-way. Under this policy framework, all transportation improvements are seen as opportunities to create safer, more accessible streets for all users, including people walking, riding bicycles, and using transit, regardless of scale. Other elements of effective Complete Streets project development and delivery programs are:

3 https://www.ripta.com/statewide-system-map

- Strong collaboration and communication among departments and staff
- Few areas of confusion or lack of clarity, leading to more results with less effort
- Accepted design standards
- Established and clear procedures for addressing exceptions and for measuring performance
- Clear and streamlined process with agreed-upon timelines and expected contributions
- Offers workshops and other training opportunities to planners and engineers

Because Providence's planning, design, and construction resources are finite, it is essential that the City create a framework for implementation each time a project opportunity arises, regardless of its source. At present, while efforts are underway to improve efficiencies throughout City government, there are numerous barriers to coordination that may lead to lost opportunities. Some barriers are due to competing interests or lack of resources, which may lead to reactive work and lack of time available to properly plan. Substantial maintenance and repair backlogs require additional staff capacity and funds to properly address. Coordinated projects take longer to develop due to lack of standard procedures. Projects that require interdepartmental or interagency coordination lead to further delays.

Additionally, staff training and professional development resources are inadequate to educate staff on new approaches, and project management and construction management staffing do not exist within DPD or DPW leading to over-reliance on consultants.

Existing Origins and Sources of Potential Public Realm Projects

In a resource-constrained environment, it is critical to capitalize upon every potential project opportunity. This means identifying and tracking all potential projects that alter the public realm, whether planned or unplanned. In Providence, street alteration projects derive from a number of places and sources, including:

Capital Improvement Program

The Capital Improvement Program (CIP) is a five-year program that includes street, sidewalk, sewer, and Complete Streets projects. Street and sidewalk projects are typically paving or maintenance. The City's pavement management program is currently part of the CIP. Sewer projects include proactive and reactive repairs and some of these can include associated restoration work in the road and sidewalk. According to the 2017-19 CIP:

> *[DPW] requests for fiscal years 2018-22 include roadway repair, maintenance, and reconstruction; bridge and dam repair; Complete Streets work including curb extensions, striping, traffic calming, and bicycle and pedestrian amenities; and sewer and stormwater management system maintenance, repair, and construction, including the installation of green infrastructure.*
>
> *DPP requests for 2018-22 includes upgrades and repairs to City Hall, fire department upgrades and repairs, recreation center repairs and fire alarm upgrades, police training alarm upgrades, and playing field improvements.*

Traffic Calming

The City's current traffic calming program focuses on residential street improvements to slow traffic based on project priorities screened and advanced through an established process. See "Modify the City's traffic calming procedures and guidelines" within the recommendations section of this chapter and "Traffic Calming Guidelines and Program" within the Existing Regulations, Policies, Programs, Plans, and Initiatives section of this chapter for more detailed information on the City's current traffic calming program.

Projects Advanced by State Agencies

Examples include RIPTA's Downtown Transit Connector project, RIDOT repaving or major construction projects that impact or take place on streets within Providence, and RIDEM-funded projects.

Neighborhood Improvement Funds (NIF)

NIF are neighborhood infrastructure dollars available through the City's general fund and allocated by the City Council. These funds can be used for a variety of infrastructure needs in their respective wards, including community centers, playgrounds, schools, road paving, traffic calming, and sidewalk repairs.

CDBG Allocation

Through this federal allocation from the U.S. Department of Housing and Urban Development (HUD), the City funds projects to address housing affordability, parks and open space, transportation infrastructure (particularly sidewalks and traffic calming), quality of life issues, economic development, and workforce development.

311 Requests

In most instances, the city addresses 311 requests by making repairs to streets and sidewalks.

Specific Plans

This includes recommended improvements identified in Bike Providence, the Comprehensive Plan, special area plans such as the Woonasquatucket Vision Plan or 2014 City Walk Study, neighborhood plans, corridor plans, or other infrastructure projects which may have associated restoration work in the street or sidewalk.

Private, Community, and Non-Profit

Developments

Projects that others propose and come before the City may identify needed improvements to street and sidewalk infrastructure. These projects sometimes include mitigation funds to pay for these or other improvements.

Utility Work

Utility companies often must open city streets to gain access to infrastructure below ground. The City Ordinance (Sec. 23-35) governs requirements for properly restoring streets and sidewalks.

Competitive Grant Funded Projects

The City often receives competitive grant funds to advance, implement, or maintain projects from state and federal agencies and national or local foundations. Sources of state grants include the State Transportation Improvement Program (STIP), Highway Safety Improvement Program (HSIP), and RIDEM Green Economy Bond. Other grants are funded by USDOT, EPA, local organizations like the Rhode Island Foundation, or national organizations like PeopleForBikes. Grant-funded projects typically require approval from and extensive coordination with the funding organization.

Recommendations

Recommendations included in this section are based on a combination of best practices research from other US cities and a thorough analysis of Providence's existing policies, procedures, and regulations.

Research and findings of best practices are based off of cities within different geographic regions of the country, with characteristics similar to Providence and Complete Streets programs which offer valuable lessons for Providence. The purpose of this research is to identify practices that may assist development and implementation of the City of Providence's Great Streets Initiative. Interviews with the following cities were conducted in the spring of 2019:

- Missoula, Montana: located in the upper Midwest with a population of 73,340
- New Orleans, Louisiana: located in the southeast with a population of 393,292
- Portland, Maine: located in the upper northeast with a population of 66,882
- Seattle, Washington: located in the upper northwest with a population of 724,745
- Worcester, Massachusetts: located in the northeast with a population of 185,677

This report also discusses best practices of several other cities that were not interviewed but were researched for this report.

Although this chapter includes many recommendations related to a variety of needed improvements to policies, processes, and regulations, the recommendations generally align with five key areas of focus:

- Revise outdated and enact new City ordinances related to mobility
- Align City policies and procedures to invest in and preserve great streets
- Prioritize safety and comfort for people who walk, ride bicycles, and use public transit
- Advocate for friendlier state laws and policies related to mobility
- Expand opportunities for engagement, education, and encouragement

Revise Outdated and Enact New City Ordinances Related to Mobility

Create a New Great Streets Ordinance that Replaces and Strengthens the Existing Complete Streets Resolution and Formally Integrates the Great Streets Initiative into City Procedures

The City of Providence's existing Complete Streets resolution, adopted in 2012, is supportive and encouraging but not as strong as it should be.

The form of enabling legislation used by other cities to enact Complete Streets varies. Seattle's and New Orleans' programs were enacted through ordinance, while Missoula's program was authorized through resolution, Worcester's program by department policy, and Portland's program by council order. By definition, municipal resolutions are generally for temporary actions. Ordinances are for government actions that are intended to be permanent.[4] Given that the City of Providence's Complete

4 An ordinance is a municipal law that prescribes general, uniform and permanent rules of conduct relating to the corporate powers of the municipality. An ordinary ordinance, as opposed to a charter ordinance, is intended to be reasonably permanent. A resolution is generally less permanent and address-

Streets policy was originally enacted by resolution and its Great Streets Initiative is intended to replace the program as a permanent function and service, an ordinance is warranted.

The National Complete Streets Coalition (NCSC) is the leading authority in Complete Streets policy and program implementation. Its Complete Streets template offers substantive policy and program parameters that are often considered when crafting a Complete Streets law or policy. (See Inset 1.) All but one of the surveyed cities use the NCSC template.

Based on a review of NCSC guidance and Complete Streets ordinances, resolutions, and policies, it is recommended that the City of Providence's Complete Streets Ordinance include the following in order to align with NCSC policy parameters:

- A clear description of the **Vision, Users, and Modes** intended to be covered by the ordinance
- **Inclusions and Exceptions**: Inclusions should be listed and representative of all activity in the public realm. Exceptions should also be clearly laid out and may include projects where there is a documented absence of need or there is an equivalent project within or along the same corridor with the same service. In some cities, exceptions must be approved by City Council.
- **Connectivity**: Potential opportunities to coordinate with other projects should be called out.
- **Context Factors and Prioritization:** Establish and include "context factors" that prioritize investments, and provide explanation of why these factors are important. "Context factors" should be drawn from the Providence Great Streets Master Plan and Implementation Guide. An example from Portland's Complete Streets Council Order is determining "whether the corridor provides primary access to one or more significant destinations" and prioritizing its value in the context of the community's immediate needs, history, and available resources. The City of Providence should develop a clear prioritization methodology to help decide which projects to implement first. Below is suggested language to include in the Ordinance:
  - **Connectivity**: A project's prioritization score shall be elevated if it connects to an existing or funded project. An exception may be made where a project that is a distance away from an existing or funded project can be reasonably connected in the short or mid term, and has its own connectivity benefits (e.g. to destinations such as schools or parks).
  - **Safety**: A project's prioritization score shall be elevated based on the pedestrian and bicycle crash history (number of crashes per linear mile for crashes occurring within a quarter mile of the project).
  - **Demand**: A project's prioritization score shall be elevated based on the anticipated demand of people walking and riding bicycles in accordance with population density, nearby destinations, employment centers, and other related factors.
  - **Environmental Justice and Equity**: A project's prioritization score shall be elevated based on proximity to populations corresponding with Environmental Justice indicators, such as households in poverty and households without access to vehicles.
- **Design Guidance**: Missoula's resolution mandates use of the "best and latest design guidance, standards, and recommendations."
- **Performance Measures**: Insert measures that will quantify performance of the program, similar to performance measures listed in the City of Missoula Complete Streets resolution, including miles of connected Urban Trails:
  - Total miles of connected Urban Trails built
  - Number of new curb ramps installed along city streets
  - Number and type of traffic calming devices installed
  - Number of new street trees planned
  - Crosswalk and intersection improvements
  - Percentage of transit stops accessible via sidewalks and curb ramps
  - Bicycle and pedestrian count data
  - Transit ridership data, including automated passenger counter (APC) data
- **Urban Design Factors**: The ordinance should reference urban design factors such as streetscape improvements, landscaping and street trees, human-scaled lighting, public art, street furniture, wayfinding signage, and active ground floor uses.
- **Implementation**: Missoula's City departments and their responsibilities for program implementation and "everyday program decision making" are listed in their Complete Streets policy. Identification of program funding sources and methods for inter-departmental coordination is mandated. Portland, Maine uses CDBG funds for Complete Streets improvements within Environmental Justice communities.
- **Construction Mitigation**: Cleveland Heights' (Ohio) policy includes a provision requiring safe accommodations for people walking and riding bicycles during construction. According to NCSC, this is often overlooked.
- **Training and Professional Development**: The City of Missoula's transportation planners and engineers are regularly provided access to training in ADA, mobility and access, and Complete Streets within departmental budgets.

es municipal matters of a special or temporary nature.

Inset 1

2019 NCSC Complete Streets Best Practices Policy Text Excerpts – Environmental Justice

Des Moines, Iowa

"In creating Complete Streets/ the City recognizes equity as a motivation and will prioritize vulnerable users and those residing in the environmental justice (EJ) areas identified by the Des Moines Area Metropolitan Planning Organization (MPO)."

Des Moines Area MPO, Environmental Justice Report, August 2016

"To ensure fair treatment, the MPO studies seven Degrees of Disadvantage to identify EJ areas, or those areas with large populations of traditionally underserved individuals...The Degrees of Disadvantage methodology looks at U.S. Census Bureau data at the tract level to determine where EJ areas are located in the region. Data is obtained for seven population groups including nonwhite population, car-less households, persons in poverty, single heads of households with children, persons over 65, limited English proficiency (LEP), and persons with a disability. A Degree of Disadvantage is identified for a population group if the census tract exceeds the regional average for the population group. Census tracts considered EJ are disadvantaged for at least six of the seven population groups"

Baltimore, Maryland

Equity Lens.

A. Separate reporting by geographic subunit. In preparing the annual report, the department must separately report data by geographic subunit (e.g., census tract, traffic analysis zone, or the like).

B. Separate reporting by race, income, and vehicle access. The annual report must separately report data into the following categories:

a. Populations that are above and below the median number of persons of color for Baltimore city.

b. Populations above and below 50 percent no vehicle access.

c. Populations with a median income above and below the median household income for Baltimore city.

Accountability to Communities. The transportation department, in consultation with the complete streets coordinating council advisory committee, shall conduct public meetings and other community engagement and outreach activities to present the complete streets annual report to the public and solicit public input.

Milwaukee, Wisconsin

"5. When considering the various elements of street design, the City shall give priority as follows:

a. Above all, safety is imperative, with pedestrian safety having the highest priority followed by the next most vulnerable types of users.

b. Street design elements that encourage and support walking, biking, and transit trips in a manner that considers the context of the surrounding community as well as the broader urban design needs of the city.

c. The City recognizes that not all modes can receive the same degree of accommodations on every street, but the goal is for users of all ages and abilities to safely, comfortably and conveniently travel across and through the network.

6. The Department of Public Works shall prioritize universal and equitable investment in underserved communities throughout the City which lack existing infrastructure that encourages walking, biking, and transit trips, as well as areas where data indicate crash risk and health disparities."

- **Environmental Justice**: In addition to including equity as a consideration in project prioritization, Providence should take steps to ensure that these investments are meaningful to front-line communities: establish working relationships with community stakeholders; create with them investment strategies to address specific needs; and define a reporting mechanism to assess productivity.

  Milwaukee's policy acknowledges that there are disparities in communities, with some neighborhoods disinvested in. Street design can alleviate some of those disparities. The policy emphasizes health equity disparities such as crashes happening in predominantly low-income communities of color. The policy establishes a framework for navigating those conversations.

Update Ordinance Language for Operating a Bicycle

Sections 15-70—15-75 of the Code of Ordinances date from 1946 and are significantly out of date. For example, Section 15-73 prohibits carrying a passenger on a bike. However, cargo bikes and bikes with trailers and child seats often carry passengers.

Repeal Ordinance Prohibiting Skateboarding

Section 23-31 of the City's Code of Ordinances prohibits riding a skateboard on any street, highway, sidewalk or pedestrian mall, passed in 1965, is antiquated and should be repealed.

Consider Zoning Ordinance Revisions that Further Lower Parking Requirements in New Developments

The demand for parking is expected to continue to change as more people avail themselves of new mobility options such as bike share e-scooter share, Transportation Network Companies (TNCs) such as Uber/Lyft, improved public transit, and autonomous vehicles. Parking requirements should reflect these trends. Many cities encourage developers to incorporate features into their projects that encourage travel and lower the need for parking. This includes providing incentives that lower the requirements if certain amenities are included in project proposals.

Amend the Code of Ordinances to Include Fines for Parking in or Blocking Bicycle Facilities and Increase Associated Enforcement

The CIty should study fines and ordinance language used by other cities to establish an appropriate dollar value. In Atlanta, drivers are fined $100 for parking automobiles in bike lanes or on multi-use trails, while fines for tractor trailers are more significant at $1,000. Atlanta's police department also runs an education campaign to discourage parking in bike lanes. Washington, DC recently increased the fine for parking in a bike lane from $65 to $150, and New Orleans fines drivers $300 for parking in bike lanes.

Align City Policies and Procedures to Invest in and Preserve Great Streets

Establish Transportation Impact Study Requirements and Guidelines for Specific Street Types

An important goal of the Providence Great Streets Initiative is to identify and implement ways to more efficiently construct public realm improvements. At present, when projects such as on-street bike lanes are considered, the internal review process can take longer than may be needed, particularly for certain streets. When a proposed project may eliminate or narrow a vehicular travel lane or eliminate parking, concerns about impacts often trigger the need for studies. Such studies are often costly to undertake and time-consuming. Furthermore, to the extent that transportation impact studies focus only on a narrow range of impacts, such as vehicle level of service (LOS or VLOS, see discussion below on LOS), they may not adequately address impacts to other modes or accurately represent the benefits a project is likely to bring about.

To address these challenges, the City should consider adopting a policy that:

- Limits requirements to conduct transportation impact studies to certain street types;
- Permits projects to advance without such studies on other street types;
- Requires transportation impact studies to consider a range of impacts and benefits to all modes of transportation, considering the context of the proposed project; and
- Is consistent with the goals and policies of the City's Great Streets Master Plan. For example, the study should give deference to the goals of creating a connected network of Urban Trails and Great Streets, making transportation more affordable, improving quality of life, and becoming carbon neutral. Studies should also be consistent with a measurement or LOS policy if adopted by the City (discussed below). This policy foundation should inform how the study evaluates likely impacts and benefits.

Develop Protocols for Regularly Updating Infrastructure Projects in the Great Streets Master Plan

Regular updates to the projects listed in the Great Streets Master Plan will be important to maintain the Plan's relevance, address new needs and issues as they emerge, and mark projects as complete once they are constructed.

Modify the City's Traffic Calming Procedures and Guidelines

Providence's traffic calming program is reactive by design, does not establish clear prioritization of projects, and does not adequately explain the process or make information about it available to community members. Traffic calming programs have been in place for more than 20 years in a number of U.S. cities with some dating back even longer. Because the need for traffic calming is great and resources are limited, a number of cities have changed their programs in important ways, including establishing prioritization methodologies to determine proactively how the many important projects can be phased. While the City should not restrict constituent input about where traffic calming should occur, a clear prioritization methodology should be publicized and proactive projects should be undertaken.

One pitfall traffic calming programs face relates to their usual focus on individual streets. When one street is traffic-calmed in a neighborhood or small area, there is a potential that adjacent streets that have not received similar treatments may see diverted traffic at speeds similar to those experienced on the traffic-calmed street prior to installation.

The City should modify its traffic calming procedures to be more transparent and predictable, include new thresholds, criteria, and solutions, and be proactive rather than reactive by:

- Preparing and publishing user friendly public information to a webpage that describes the policy and process and includes documents for download, digital applications, and contact information.
- Conducting TCAG meetings at times when and locations where members of the public are able to attend;
- Reevaluate quantitative thresholds for traffic calming suitability in light of the proposed zone-based approach and pedestrian safety.
- Applying flexibility and context-sensitivity to the review of traffic calming applications. All traffic calming requests made by the community represent a safety need, either real or perceived. Traffic calming features should be applied in accordance with the Providence Great Streets Implementation Guide, which identifies which types of traffic calming are appropriate based on street type.
- Adopting use of new traffic calming solutions or interventions such as chicanes, diverters, neighborhood traffic circles, and raised crosswalks/intersections. Traffic calming projects should lead by considering ways to support multiple goals of the Providence Great Streets Initiative. Specifically, many traffic calming features are well-suited to provide stormwater management, habitat, and aesthetic benefits, in addition to serving a traffic calming function. All traffic calming interventions must consider maintenance capabilities to ensure adequate resources are available to maintain new features.
- Developing a zone-based traffic calming program that allows groups of streets within neighborhoods to be comprehensively evaluated for traffic calming. The resulting implementation would strategically occur on several streets, in part to prevent higher-speed traffic diversion to surrounding streets. Residents could submit traffic calming applications to the City, which would evaluate them based on published evaluation metrics and create a traffic calming plan for selected applications. The City of Boston's Neighborhood Slow Streets program operates in a similar manner and is a useful reference. Based on neighborhood comments as well as City input and previous traffic calming requests, while not necessarily an exhaustive list, key traffic calming areas are included in the Neighborhood Visions chapter of this document.

The traffic calming in place in the City of San Francisco incorporates the above approaches is a good model for application in Providence. See https://www.sfmta.com/getting-around/walk/residential-traffic-calming-program.

Improve Internal City Processes to Implement the Great Streets Initiative and Develop a Program Management Plan

A first year Project Management Plan (PMP) should be established and should answer five key questions:

- In what department will the program be located; how will be it managed, staffed, and funded?
- What other City departments and entities will be responsible for elements of the program; what will be their roles, responsibilities and decision making authority; how will program work activities, work products and decisions be coordinated and communicated; and how will professional collaboration, information sharing and training be fostered?
- Will there be a Great Streets advisory group or oversight committee; what role will it have in shaping the design of the program?
- How will the public be engaged in the program?
- What is anticipated to be accomplished in 6 months, 8 months and 12 months?

After executing the first year PMP and informed by its outcomes, the City of Providence should consider constructing a multi-year PMP as the program evolves and grows over time.

A key decision point is where the Great Streets program will be located within the City's departmental structure. The City should study potential reorganization of City staff to improve efficiencies, reduce gaps and redundancies in workflows, and position the City to become a leader in mobility and public realm investments. Lessons learned from other cities may be helpful to the City of Providence. In Missoula, the planning unit administers the program but its engineering, construction, and maintenance functions are performed by the Department of Public Works and the Department of Parks and Recreation. (See Inset 2.)

Another key part of Missoula's initiative is an integration of Complete Streets principles into the Missoula Long Range Transportation Plan. The document establishes a goal to triple bicycle and pedestrian mode share percentages and more than triple transit modal share percentages by Year 2045. In Missoula's roadway project planning process, the transportation and parks planners assist the design engineers with Complete Streets design and placement opportunities. During the project design, review and approval phases, the City Engineer inclusively circulates 30 percent, 70 percent, and final design plan sets to Transportation Planning, relevant Public Works divisions, and Parks and Recreation. "We red line them with our comments and recommendations and send back," he says and "if the project is large... or has regional implications, we have a sit down session." In the construction and maintenance phases, collaboration continues on amenities such as protected bike lane striping.

New Orleans Public Works recommends that the details of how the program will work should be fully vetted before an ordinance is enacted. The roles and responsibilities of City leadership, department heads, program staff, stakeholders, advocates, and citizens should be agreed to by them before ordinance action. Creation of an 'out years strategy' was also recommended, forecasting how program staffing, resources, and funding will be decided and addressed over time.

As for public engagement, some improvements to current practice could involve:

- For projects that include changes to a major street's striping, on-street parking, or traffic patterns, holding neighborhood meetings in addition to the currently required Bicycle and Pedestrian Advisory Commission meetings.
- Sending mailed abutter notices in more instances.
- Distributing informational flyers to doors along project routes.
- Posting informational flyers along project routes.
- Holding more informational briefings with relevant members of City Council during the project development process.

Establish a Great Streets Project Screening System and Checklist to Ensure Coordination

Many cities have policies requiring coordination to take advantage of every potential construction project. In other words, if the City or any other entity is going to alter the street for any reason, if the street is identified as needing improvements within the Great Streets Master Plan, the proposed improvement should be

Inset 2

City of Missoula - Complete Streets Program Shared Responsibilities

Department of Development Services – Transportation Planning Services Division (Lead):

- Complete Streets Transportation Planning and Policy
- Bike and Pedestrian Office: bike and walk promotion, traffic calming, pedestrian and ADA compliance strategies; Bicycle Facilities Master Plan.

Department of Public Works

- Street Maintenance Division: street cleaning, snow and ice removal, alley grading, leaf collection, storm water drain maintenance, street construction projects, chip sealing, maintenance of State routes in city, maintenance of bike lanes
- Traffic Services Division: street and traffic sign fabrication, installation, and maintenance; roadway striping application and maintenance; crosswalk, road messages, and curb marking applications and maintenance; sidewalk concrete grinding program; traffic and pedestrian studies; and snow removal on city bridge sidewalks.

Department of Parks and Recreation

- Maintenance and planning of parks, primary commuter network of trails, regional trails, and open space
- Maintenance of medians, sidewalks adjacent to parks and on bridges
- Urban forestry; tree planting and maintenance

implemented as part of the alteration. Whatever the source, each project should be viewed as an opportunity to implement the Great Streets Master Plan. In order to do so efficiently, staff must know exactly what is planned for streets and there must be a defined a process in place to efficiently advance the plan.

Except for emergencies, no construction activity should occur without prior consultation. The consultation should determine:

- What is the proposed plan for the street?
- Is another project programmed within the same section of street or an adjacent part of the public realm and for when?
- Is there an opportunity to implement the Great Streets Master Plan with the other project?
- If not, why not?

The following language should be considered as part of the City of Providence's screening policy:

> *It is the City of Providence's policy to implement any approved Great Streets Initiative project at the first available opportunity. Any construction activity on the street or sidewalk identified as needing improvement as part of the Great Streets Master Plan, shall be coordinated through [insert position name]. If the Great Streets concept cannot be advanced, the reasons shall be documented and distributed accordingly and included in a record system for Great Streets implementation. Except for emergencies, no construction activity shall occur without prior consultation.*

The City of Seattle created a Complete Streets Project Checklist, which is a digital tool available to SDOT project managers responsible for the initial planning and 30 percent design of new transportation improvement projects. It is meant to empower managers with information that broadens their understanding of Complete Streets application possibilities.

Providence's checklist could initially contain simple coordination tools and GIS data. In the out years, the functionality and use of the tool should be increased. The ultimate goal should be to have one data source for all City public realm engineering, planning, maintenance and construction specifications and standards; all mode-specific master plans; all relevant regulatory and zoning provisions; and all relevant GIS mappings.

Update Road and Sidewalk Opening Standards to Capitalize on Project Opportunities for Great Streets Implementation

The permit process and standards should be updated to ensure patches do not create hazards for people riding bicycles and that temporary road closures and detours accommodate bicyclists. It should also be mandated that Urban Trail of bicycle-related pavement markings that are covered over or damaged by road work be replaced in a timely manner.

Provide Additional Resources to the Providence Parks Department

The Providence Parks Department needs additional staff and equipment to maintain the City's Urban Trails, roadways and pathways within City parks and green spaces.

The maintenance experiences, challenges, and practices of comparable cities are discussed in this section. The City of Seattle has interesting, successful methods but its geographic location, size, weather, transportation footprint, and the magnitude of its resources are not comparable. If interested, visit https://streetsillustrated.seattle.gov/ to view the City's Right-of-Way Improvements Manual - *Seattle Streets Illustrated 2017*.

The cities of Missoula, New Orleans, Portland, and Seattle have fully functional Parks Departments that maintain parks, urban forestry, greenway trails, and public spaces such as boulevard planting strips, medians, and sidewalks adjacent to parks.

In Missoula, sidewalk upkeep and snow clearance are the responsibility of abutting property owners. This is enforced through Code. If property owners are non-responsive, Public Works clears sidewalks and the City bills them. In Missoula's downtown, the Downtown Business Improvement District offers some maintenance and snow removal assistance for protected facilities such as bike lanes and sidewalks. For the rest of the network, the Department of Public Works is responsible for sidewalk and roadway clearance, maintenance, replacement, and repair. It is responsible for street sweeping and keeping bike lanes free of debris. Every fall, it examines infrastructure assets and schedules improvements.The City of Missoula's Snow Plowing Priority Plan, which summarizes snow procedures, may be accessed at https://www.ci.missoula.mt.us/558/Snow-Removal. Their Parks and Recreation Department maintains boulevard planting strips, medians, and sidewalks adjacent to parks and on bridges. The department has its own equipment and schedule for the care of public trails such as the City portion of the Bitterroot Trail, the Milwaukee Trail, and what is known as the "primary commuter network" of trails.

In New Orleans, the Department of Public Works is responsible for maintaining the City streets. Maintenance of the parks and green spaces is split between the New Orleans Recreation Development Commission (NORDC) and the Department of Parks and Parkways. NORDC maintains local parks and playgrounds. Parks and Parkways maintains regional parks, mows medians, and maintains street trees. The Department of Sanitation is responsible for removing trash, sweeping, and garbage collection on City and state routes.

In Portland, Maine, public realm maintenance is divided between Public Works (DPW) and Parks and Recreation. DPW is responsible for areas within the roadway right-of-way such as sidewalk maintenance, roadway paving, and cleaning, signage, snow

plowing, and street sweeping. It has an Asset Management Plan and conducts roadway pavement condition ratings every 2 to 3 years. In the downtown, a tax (less than 1 percent) is levied in the Business Improvement District. This funds the cleaning of sidewalks by DPW crews. For the remaining sidewalks, the responsibility is with the commercial and residential abutters.

The City of Missoula Parks and Recreation Department is responsible for the maintenance of street trees, parks, plazas, shared use paths, sidewalks, and snow plowing in areas outside of the roadway right of way.

In Worcester, the DPW is responsible for maintenance. In some areas, business or community groups sponsor landscaped areas and contribute to their upkeep (e.g. – Shrewsbury Street). Residents are responsible for clearing abutting sidewalks except those adjacent to public property such as parks and conservation lands.

Update Sidewalk Repair Standard Operating Procedures To Incorporate Great Streets and Urban Trail Projects

The development of the Urban Trail Network will provide a boost to the City as it works to address the backlog of sidewalk repair needs given available resources. Therefore, the following framework is recommended for Urban Trail and Great Street implementation in relation to the Sidewalk Repair Policy:

- Where the Sidewalk Priority Heat Map in the Sidewalk Repair Standard Operating Procedure indicates a medium or high priority, on-street Urban Trail or Great Streets projects shall include basic repairs to the adjacent sidewalk or sidewalks along the same street in accordance with Section 5 of the Sidewalk Repair Policy.
- Where the Sidewalk Priority Heat Map in the Sidewalk Repair Standard Operating Procedure indicates a low priority, on-street Urban Trail or Great Streets projects may include basic repairs to the adjacent sidewalk or sidewalks along the same street in accordance with Section 5 of the Sidewalk Repair Policy.
- An on-street Urban Trail project may be implemented without sidewalk repairs if a separate project that includes repair of the sidewalk (to a level of quality consistent with the Sidewalk Repair Standard Operating Procedure) for the same street is already funded, programmed in the Capital Improvement Program, a condition of a private development, or otherwise obligated to be completed through a separate process.
- All projects shall meet regulatory requirements, e.g. ADA compliance.

This framework assumes adoption of the draft Standard Operating Procedure without substantial changes to the referenced sections and graphics.

Adopt Policies Regarding Transportation Impact Assessments

While the City of Providence has no formal Level of Service (LOS) policy, concerns about LOS degradation in the near-term and for longer planning horizons have led to a lack of clarity about what is acceptable in an urban environment, and have potentially impeded implementation of projects that would greatly benefit Providence residents. Vehicular level of service (LOS or VLOS) is a method of describing traffic delay using a range from A to F. VLOS A represents free flowing traffic and F represents significant congestion. Many agencies, including RIDOT, have long-standing policies to maintain a minimum VLOS on certain roadways and intersections. However, as traffic volumes continue to increase, maintaining VLOS requires agencies to add capacity by widening these roads and intersections. Such an approach is increasingly inappropriate for urban streets and can negatively impact other road users.

In some instances, Great Streets projects that make an area safer for people walking, taking transit, or riding bicycles may lower VLOS. When analyzing the potential impacts of Great Streets projects, the City of Providence should rely on context-sensitive factors such as crash frequency, crash severity, safety, mobility, vehicle speeds, access, land use, and throughput and not on VLOS.

This is consistent with national practice. Recent developments in engineering analysis methods now account for multimodal LOS measures, which address some of the shortcomings of relying solely on VLOS. Further, the use of LOS may not be appropriate altogether. According to a November 30, 2017 Federal Highway Administration (FHWA) webinar on “LOS in the New World of Performance Measurement,” LOS’s use may limit the range of potential design solutions considered and lead to capacity expansion. Other findings included:

- The AASHTO Green Book makes clear that designers and engineers should use context and make judgments.
- LOS is an indirect recommendation, not a Federal requirement.
- The requirement for 20-year traffic forecasts applies to changes to the Interstate highway system but not for other roadway classes.
- The FAST Act repealed the provision for specifically improving LOS at intersections.

Florida DOT has undertaken significant research in the area of context-sensitive solutions by emphasizing all modes of travel and flexibility. They have replaced the term “Standards” with “Targets.” Targets are responsive to all users for context, roadway function, network design, and safety.

In 2014, the State of California enacted SB 743, which states that “traffic congestion shall not be considered a significant impact on the environment” within California Environmental Quality Act

(CEQA) transportation analysis.[5] Several California municipalities (e.g. Livermore, Redwood City, San Jose, and San Francisco), have adopted policies that either replaced LOS altogether or limited its application in downtown or transit-oriented districts. Closer to Providence, the City of Cambridge requires developers to analyze LOS for vehicles and pedestrians. City policy allows a project-induced VLOS reduction depending on the existing LOS but prohibits degradation of LOS for people walking.

Moving away from LOS as a critical measure for Great Streets implementation means other measures may be more appropriate to consider. For example, for streets with closely spaced intersections, vehicle queue lengths are important to ensure motor vehicle traffic does not block upstream intersections. Many tools are available for analysts to evaluate and then mitigate such scenarios.

The following language is adapted from the Chicago DOT Complete Streets Design Guide LOS Policy and should be considered as part of the City of Providence's LOS Policy:

> In a typical project, people walking shall enjoy the highest LOS, while drivers shall have the lowest. All LOS shall be relative by mode.
>
> There shall be no minimum vehicle LOS for any project. Within [insert boundaries] the default maximum VLOS for City-initiated projects shall be E. This is not to say that the MVLOS must purposely be lowered, but efforts should not be made to increase it above E. Developer-initiated projects may not negatively impact the MVLOS, unless corresponding increases are made in level of service for people walking, people riding bicycles, or transit.
>
> LOS evaluations shall consider cross flows (especially people walking) as well as corridor flows.
>
> Delay for people walking at signals shall not exceed 60 seconds.
>
> City staff shall utilize multi-hour evaluations instead of peak-hour only calculations.
>
> LOS evaluation shall only be required for projects [exceeding a certain threshold]. It should be calculated when required by funding sources, but shall always be balanced with other factors.

Use and Price Curb Space More Efficiently and Flexibly

Create a working group comprised of various City staff who plan, maintain, use, and enforce curbside space in the City of Providence and other stakeholders such as business improvement districts, residents, business owners, and rideshare companies, to establish a vision and goals for geofencing zones, flexible curb, and dynamic pricing policies. Geofencing uses GPS satellite navigation systems to determine the ground position of cars, curbs, and streets and establishes specific boundaries or zones that delivery drivers and rideshare drivers and users and are routed to through technology in their phones or vehicles. Dynamic use and pricing of curbside spaces allows for rules to change depending on time, demand, and revenue considerations. Dynamic uses, pricing structures, and geofencing reflects anticipated growth in use of ride-hailing and delivery services by Providence residents.

The City should work with stakeholders to identify streets with the most traffic congestion and implement dedicated zones to create safer conditions for rider drop-offs, pick-ups, and deliveries and reduce congestion in key areas. It is important to work with stakeholders to identify the best locations for these activities.

The City should also increase capacity to manage curb space dynamically by building and using a central GIS-based repository of all curbside spaces citywide. Other key issues the City should address include how curb usage will be monitored and enforced, and how potential fees might be collected. New policies should be clearly communicated through signage, paint, and public notices. New regulations and policies must be seen and easily understood by all users in order to be effective.

Coordinate Traffic Signals Citywide

Traffic signal coordination aligns green lights times for adjacent intersections to improve the flow of vehicles along corridors and improve the operation of turning movements for drivers. According to FHWA " Studies have proven the effectiveness of signal coordination in improving safety. The Institute of Transportation Engineers' Traffic Safety Toolbox cites two studies of coordinated signals with intersection crash frequencies that dropped an average of 32 percent... Signal coordination can also contribute to a decrease in red-light running."[6]

5 http://www.dot.ca.gov/hq/tpp/sb743.html

6 https://safety.fhwa.dot.gov/intersection/other_topics/fhwasa08008/sa4.cfm

Continue to Integrate Art and Cultural Planning into Mobility Investments

Living up to Providence's reputation as the "Creative Capital", the CIty continually finds ways to creatively integrate local arts and cultural organizations into infrastructure investments. During a demonstration event on Broad Street in 2018, the City hired three local artists to create temporary ground murals. Using tempera paint, artists and dozens of community members reclaimed excess pavement to create vibrant curb extensions and public plazas. Based on the overwhelmingly positive feedback received during the demonstration event, the CIty should expand the use of ground murals and other similar art integration into mobility projects.

In 2018, the City of Providence Department of Art, Culture + Tourism also convened local partners to generate a series of site-specific performances and temporary art works along the banks of the Woonasquatucket River in anticipation of the upcoming investment in the Woonasquatucket River Greenway. This project is supported by the National Endowment for the Arts and will culminate in a celebration along the river in summer 2019. Following the demonstration event, partners will convene to refine a vision for permanent art infrastructure as part of the larger Greenway project.

The CIty should find additional ways to integrate art and local cultural organizations as additional investments are made and further expand the reach of community members who become engaged in such projects.

Public art and interpretive signage that highlights significant historic or cultural elements will be important parts of the Urban Trail Network, creating interest points along the network that celebrate the diverse cultures of the CIty's neighborhoods.

Develop a Demonstration Project Strategy and Toolkit to Test Projects Before Full Implementation

To avoid costly and time consuming studies and to test effectiveness before deploying expensive permanent solutions, many cities experiment by using demonstration projects (sometimes referred to as tactical urbanism). Providence's City Walk project deployed such an approach in the summer of 2018 with great success. The use of demonstration projects is appropriate in locations where concerns about long-term impacts are present, but where the proposed solution is seen as highly beneficial and worth trying. In other projects, such as resurfacing, restriping, minor residential street reconstruction, or spot improvements such as intersection signal retiming and curb ramp construction, the basic Great Streets principles of safe, healthy, inclusive, and vibrant should be applied.

Demonstration projects are low-cost, temporary changes to the built environment, that test ideas to improve local neighborhoods and gathering places prior to investing in costlier permanent solutions. For examples of recent projects, see: https://www.street-plans.com/tactical-urbanism-projects/

Develop a Program to Incentivize Business and Property Owners to Install Bicycle Parking

An increasing number of cities incentivize their businesses to install bicycle parking, including:

- Denver, Colorado: The City's Public Works Rules and Regulations describe a streamlined year-round application process. There is no fee for the installation of the standard U Rake and permit fees for other rake types are waived if the request is in a high demand bicycle parking area. The City regulates the type and location of the installation to ensure the highest usability and safety.
- Pittsburgh, Pennsylvania: The City's Bicycle Parking Guidelines enable businesses to install a standard bike rack. After the application is approved, the business itself installs the rack in accordance with location and design specifications. It is maintained by the City. The business pays a $25 permit fee in addition to the cost of purchasing and installing the rack.
- Portland, Oregon: Administrative Rule TRN 10.9 enables the City to install a free bicycle rack on the sidewalk in front of the requesting business as long as the location meets minimum requirements. The business may request up to two free racks. Each additional rack is $150.
- Rockville, Maryland: The new City Bike Rack Grant Program enables businesses to request – through application – bicycle parking on their property or within public right of way at or near their location. There is no cost to the applicant. The City purchases and installs the inverted-U racks which require a parking space of 72" x 24" and if placed along a sidewalk or pedestrian path, a five-foot clear walkway.

For Providence, bicycle parking near employment, retail, and other destinations enables viable non-motorized transportation options. A mechanism for businesses to request bicycle parking at and near their establishments should be considered.

Evaluate Overnight Resident Parking Permit Program Fee Structure

The City should study and compare fees associated with overnight parking permits in Providence to other US cities to ensure this resource is properly priced. If fees are raised, a tiered fee structure should be used to reduce burdens on low-income households.

Update the City's Public Utilities Agreement to Incorporate Bicycle-Related Provisions

The Public Utilities Agreement should be updated to ensure utility patches do not create hazards for people riding bicycles and that temporary road closures and detours accommodate bicyclists. It should also be mandated that Urban Trail of bicycle-related pavement markings that are covered over or damaged by utility work be replaced in a timely manner.

Prioritize Safety and Comfort for People Who Walk, Ride Bicycles, and Use Public Transit

Deploy Leading Pedestrian Intervals (LPIs) and Increase Pedestrian Signal Timing

LPIs begin the walk signal before the light turns green for cars. Increased pedestrian signal timing ensures people of all ages and abilities have time to walk across the street safely. Cambridge, Massachusetts combines concurrent pedestrian phasing with LPI operations. This practice is recommended in the Boston MPO 2015 Pedestrian Signal Phasing Study which further advises the best concurrent phasing conditions are when the pedestrian flow is less than 1,200 persons/daily; there are conflicting turning vehicles of less than 250 vehicle/hour; there are low concentrations of older and very young pedestrians and students; the intersections have good sight distances; and the length of crosswalks is less than 55 feet.

LPIs help address concerns about whether there is sufficient time for people to safely walk across streets. The current City of Providence practice is to follow guidance in Section 4E.06 (Pedestrian Intervals and Signal Phases) in the Manual on Uniform Traffic Control Devices (MUTCD).[7] The guidance provides the City with some flexibility and establishes parameters for deploying LPIs, which give people walking a 3 to 7 second head start when entering an intersection with a corresponding green signal in the same direction of travel. Studies show that LPIs reduce pedestrian-vehicle collisions as much as 60 percent. According to FHWA, LPIs increase the visibility of crossing pedestrians; reduce conflicts between pedestrians and vehicles; increase the likelihood of motorists yielding to pedestrians; and enhance safety for pedestrians who may be slower to start into the intersection. Applications have been successful in Stamford, Connecticut which operates the state's first LPI. The City plans to expand its use. In New York City, pedestrian fatalities have fallen 45 percent since 2013. This is partly attributed to the recent installation of 832 LPIs bringing the total number citywide to 2,334; a seven-fold increase since 2013. LPIs are recommended in the NACTO Urban Design Guide. Moreover, according to national research [Transportation Research Record 2198, 2010], a before-and-after comparison to evaluate the safety effectiveness of LPIs found a 58.7 percent reduction in pedestrian–vehicle crashes at the tested intersections. Because of the low cost for implementation, use of LPI is further justified.

Simultaneously, the City should study increases to pedestrian signal timing at intersections citywide to ensure adequate time is provided, especially at intersections that require people to cross multiple lanes of vehicular traffic.

Implement Automatic Recall of WALK signals

Automatic recall of WALK signals provides a WALK indication as part of each signal cycle without a push button. This should be implemented at signalized intersections but not at mid-block locations. Most intersections in Providence use concurrent pedestrian phasing, where people walking cross with the parallel vehicle phase and vehicles turn left or right across crosswalks after yielding to people walking in them. Automatic recall would not impact the City's use of concurrent phasing.

Implement No Right Turn on Red (NTOR) Signage Where Pedestrians Regularly Cross

According to America Walks, "A no-right-turn-on-red (NRTOR) policy [prohibits] RTOR unless otherwise permitted at specific locations by posted signs. NRTOR policies could ban right turns in urban or high-pedestrian-density areas at all times or only during daytime hours, which is the time most pedestrian crashes occur."[8] The City of New York, where pedestrian activity is very high, has such a policy.

The main benefit of a citywide policy is it eliminates the need to install and maintain NTOR signs at each signalized intersection. However, applying NTOR in less dense locations where pedestrian activity is low leads to inconsistent driver behavior and enforcement challenges.

Section 2B.54[9] of the MUTCD provides NTOR sign guidance:

A No Turn on Red sign should be considered when an engineering study finds that one or more of the following conditions exists:

a. Inadequate sight distance to vehicles approaching from the left (or right, if applicable);

b. Geometrics or operational characteristics of the intersection that might result in unexpected conflicts;

c. An exclusive pedestrian phase;

d. An unacceptable number of conflicts between people walking and driving with right-turn-on-red maneuvers, especially involving children, older people, or persons with disabilities;

e. More than three right-turn-on-red accidents reported in a 12-month period for the particular approach; or

f. The skew angle of the intersecting roadways creates difficulty for drivers to see traffic approaching from their left.

7 https://mutcd.fhwa.dot.gov/htm/2009/part4/part4e.htm

8 https://americawalks.org/ban-right-turns-on-red/

9 https://mutcd.fhwa.dot.gov/htm/2009/part2/part2b.htm

Signal Detection and Actuation - Detection in Bike Lane and Bike Box. Souce: NACTO.

America Walks guidance adds the following to this list:

- Central business districts and dense urban areas where there are significant variation in traffic volumes and people walking
- Intersections:
  - With high traffic speeds on the intersecting street
  - Where there are heavy volumes of people walking
  - Where disabled persons request it
  - Adjacent to parks and hospitals
  - At school crossings
  - At railroad crossings
  - At traffic signals with three or more phases

Increase Enforcement to Prevent Blocking of Intersections, Crosswalks, Bike Lanes, Bus Stops, and Sidewalks

Both police officers and parking enforcement personnel should be directed to patrol for and issue citations when encountering vehicles or other obstructions impeding people walking or riding bicycles or blocking bus stops. Special attention should be paid to valet locations.

Increase Enforcement of Sidewalk Snow Removal

Due to existing capacity issues, additional funding is needed to dedicate staff members to inspection and enforcement of the City's snow shoveling regulations.

Expand the City's Use of New Technologies

Technologies to consider include:

- A network of strategically mounted traffic and security cameras that feed into and are monitored real-time within a Public Safety information center;
- A remotely controlled LED lighting system that safely illuminates the Urban Trail Network;
- Bicycle and pedestrian detection systems tied to traffic signal operations;
- Transit signal priorities; and
- Dynamic message signing.

New Orleans, Louisiana has a Traffic Camera Safety Program to deter red light violations, reduce speed violations, increase driver awareness, and reduce collision severity. The City has found the program deters repeat offenders. Over 80 percent of those receiving a traffic camera citation and pay it, do not repeat the offense.

In Worcester, information generated by security cameras on traffic signals is fed into the Worcester Police Department real-time crime center.

Transportation technologies in Seattle include traffic cameras and signal and roadway detection systems for pedestrians, bicycles, and the visually impaired. The citywide traffic camera network enables the public online access to real-time congestion information and images, and traffic advisories. There is transit signal priority (TSP) for Sound Transit buses, streetcars, and light rail trains. The City also uses dynamic message signs for en-route drivers.

Work with RIPTA to Evaluate All Bus Routes and Stops to Ensure they are Accessible, Properly-sized, Properly-spaced, and Welcoming

As noted previously, the 2017 RIPTA Bus Stop Design Guide establishes design principles applicable to future projects. Because many stops are old, it will take some time to implement improvements to the bus stop network. As the Great Streets Initiative advances, it will be important to include bus stop redesign as part of the planning process.

Advocate for Friendlier State Laws and Policies Related to Mobility

Work with the State Legislature to Require RIDOT to Update Highway Design Manual

The current RIDOT Design Manual, which dates to 2008, needs updating to reflect new design concepts for bicycling, walking, and micromobility. Many state departments of transportation have revised their design manuals to incorporate context sensitive solutions that better accommodate people who walk, ride bicycles, and use other micromobility options. The Massachusetts Department of Transportation published its Project Development and Design Guide in 2006 and a Separated Bike Lane Planning & Design Guide in 2015.[10] Tennessee DOT's (TDOT's) 2019 updates[11] to its design guide includes a section on multimodal design, which states:

> It is TDOT's policy to create and implement access and mobility for users of all ages and abilities through the planning, design, construction, maintenance and operation of new construction, reconstruction and retrofit transportation facilities that are federally or state funded. Users include, but are not limited to, motorists, bicyclists, pedestrians, transit-riders, and freight carriers. The intent of TDOT's policy is to promote the inclusion of multimodal accommodations in all transportation planning and project development activities at the local, regional and statewide levels, and to develop a comprehensive, integrated, and connected multimodal transportation network. These guidelines have been developed to assist TDOT, local agencies, consultants and others in providing multimodal facility design that fulfills the intent of this policy. TDOT's Multimodal Project Scoping Manual is an additional multimodal design resource.

Work with the State Legislature to Adopt the "Idaho Stop Law" to Improve Safety

The "Idaho Stop" law, which has been in effect in Idaho since 1982, allows a person riding a bicycle to treat a stop sign as a yield sign. Rather than stop, the person riding a bicycle is permitted to slow down, stop if required for safety, and yield the right of way to any approaching person driving or walking before proceeding through an intersection controlled by a stop sign. Until recently, Idaho was the only state that had both a stop as yield rule and a red light exception that allows people riding bicycles to proceed through red lights after yielding. In 2019, Arkansas became the second state to enact Idaho Stop. In 2017, Delaware approved a variation, Delaware Yield, which applies only to stop signs.

Idaho Stop is reported to have reduced bicycle injuries by 14 percent in the state the year after passage. Moreover, a 2010 Berkeley study found bike safety to be 30 percent better in Idaho cities than comparable peers. The law is supported by the League of American Bicyclists. Changes to state laws would be necessary to implement this measure in Rhode Island.

Photo: JUMP

10 See https://www.mass.gov/lists/design-guides-and-manuals

11 See https://www.tn.gov/content/dam/tn/tdot/roadway-design/documents/design_guidelines/DG-S9.pdf

Expand Opportunities for Engagement, Education, and Encouragement

Expand Youth Bicycle Education Programming to Citywide

Bicycle education programming helps encourage youth to ride bicycles, teaches safe riding skills, and increases their long-term comfort with accessing new bicycle infrastructure.

From 2015 to 2017, Providence piloted Pedal Power bike education classes at two elementary schools and several recreation centers in partnership with local non-profit, Recycle-A-Bike. The six-week classes teach youth safe bicycle riding skills and include group on-road field trips so youth can become familiar with local bicycle infrastructure and safe routes from their neighborhoods to schools, regional trails, local parks, and other civic institutions. By providing this programming at all 11 recreation centers for just two years, the CIty could engage 260 youth ranging in age from 11 to 14 (and their families).

Expand the City's Street Ambassador Approach to Public Engagement

New and innovative community engagement techniques, such as the City's existing Street Ambassador approach, further advocacy, coordination, and involvement from community members, especially those typically marginalised from traditional planning processes. Expanding upon the City's successful launch of a Street Team as part of the City Walk project in 2018, the City should continue to support the Street Ambassador program to hire, train, and deploy community members at community events and in everyday environments to inform community members of upcoming public realm improvements, collect input on projects being planned or considered, and spread awareness of opportunities for further engagement. In particular, this team should focus on additional areas to increase equity in the City's mobility work. Street Ambassador approaches allows cities to engage thousands of community members who otherwise would likely not be engaged in traditional planning processes. Street teams should also be used to publicize low-income memberships for the City's bike share and scooter share programs.

Establish a "Friends of the Urban Trail Network"

A "Friends of" group would build on and strengthen existing relationships to ensure vocal, sustained community support for this work, while uniting various organizations around a common purpose, shepherding our urban trails to completion, and developing a stable maintenance plan. This group should be a coalition of existing neighborhood organizations and other groups already engaged in the Urban Trail Network and projects included in it like City Walk, the Downtown Providence Parks Network, and the Woonasquatucket River Greenway.

Re-launch Safe Walking, Driving and Biking Public Safety Campaign

In 2018, the City launched a #PVDTrafficSafety campaign to provide information on new changes to street markings and traffic signals (such as bike signals, bus signals, bus only lanes, two-stage turn boxes, green ladder crossings) coming to Providence. The campaign was created to teach community members to navigate these new markings and signals and why such improvements are important for keeping all road users safe.

Expand and Enhance Community Rides

On the first Thursday of every quarter, Mayor Elorza leads Bike the Night, an inclusive community ride that brings community members together for a eight- to ten-mile slow ride through different neighborhoods. The City should work with community partners, neighborhood groups, institutions, and businesses to expand and further enhance these rides or similar rides such as "Providence Bike Jam" to reach more residents and community members.

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MAYOR JORGE O. ELORZA
CITY OF PROVIDENCE

PVD GREAT STREETS

PVD GREAT STREETS

Appendix A:
Vulnerable Road User Safety Action Plan

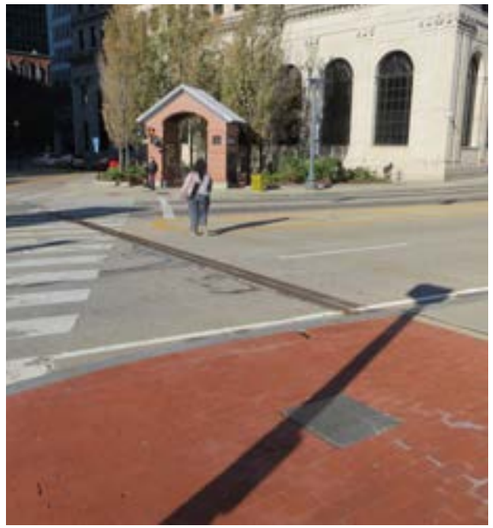
Completed in 2017, Providence's Vulnerable Road User Safety Action Plan conducted an analysis of existing conditions and historical trends to baseline the level of crashes involving fatalities and serious injuries across the city. It identified the locations where there are crashes, the severity, as well as contributing factors and crash types. It performed an analysis of systemic and specific safety needs (e.g., high risk road features, specific safety needs of relevantroad users. The geospatial identification of higher risk locations informed recommendations for locations to prioritize for safety improvements.

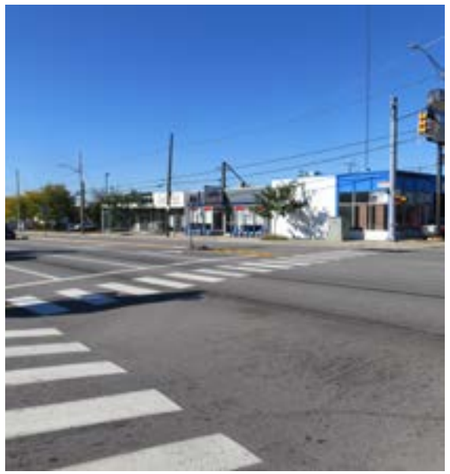
MAYOR JORGE O. ELORZA
CITY OF PROVIDENCE

https://www.providenceri.gov/planning/great-streets/

Vulnerable Road User Safety Action Plan

PROVIDENCE, RHODE ISLAND





JANUARY 2017

U.S. Department of Transportation
Federal Highway Administration

HSIP

Crashes on city streets in the past **five** years

14+
Fatalities

319+
Serious Injuries



Introduction

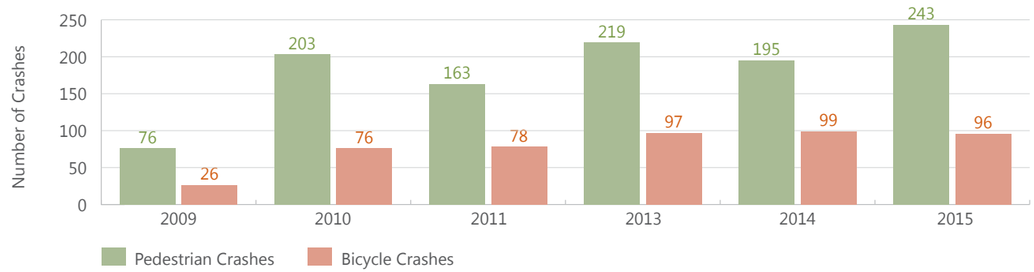
Vulnerable road user safety affects everyone irrespective of gender, age, or socioeconomic status. Vulnerable Road Users are defined in a variety of ways, including, but not limited to, pedestrians, persons using wheelchairs, and bicyclists.

Between 2009 through 2015, 1,099 pedestrian and 472 bicycle crashes occurred in the City of Providence with 14 pedestrian crashes resulting in fatality. With vulnerable road user crashes steadily increasing since 2009, the City of Providence launched an initiative to formalize a citywide Vulnerable Road User Safety Action Plan (VRUSAP).

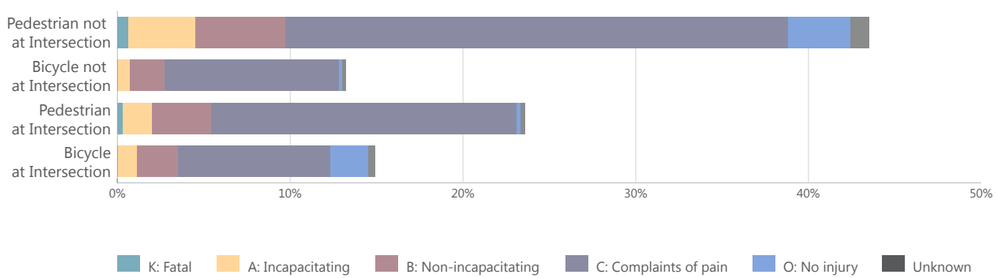
While the City of Providence has a relatively good record on traffic safety compared to other capital cities throughout the country, a plan to reduce the number of fatalities and serious injury crashes in Providence must be created in order to address the rise in vulnerable road user crashes.

The City of Providence is committed to reducing fatal and serious traffic crashes in the City.

Bicycle and Pedestrian Crashes Per Year



Crash Severity at Intersection Versus not an Intersection

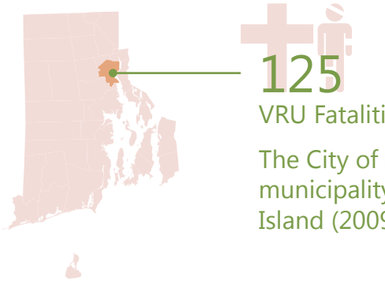


2009 2015

User crashes over a five year period have **tripled**

131

Fatalities and Serious injuries
Per year, in the City of Providence



125

VRU Fatalities and Serious Injuries

The City of Providence is the top municipality in the State of Rhode Island (2009-2013)

Purpose and Objectives

The overall purpose of this Vulnerable Road User Safety Action Plan (VRUSAP) is to identify and utilize available data to evaluate bicyclist and pedestrian crash patterns and develop a citywide approach that improves safety and compliments on-going initiatives in the City of Providence. By effectively using data to identify the problem areas and risk factors, funding can be focused on the areas and approaches with the greatest potential to reduce fatal and serious injuries to vulnerable roadway users.

Vulnerable Road User crashes have steadily increased over the five-year analysis period of 2009-2015 to triple as many crashes in 2015 as 2009. Although this upward trend is alarming, serious injury crashes have consistently accounted for approximately 8% of all crashes. While 8% may seem relatively low, this percentage translates to an average of 131 people per year losing their life or incurring life altering injuries in the City of Providence.

Serious injury crashes, defined as fatal or incapacitating injury crashes, have a severe impact in the City of Providence as their effects ripple through the community and often include the loss of human life. Therefore, the goal of this plan is to reduce vulnerable road user crashes resulting in fatalities and serious injury in Providence in half by 2030, with the ultimate goal of striving “Toward Zero Deaths (TZD)”. TZD is a national effort to improve roadway safety.

In addition to the increase in vulnerable road user crashes in the City of Providence, a review of historical trends state-wide show vulnerable road user crashes have also steadily increased.

Adopted in 2007 and revised in 2012, the Rhode Island Strategic Highway Safety Plan (SHSP) provides the overall direction for the implementation of the Rhode Island Department of Transportation’s (RIDOT) safety programs, including the Highway Safety Improvement Program (HSIP) and the Highway Safety Plan (HSP). The SHSP also assists in coordinating efforts between driver behavior programs and engineering solutions through a comprehensive, inclusive, data-driven approach that combines the 4 E’s of highway safety (engineering, education, enforcement, and emergency response). The RIDOT has three programs they use in the planning, implementation, and evaluation components of the HSIP process: the HSIP Design Study Program that identifies critical safety locations statewide; the Strategically Targeted Affordable Roadway Solutions program that delivers low-cost/ high-benefit solutions to address critical safety and congestion locations, and the Pedestrian Safety in RI program that focuses on pedestrian safety at high pedestrian fatal injury crash locations.

Based on data collected through the HSIP process, between 2009 and 2013, there were over 400 fatalities and serious injuries in Providence. This translates to over 20 percent of fatalities and serious injuries in the state. The City of Providence experienced the highest number of pedestrian and bicyclist fatalities and serious injuries out of any municipality in the state of Rhode Island during this period. The Rhode Island Strategic Highway Safety Plan (SHSP) also has an Emphasis Area 6, regarding Vulnerable Road Users. From the SHSP data (2006-2012) crashes involving pedestrians numbered 84 fatalities and 438 serious injuries with bicycle crashes resulting in seven fatalities and 161 serious injuries.

Through this VRUSAP, the City of Providence strives to change this upward trend and decrease serious injury crashes in half by 2030. Addressing vulnerable road user safety requires a comprehensive approach and will be achieved through unified collaboration of all partners involved—private, non-profit, local, state, and federal. Therefore, the VRUSAP outlines a coordinated application of countermeasures consisting of the 4 E's of safety (engineering, enforcement, education, and emergency response). The 4th "E" - emergency response plays a critical role in reducing death and disability in the post-crash phase, however is not incorporated in this document as an objective.

Specific objectives of the plan include the following:

- Reduce pedestrian exposure to vehicular traffic
- Reduce vulnerable road user crashes at intersections
- Reduce vulnerable road user crashes along the roadway
- Reduce vulnerable road user crashes at mid-block crossings
- Improve sight distance between vulnerable road user and vehicles
- Reduce vehicle speeds

In addition to these objectives, the VRUSAP identifies emphasis areas where vulnerable road user safety concerns need to be addressed.

Improve Young User Safety

Improve Older User Safety

Infrastructure

Compliancy

Data Analysis

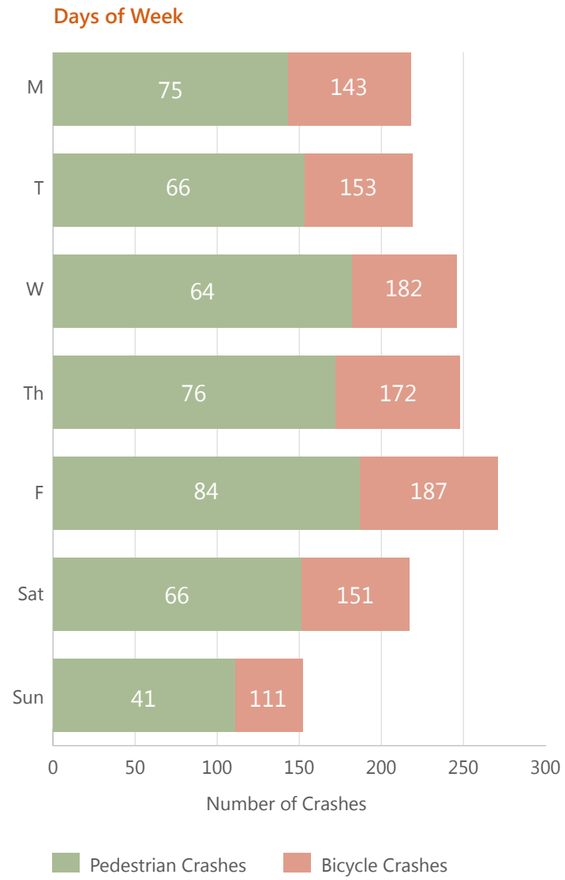
Addressing vulnerable road user safety is an ongoing priority for the City of Providence. Safety is being addressed through a variety City and RIDOT projects, including the Woonasquatucket Greenway Extension, City Walk (an effort to improve infrastructure for vulnerable road users to better connect eight Providence neighborhoods to Downtown, Roger Williams Park, and India Point Park), and the Rhode Island Strategic Highway Safety Plan (SHSP). The City took a data driven approach to identifying and prioritizing the trends for the Vulnerable Road User Safety Action Plan (VRUSAP). To help highlight trends, a detailed crash evaluation, based on police crash data involving vulnerable road users, was conducted for the City of Providence for the years 2009 through 2015. This analysis examined overall, fatal, and serious injury crash trends for vulnerable road users, while taking into account existing evidence, the impacted person's age, surrounding land use, and environmental data.

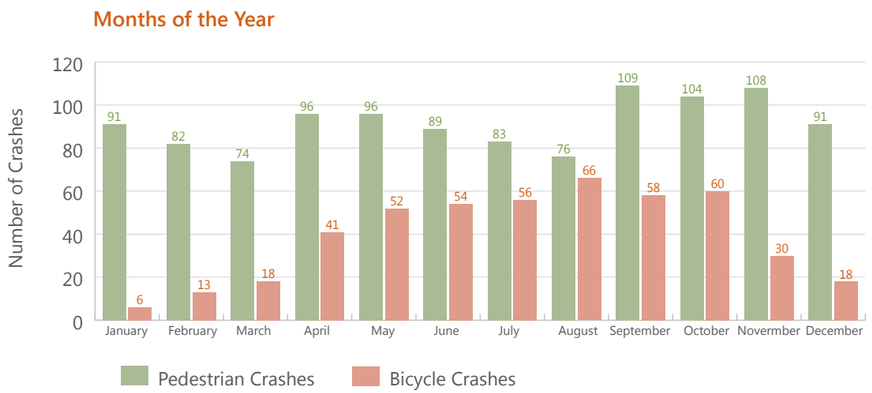
As a result of this data evaluation, the existing data trends were reviewed and prioritized into areas of greatest concern and three of the most critical trends requiring focused attention were selected.

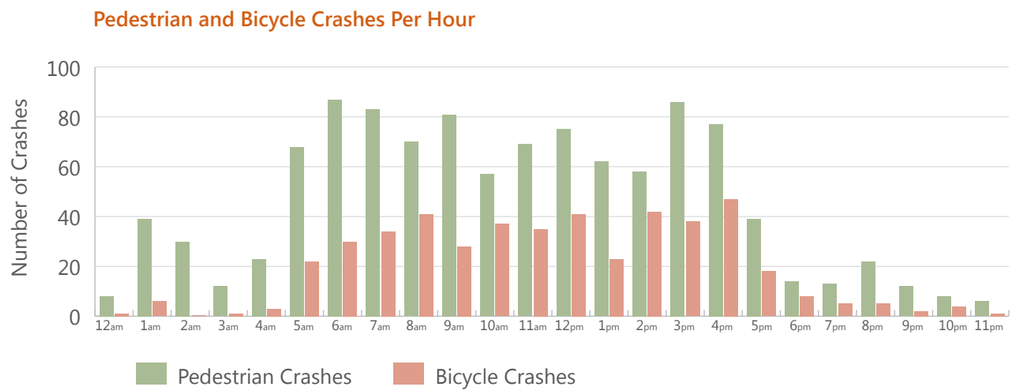
The following trends were identified for inclusion in the VRUSAP:

- Improve Young User Safety
- Improve Older User Safety
- Improve Infrastructure
- Increase Compliancy

The following sections provide an overview of each emphasis area, along with its specific goal and strategies for accomplishing the goal.







22%
▾18
years old

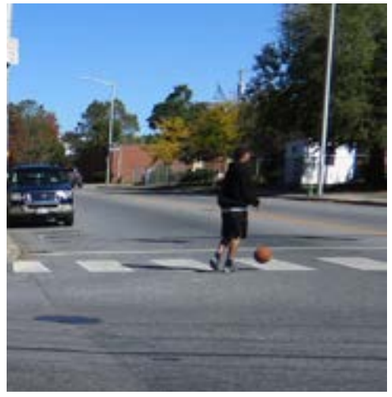
+

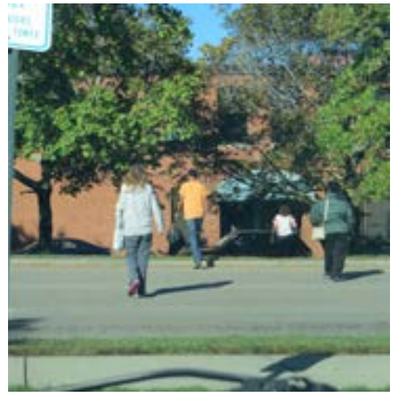
20%
19-29
years old

City of Providence vulnerable road user crash statistics

46%
21-25
years old

Fatal pedestrian crashes during **1-3 a.m.**





Age Appropriate Solutions

Improve Young User Safety

Young vulnerable road users are defined as individuals under 29 years of age. According to the 2010 United States Census, approximately 52.6% of Providence residents are under the age of 29 years. This means that approximately 94,000 relatively new and young vulnerable road users are using the City's roadways on a daily basis for recreation, transportation to and from school, and other activities. During the five year period studied, approximately 42% of all vulnerable road user crashes in the City of Providence involved individuals under the age of 29 years old and an additional 20% of all crashes involved individuals between 19-29 years old as the driver or vulnerable road user hit.

There were 14 fatal pedestrian crashes during the five years of data collection (2009-2015 excluding 2012 data), with a disproportionately high number of pedestrian crashes during the early morning hours of 1am to 3am. Approximately 46% of all fatal pedestrian crashes were male, aged 21-25, and during the hours of 1am to 3am. Almost 75% of all fatal pedestrian crashes involved young vulnerable users under the age of 10 years old or between the ages of 20-29 (9% and 64% respectively).

Young drivers between the ages of 16-19 years old accounted for 8% of all pedestrian and bicycle crashes in the City of Providence during the same data collection period. Approximately 30% of bicycle and 29% of pedestrian crashes involved young vulnerable road users under the age of 19 years old. Young drivers between the ages of 20-29 years old accounted for approximately 22% and 23% of bicycle and pedestrian crashes in the City of Providence, respectively. An additional 34% of bicycle and 27% of pedestrian crashes involved vulnerable road users between the ages of 20-29. This means that approximately 64% of all bicycle crashes and 56% percent of all pedestrian crashes in the City of Providence involve young roadway users.

Drivers between the ages of 20-29 years old account for the most vulnerable road user crashes.

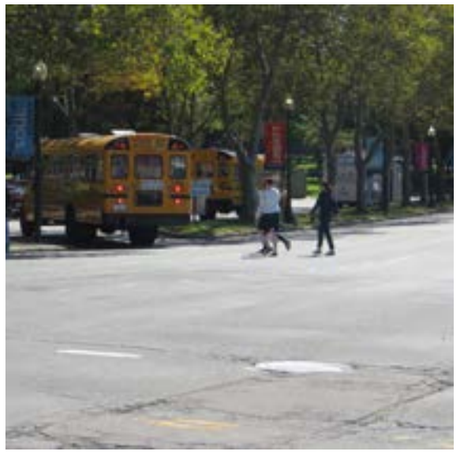
They account for the highest number of crashes involving vulnerable road users for bicycle driver age, pedestrian driver age, bicyclist age, and pedestrian age. Due to the projected increase in young vulnerable road drivers and users, addressing potential safety countermeasures and being proactive is essential for this growing population.

Strategies

1. Improve young road user safety and driver preparation through education and training.
2. Strengthen enforcement, especially during periods and locations where trends of fatal and serious injury crashes occur frequently.
3. Increase public outreach and education on the basics of roadway safety aimed at vulnerable road users and drivers age 16-29.
4. Implement appropriate infrastructure that improves safety for young vulnerable road users and drivers.

20-29
years old

Account for most vulnerable road user crashes



Action Plan

STRATEGY 1

Improve young road user safety and driver preparation through education and training.

Action Steps

- Review information in current school curriculum, preschools, and daycares, then recommend incorporating traffic safety materials where appropriate.
- Provide resources and training opportunities, using social media, public communication messages, and printed material to parents, young children, and young drivers.
- Consider discouraging dangerous or unlawful pedestrian behavior (texting, emailing, relying on drivers to obey crosswalk laws, etc.)
- Develop brochures targeted to drivers that explain how to share the road safely with vulnerable road users and distribute to AAA, insurance companies, DMV locations, driving schools, and other appropriate locations.
- Increase public outreach and education on the basics of roadway safety aimed at road users under 16 years old and drivers aged 16-29 years old.
- Develop flyers to distribute at schools, community centers, and recreation centers, such as a parent's guide to safe roadways and safe driving.
- Strengthen the RI graduated licensing law (GDL) for young drivers.
- Continue to research statistics, trends, and legislation for young vulnerable road users and young drivers.

STRATEGY 2

Strengthen enforcement, especially during periods and locations where trends of fatal and serious injury crashes occur frequently.

Action Steps

- Increase enforcement of the RI graduated licensing law (GDL) and educate the public on GDL's provisions.
- Install signage and striping to clearly indicate that vehicles are not permitted to "block the box" at key intersections, must stop at bus stop locations, and may not park in bike lanes.
- Conduct enforcement at locations where there are a high number of pedestrian crashes, and at other key locations including those where drivers typically fail to stop for pedestrians in crosswalks, where vehicles drive or park in bicycle lanes or at bus stop locations, and where vehicles "block the box" at important intersections.
- Publicize initiatives being conducted by enforcement in the City and State.
- Educate and train all officers on the importance of targeting this age group through meetings, presentations, etc.
- Explore opportunities to ensure home and business owners remove snow/debris from their sidewalks, for example local ordinances or fines.
- Educate the judiciary on young driver enforcement programs.
- Explore opportunities to encourage pedestrians to use proper crossing techniques and educate them on how motorized and non-motorized users can safely share the road.



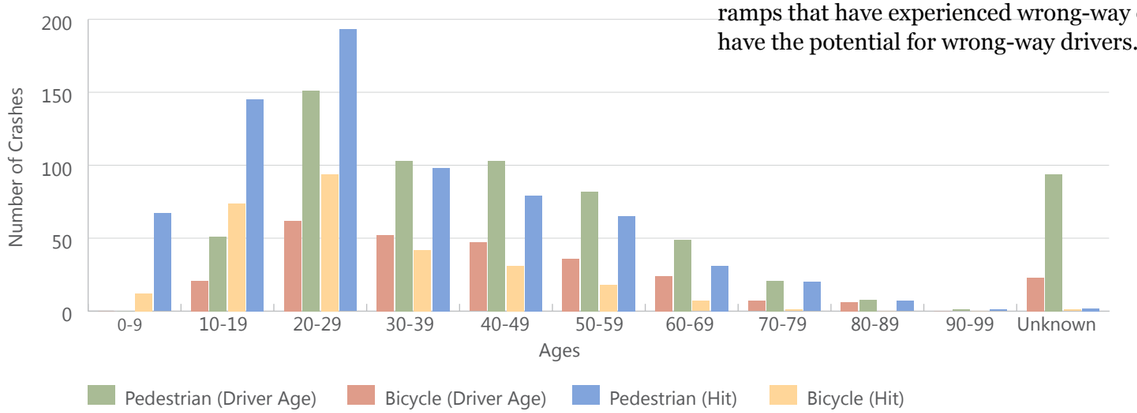

STRATEGY 3

Increase public outreach on the basics of roadway safety aimed at all young vulnerable road users and drivers age 16-29.

Action Steps

- Develop a media campaign targeted at the appropriate age population that enforces safe vulnerable road user practices, for example focusing on safety belts, driving bicycles the proper direction, speed, wearing reflective colorful clothing, and distracted drivers/pedestrians.
- Develop partnerships with organizations aimed at younger roadway users to identify and recommend effective programs aimed at changing vulnerable user and young drivers' behaviors and attitudes toward safe roadway usages, such as crossing at inappropriate locations, installing flashers on bicycles, wearing reflective clothing and wearing a helmet.
- Conduct an outreach program to employers, unions and trade schools and request their assistance in educating their employees/members/students age 16-29 on traffic safety issues.
- Encourage healthcare providers to discuss with their patients, especially under the age of 29, about traffic safety issues and the dangers of unsafe roadway usage.
- Work with bars and liquor stores to provide education to address impaired vulnerable road users, especially in the age group of 21-29 during bar closures.
- Encourage adequate funding levels for effective younger vulnerable road user safety programs and initiatives.

Age of People Involved



STRATEGY 4

Implement appropriate infrastructure that improve safety for young, vulnerable road users and drivers.

Action Steps

- Examine and adjust accordingly pedestrian crossing times to accommodate vulnerable road users.
- Implement bicycle lanes and other separated bicycle infrastructure on high volume and/or high speed roads.
- Study high crash corridors and intersections for other improvements such as road diets, traffic calming, pavement marking improvements, and additional lighting to improve safety and visibility.
- Install wrong-way driver dynamic alert systems at off ramps that have experienced wrong-way drivers or that have the potential for wrong-way drivers.

7%
▲65
years old

Vulnerable road user crashes in City of Providence

▲65
years old

13%

12%

Persons 65+ are most likely to be involved in bicycle or pedestrian crashes

25%

40%

Vulnerable road users involved in crashes during poorly lit conditions **(dark/dusk timeframe)**

Improve Older User Safety

An older vulnerable road user is defined as an individual who is 65 years of age or older. According to the 2010 United States Census, approximately 8.7% of Providence residents are 65 years and over. This means that approximately 15,500 older vulnerable road users are using Providence roads on a daily basis for recreation and transportation to and from destination locations. As this population ages, there will be an increase in the number of older vulnerable users and potentially an increase in crashes. Approximately 7% of all vulnerable road user crashes in the City of Providence involved individuals 65 years old or older.

The SHSP has an Emphasis Area 7: Aging Road Users, that reiterates the above information and states that the key to ensuring the safety of the older vulnerable road user population is to develop programs that allow mobility as long as possible while reinforcing safety.

In general, only about 3% of all bicycle and 9% of all pedestrian vulnerable user crashes involve a vulnerable user aged 65 years or older. In regards to crashes were the drivers age is 65 years or older, 13% of all bicycle and 12% of all pedestrian crashes involved older drivers.

It is important to be proactive in addressing potential safety countermeasures for older drivers and road users, as there is a projected increase in this age group in coming years.

Strategies

1. Identify opportunities to organize outreach and increase education aimed at individuals over 65 years old to stay safe and mobile.
2. Implement appropriate infrastructure that improve safety for older vulnerable road users and drivers.
3. Increase enforcement and education for locations with the most severe safety needs, including pedestrian crosswalks and school zones.

Action Plan

STRATEGY 1

Identify opportunities to organize outreach and increase education aimed at individuals over 65 years to stay safe and mobile.

Action Steps

- Review and strengthen the RI driver's license renewal requirements.
- Develop a media campaign targeted at the over 65 age population that enforces safe practices, for example focusing on the dangers of distracted drivers.
- Develop partnerships with organizations aimed at older roadway users, such as AAA, AARP or other Council of Aging locations, to develop and distribute an Older Driver guidebook.
- Encourage healthcare providers to discuss with their patients about traffic safety issues and dangers, such as prescription drug use for both walkers and driver and incentives to stop driving.
- Continue to research statistics, trends, and legislation for older individuals.

STRATEGY 2

Implement appropriate infrastructure that improves safety for older vulnerable road users and drivers.

Action Steps

- Implement engineering countermeasures designed to benefit older than 65 roadway users, including but not limited to lighting and improved signing and striping, based on the FHWA Highway Design Handbook for Older Drivers and Pedestrians.
- Examine and adjust pedestrian crossing times accordingly to accommodate older vulnerable road users
- Study high crash corridors for other improvements such as road diets and traffic calming that might improve safety.
- Install wrong-way driver dynamic alert systems at off-ramps that have experienced or could experience wrong-way drivers.

STRATEGY 3

Increase enforcement and education for locations with the most severe safety needs, for example pedestrian crosswalks, school zones and educational campaigns.

Action Steps

- Educate pedestrians about proper crossing techniques and how motorized and non-motorized users can safely share the road.
- Encourage adequate funding levels for effective older vulnerable road user safety programs and initiatives.
- Conduct enforcement "stings" at high pedestrian crash locations to target motorist who fail to yield or stop for pedestrians in crosswalk.

95%

Do not have pedestrian warning signs

93%

Do not have bicycle facility markings or warning signage

Improve Infrastructure

Infrastructure is the basic framework for vulnerable road users and is generally defined as the equipment and structures (such as roads and sidewalks) that are needed for an area to function properly. Improving the basic framework should address specific infrastructure and behavioral safety concerns identified through an analysis of data, information obtained through field assessments, and stakeholder input. Locations with seniors, children, and people with disabilities should be prioritized for safety improvements, while still acknowledging the diversity of neighborhoods and utilizing their community support groups.

Crash samples were selected from the top 25 vulnerable road user crash corridors and at random from the remaining crashes for the five years of crash data for the City of Providence. The crash samples were evaluated for current infrastructure such as signing, striping and signal equipment with a 100-foot radius used as the threshold for data collection. Trends for the top 25 corridors were:

- 69% of all crosswalks are continental style
- 95% do not have pedestrian warning signs
- 93% do not have bicycle facility markings or warning signage
- 58% do not have pedestrian signals
- 87% do not have median refuges
- 98% have street lighting
- 55% of all crashes occur on two-lane roadways
- 66% have crossing distances greater than 40 feet
- 88% have crosswalks within an acceptable distance
- 61% do not have a transit stop within 100 feet

Trends in the 100 random serious injury sample crashes were selected taking the traffic control percentages from overall City of Providence trends and distributing the crash sampling accordingly. Trends for the random sample crashes were:

- 51% of all crosswalks are continental style
- 96% do not have pedestrian warning signs
- 93% do not have bicycle facility markings or warning signage
- 82% do not have pedestrian signals
- 89% do not have median refuges
- 95% have street lightening
- 78% of all crashes occur on two-lane roadways
- 36% have crossing distances greater than 40 feet
- 91% have crosswalks within an acceptable distance
- 76% do not have a transit stop within 100 feet

The trends from both the random sampling and the top 25 corridors are comparable and provide an indication of some low-cost improvements that can be incorporated systemically and along the top crash corridors.

Many crashes involving vulnerable users occurred outside of a crosswalk, despite crosswalks being available within a 100-foot radius. Fatalities involving vulnerable road users not at an intersection were twice as high as fatalities at intersections. This trend continued through all the crash severities, stressing the importance of utilizing the 4 E's of engineering by encouraging enforcement and education not just building infrastructure.

The strategies and action plan for improving infrastructure are important for vulnerable road users but cannot thrive without support from enforcement and education to the local communities and wards.

While, vulnerable road users were involved in crashes in a variety of lighting conditions, approximately 25% of bicycle and 40% of pedestrian crashes occurred during the dark/dusk timeframe. In general, most of the corridors have street lighting.

Strategies

1. Select locations, especially with seniors, children and people with disabilities, and implement countermeasures with the greatest potential for safety improvement.
2. Continue implemention and inter-department policy/plan review with Providence Bicycle and Pedestrian Advisory Commission.
3. Mitigate high crash locations by providing data, countermeasure alternatives, and resources to implement improvements.

Action Plan

STRATEGY 1

Select locations, especially with seniors, children and people with disabilities, and implement countermeasures with the greatest potential for safety improvement.

Action Steps

- Promote and development regulations complete streets within City of Providence.
- Review access management policies for vulnerable roadway users and promote improved connectivity and safety.
- Proposed countermeasures should acknowledge the diversity of each neighborhood and utilize their community support groups, while considering roadway conditions.
- Update the City of Providence's standards and ordinances to align with national and state standards included in the Manual of Uniform Traffic Control Devices (MUTCD) and best practices as included in others guidelines such as the National Association of City Transportation Officials (NACTO) Urban Street Design Guide and.
- Improve crossings (e.g. install continental crosswalk pavement markings, additional lighting, flashing beacons, etc.) and pedestrian facilities (e.g. pedestrian signage and signals, detection to extend crossing times, etc.), standards and ordinances, to align with the national guidelines of the Manual of Uniform Traffic Control Devices (MUTCD).
- Improve bicycle facilities (e.g. warning signage, facility markings, etc.) by updating all intersections to the City of Providence standards and ordinances, along with the national guidelines of the Manual of Uniform Traffic Control Devices (MUTCD).
- Improve roadway lighting at vulnerable road user crossings.
- Consider crossing enhancements to improve quality and functionality.
- Prohibit vehicle parking in advance of pedestrian crossings, especially mid-block crossings, to increase pedestrian visibility.
- Consider a traffic signal retiming program to accommodate slower walking speeds in areas with a high number of seniors, children and people with disabilities.
- Conduct road safety audits along the top 25 vulnerable user crash corridors and to systemically develop corridor-specific improvements for intersections and high crash locations.

STRATEGY 2

Continue implemention and inter-department policy/plan review with Providence Bicycle and Pedestrian Advisory Commission.

Action Plan

- Coordinate with new projects within the City to encourage Vulnerable Road User facilities and incorporate Complete Streets concepts.
- Educate the community about making bicycling and walking a safter attractive transportation option.

STRATEGY 3

Mitigate high crash locations by providing data, countermeasure alternatives, and resources to implement improvements.

Action Plan

- Coordinate with community groups and leaders within individual neighborhoods and City Council wards to share data, potential alternatives, and discuss resources for improving infrastructure and roadway safety.
- Conduct workshops to teach community groups and leaders within individual neighborhoods and City Council wards about proven countermeasures, low-cost safety improvements, etc.
- Provide education aimed at proper crossing techniques and how motorized and non-motorized users can safely share the road.
- Conduct a before-and-after study to evaluate the effectiveness of the infrastructure improvements on vulnerable road users and roadway safety.
- Continue to research statistics, trends, and legislation for vulnerable road users.
-

Crashes involving **bicycles** in the City of Providence

Compliancy

Drivers of motor vehicles and vulnerable road users need to share the road with one another and follow traffic laws and regulations. For those crashes involving bicycles in the City of Providence, 13% were bicyclist non-compliance and approximately 4% were wrong-way bicyclists, traveling against the flow of traffic. In regards to pedestrians, 62% of all pedestrian crashes occurred at locations other than intersection where a vast majority of the pedestrians involved were found to have been jaywalking.

Strategies

1. Increase compliance with traffic laws and regulations related to vulnerable roadway users through education and enforcement.
2. Implement appropriate infrastructure to improve compliancy by vulnerable road users.

Action Plan

STRATEGY 1

Increase compliance with traffic laws and regulations related to vulnerable roadway users through education and enforcement.

Action Steps

- Increase awareness and understanding of safety issues related to vulnerable road users through education at appropriate locations (e.g. grade schools, driver's education, council for the aging, etc.).
- Increase educational efforts aimed at proper bicycle riding techniques (e.g. driving with the flow of traffic), especially targeted at high risk age groups.
- Increase educational efforts aimed to increase bicycle helmet compliance for children under the age of 18 years old.
- Identify locations and behaviors prone to vulnerable road users within each jurisdiction and implement multidisciplinary countermeasures.
- Encourage adequate funding levels for effective vulnerable road user safety programs and initiatives.
- Create an environment that supports and encourages safe bicycling and walking.
- Support national, state, and local legislative initiatives and policies that will increase bicycle and pedestrian safety.
- Encourage pedestrians of positive behavior at crosswalks.

STRATEGY 2

Implement appropriate infrastructure to improve compliancy by vulnerable road users.

Action Steps

- Provide guidance on the direction of travel and lane positioning for cyclists through pavement markings and signage within bike lanes.

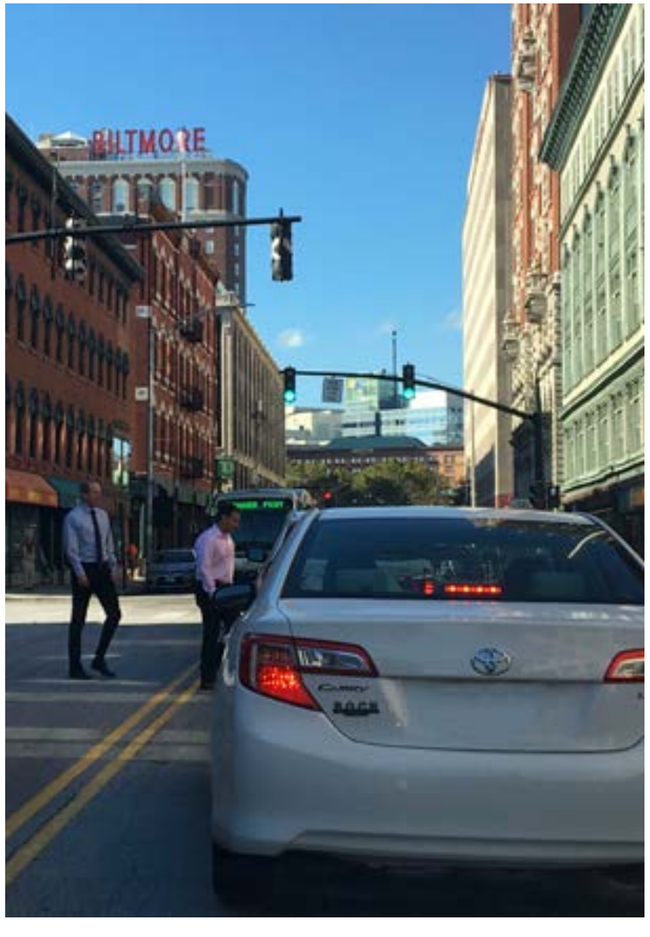
Crash Corridors

In addition to the three systemic trends, more specific areas have been identified as top vulnerable road user crash corridors in the City of Providence. While these areas aren't viewed as any less important than the systemic trends, they account for approximately half of all the fatal and serious injury crashes for vulnerable road users in the City of Providence. As these corridors account for a large percentage of serious injury crashes in Providence it has been recommended that they be monitored and tracked closely to identify corridor specific emerging trends.

The top 20 vulnerable road user roadways are as follows:

1 Broad
2 Chalkstone
3 North Main Street
4 Westminster
5 Smith
6 Washington
7 Cranston
8 Francis
9 Hope
10 Angell
11 Branch
12 Elmwood
13 Manton
14 Allens
15 Pine
16 Steeple/Memorial
17 Douglas
18 Hartford
19 Admiral
20 Dorrance

An example of a Road Safety Assessment was completed on Broad Street and along I-95 service roads adjacent to Downtown on June 16, 2016 and August 16, 2016. The accompanying report with findings and recommendations for Broad Street and the I-95 service roads is located in Appendix A.



Short-Term Countermeasures

Install Continental Crosswalk Striping

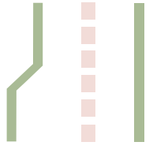
Crosswalks are pavement markings that delineate a portion of the roadway that is designated for pedestrian or bicycle crossing. Continental crosswalk striping is a high visibility crosswalk striping style, used at intersection and midblock pedestrian crossings. Install continental crosswalk striping at all marked crossings and at all future warranted crosswalks. Refer to Section 3B.18 of the MUTCD for guidance. Continental crosswalk striping should be used in place of stamped concrete crossings, brick crossings, diagonal lines, and transverse lines.

$ | 5 YEARS | CMF - 40%

Coordinate Transit Stop Placement

Transit stops should be highly visible locations that pedestrians can reach easily by means of accessible travel routes. Access to the bus stop via sidewalk connections from an adjacent intersection, sidewalk, or nearest land use should be as direct as possible. Transit stops should also be strategically placed to not block crosswalks or sight lines of vulnerable road users and adequate crossing opportunities should be provided in the area surrounding the transit stop. This countermeasure should be considered on corridors serviced by transit.

$ - $$$ | 2 YEARS | CMF - 45%



Lane Narrowing

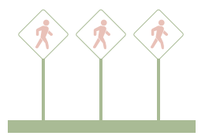
The narrowing of travel lanes—either visually (by using pavement markings) or physically (with measures such as curb extensions, curb relocations, or pedestrian refuge islands). Lane narrowing may provide space for bike lanes, sidewalks, or medians. Refer to MUTCD Chapter 3I for guidance.

$ - $$ | 2 YEARS | CMF - varies by width

Enhance Signage

Regulatory and warning signs inform motorists of the presence of pedestrians and bicyclists and of the need to share the roadway with bicycles and pedestrians, direct motorists to yield or stop at the lines used in advance of marked pedestrian crosswalks, and direct pedestrians and bicyclists how to share the road with motorists. Signs include but are not limited to R10-5a,-b,-c, W11-2, W13-1p, W16-7p, etc. Refer to Sections 2B.52, 2B.53, 2C.50 of the MUTCD for guidance. Priority for sign installation should be given to locations where vulnerable users are unexpected due to limited visibility or high vulnerable road user volume. Regulatory signs are used to inform road users of selected traffic laws. Warning signs can be used to alert road users to unexpected entries into the roadway by bicyclists and pedestrians and where other crossing activities might cause conflicts. Refer to Sections 2B.04 to 2B.12, 2C. 50, 9B.18 and 9B.19 for Standards, Guidance and Options for installation of appropriate signage.

$ | 5 YEARS | CMF - 5% - 15%



Sign Clutter

Signage should be inventoried and reviewed to ensure that all signs are visible and clear to drivers and that consistent signage is used at all locations to reduce possible confusion. Unnecessary signs or those that are non-compliant with the MUTCD Part 2 should be removed and/or replaced, as needed.

$ | 5 YEARS | CMF - 5% - 15%

Install Traffic Signal Retro-Reflective Backplates

The installation of Traffic Signal Retro-Reflective backplates provides added visibility for motorists when approaching a signalized intersection. The backplates encase the traffic signal head and have a retro-reflective border. The use of retro-reflective backplates should be considered at locations with a history of red light running, crashes related to red light running, or where there are unexpected signalized intersections.

$$ | 5 YEARS | CMF - 15%

Implement No Parking within 25 Feet of Crosswalk

The removal of on-street parking near intersections increases pedestrian visibility and reduces conflicts between pedestrians and turning vehicles. Parking restrictions include appropriate No Parking signs and hatched pedestrian markings where parking is not permitted. This countermeasure should be implemented near intersections with high numbers of turning vehicle-pedestrian crashes.

$ | 1 YEARS | CMF - 40% - 45%

Restriping

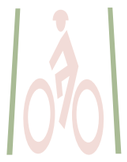
All pavement markings should be highly visible for all roadway users in order to clearly delineate space for various road users. Pavement markings should be consistent in width, color, and style. Striping should be considered on all roadways where pavement markings are lacking or have faded overtime.

$ - $$ | 2 YEARS | CMF - 18% - 24%

Crosswalk Consolidation/Addition

All crosswalks should be highly visible for all roadway users and placed strategically in order to best service pedestrians. All crosswalks should be reviewed to ensure proper placement. Crosswalks should be relocated, and installed to accommodate pedestrians and provide ample sight visibility to and from the crosswalk.

$ | 1 YEARS | CMF - 40%



Bicycle Lanes

Bicycle lanes should be considered on existing roadways by reallocating curb to curb road space to better accommodate vulnerable users. Reallocating curb to curb road space to include bicycle lanes might include: narrowing vehicle travel lane widths, removal of on-street parking, or by reducing the number of vehicle travel lanes (Road Diet). Lane width narrowing and roadway reconfiguration can be implemented without negatively impacting vehicular operation, however, a traffic study and data collection should be conducted to confirm prior to redesigning the roadway.

FHWA has encouraged flexibility in the application of design criteria particularly travel lane widths, bicycle lane widths, and offset from on-street parking. Refer to the FHWA publication Incorporating On-Road Bicycle Networks into Resurfacing Projects, March 2016 for factors to consider when using combinations of minimum travel and bicycle lane widths.

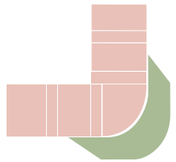
$ | 2 YEARS | CMF - 59%

Long-Term Countermeasures

ADA Pedestrian Compliancy

Ensure that streets include appropriate sidewalk widths, cross slopes, running slopes, and wheelchair ramps that meet slope requirements, have detectable warning panels, and are placed in order to direct the pedestrian in the correct direction. Install audible and vibro-tactile push buttons at all signalized intersections.

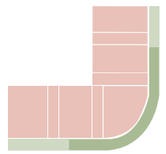
$$ | YEARS 5 | CMF - unknown



Curb Extensions

Also known as bulb-outs, neckdowns, and chokers, curb extensions are portions of the roadway where the curb extends out into the parking lane or shoulder. This both visually and physically narrows the roadway to reduce vehicle speeds, improves visibility between pedestrians and motorists, and provides a shorter distance for pedestrian crossings. This countermeasure should be considered on sections of roadway where on-street parking is provided, there are high vehicle speeds, and pedestrian crossings are common.

$$ | 5 | CMF - 37%



Curb Radius Reduction

At intersections, large curb radii typically result in high-speed turning movements by motorists. Smaller radii improve pedestrian safety by requiring motorists to reduce vehicle speeds when turning, shortening crossing distances for pedestrians (which also improves signal timings), improving sight distances, and allowing for greater flexibility in curb ramp placement.

$$ | YEARS 5 | CMF - unknown

Flashing Beacons (RRFBs & HAWKS)

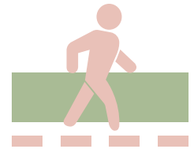
A flashing beacon provides a warning to motorists about the presence of a crosswalk. A Rapid Rectangular Flashing Beacon (RRFB) is yellow, rectangular, and has a rapid “wig-wag” flash similar to police lights. The High Intensity Activated Crosswalk (HAWK) is one of the FHWA Proven Safety Countermeasures and is used to warn and control traffic at an unsignalized location to assist pedestrians in crossing a street at a marked crosswalk; a warrant analysis and study must be performed prior installation (refer to MUTCD Chapter 4F). The device consists of three signal sections with a yellow signal head centered below two horizontally aligned red signal heads. Both the RRFB and HAWK should operate only when a pedestrian is present through either push button or passive detection. This countermeasure is for use at midblock crossings and intersections that do not warrant a signal.

$$-$$$ | YEARS 3 | CMF - RRFBs; HAWKS 69%

Radar Speed Display Signal/Portable Speed Trailer

A changeable message sign that displays the speed of approaching vehicles. A radar speed display signal should be considered where motorized vehicle speed is a concern.

$-$$ | YEARS 2 | CMF - 46%



Pedestrian Barrier

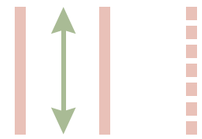
A pedestrian barrier is a concrete or landscape barrier that provides an area for pedestrians to walk, while also restricting their path from areas that may be harmful to cross. Pedestrian barriers should be considered at locations with a history of crashes due to pedestrians walking illegally in an area that may be considered restricted, such as an on-ramp or off-ramp to a limited access highway.

$$-$$$ | YEARS 2 | CMF - unknown

Parking Improvements Due to Visibility

The removal of roadside objects or parking near mid-block crosswalks and intersections to increase visibility and reduce conflicts between vehicles and vulnerable road users. Consider implementing near intersections and crosswalks with high turning vehicle-pedestrian crashes or at locations where the pedestrians lack conspicuity.

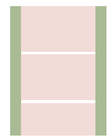
$$-$$$ | YEARS 2 | CMF - 47%



Road Diet

A road diet is a redistribution of space in the roadway leading to a reduction in the width or number of travel lanes for motor vehicles on a roadway. The road diet is one of the FHWA Proven Safety Countermeasures and may provide space for bike lanes, sidewalks, or medians, and can help reduce motor vehicle speed. A traffic analysis is required to determine the feasibility of a road diet. Consider a road diet on segments with pedestrian crossings, multiple lanes of traffic, and high vehicle speeds.

$ | YEARS 2 | CMF - 47% - 71%



Sidewalk Repair/Replacement

Sidewalks are usually paved and separated from the street by curbing and should be of appropriate width and slope for all vulnerable road users. Areas where there are tripping hazards, deteriorated conditions, or discontinuous sidewalks should be repaired or replaced.

$ | YEARS 5 | CMF - varies

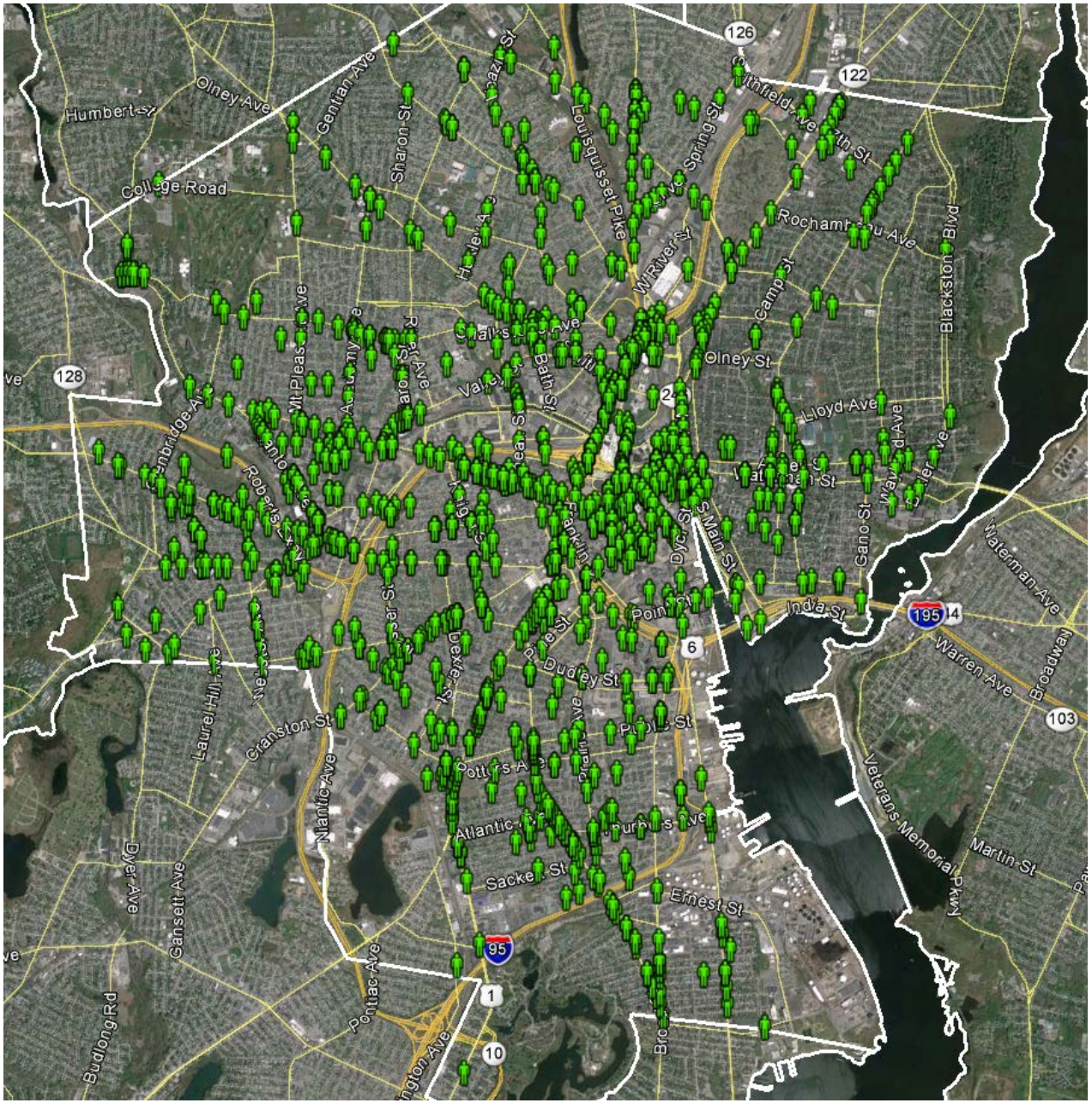
Roadway Safety Lighting

Lighting directed to illuminate the roadway, specifically in the vicinity of intersections and marked pedestrian crossings. Consider this countermeasure on sections of roadway with high volumes of nighttime non-motorized activity.

$$ | YEARS 5 | CMF - 27% - 69%

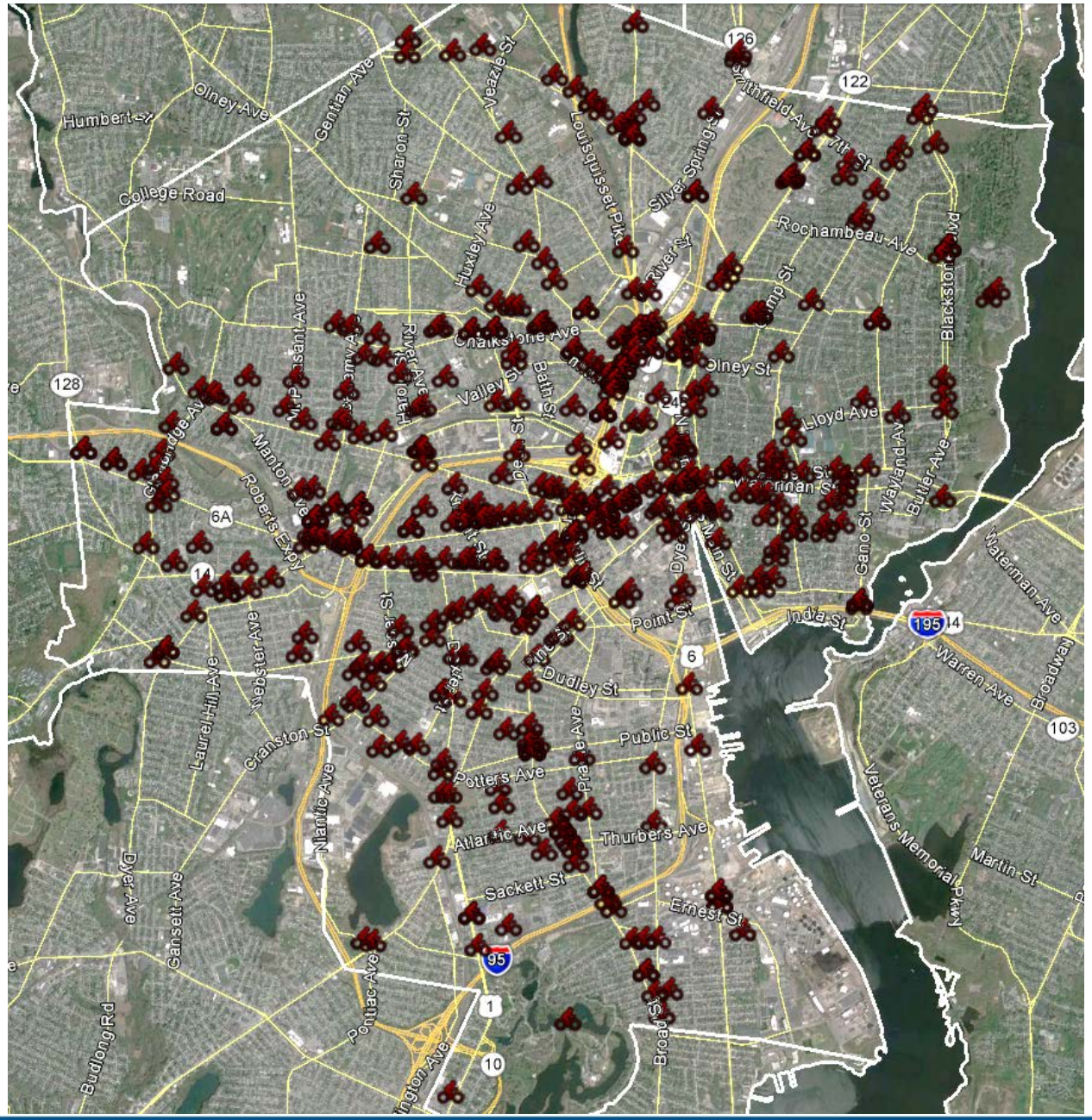
TOTAL Pedestrian Crashes (2009-2015)

1,100 crashes

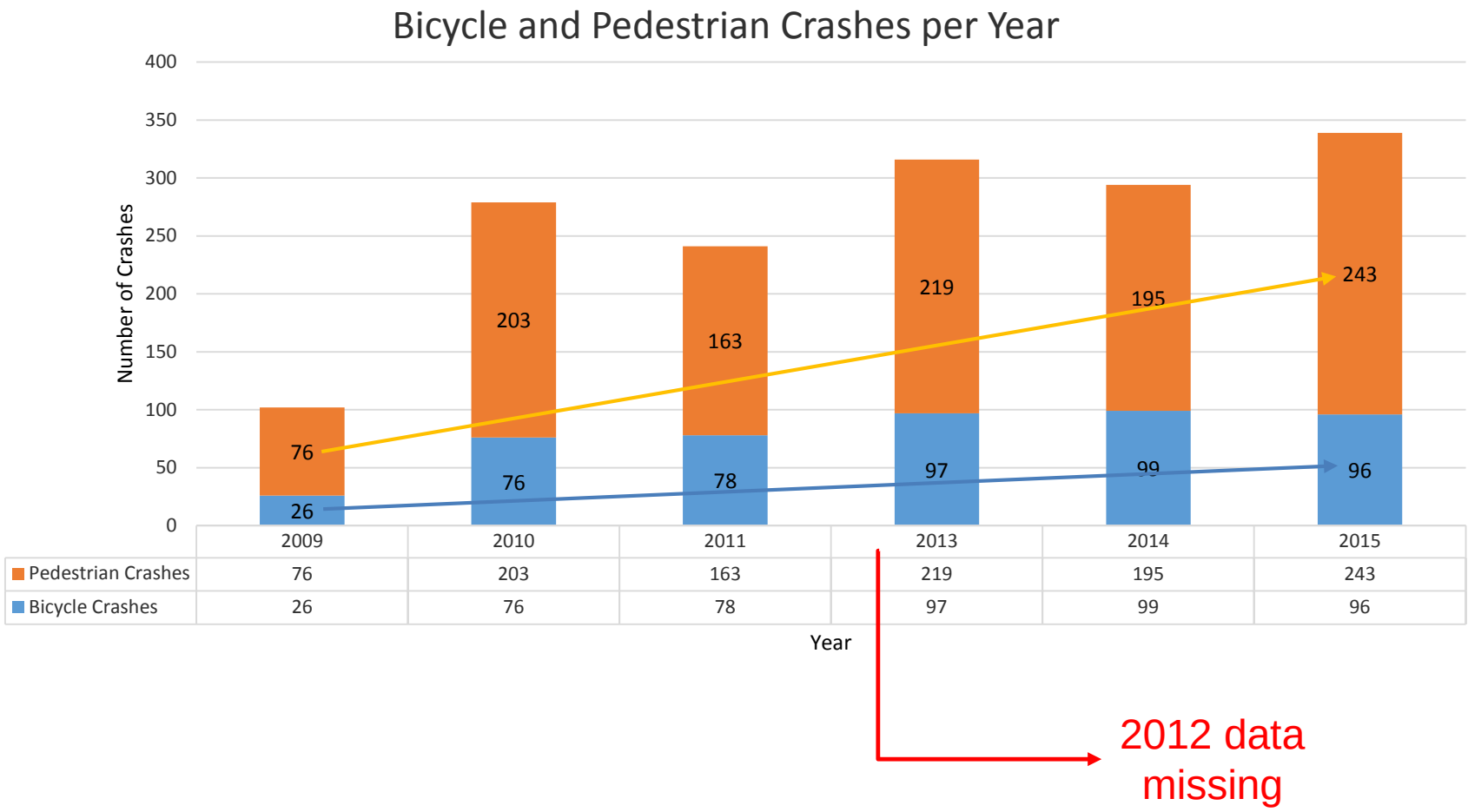


TOTAL Bicycle Crashes (2009-2015)

470 Crashes



Vulnerable Road User Safety Action Plan - Analysis



Vulnerable Road User Safety Action Plan - Prioritization

Top Corridors Ranked by…

Street Name	Serious Injury Crashes			Total Serious Injury Crashes	Serious Injury/Total Crash Percentage	Total Serious Injury Crash Percentage	Total Fatality Crash Percentage	Total Crash Percentage	Miles	Serious Injury Crash Rate (crashes/mile)	Total Crash Rate (crashes/mile)	Stating Point	Ending Point
	Pedestrian	Pedestrian - Fatal	Bicycle										
Broad Street	11		5	16	19.5%	4.8%	0.0%	5.2%	2.80	5.7	29.3	Chestnut Street	Montgomery Avenue
Atwells Avenue	8		3	11	22.4%	3.3%	0.0%	3.1%	1.90	5.8	25.8	Broadway	Manton Avenue
Chalkstone Avenue	6		5	11	26.8%	3.3%	0.0%	2.6%	2.50	4.4	16.4	Douglas Avenue	Manton Avenue
North Main Street	6	1	3	10	30.3%	3.0%	7.1%	2.1%	2.20	4.5	15.0	Chace Avenue	College Street
Westminster Street	6		4	10	19.2%	3.0%	0.0%	3.3%	1.30	7.7	40.0	Franklin Street	Broadway
Smith Street	6	1	2	9	29.0%	2.7%	7.1%	2.0%	2.50	3.6	12.4	North Main Street	Brightwood Avenue
Washington Street	3	1	4	8	19.0%	2.4%	7.1%	2.7%	1.10	7.3	38.2	Memorial Boulevard	Knight Street
Cranston Street	4		3	7	23.3%	2.1%	0.0%	1.9%	1.30	5.4	23.1	Fricker Street	Huntington Avenue
Francis Street	5		1	6	28.6%	1.8%	0.0%	1.3%	0.50	12.0	42.0	Smith Street	Exchange Terrace
Hope Street	2	1	3	6	19.4%	1.8%	7.1%	2.0%	2.80	2.1	11.1	Chace Avenue	Bessie Way
Angell Street	5		0	5	55.6%	1.5%	0.0%	0.6%	1.50	3.3	6.0	River Road	Benefit Street
Branch Avenue	1		4	5	20.8%	1.5%	0.0%	1.5%	2.00	2.5	12.0	North Main Street	Douglas Avenue
Elmwood Avenue	4	1	0	5	14.3%	1.5%	7.1%	2.2%	1.80	2.8	19.4	Broad Street	Roger Williams Avenue
Manton Avenue	1	2	2	5	16.1%	1.5%	14.3%	2.0%	1.80	2.8	17.2	San Souci Drive	Chalkstone Avenue
Allens Avenue	2		2	4	44.4%	1.2%	0.0%	0.6%	1.70	2.4	5.3	Eddy Street	New York Avenue
Pine Street	4		0	4	44.4%	1.2%	0.0%	0.6%	0.70	5.7	12.9	Broad Street	Dyer Street
Steeple Street	2		2	4	80.0%	1.2%	0.0%	0.3%	0.10	40.0	50.0	North Main Street	Memorial Boulevard
Douglas Avenue	4		0	4	18.2%	1.2%	0.0%	1.4%	1.90	2.1	11.6	Hazael Street	Orms Street
Hartford Avenue	2		2	4	16.0%	1.2%	0.0%	1.6%	1.30	3.1	19.2	Plainfield Street	Killingly Street
Admiral Street	3		0	3	33.3%	0.9%	0.0%	0.6%	1.90	1.6	4.7	Charles Street	Gentian Avenue
Burnett Street	3		0	3	100.0%	0.9%	0.0%	0.2%	0.30	10.0	10.0	Public Street	Dexter Street
Fountain Street	3		0	3	42.9%	0.9%	0.0%	0.4%	0.30	10.0	23.3	Dorrance Street	Greene Street
Memorial Boulevard	3		0	3	25.0%	0.9%	0.0%	0.8%	0.60	5.0	20.0	Dyer Street	Huntington Expressway
Plainfield Street	3		0	3	15.8%	0.9%	0.0%	1.2%	1.00	3.0	19.0	Hartford Avenue	Duxbury Street
Dorrance Street	3		0	3	17.6%	0.9%	0.0%	1.1%	0.40	7.5	42.5	Dyer Street	Fountain Street
Total	100	7	45	152		45.6%	50.0%	41.2%					

Half of all crashes

Nearly half of all serious injury crashes

Appendix A

1 Broad Street

Where

LIMITS	Chestnut St. to Montgomery Ave.
ROADWAY TYPE	• 2 lanes undivided • TWLTL between Public St. and Montgomery Ave.
TRAFFIC CONTROL	23 signalized intersections
LAND USE	Mixed use (Commercial/ Residential)
WIDTH	46-54 feet (varies)
PARKING	On-street parallel parking, both sides
BIKE AMENITIES	Sharrows between Service Rd. and Elmwood Ave.
PEDESTRIAN AMENITIES	• Striped and stamped crosswalks • Signalized crossings with pedestrian countdown heads and push buttons • Sidewalks on both sides • Wheelchair ramps

What

Vulnerable road users crossing and traveling illegally at intersections and throughout limits

When

Afternoon, late evening, and late night

Why

- Connectivity between South Providence and Downtown
- RIPTA bus routes along corridor
- Schools within the vicinity

16 Total Fatal or Serious Injury Crashes

11 Pedestrian Fatal or Serious Injury Crashes

19.5% Serious Injury Crashes

5.7 Serious Injury Crash Rate (crashes per mile)

82 Total Pedestrian/Bike Crashes

5 Bicycle Serious Injuries

2.8 Miles

29.3 Total Crash Rate (crashes per mile)

Countermeasure Solutions

Short-term

- Enhanced Signage
- Install Continental Crosswalk Striping
- Implement No Parking within 25 Feet of Crosswalks
- Sign Clutter
- Coordinate Transit Stop Placement
- Crosswalk Consolidation/ Addition
- Bicycle Lanes (Requires Traffic Analysis)

Long-term

- ADA Pedestrian Compliancy
- Curb Radius Reduction
- Sidewalk Repair/ Replacement
- Roadway Safety Lighting
- Parking Improvements Due to Sight Visibility
- Road Diets (Requires Traffic Analysis)

Chalkstone Avenue

2

Where

LIMITS	Douglas Ave. to Manton Ave.
ROADWAY TYPE	2 lanes undivided
TRAFFIC CONTROL	8 signalized intersections
LAND USE	Residential
WIDTH	34 feet
PARKING	None
BIKE AMENITIES	None
PEDESTRIAN AMENITIES	• Striped and Stamped crosswalks • Signalized crossings with pedestrian countdown heads and push buttons • Sidewalks on both sides • Wheelchair ramps

What

Vulnerable road users crossing and traveling illegally at intersections

When

Morning commute and lunch time

Why

- Connectivity to Downtown
- VA Hospital
- RIPTA bus routes along corridor
- Institutional campus and various schools within the vicinity

11 Total Fatal or Serious Injury Crashes

6 Pedestrian Fatal or Serious Injury Crashes

26.8% Serious Injury Crashes

4.4 Serious Injury Crash Rate (crashes per mile)

41 Total Pedestrian/Bike Crashes

5 Bicycle Serious Injuries

2.5 Miles

16.4 Total Crash Rate (crashes per mile)

Countermeasure Solutions

Short-term

- Enhanced Signage
- Sign Clutter
- Install Continental Crosswalk Striping
- Coordinate Transit Stop Placement
- Restriping

Long-term

- Sidewalk Repair/ Replacement
- ADA Pedestrian Compliancy
- Curb Radius Reduction
- Curb Extensions

North Main Street

3

Where

LIMITS	Chace Ave. to College St.
ROADWAY TYPE	• 2 lanes (one-way northbound) between College St. and Smith St. • 4 lanes divided between Smith St. to Chace Ave.
TRAFFIC CONTROL	13 signalized intersections
LAND USE	Mixed use (Commercial/Retail/ Institutional)
WIDTH	43-92 feet (varies)
PARKING	On-street parallel parking, both sides, between Olney St. and Chace Ave.
BIKE AMENITIES	None
PEDESTRIAN AMENITIES	• Striped and stamped crosswalks • Signalized crossings with pedestrian countdown heads and push buttons • Sidewalks on both sides • Wheelchair ramps

What

Vulnerable road users crossing and traveling illegally at intersections

When

Late night

Why

- Connectivity between East Side and Downtown
- RIPTA bus routes along corridor
- Institutional campuses and various schools within the vicinity

10 Total Fatal or Serious Injury Crashes

7 Pedestrian Fatal or Serious Injury Crashes

30.3% Serious Injury Crashes

4.5 Serious Injury Crash Rate (crashes per mile)

33 Total Pedestrian/Bike Crashes

3 Bicycle Serious Injuries

2.2 Miles

15.0 Total Crash Rate (crashes per mile)

Countermeasure Solutions

Short-term

- Crosswalk Consolidation/ Addition
- Enhanced Signage
- Coordinate Transit Stop Placement
- Install Continental Crosswalk Striping
- Lane Narrowing
- Implement No Parking within 25 Feet of Crosswalks
- Bicycle Lanes (Requires Traffic Analysis)

Long-term

- Sidewalk Repair/ Replacement
- Curb Extensions
- Curb Radius Reduction
- Road Diets (Requires Traffic Analysis)
- Roadway Safety Lighting

Westminster Street

4

Where

LIMITS	Franklin St. to Broadway
ROADWAY TYPE	2 lanes undivided
TRAFFIC CONTROL	10 signalized intersections
LAND USE	Mixed use (Commercial/Retail)
WIDTH	40 Feet
PARKING	On-street parallel parking, both sides
BIKE AMENITIES	None
PEDESTRIAN AMENITIES	• Striped and stamped crosswalks • Signalized crossings with pedestrian countdown heads and push buttons • Sidewalks on both sides • Wheelchair ramps

What

Vulnerable road users crossing and traveling illegally at intersections

When

Morning commute and lunch time

Why

- Connectivity between Olneyville Square and Downtown

10 Total Fatal or Serious Injury Crashes

6 Pedestrian Fatal or Serious Injury Crashes

19.2% Serious Injury Crashes

7.7 Serious Injury Crash Rate (crashes per mile)

52 Total Pedestrian/Bike Crashes

4 Bicycle Serious Injuries

1.3 Miles

40.0 Total Crash Rate (crashes per mile)

Countermeasure Solutions

Short-term

- Enhanced Signage
- Restriping
- Install Continental Crosswalk Striping
- Coordinate Transit Stop Placement
- Implement No Parking within 25 Feet of Crosswalks

Long-term

- Sidewalk Repair/ Replacement
- Road Diets (Requires Traffic Analysis)
- Curb Radius Reduction
- Curb Extensions
- ADA Pedestrian Compliancy
- Parking Improvements Due to Sight Visibility

Smith Street

5

Where

LIMITS	North Main St. to Brightwood Ave.
ROADWAY TYPE	2 lanes undivided
TRAFFIC CONTROL	12 signalized intersections
LAND USE	Mixed use (Commercial/Retail/ Residential)
WIDTH	40 feet
PARKING	On-street parallel parking, both sides
BIKE AMENITIES	None
PEDESTRIAN AMENITIES	• Striped and stamped crosswalks • Signalized crossings with pedestrian heads and push buttons • Sidewalks on both sides • Wheelchair ramps

What

Vulnerable road user crashes due to vehicles making left and right turns

When

Morning commute and late night

Why

- Connectivity between North Providence and Downtown
- State offices
- Institutional campuses and various schools within the vicinity

9 Total Fatal or Serious Injury Crashes

7 Pedestrian Fatal or Serious Injury Crashes

29% Serious Injury Crashes

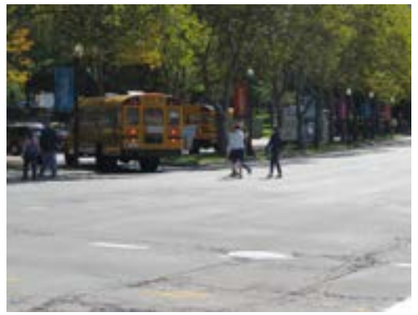
3.6 Serious Injury Crash Rate (crashes per mile)

31 Total Pedestrian/Bike Crashes

2 Bicycle Serious Injuries

2.5 Miles

12.4 Total Crash Rate (crashes per mile)



Countermeasure Solutions

Short-term

- Enhanced Signage
- Crosswalk Consolidation/ Addition
- Install Continental Crosswalk Striping
- Implement No Parking within 25 Feet of Crosswalks
- Bicycle Lanes (Requires Traffic Analysis)
- Coordinate Transit Stop Placement

Long-term

- Sidewalk Repair/ Replacement
- Curb Extensions
- Curb Radius Reduction
- Roadway Safety Lighting
- ADA Pedestrian Compliancy
- Parking Improvements Due to Sight Visibility

6 Washington Street

Where

LIMITS	Memorial Blvd. to Knight St.
ROADWAY TYPE	2 lanes undivided
TRAFFIC CONTROL	8 signalized intersections
LAND USE	Mixed use (Commercial/Retail)
WIDTH	25-40 feet (varies)
PARKING	On-street parallel parking, both sides between Franklin St. and Dorrance St.
BIKE AMENITIES	Sharrows between Knight St. and Dean St.
PEDESTRIAN AMENITIES	• Striped and stamped crosswalks • Signalized crossings with pedestrian countdown heads and push buttons • Sidewalks on both sides • Wheelchair ramps

What

Vulnerable road user crashes due to vehicles making left and right turns

When

Lunch time and late evening

Why

- Connectivity to Kennedy Plaza
- Institutional campuses and various schools within the vicinity

8 Total Fatal or Serious Injury Crashes

4 Pedestrian Fatal or Serious Injury Crashes

19% Serious Injury Crashes

7.3 Serious Injury Crash Rate (crashes per mile)

42 Total Pedestrian/Bike Crashes

4 Bicycle Serious Injuries

1.1 Miles

38.2 Total Crash Rate (crashes per mile)

Countermeasure Solutions

Short-term

- Enhanced Signage
- Coordinate Transit Stop Placement
- Install Continental Crosswalk Striping
- Restriping
- Implement No Parking within 25 Feet of Crosswalks

Long-term

- Sidewalk Repair/ Replacement
- Roadway Safety Lighting
- Curb Radius Reduction
- Curb Extensions
- Parking Improvements Due to Sight Visibility
- ADA Pedestrian Compliancy

7 Cranston Street

Where

LIMITS	Fricker St. to Huntington Ave.
ROADWAY TYPE	2 lanes undivided
TRAFFIC CONTROL	5 signalized intersections
LAND USE	Mixed use (Commercial/ Residential)
WIDTH	56 feet
PARKING	On-street parallel parking, both sides
BIKE AMENITIES	None
PEDESTRIAN AMENITIES	• Striped and stamped crosswalks • Signalized crossings with pedestrian countdown heads and push buttons • Sidewalks on both sides • Wheelchair ramps

What

Lack of sight visibility for vulnerable road users

When

Evening commute and late evening

Why

- Connectivity between West Side and Downtown
- RIPTA bus routes along corridor

7 Total Fatal or Serious Injury Crashes

4 Pedestrian Fatal or Serious Injury Crashes

23.3% Serious Injury Crashes

5.4 Serious Injury Crash Rate (crashes per mile)

30 Total Pedestrian/Bike Crashes

3 Bicycle Serious Injuries

1.3 Miles

23.1 Total Crash Rate (crashes per mile)

Countermeasure Solutions

Short-term

- Enhanced Signage
- Lane Narrowing
- Install Continental Crosswalk Striping
- Coordinate Transit Stop Placement
- Implement No Parking within 25 Feet of Crosswalks
- Restriping

Long-term

- Road Diets (Requires Traffic Analysis)
- Roadway Safety Lighting
- Curb Radius Reduction
- Curb Extensions
- Parking Improvements Due to Sight Visibility
- ADA Pedestrian Compliancy

8 Francis Street

Where

LIMITS	Park Row to Gaspee St.
ROADWAY TYPE	4 lanes undivided
TRAFFIC CONTROL	2 signalized intersections
LAND USE	Mixed use (Retail/Park/ Commuter rail)
WIDTH	50 feet
PARKING	None
BIKE AMENITIES	None
PEDESTRIAN AMENITIES	• Striped and stamped crosswalks • Signalized crossings with pedestrian countdown heads and push buttons • Sidewalks on both sides • Wheelchair ramps

What

Vulnerable road users crossing illegally at signalized intersections

When

Commuter hours and lunch time

Why

- Connectivity between Providence Station and Providence Place Mall

6 Total Fatal or Serious Injury Crashes

5 Pedestrian Fatal or Serious Injury Crashes

29% Serious Injury Crashes

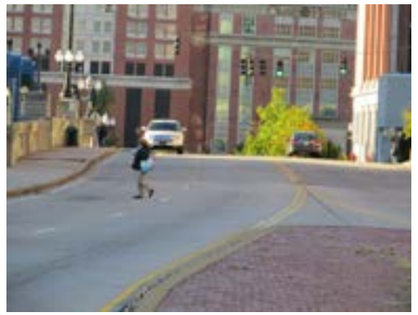
12 Serious Injury Crash Rate (crashes per mile)

21 Total Pedestrian/Bike Crashes

1 Bicycle Serious Injuries

0.5 Miles

42.5 Total Crash Rate (crashes per mile)



Countermeasure Solutions

Short-term

- Enhanced Signage
- Install Continental Crosswalk Striping
- Restriping
- Sign Clutter
- Lane Narrowing
- Coordinate Transit Stop Placement
- Traffic Signal Backplates
- Bicycle Lanes (Requires Traffic Analysis)

Long-term

- Roadway Safety Lighting
- Curb Extensions
- Sidewalk Repair/ Replacement
- Road Diets (Requires Traffic Analysis)
- ADA Pedestrian Compliancy
- Curb Radius Reduction

9 Hope Street

Where

LIMITS	Chace Ave. to Bessie Way
ROADWAY TYPE	2 lanes undivided
TRAFFIC CONTROL	12 signalized intersections
LAND USE	Mixed use (Commercial/Retail/ Residential/Institutional)
WIDTH	40 feet
PARKING	On-street parallel parking, both sides
BIKE AMENITIES	Sharrows
PEDESTRIAN AMENITIES	• Striped and stamped crosswalks • Signalized crossings with pedestrian countdown heads and push buttons • Sidewalks on both sides • Wheelchair ramps

What

Vulnerable road user crashes due to vehicles making left turns

When

Evening commute

Why

- Connectivity to institutional campuses and various schools within the vicinity

6 Total Fatal or Serious Injury Crashes

3 Pedestrian Fatal or Serious Injury Crashes

19.4% Serious Injury Crashes

2.1 Serious Injury Crash Rate (crashes per mile)

31 Total Pedestrian/Bike Crashes

3 Bicycle Serious Injuries

2.8 Miles

11.1 Total Crash Rate (crashes per mile)

Countermeasure Solutions

Short-term

- Enhanced Signage
- Crosswalk Consolidation/ Addition
- Install Continental Crosswalk Striping
- Sign Clutter
- Implement No Parking within 25 Feet of Crosswalks

Long-term

- Flashing Beacons (RRFBS & HAWKS)
- Roadway Safety Lighting
- Curb Radius Reduction
- Curb Extensions
- Parking Improvements Due to Sight Visibility

10

Angell Street

Where

LIMITS	River Rd. to Benefit St.
ROADWAY TYPE	1 lane (one-way westbound)
TRAFFIC CONTROL	8 signalized intersections
LAND USE	Mixed use (Commercial/Retail/ Residential/Institutional)
WIDTH	25 Feet
PARKING	On-street parallel parking, one side
BIKE AMENITIES	None
PEDESTRIAN AMENITIES	• Striped and stamped crosswalks • Signalized crossings with pedestrian countdown heads and push buttons • Sidewalks on both sides • Wheelchair ramps

What

Limited sight visibility of pedestrians.

When

Late afternoon and evening commute

Why

- Connectivity to institutional campuses and various schools within the vicinity

5 Total Fatal or Serious Injury Crashes

5 Pedestrian Fatal or Serious Injury Crashes

55.6% Serious Injury Crashes

3.3 Serious Injury Crash Rate (crashes per mile)

9 Total Pedestrian/Bike Crashes

0 Bicycle Serious Injuries

1.5 Miles

6.0 Total Crash Rate (crashes per mile)

Countermeasure Solutions

Short-term

- Enhanced Signage
- Install Continental Crosswalk Striping
- Implement No Parking within 25 Feet of Crosswalks
- Coordinate Transit Stop Placement
- Lane Narrowing
- Traffic Signal Backplates
- Restriping
- Bicycle Lanes (Requires Traffic Analysis)

Long-term

- Roadway Safety Lighting
- Sidewalk Repair/ Replacement
- Curb Radius Reduction
- Road Diets (Requires Traffic Analysis)
- Flashing Beacons (RRFBS & HAWKS)
- ADA Pedestrian Compliancy
- Parking Improvements Due to Sight Visibility
- Curb Extensions

11

Branch Street

Where

LIMITS	North Main St. to Douglas Ave.
ROADWAY TYPE	• 2 lanes undivided • 4 lanes divided near I-95 ramps
TRAFFIC CONTROL	9 signalized intersections
LAND USE	Mixed use (Commercial/ Residential)
WIDTH	35 feet
PARKING	On-street parallel parking, both sides (not striped)
BIKE AMENITIES	None
PEDESTRIAN AMENITIES	• Striped and stamped crosswalks • Signalized crossings with pedestrian heads and push buttons • Sidewalks on both sides • Wheelchair ramps

What

Vulnerable road user crossing and traveling illegally at intersections

When

Evening

Why

- Connectivity between residential and commercial businesses

5 Total Fatal or Serious Injury Crashes

1 Pedestrian Fatal or Serious Injury Crashes

20.8% Serious Injury Crashes

2.5 Serious Injury Crash Rate (crashes per mile)

24 Total Pedestrian/Bike Crashes

4 Bicycle Serious Injuries

2.0 Miles

12.0 Total Crash Rate (crashes per mile)

Countermeasure Solutions

Short-term

- Enhanced Signage
- Sign Clutter
- Install Continental Crosswalk Striping
- Coordinate Transit Stop Placement
- Implement No Parking within 25 Feet of Crosswalks
- Restriping

Long-term

- Roadway Safety Lighting
- ADA Pedestrian Compliancy
- Sidewalk Repair/ Replacement
- Parking Improvements Due to Sight Visibility

12 Elmwood Avenue

Where

LIMITS	Broad St. to Roger Williams Ave.
ROADWAY TYPE	• TWLTL between Broad St. and Congress Ave. • 4 lanes divided south of Congress Ave.
TRAFFIC CONTROL	11 signalized intersections
LAND USE	Mixed use (Commercial/ Residential)
WIDTH	60 feet
PARKING	On-street parallel parking, both sides
BIKE AMENITIES	None
PEDESTRIAN AMENITIES	• Striped and stamped crosswalks • Signalized crossings with pedestrian countdown heads and push buttons • Sidewalks on both sides • Wheelchair ramps

What

Pedestrians crossing illegally at intersections

When

Late night

Why

- Connectivity between residential and commercial businesses
- RIPTA bus routes along corridor

5 Total Fatal or Serious Injury Crashes

5 Pedestrian Fatal or Serious Injury Crashes

14.3% Serious Injury Crashes

2.8 Serious Injury Crash Rate (crashes per mile)

35 Total Pedestrian/Bike Crashes

0 Bicycle Serious Injuries

1.8 Miles

19.4 Total Crash Rate (crashes per mile)

Countermeasure Solutions

Short-term

- Enhanced Signage
- Install Continental Crosswalk Striping
- Implement No Parking within 25 Feet of Crosswalks
- Crosswalk Consolidation/ Addition
- Coordinate Transit Stop Placement
- Lane Narrowing
- Bicycle Lanes (Requires Traffic Analysis)

Long-term

- Roadway Safety Lighting
- Sidewalk Repair/ Replacement
- Parking Improvements Due to Sight Visibility
- Road Diets (Requires Traffic Analysis)
- Curb Extensions
- ADA Pedestrian Compliancy
- Curb Radius Reduction

13 Manton Avenue

Where

LIMITS	San Souci Dr. to Chalkstone Ave.
ROADWAY TYPE	2 lanes undivided
TRAFFIC CONTROL	3 signalized intersections
LAND USE	Mixed use (Commercial/ Residential/Schools)
WIDTH	37 feet
PARKING	On-street parallel parking, both sides
BIKE AMENITIES	None
PEDESTRIAN AMENITIES	• Striped and stamped crosswalks • Signalized crossings with pedestrian heads and push buttons • Sidewalks on both sides • Wheelchair ramps

What

Vulnerable road users crossing and traveling illegally at intersections

When

Late evening

Why

- Connectivity between residential, schools, and commercial businesses
- Connectivity between residential and Olneyville Square

5 Total Fatal or Serious Injury Crashes

3 Pedestrian Fatal or Serious Injury Crashes

16.1% Serious Injury Crashes

2.8 Serious Injury Crash Rate (crashes per mile)

31 Total Pedestrian/Bike Crashes

2 Bicycle Serious Injuries

1.8 Miles

17.2 Total Crash Rate (crashes per mile)

Countermeasure Solutions

Short-term

- Enhanced Signage
- Crosswalk Consolidation/ Addition
- Install Continental Crosswalk Striping
- Coordinate Transit Stop Placement
- Implement No Parking within 25 Feet of Crosswalks
- Restriping

Long-term

- Roadway Safety Lighting
- Curb Extensions
- Curb Radius Reduction
- ADA Pedestrian Compliancy
- Flashing Beacons (RRFBS & HAWKS)
- Sidewalk Repair/ Replacement

14 Allens Avenue

Where

LIMITS	Eddy St. to New York Ave.
ROADWAY TYPE	4 lanes undivided
TRAFFIC CONTROL	8 signalized intersections
LAND USE	Mixed use (Commercial/ Industrial)
WIDTH	60 feet
PARKING	None
BIKE AMENITIES	Bike lane, both directions
PEDESTRIAN AMENITIES	• Striped and stamped crosswalks • Signalized crossings with pedestrian heads and push buttons • Sidewalks on both sides • Wheelchair ramps

What

Vulnerable road user crashes due to vehicles making right turns

When

Lunch time

Why

- Connectivity between the City of Cranston and Downtown

4 Total Fatal or Serious Injury Crashes

2 Pedestrian Fatal or Serious Injury Crashes

44.4% Serious Injury Crashes

2.4 Serious Injury Crash Rate (crashes per mile)

9 Total Pedestrian/Bike Crashes

2 Bicycle Serious Injuries

1.7 Miles

5.3 Total Crash Rate (crashes per mile)

Countermeasure Solutions

Short-term

- Enhanced Signage
- Install Continental Crosswalk Striping
- Sign Clutter
- Lane Narrowing
- Coordinate Transit Stop Placement
- Crosswalk Consolidation/ Addition
- Restriping

Long-term

- Road Diets (Requires Traffic Analysis)
- Curb Radius Reduction
- Flashing Beacons (RRFBS & HAWKS)
- Curb Extensions
- ADA Pedestrian Compliancy
- Sidewalk Repair/ Replacement

15 Pine Street

Where

LIMITS	Broad St. to Dyer St.
ROADWAY TYPE	1 lane (one-way westbound)
TRAFFIC CONTROL	3 signalized intersections
LAND USE	Mixed use (Commercial/ Industrial)
WIDTH	25 feet
PARKING	On-street parallel parking, one side
BIKE AMENITIES	None
PEDESTRIAN AMENITIES	• Striped and stamped crosswalks • Signalized crossings with pedestrian countdown heads and push buttons • Sidewalks on both sides • Wheelchair ramps

What

Pedestrians crossing illegally at intersections

When

Late night

Why

- Connectivity between Institutional campuses and various schools within the vicinity
- Parking garages and lots
- Late night bars and night clubs which close at 2 a.m.

4 Total Fatal or Serious Injury Crashes

4 Pedestrian Fatal or Serious Injury Crashes

44.4% Serious Injury Crashes

5.7 Serious Injury Crash Rate (crashes per mile)

9 Total Pedestrian/Bike Crashes

0 Bicycle Serious Injuries

0.7 Miles

12.9 Total Crash Rate (crashes per mile)

Countermeasure Solutions

Short-term

- Enhanced Signage
- Restriping
- Install Continental Crosswalk Striping
- Lane Narrowing
- Implement No Parking within 25 Feet of Crosswalks

Long-term

- Roadway Safety Lighting
- Curb Extensions
- Curb Radius Reduction
- ADA Pedestrian Compliancy
- Parking Improvements Due to Sight Visibility
- Hardscape Pedestrian Barrier

Steeple Street & Memorial Boulevard

16

Where

LIMITS	Intersection of Memorial/Steeple
ROADWAY TYPE	• 1 lane (one-way eastbound) • 4 lanes divided
TRAFFIC CONTROL	Signalized
LAND USE	Office
WIDTH	60 feet
PARKING	None
BIKE AMENITIES	None
PEDESTRIAN AMENITIES	• Striped and stamped crosswalks • Signalized crossings with pedestrian countdown heads and push buttons • Sidewalks on both sides • Wheelchair ramps

What

Vulnerable road users crossing and traveling illegally at the signalized intersection

When

Lunch time and late night

Why

- Connectivity between East Providence and Downtown

4
Total Fatal or Serious Injury Crashes

2
Pedestrian Fatal or Serious Injury Crashes

80%
Serious Injury Crashes

5.7
Serious Injury Crash Rate (crashes per mile)

5
Total Pedestrian/Bike Crashes

2
Bicycle Serious Injuries

0.8
Miles

12.9
Total Crash Rate (crashes per mile)

Countermeasure Solutions

Short-term

- Enhanced Signage
- Lane Narrowing
- Install Continental Crosswalk Striping
- Sign Clutter
- Restriping

Long-term

- Hardscape Pedestrian Barrier
- Curb Extensions
- Road Diets (Requires Traffic Analysis)
- Radar Speed Display Sign/ Portable Speed Trailer
- ADA Pedestrian Compliancy

Douglas Avenue

17

Where

LIMITS	Hazael St. to Orms St.
ROADWAY TYPE	2 lanes undivided
TRAFFIC CONTROL	4 signalized intersections
LAND USE	Residential
WIDTH	50 feet
PARKING	On-street parallel parking, both sides
BIKE AMENITIES	None
PEDESTRIAN AMENITIES	• Striped and stamped crosswalks • Signalized crossings with pedestrian heads and push buttons • Sidewalks on both sides • Wheelchair ramps

What

Pedestrians crossing illegally at intersections

When

Morning commute and late night

Why

- Connectivity between North Providence and Downtown
- Institutional campuses and various schools within the vicinity

4 Total Fatal or Serious Injury Crashes

4 Pedestrian Fatal or Serious Injury Crashes

18.2% Serious Injury Crashes

2.1 Serious Injury Crash Rate (crashes per mile)

22 Total Pedestrian/Bike Crashes

0 Bicycle Serious Injuries

1.9 Miles

11.6 Total Crash Rate (crashes per mile)

Countermeasure Solutions

Short-term

- Enhanced Signage
- Install Continental Crosswalk Striping
- Sign Clutter
- Coordinate Transit Stop Placement
- Lane Narrowing
- Implement No Parking within 25 Feet of Crosswalks
- Restriping
- Bicycle Lanes (Requires Traffic Analysis)

Long-term

- Sidewalk Repair/ Replacement
- Curb Radius Reduction
- Roadway Safety Lighting
- Curb Extensions
- ADA Pedestrian Compliancy

18 Hartford Avenue

Where

LIMITS	Plainfield St. to Killingly St.
ROADWAY TYPE	2 lanes undivided
TRAFFIC CONTROL	6 signalized intersections
LAND USE	Mixed use (Commercial/ Residential)
WIDTH	37 feet
PARKING	On-street parallel parking, both sides
BIKE AMENITIES	None
PEDESTRIAN AMENITIES	• Striped and stamped crosswalks • Signalized crossings with pedestrian heads and push buttons • Sidewalks on both sides • Wheelchair ramps

What

Vulnerable road user crashes due to vehicles making left and right turns

When

Late Afternoon

Why

- Connectivity to Downtown and Olneyville Square from Town of Johnston
- RIPTA bus routes along corridor

4 Total Fatal or Serious Injury Crashes

2 Pedestrian Fatal or Serious Injury Crashes

16% Serious Injury Crashes

3.1 Serious Injury Crash Rate (crashes per mile)

25 Total Pedestrian/Bike Crashes

2 Bicycle Serious Injuries

1.3 Miles

19.2 Total Crash Rate (crashes per mile)

Countermeasure Solutions

Short-term

- Install Continental Crosswalk Striping
- Enhanced Signage
- Coordinate Transit Stop Placement
- Restriping
- Implement No Parking within 25 Feet of Crosswalks

Long-term

- Flashing Beacons (RRFBS & HAWKS)
- Road Diets (Requires Traffic Analysis)
- Curb Extensions
- Sidewalk Repair/ Replacement
- Curb Radius Reduction
- ADA Pedestrian Compliancy
- Parking Improvements Due to Sight Visibility

19 Admiral Street

Where

LIMITS	Charles St. to Gentian St.
ROADWAY TYPE	2 lanes undivided
TRAFFIC CONTROL	5 signalized intersections
LAND USE	Mixed use (Residential/Retail/ Institutional)
WIDTH	36 feet
PARKING	On-street parallel parking, both sides (not striped)
BIKE AMENITIES	None
PEDESTRIAN AMENITIES	• Striped and stamped crosswalks • Signalized crossings with pedestrian countdown heads and push buttons • Sidewalks on both sides • Wheelchair ramps

What

Lack of visibility for pedestrians

When

Evening commute and late night

Why

- Connectivity to institutional campuses
- RIPTA bus routes along corridor

3 Total Fatal or Serious Injury Crashes

3 Pedestrian Fatal or Serious Injury Crashes

33.3% Serious Injury Crashes

1.6 Serious Injury Crash Rate (crashes per mile)

9 Total Pedestrian/Bike Crashes

0 Bicycle Serious Injuries

1.9 Miles

4.7 Total Crash Rate (crashes per mile)

Countermeasure Solutions

Short-term

- Install Continental Crosswalk Striping
- Coordinate Transit Stop Placement
- Sign Clutter
- Enhanced Signage
- Implement No Parking within 25 Feet of Crosswalks

Long-term

- Roadway Safety Lighting
- Sidewalk Repair/ Replacement
- ADA Pedestrian Compliancy
- Flashing Beacons (RRFBS & HAWKS)
- Curb Extensions
- Curb Radius Reduction
- Parking Improvements Due to Sight Visibility

Dorrance Street

20

Where

LIMITS	Washington St. to Clifford St.
ROADWAY TYPE	2 lanes undivided
TRAFFIC CONTROL	7 signalized intersections
LAND USE	Commercial
WIDTH	40 feet
PARKING	On-street parallel parking, both sides
BIKE AMENITIES	None
PEDESTRIAN AMENITIES	• Striped and stamped crosswalks • Signalized crossings with pedestrian countdown heads and push buttons • Sidewalks on both sides • Wheelchair ramps

What

Vulnerable road users crossing and traveling illegally at signalized intersections

When

Early afternoon and evening commute

Why

- Connectivity to Providence City Hall, Kennedy Plaza, and Burnside Park
- Institutional campuses within the vicinity

3	3	17.6%	7.5
Total Fatal or Serious Injury Crashes	Pedestrian Fatal or Serious Injury Crashes	Serious Injury Crashes	Serious Injury Crash Rate (crashes per mile)
17	0	0.4	42.5
Total Pedestrian/Bike Crashes	Bicycle Serious Injuries	Miles	Total Crash Rate (crashes per mile)

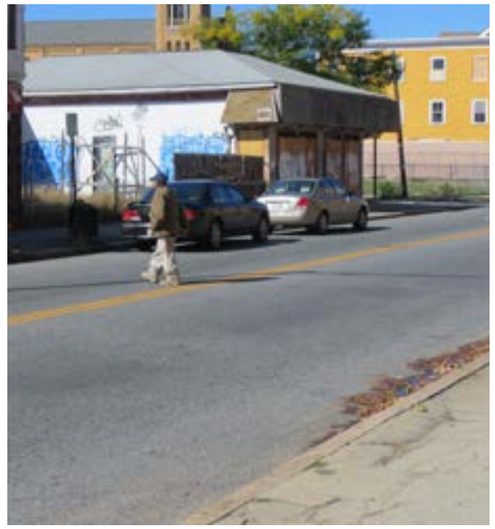
Countermeasure Solutions

Short-term

- Traffic Signal Backplates
- Install Continental Crosswalk Striping
- Restriping
- Coordinate Transit Stop Placement
- Sign Clutter
- Enhanced Signage
- Implement No Parking within 25 Feet of Crosswalks

Long-term

- Roadway Safety Lighting
- Sidewalk Repair/ Replacement
- ADA Pedestrian Compliancy
- Curb Extensions
- Curb Radius Reduction
- Parking Improvements Due to Sight Visibility



PVD GREAT STREETS

Appendix B: High-Injury Network Update 2021

Collisions occur every day in Providence, and unfortunately, each year still adds new serious injuries and fatalities to the data used to track our progress toward Vision Zero. In 2021, the City updated some of the underlying analysis to the Vulnerable Road User Safety Action Plan, including mapping the City's high-injury network.

MAYOR JORGE O. ELORZA
CITY OF PROVIDENCE

https://www.providenceri.gov/planning/great-streets/

Intersections with the most crashes involving people walking & biking since 2009

Data through May 2021

Highlighted intersections are state-controlled

fid	Name	Annual crashes 09-21					
		Total	Bike	Ped	Bike	Ped	Both
6456	Memorial Blvd / Francis St / Rt 6 W	2.33	0.42	1.91	Top 20	Top 20	2
5021	Empire St / Washington St	2.08	0.5	1.58	Top 20	Top 20	2
4731	Broad St / Portland St	1.66	0.33	1.33	Top 20	Top 20	2
6512	Chalkstone Ave / Smith St / Bath St / Camden St	1.66	0.58	1.08	Top 20	Top 20	2
2930	Memorial Blvd / Westminster St / College St	1.58	0.5	1.08	Top 20	Top 20	2
4994	Broad St / John J Partington Way / W Franklin St	1.41	0.33	1.08	Top 20	Top 20	2
775	N Main St between Olney & Doyle	1.41	0.42	1	Top 20	Top 20	2
6578	N Main St / Randall St / Doyle Ave	1.16	0.33	0.83	Top 20	Top 20	2
6412	Broad St / Fricker St / Lockwood St	1.41	0.08	1.33		Top 20	1
6438	Atwells Ave / Dean St	1.25	-	1.25		Top 20	1
6358	Broad St / Thurbers Ave / Lenox Ave	1.16	0.17	1		Top 20	1
4257	Cranston St / Dexter St	1.16	0.25	0.92		Top 20	1
5227	Dorrance St / Washington St	1.16	0.33	0.83		Top 20	1
5486	College St / N Main St / S Main St	1.16	0.42	0.75	Top 20		1
3591	Academy Ave / Chalkstone Ave	1.08	0.08	1		Top 20	1
5085	Adelaide Ave / Broad St	1.08	0.08	1		Top 20	1
5088	Finance Way / Francis St	1.08	0.08	1		Top 20	1
6419	Cranston St / Messer St / Hanover St	1.08	0.25	0.83		Top 20	1
6458	Exchange Ter / Memorial Blvd / Steeple St	1.08	0.25	0.83		Top 20	1
6475	Manton Ave / Westminster St / San Souci Dr / Libra	1.08	0.5	0.58	Top 20		1
4933	Broad St / Cahir St / Stewart St	1.08	0.58	0.5	Top 20		1
6360	Broad St / Public St	1	0.5	0.5	Top 20		1
4688	Candace St / Orms St / Smith St	0.92	0.42	0.5	Top 20		1
6497	Chalkstone Ave / Geneva St	0.83	-	0.83		Top 20	1
5251	Dorrance St / Fulton St	0.83	-	0.83		Top 20	1
6485	Atwells Ave / Manton Ave / Salmon St / Parnell St	0.83	0.42	0.42	Top 20		1
4651	Broadway / Dean St	0.83	0.42	0.42	Top 20		1
3992	Eagle St / Harris Ave	0.83	0.42	0.42	Top 20		1
6474	Broadway / Westminster St / Valley St / Troy St	0.83	0.67	0.17	Top 20		1
3749	Delaine St / Valley St	0.58	0.42	0.17	Top 20		1
3544	Manton Ave / Chaffee St	0.5	0.42	0.08	Top 20		1
5290	Charles St / Orms St	0.42	0.42	-	Top 20		1

Corridors with the most crashes involving people walking & biking since 2009

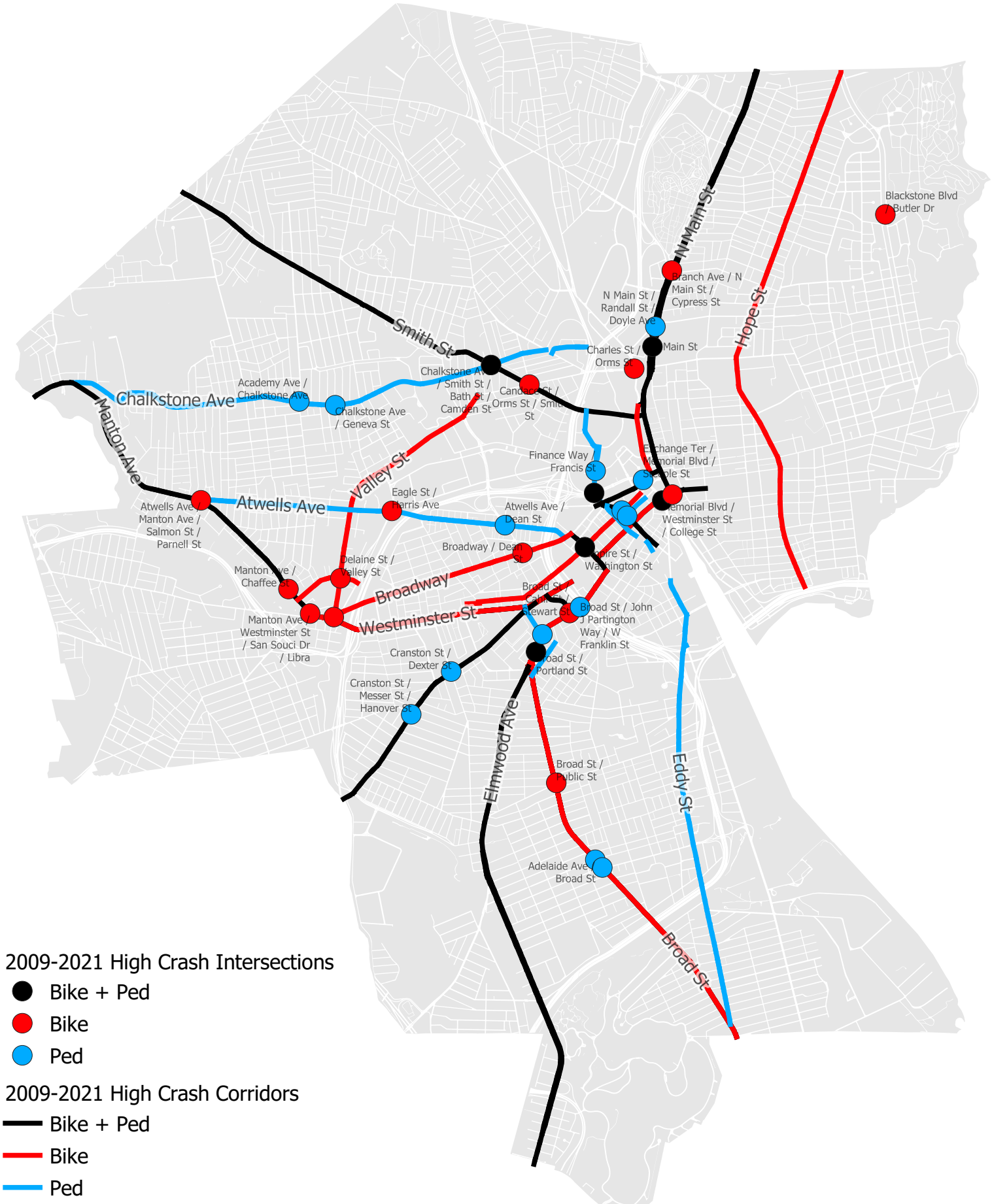
Data through May 2021

Highlighted corridors are largely state-controlled

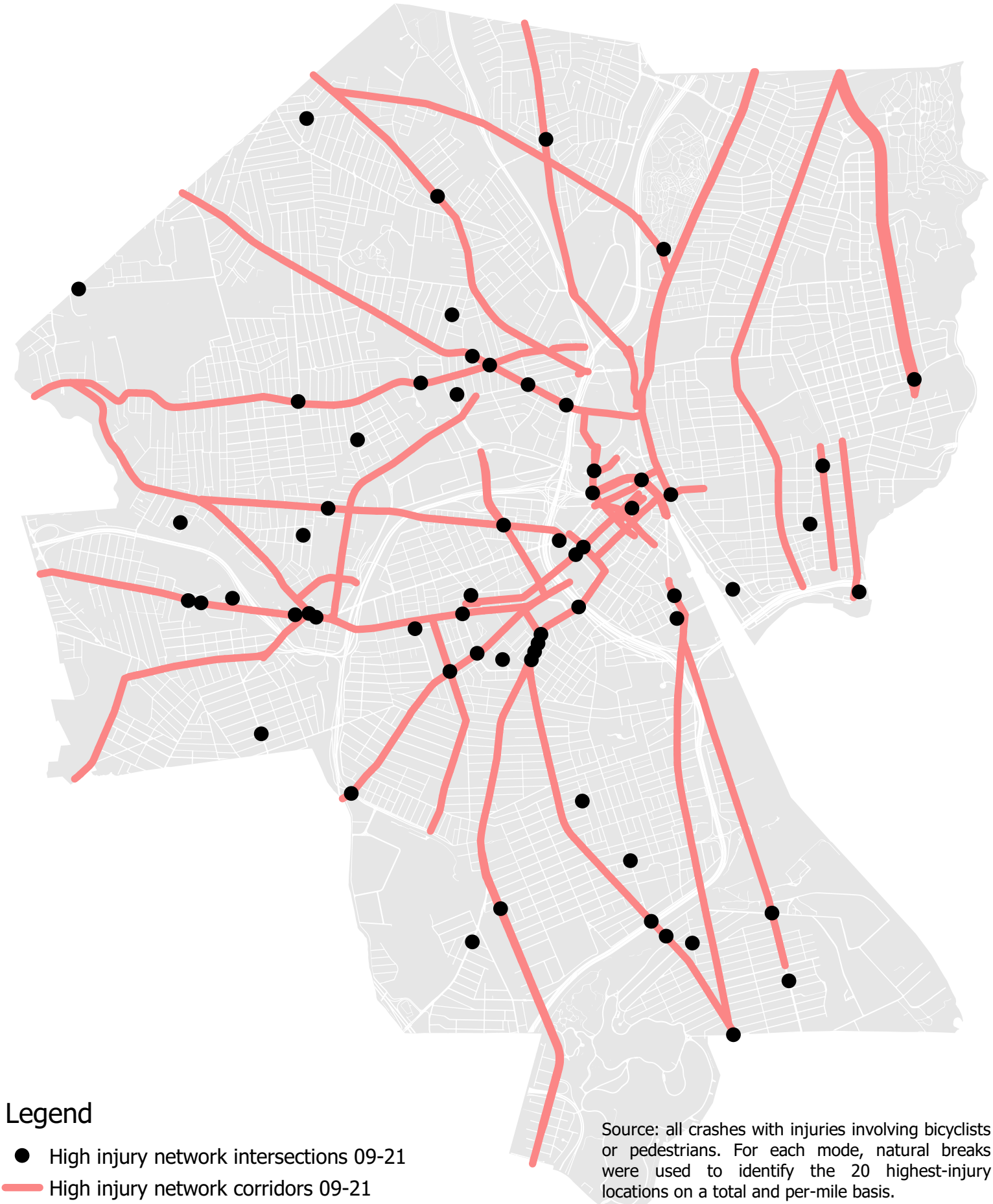
Street	Annual crashes			Length (mi)	Annual crashes per mile			Top 20		Metrics in 10 worst	Rank	
	Total	Bike	Ped		Total	Bike	Ped	Bike	Ped		Bike	Ped
Broad St	26.21	6.32	19.88	3.02	8.68	2.10	6.59	total & per mile	total	3	11	11
Westminster St	13.98	5.24	8.74	1.87	7.46	2.80	4.66	total & per mile	total	3	8	14
Steeple St	1.75	0.42	1.33	0.1	16.8	4.00	12.80	per mile	per mile	2	3	1
College St	3.66	1.16	2.5	0.23	16.02	5.10	10.92	per mile	per mile	2	2	5
Empire St	4.16	1	3.16	0.26	15.8	3.79	12.01	per mile	per mile	2	4	2
Dorrance St	5.16	1	4.16	0.36	14.45	2.80	11.66	per mile	per mile	2	8	4
Exchange Ter	3.83	0.58	3.24	0.27	14.09	2.14	11.95	per mile	per mile	2	10	3
Cahir St	1.91	0.83	1.08	0.16	11.92	5.18	6.74	per mile	per mile	2	1	10
Cranston St	8.49	2.41	6.07	1.41	6.04	1.72	4.32	total	total	2	14	15
Manton Ave	10.07	2.75	7.32	2.05	4.91	1.34	3.57	total	total	2	16	19
Smith St	9.48	2.41	7.07	2.64	3.59	0.91	2.68	total	total	2	22	20
Elmwood Ave	11.56	3.24	8.32	4.23	2.73	0.77	1.97	total	total	2	25	23
N Main St	9.82	3.66	6.16	4.05	2.42	0.90	1.52	total	total	2	23	26
Fricker St	2	0.17	1.83	0.17	11.65	0.97	10.68		per mile	1	20	6
Francis St	6.32	1	5.32	0.56	11.22	1.77	9.45		per mile	1	13	8
Fulton St	1.83	0.17	1.66	0.17	10.62	0.97	9.66		per mile	1	20	7
Hayward St	1.66	0.25	1.41	0.2	8.24	1.24	7.00		per mile	1	17	9
Washington St	8.82	3.16	5.66	1.09	8.12	2.91	5.21	total & per mile		1	6	12
Broadway	9.15	4.16	4.99	1.37	6.67	3.03	3.64	total & per mile		1	5	17
Atwells Ave	11.31	2.08	9.23	1.87	6.04	1.11	4.93		total	1	18	13
Canal St	2.08	0.75	1.33	0.36	5.83	2.10	3.73	per mile		1	11	16
Delaine St	1.58	1	0.58	0.34	4.59	2.90	1.69	per mile		1	7	24
Chalkstone Ave	12.15	2.25	9.9	2.72	4.46	0.83	3.64		total	1	24	17
Valley St	5.99	2.41	3.58	1.44	4.17	1.68	2.49	total		1	15	21
Eddy St	7.99	1.75	6.24	2.61	3.06	0.67	2.39		total	1	26	22
Hope St	7.24	2.83	4.41	2.78	2.6	1.02	1.59	total		1	19	25

*Broad St is state-owned north of Bridgham, and that portion has a particularly high crash rate

Providence High Crash Network



High-injury network



Legend

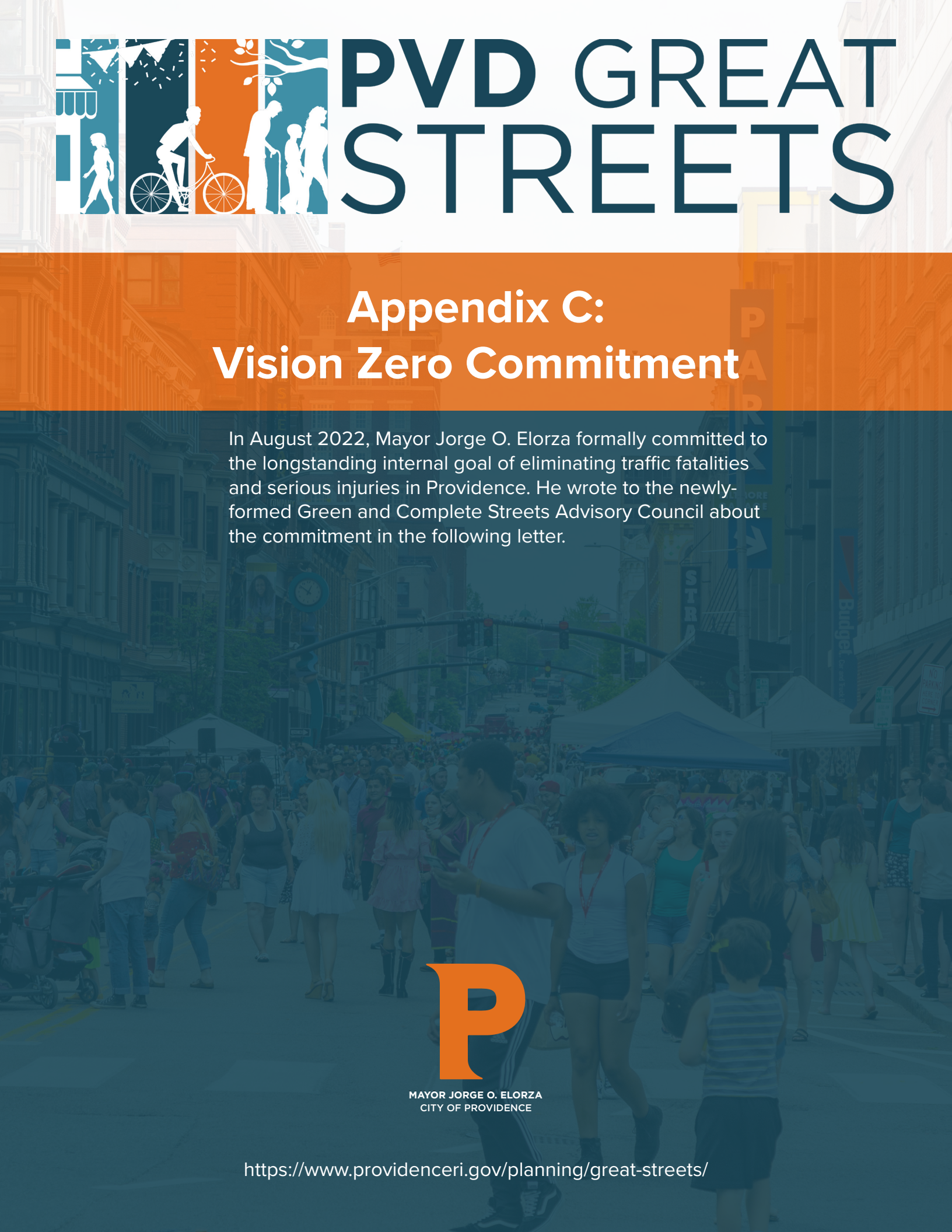
- High injury network intersections 09-21
- High injury network corridors 09-21

Source: all crashes with injuries involving bicyclists or pedestrians. For each mode, natural breaks were used to identify the 20 highest-injury locations on a total and per-mile basis.

PVD GREAT STREETS

Appendix C: Vision Zero Commitment

In August 2022, Mayor Jorge O. Elorza formally committed to the longstanding internal goal of eliminating traffic fatalities and serious injuries in Providence. He wrote to the newly-formed Green and Complete Streets Advisory Council about the commitment in the following letter.



MAYOR JORGE O. ELORZA
CITY OF PROVIDENCE

https://www.providenceri.gov/planning/great-streets/

Mayor of Providence

Jorge O. Elorza

August 15, 2022

Dear Green and Complete Streets Advisory Council members,

As Mayor of the City of Providence, I wanted to take a moment to write and express my deep appreciation for your willingness to serve within this very important group. Your work helps the development of a safe, reliable, equitable, efficient, inviting, integrated, and connected multimodal transportation system. That system will promote access, mobility and health for all users and abutters, while also improving environmental quality and reducing polluted stormwater runoff.

Safety is the most basic right a City can provide, and to that end, I also wanted to make a commitment to you: Providence will have zero street fatalities by 2032. I believe it is our duty to reduce and ultimately eliminate transportation fatalities and serious injuries, while simultaneously ensuring every street in Providence be safe, clean, healthy, inclusive, and vibrant, as laid out in our Great Streets Plan.

A Vision Zero commitment such as this one acknowledges that traffic deaths and severe injuries are preventable, human life and health are prioritized within all aspects of transportation systems, and system-level change is paramount to reaching our goals. During my administration, the City of Providence has made big strides in changing the way we think about and design streets, through our implementation of the Great Streets Plan and ensuring street safety is the default rather than the exception through this Advisory Council.

The recommendations of the Great Streets Plan will help us reach this ultimate goal, and by 2027 those recommendations will be updated and further ambitious steps to make our streets safer will be incorporated in the plan. By continuing this work, and through the engagement of relevant departments such as public safety, public works, and others, I believe that together we can reach this goal by 2032..

Thank you for your commitment to our City. You will play a very important role in ensuring our streets are a celebrated asset for all road users. We are strongest when we work together, and I look forward to working with you in this new capacity.

Sincerely,

Jorge O. Elorza
Mayor

City Hall, 25 Dorrance Street, Providence, RI 02903
Phone (401) 421-7740 Fax (401) 274-8240

PVD GREAT STREETS

Appendix D: Prioritization Methodology

Following completion of the Great Streets Plan in 2020, the City began evaluating each proposed segment of the Urban Trail Network through a quantitative formula to assess its benefits for Equity, Connectivity, Safety, and Demand. While additional implementation factors influence the exact order in which segments of the network are completed, this prioritization presents the City with a guiding framework to determine which projects to work on next. What follows is a description of that process along with an example of what that prioritization formula shows in 2022.

MAYOR JORGE O. ELORZA
CITY OF PROVIDENCE

https://www.providenceri.gov/planning/great-streets/

Department of Planning and Development
Jorge O. Elorza, Mayor | Bonnie Nickerson AICP, Director

Great Streets Plan Implementation Prioritization Methodology

The City of Providence prioritizes streets for Great Streets improvements based on equity, safety, connectivity, and demand. For each segment, these factors are assessed quantitatively, and a score out of 100 is calculated for each of the four factors.

Equity

- Households in poverty within ¼ mile of corridor (1-5 points)
- Households with no motor vehicle within ¼ mile of corridor (1-5 points)

Safety

- Ped/bike crashes on corridor (1-5 points)
- High crash intersections on corridor (Y/N, 2 or 0 points)
- Is the corridor among the top 25 listed in the Vulnerable Road User Safety Action Plan? (Y/N, 2 or 0 points)

Connectivity

- Connections to network segments that are under construction or complete (2 points for each connection)
- Connections to network segments that are funded (1 point for each)

Demand

- Population density within ¼ mile of corridor (1-5 points)
- Number of jobs within ¼ mile of corridor (1-5 points)
- Civic destinations within ¼ mile of corridor (1-5 points)
- Businesses within ¼ mile of corridor (1-5 points)

Learning from implementation conversations with residents about this methodology in the context of previous urban trail segments, the City now weights the Connectivity factor 4x higher than the other factors. This turns out not to make too big a difference in the final ranking of projects, but it reflects the priorities articulated by residents across the city: new urban trails make more sense to people when they can see what those trails connect to.

The following page shows a snapshot of what the prioritization matrix looks like in 2022.

Segment	Safety	Equity	Demand	Connectivity	Weighted total
Steeple St from Memorial Blvd to Canal St	70	80	100	100	650
Manton Ave from Delaine St to San Souci Drive	70	60	44	100	574
Riverwalk from Steeple St to Crawford St Bridge	80	80	100	67	528
Steeple St from Exchange St to Memorial Blvd	70	80	100	67	518
Elmwood Ave from Bridgham St to Reservoir Ave	60	60	94	67	482
Broadway from Barton St to Valley St	70	60	63	67	461
Broad St from Hawthorne Ave to Montgomery Ave	70	40	63	67	441
N Main St from Smith St to Olney St	50	60	50	67	428
Smith St from Wyndham Ave to Oakland Ave	40	60	56	67	424
Cranston St from Fricker St to Parade St	80	60	75	50	415
Railroad St/Park Row from Exchange St to Canal St	30	60	56	67	414
Broad St from Fricker St to Bridgham St	100	40	69	50	409
Under-mall switchback from Park St to Francis St	50	80	75	50	405
De Soto St/Helme St from Gotham Greens Path to Harris Ave	0	80	44	67	392
Eagle Square Connector from Eagle Sq Path to Atwells Ave	30	60	31	67	389
Smith St from Park St to Oakland Ave	100	60	94	33	386
Riverwalk from Van Leesten Pedestrian Bridge to Point St	0	60	56	67	384
N Main St from Olney St to Branch Ave	70	60	31	50	361
Broadway from Greene St to Barton St	80	60	88	33	360
Dean St from West Exchange St to Promenade	50	60	44	50	354
Eagle St from Kinsley Ave to Atwells Ave	40	60	50	50	350
Hope St from Olney St to Rochambeau Ave	40	40	69	50	349
Hope St from Waterman St to George M Cohan Blvd	40	80	94	33	346
Mt Pleasant Ave from College Rd to Roanoke St	10	40	25	67	343
Smith St from Canal St to Park St	50	80	81	33	343
Washington Place from Canal St to N Main St	50	60	100	33	342
Fountain St from Union St to Exchange Terrace	40	80	88	33	340
Fountain St from Empire St to Union St	40	80	81	33	333
FC Greene Memorial Blvd from Hawthorne Ave to Montgomery Ave	0	40	19	67	327
Fountain St from Empire St to Greene St	40	80	75	33	327
Atwells Ave from Eagle St to Knight St	60	80	50	33	322
Providence Station Path from Francis St to Exchange St	40	60	88	33	320
Charles St from Smith St to Randall St	60	60	56	33	308
Park Row from Canal St to N Main St	40	60	75	33	307
Angell St from Prospect St to Hope St	20	60	94	33	306
N Main St from Smith St to Olney St	50	60	50	67	428
Smith St from Wyndham Ave to Oakland Ave	40	60	56	67	424
Cranston St from Fricker St to Parade St	80	60	75	50	415
Railroad St/Park Row from Exchange St to Canal St	30	60	56	67	414

PVD GREAT STREETS

Appendix E: Implementation Guide

At the same time as the development of the Great Streets Plan, the City worked with Toole Design Group to develop a guide that would be used for the implementation of the plan, specifying how roadway elements should be standardized, and how those standards should be applied on different typologies of streets (e.g. residential vs. downtown vs. neighborhood commercial corridor).

MAYOR JORGE O. ELORZA
CITY OF PROVIDENCE

https://www.providenceri.gov/planning/great-streets/

PROVIDENCE GREAT STREETS IMPLEMENTATION GUIDE

ACKNOWLEDGEMENTS

JORGE O. ELORZA, MAYOR

Thank you to many City of Providence staff members who contributed their time, input, and expertise to the creation of the Providence Great Streets Implementation Guide:

- Nicole Pollock, Chief of Staff
- Sabrina Solares-Hand, Director of Operations
- Bonnie Nickerson, AICP, Director of Planning and Development
- Martina Haggerty, Director of Special Projects
- Alex Ellis, Principal Planner
- Antonio Morabito, Director of Public Works
- Nate Urso, Traffic Engineer
- Craig Hochman, Deputy Chief Engineer
- Leo Perrotta, Parking Administrator
- Doug Still, City Forester
- Ellen Cynar, Director of Healthy Communities
- Leah Bamberger, Director of Sustainability
- Gina Rodriguez-Drix, Cultural Affairs Manager

Prepared by: Toole Design Group

CONTENTS

PROVIDENCE GREAT STREETS IMPLEMENTATION GUIDE

01 INTRODUCTION

As our largest public asset, covering over 13% of Providence's total land area (over 1,500 acres), our streets play a central role in shaping our neighborhoods. Our streets impact the way we live, work, play, and move around our city. They embody our character and culture. They connect us to each other, to our schools and jobs, and to our social lives. Our streets are also vital to creating inclusive and thriving neighborhoods where all residents and visitors of Providence are welcome and supported.

The Providence Great Streets Initiative is based on one guiding principle: Every street in Providence should be safe, clean, healthy, inclusive, and vibrant. Put simply, every street in Providence should be great. This Implementation Guide (the "Guide") is a tool for creating, enhancing, and maintaining great streets throughout all of Providence.

As one of the oldest cities in the country, Providence's streets reflect the compact, irregular building patterns that characterize the City's organic growth. This history and urban form are part of what gives our neighborhoods their unique character and sense of place. People, however, are the key ingredient to great streets. With those who live in, work in, and visit Providence in mind, the Providence Great Streets Initiative sets out to achieve four goals:

Our streets will be safe. We will design streets that are safe for people of all ages, physical abilities, and modes of transportation.

Our streets will be clean, green, healthy, and sustainable. We will build a resilient city that champions proper maintenance, environmental stewardship, water management, energy conservation, and green infrastructure.

Our streets will be inclusive and welcoming. We will integrate social, racial, and income equity into the design and function of our streets as envisioned by community members. By design, our streets will prioritize people, celebrate the diversity and culture of our neighborhoods, and ensure access for people with disabilities.

Our streets will be vibrant. We will incorporate thriving public places and amenities into our streets that strengthen land use, foster healthy economic growth, support small businesses, and activate our streets. Our streets will be dynamic, enjoyable places for all people in all neighborhoods.

The Guide was developed by incorporating City standards, research, industry best practices, and community input. Building an urban environment that is safe, clean, healthy, inclusive, and vibrant requires careful consideration of the needs of a wide range of users and contexts. It requires thinking critically about what exists today, and what we want to exist in the future. The goal of this Guide is to help practitioners and residents plan and design great streets that reach every neighborhood, support all types of mobility, and reinforce a wide range of land uses.

ACHIEVING THE PROVIDENCE GREAT STREETS VISION

Our City's planners, engineers, architects, developers, businesses, property owners, and residents all have a role to play in realizing this vision. Whether a street is scheduled for routine maintenance or is part of a major reconstruction project, Great Streets design principles must be woven into the process. This Guide is the starting point for leveraging each and every one of those opportunities.

In addition to investments in streets throughout the City, a signature feature of the Providence Great Streets Initiative is a commitment to building a connected network of Urban Trails. The **Urban Trail Network** will connect every Providence neighborhood with high-quality paths for people walking, riding bicycles, and using other micromobility modes like scooters and skateboards. There are several defining design features of the Urban Trail Network, which are also explored in detail in this Guide.

URBAN TRAIL NETWORK DESIGN PRINCIPLES

- Urban Trails connect people to every neighborhood and key destinations.
- Urban Trails prioritize high-comfort paths for people using micromobility modes.
- Urban Trails provide continuous, legible routes and minimize detours.
- Urban Trails are easily recognizable with a strong visual identity.

THIS CITYWIDE ENDEAVOR WILL PREPARE US FOR A FUTURE THAT IS SAFER, GREENER, HEALTHIER, INCLUSIVE, AND MORE VIBRANT. THE INITIATIVE SUPPORTS CITY GOALS:

- **Eliminating serious injuries and deaths of vulnerable road users.**
- **Reducing household transportation costs to make Providence more affordable.**
- **Helping all Providence residents to live healthy lives.**
- **Improving access to diverse cultural and civic assets.**
- **Helping Providence become carbon neutral by 2050.**
- **Increasing the reach of people served by our investments.**

PURPOSE OF THE GUIDE

The purpose of the Guide is to describe and illustrate design guidelines for future investments in our streets. As part of the Great Streets Initiative, a master plan was developed. The Great Streets Master Plan establishes a citywide vision for great streets and Urban Trails, initial concepts, and priorities for implementation. This Guide is a practitioner's tool that will help bring the master plan to life, in addition to providing design guidance and standards for future projects yet to be identified.

The Implementation Guide provides specific information, guidelines, and direction related to design and construction of the City's streets, in addition to specific guidance for Providence's signature Urban Trail Network. Locations for additional references are also provided, where appropriate.

This Guide should be implemented with engineering judgement. The Guide integrates design flexibility to achieve outcomes that improve the public realm to support all modes of transportation while meeting requirements mandated by local, state, and federal authorities. The Guide presents minimum, maximum, and recommended design criteria that vary by context. This Guide does not include construction-ready design standards and details.

This Guide provides design standards and references to best practices to ensure consistency and quality as the network develops over time. The information provided is compatible with the inherent flexibility provided in Federal Highway Administration (FHWA), American Association of State Highway Transportation Officials (AASHTO), Manual on Uniform Traffic Control Devices (MUTCD), Rhode Island Department of Transportation (RIDOT), and Rhode Island Public Transit Authority (RIPTA) design guidance.

USING THE GUIDE

The Implementation Guide is comprised of three integrated chapters, described in the sections below.

CHAPTER 2: CONTEXT TYPES

This chapter provides a concise manual for designing great streets and Urban Trails in seven typical contexts throughout Providence. Taken together, the chapter provides a comprehensive review of designing safe, green, healthy, inclusive, and vibrant streets throughout all of Providence. For each context type, this chapter provides a practitioner's companion for carrying out the principles of the Great Streets Initiative on specific projects based on surrounding land uses, transportation patterns, and other characteristics.

For each of the seven context types, Chapter 2 provides illustrated decision-making guidancefor the public right-of-way, and direction on use of general design features as well as design features for streets designated as part of the Urban Trail Network.

Chapter 2 provides guidance for the following seven typical context types in Providence:

Neighborhood Street: Low-speed, low-volume residential streets that make up the majority of Providence's streets.

Neighborhood Connector Street: Residential streets with intermittent commercial uses that connect Providence's dense residential areas to commercial areas.

Neighborhood Main Street: Streets that are the civic, commercial, and cultural activity centers of a neighborhood.

Major Downtown Street: Larger, high-activity streets in the Downtown core of Providence.

Minor Downtown Street: Small, often one-way streets in the Downtown core of Providence.

Industrial Street: Streets that primarily serve industrial land uses.

Off-Street Connection: Spaces along or within parks or other passive areas that serve both as travelways and recreational spaces.

CHAPTER 3: DETAIL DICTIONARY

The Detail Dictionary is a companion section to the context types found in Chapter 2. The Detail Dictionary provides details and specifications on design elements that are found throughout Providence, regardless of context. Each element in the Design Dictionary corresponds to a color-coded and categorized identification icon that is referenced throughout the Chapter 2. As practitioners use the context type guidance found in Chapter 2, reference should be made to the details called out and provided in the Detail Dictionary to ensure consistent use of methods and materials across Providence. The elements of the Detail Dictionary are coded and organized into the following categories:

SA: Safety and Accessibility

GI: Green Infrastructure

CA: Curbside Amenities

S: Signage

CHAPTER 4: MAINTENANCE

Chapter 4 provides general guidance on maintenance for various elements discussed throughout the Guide. Maintenance considerations are an important part of the final design of each project. Chapter 4 explores methods and maintenance standards for seasonal maintenance, as well as construction access and temporary paths of travel.

GREAT STREETS BEGIN WITH INCLUSIVE PUBLIC ENGAGEMENT

The guidance within this document cannot be applied without understanding the needs of individuals and their communities. People with daily, first-hand experience interacting with the streets in their communities should be consulted for their expert understanding of what primary challenges they face on their streets and what design solutions will most effectively meet their needs.

The Great Streets PVD Initiative began with community workshops across the City, and this small-scale engagement should continue as discrete projects take shape. As practitioners use this toolkit to create great streets and Urban Trails, community members should be engaged as design partners. All designs should build on their knowledge of their community and respond to their lived experiences.

DEFINITIONS

» Street

Travelways for people walking, running, biking, scootering, skateboarding, rollerblading, driving, or using other micromobility options. The street includes public realm spaces adjacent to roadways such as sidewalks, paths, plazas, green spaces, other gathering spaces.

» Urban Trail

An on or off-street path (or paths) of travel that is safe, comfortable, and easily accessible for people walking, running, biking, scootering, skateboarding, rollerblading, or using other micromobility options.

» Micromobility Modes

Small and adaptable transportation options or technologies that enable efficient transportation. Micromobility options currently include people walking, running, riding bicycles and e-bikes, skateboarding, rollerblading, and riding scooters and e-scooters; however, new micromobility technologies are evolving every day.

THE ROLE OF DESIGN STANDARDS IN PROVIDENCE

The design standards within this Guide are intended to contribute to a unified user experience citywide. Consistent designs, construction practices, and materials contribute to a legible and readily navigable public realm that will appeal to Providence residents and visitors alike. The Guide will also help ensure that new investments comply with current applicable standards and agreed-upon best practices for the City of Providence. Adherence to regulatory standards will ensure that investments qualify for State and Federal funding sources. Finally, standard methods and materials help create efficient and simple maintenance procedures for the many departments and agencies that work within the public realm in Providence.

Several other sources for standards and guidance are referenced throughout the Guide. These standards should be used in decision making where appropriate during the design phase.

NOTE ON THE USE OF THE WORD SHOULD

“Should” statements in this Guide denote the official policy or approach of the City of Providence. Exceptions to “Should” statements will be documented and reviewed on a case-by-case basis.

FEDERAL, STATE, AND LOCAL STANDARDS AND GUIDELINES

- MUTCD: The Federal Highway Administration’s Manual on Uniform Traffic Control Devices (MUTCD)
- AASHTO: American Association of State Highway and Transportation Officials (AASHTO) Guide for the Development of Bicycle Facilities, and AASHTO Guide for the Planning, Design and Operation of Pedestrian Facilities
- NACTO: The National Association of City Transportation Officials’ (NACTO) Urban Bikeway Design Guide
- NACTO Urban Street Design Guide ADA: Americans with Disabilities Act (ADA) The United States Access Board’s proposed Public Rights-of-Way Accessibility Guidelines (PROWAG) and the 2010 ADA Standards for Accessible Design
- RIDOT: The Rhode Island Department of Transportation (RIDOT) Complete Streets Action Plan, Standard Specifications, Linear Stormwater Manual.
- RIPTA: Bus Stop Design Guidelines
- State of RI General Law Chapter 31-19 Operation of Bicycles
- City Standards: City of Providence Zoning Ordinance, Complete Streets Resolution, Traffic Calming Design Guidelines

02 CONTEXT TYPES

This section provides guidance for implementing Great Streets in seven typical contexts found throughout Providence. Though the City of Providence's vision is that all streets will be **safe**, **clean**, **healthy**, **inclusive**, and **vibrant**, the design strategies used to achieve those goals will differ from place to place based on land use, available right-of-way, and community needs.

Seven context types are outlined in this chapter: Neighborhood Streets, Neighborhood Connector Streets, Neighborhood Main Streets, Major Downtown Streets, Minor Downtown Streets, Industrial Streets, and Off-Street Connections. For each context type, this chapter highlights design treatments that will help the City meet each of the core principles of the Providence Great Streets Initiative (safe, clean, healthy, inclusive, and vibrant).

As practitioners use the design strategies provided for each context type, engineering judgement will be critical to design for those unique and challenging scenarios that fall outside of the seven context types identified in this chapter.

Additionally, Providence's signature **Urban Trail Network** will require careful consideration of the surrounding context to ensure the trail has a consistent design, is well connected, and is appealing to people of all ages, abilities, and backgrounds. For each context type, guidance is provided to help implement the Urban Trail network with solutions that address specific challenges or needs.

Practitioners should refer to Chapter 3 (Detail Dictionary) for detail and specification on the appropriate uses, requirements, and additional considerations of the various elements referenced throughout this chapter.

- **Neighborhood Streets**

  Low-speed, low-volume residential streets.

- **Neighborhood Connector Streets**

  Streets that connect Providence's residential and commercial areas.

- **Neighborhood Main Streets**

  Streets that are the civic, commercial, and cultural activity centers of a neighborhood.

- **Major Downtown Streets**

  Larger, high-activity streets in the Downtown core of Providence.

- **Minor Downtown Streets**

  Small, often one-way streets in the Downtown core of Providence.

- **Industrial Streets**

  Streets that primarily serve industrial land uses.

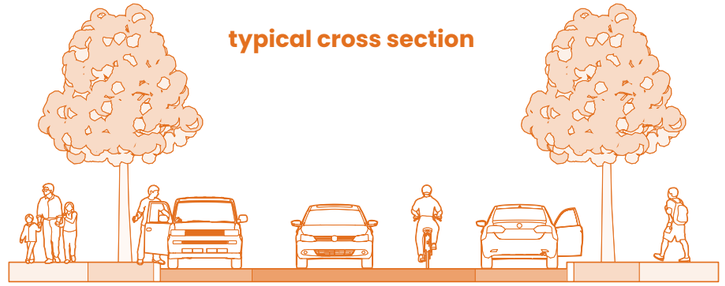
- **Off-Street Connections**

  Off-street spces that serve both as travelways and recreational spaces.

NEIGHBORHOOD STREET

Neighborhood Streets make up the dense residential fabric of Providence's neighborhoods. They are narrow, slow, and typically tree-lined. Neighborhood Streets are places where children play, neighbors relax, and daily activities of life happen. These streets vary in width, but typically range from 17' to 34' wide from curb to curb.

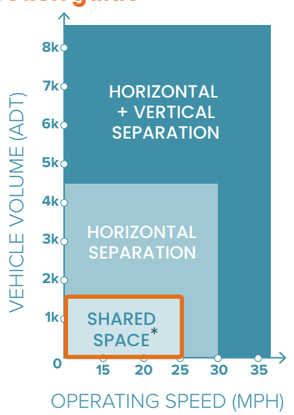
typical cross section



	sidewalk[1]	buffer	parallel parking	1 travel lane	2 travel lanes[2]	parking	buffer	sidewalk[1]
rec	6'	5'	7'	9'	16'	7'	5'	6'
min	4'	0'	7'	9'	16'	7'	0'	4'
max	-	-	8'	10'	18'	8'	-	-

[1] When using minimum widths, a 4' clear path should be preserved that is free of utility poles or other obstructions.
[2] Where two-way access and on-street parking is provided, the combined space for both travel lanes may be as narrow as 12' if parking utilization is low and/or if curbside space is designated for vehicles to yield to oncoming vehicle traffic.

facility selection guide



NEIGHBORHOOD STREET

*vehicle volumes up to 3,000 may be acceptable in limited circumstances

example streets

- Lowell Avenue
- Sinclair Avenue
- Sharon Street
- Indiana Avenue
- Arnold Street

SA9 Daylighting

Parking should be prohibited near crosswalks to provide clear sightlines in and ensure that people walking across the street are seen by drivers.

SA8 Accessible Crossings

Curb ramps should be provided along every leg of intersecting streets.

SA12 Neighborhood Traffic Circles

Neighborhood traffic circles should be considered to reduce the number of conflict points at intersections, reduce travel speeds, and provide opportunities to incorporate sustainability and inclusivity features into the street.

SA6 Crosswalks

Though the volume and speed of vehicles should be low enough on Neighborhood Streets to allow people to walk across the street at any location, marked crosswalks should be provided as an additional safety measure near high-demand crossing locations such as parks, playgrounds, schools, churches, and community gardens and where Neighborhood Streets intersect with Neighborhood Connector Streets or Commercial Streets.

SA5 SA7 Chicanes and Curb Extensions

Chicanes and curb extensions are a preferred traffic calming treatment on Neighborhood Street because they slow vehicles down, add space for stormwater infiltration, and creative placemaking. Curb extensions also increase pedestrian visibility, decrease pedestrian crossing distances, and physically prohibit parking too close to crosswalks and intersections.

SA17 Speed Lumps

Speed lumps may be used to slow vehicles down and discourage cut through traffic on Neighborhood Streets.

No Centerline

Centerline markings should be omitted to help to slow vehicle traffic. The lack of centerline markings communicates that the space is shared and not solely for moving motor vehicle traffic.

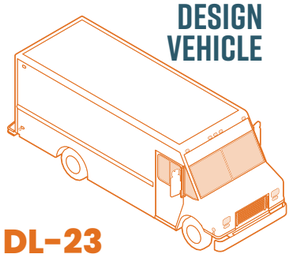
NEIGHBORHOOD STREET

SAFE

Low motor vehicle speeds and volumes contribute to safety on Neighborhood Streets. All design features should reinforce a focus on low speeds, local access, driver awareness, and priority for the people who live and play on these streets. While not intended for through traffic, neighborhood streets are sometimes used as short cuts or “cut-throughs” to avoid congestion on other streets. In these cases, traffic calming interventions should be used on an area-wide basis to avoid pushing speeding issues to nearby streets that have not received traffic calming.

SPEED LIMIT 20

DESIGN SPEED

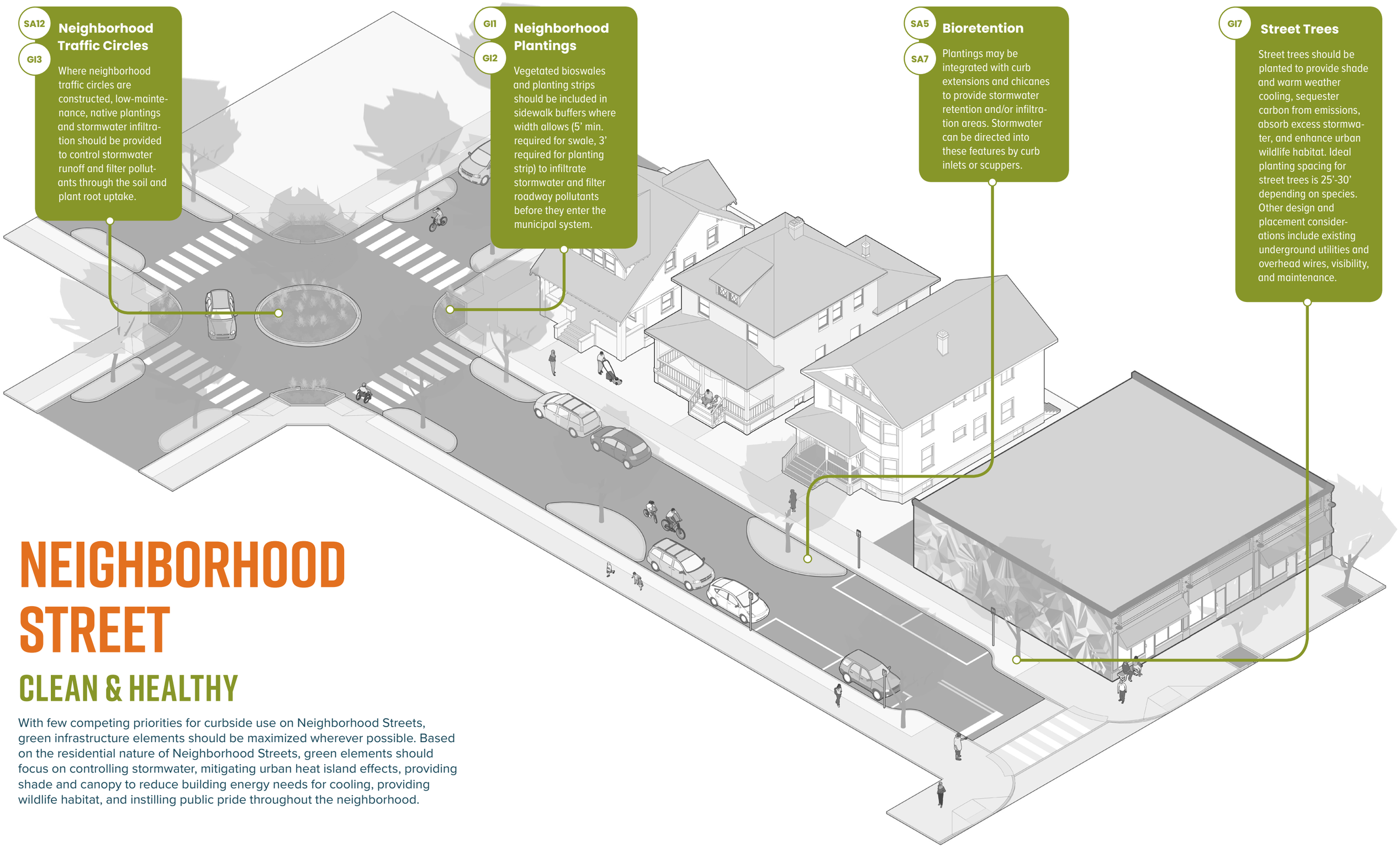


DESIGN VEHICLE

DL-23

Additional Detail Dictionary References

SA1	Access Control/Diverters
SA10	Driveway Crossings
CU10	Sidewalk Lighting



NEIGHBORHOOD STREET

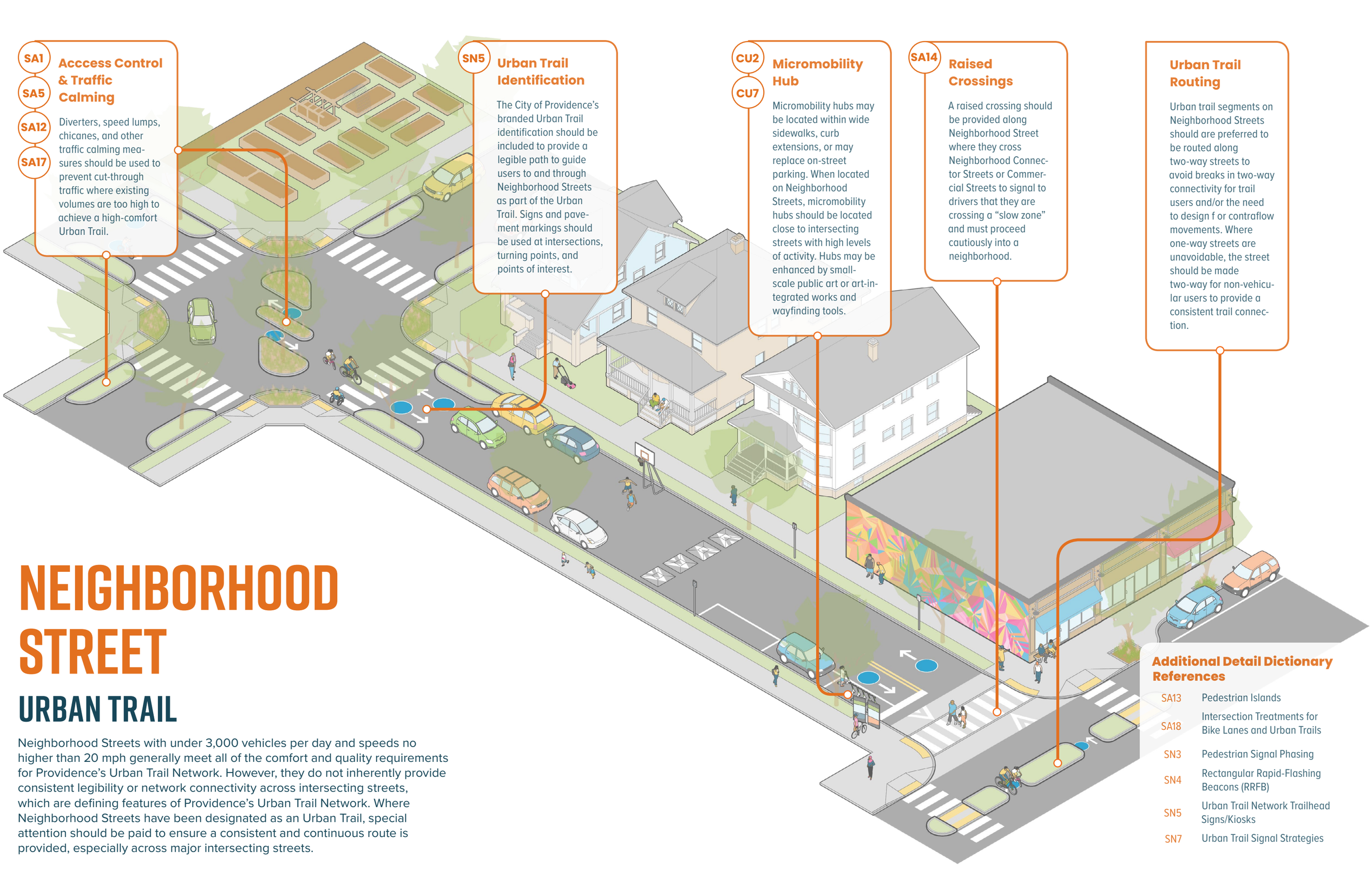
CLEAN & HEALTHY

With few competing priorities for curbside use on Neighborhood Streets, green infrastructure elements should be maximized wherever possible. Based on the residential nature of Neighborhood Streets, green elements should focus on controlling stormwater, mitigating urban heat island effects, providing shade and canopy to reduce building energy needs for cooling, providing wildlife habitat, and instilling public pride throughout the neighborhood.

NEIGHBORHOOD STREET

INCLUSIVE & VIBRANT

Neighborhood Streets encourage people to sit outside on their porches and stoops to converse with neighbors and observe the street. The design should encourage children to play and provide comfortable places to travel with family, friends, and pets on the way to parks, shops, and other local destinations.



NEIGHBORHOOD STREET

URBAN TRAIL

Neighborhood Streets with under 3,000 vehicles per day and speeds no higher than 20 mph generally meet all of the comfort and quality requirements for Providence's Urban Trail Network. However, they do not inherently provide consistent legibility or network connectivity across intersecting streets, which are defining features of Providence's Urban Trail Network. Where Neighborhood Streets have been designated as an Urban Trail, special attention should be paid to ensure a consistent and continuous route is provided, especially across major intersecting streets.

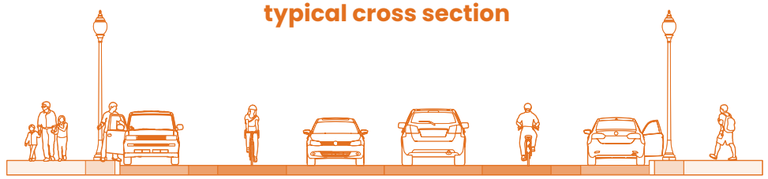
Additional Detail Dictionary References

SA13	Pedestrian Islands
SA18	Intersection Treatments for Bike Lanes and Urban Trails
SN3	Pedestrian Signal Phasing
SN4	Rectangular Rapid-Flashing Beacons (RRFB)
SN5	Urban Trail Network Trailhead Signs/Kiosks
SN7	Urban Trail Signal Strategies

NEIGHBORHOOD CONNECTOR STREET

Neighborhood Connector Streets typically connect residential areas to neighborhood activity centers or commercial hubs. Though largely residential, Neighborhood Connector Streets are occasionally punctuated with intermittent corner stores, laundromats, schools, and other small-scale commercial or civic uses. Neighborhood Connector Streets range in width, but are typically 34’ to 46’ wide from curb to curb.

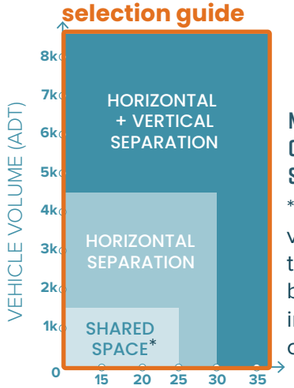
typical cross section



	sidewalk[1]	landscape buffer[2]	parallel parking[5]	bike lane & painted buffer[3]	travel lane[4]	travel lane**** travel lane[4]	bike lane & painted buffer[3]	parallel parking[5]	landscape buffer[2]	sidewalk[1]
rec	8'	3'	8'	10'	10'	10’	10'	8'	3'	8'
min	4'	0'	7'	5'	10’	10’	5'	7'	0'	4'
max	-	-	8’	-	11’	11’	-	8’	-	-

[1] When using minimum widths, a 4’ clear path should be preserved that is free of utility poles or other obstructions.
[2] When the project is located within a stormwater priority area, space for stormwater infiltration should be maximized, where appropriate.
[3] Where available space for the bike lane exceeds 8’, vertical separation should be used. Where available space for the bike lane exceeds 6’, provide a painted buffer between parked cars and the bike lane where there is parallel parking, or between travel lanes and the bike lane where no parallel parking is located. In some cases where total bike lane space is 10-14’ for both directions, both directions of bike traffic should be consolidated on one side of the street in a bidirectional facility.
[4] 11’ travel lanes are preferable on bus routes.
[5] Parking lanes may not be feasible or needed on both sides of the street

facility selection guide

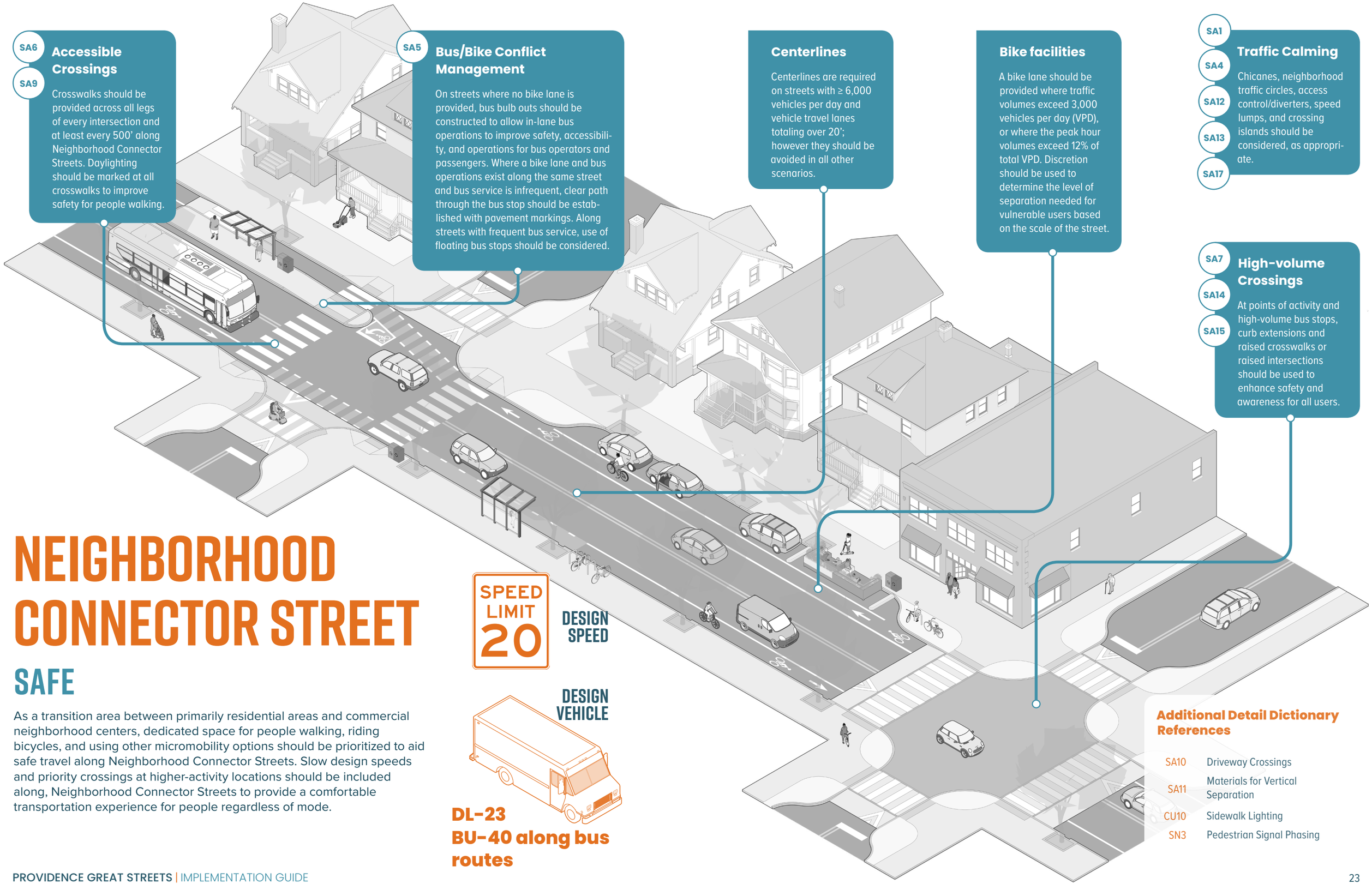


NEIGHBORHOOD CONNECTOR STREET

*vehicle volumes up to 3,000 may be acceptable in limited circumstances

example streets

- Candace Street
- Knight Street
- Webster Avenue
- Public Street
- Olney Street



SA6 **SA9**

Accessible Crossings

Crosswalks should be provided across all legs of every intersection and at least every 500' along Neighborhood Connector Streets. Daylighting should be marked at all crosswalks to improve safety for people walking.

SA5

Bus/Bike Conflict Management

On streets where no bike lane is provided, bus bulb outs should be constructed to allow in-lane bus operations to improve safety, accessibility, and operations for bus operators and passengers. Where a bike lane and bus operations exist along the same street and bus service is infrequent, clear path through the bus stop should be established with pavement markings. Along streets with frequent bus service, use of floating bus stops should be considered.

Centerlines

Centerlines are required on streets with ≥ 6,000 vehicles per day and vehicle travel lanes totaling over 20'; however they should be avoided in all other scenarios.

Bike facilities

A bike lane should be provided where traffic volumes exceed 3,000 vehicles per day (VPD), or where the peak hour volumes exceed 12% of total VPD. Discretion should be used to determine the level of separation needed for vulnerable users based on the scale of the street.

SA1 **SA4** **SA12** **SA13** **SA17**

Traffic Calming

Chicanes, neighborhood traffic circles, access control/diverters, speed lumps, and crossing islands should be considered, as appropriate.

SA7 **SA14** **SA15**

High-volume Crossings

At points of activity and high-volume bus stops, curb extensions and raised crosswalks or raised intersections should be used to enhance safety and awareness for all users.

NEIGHBORHOOD CONNECTOR STREET

SAFE

As a transition area between primarily residential areas and commercial neighborhood centers, dedicated space for people walking, riding bicycles, and using other micromobility options should be prioritized to aid safe travel along Neighborhood Connector Streets. Slow design speeds and priority crossings at higher-activity locations should be included along, Neighborhood Connector Streets to provide a comfortable transportation experience for people regardless of mode.

SPEED LIMIT 20

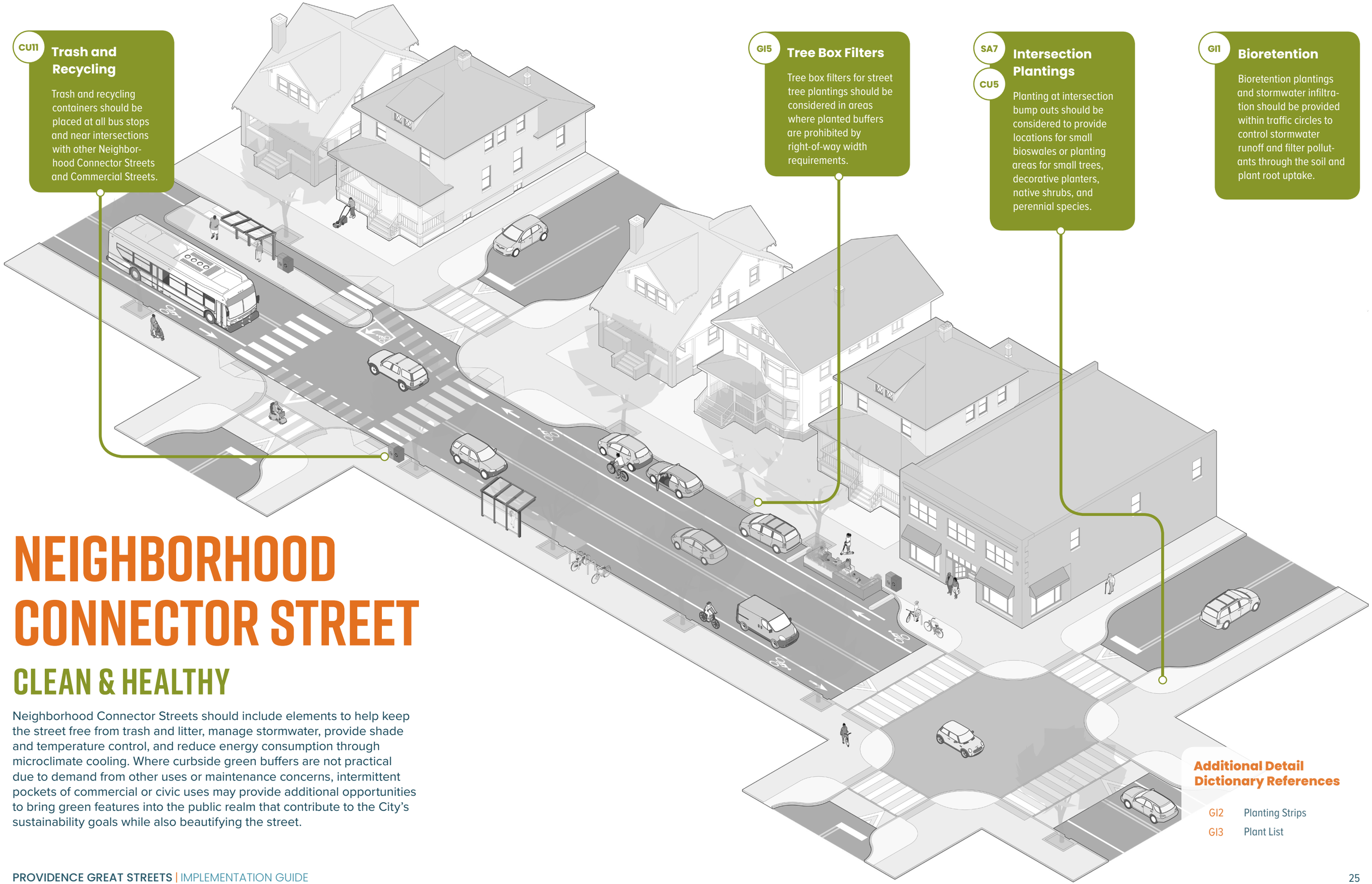
DESIGN SPEED

DESIGN VEHICLE

DL-23
BU-40 along bus routes

Additional Detail Dictionary References

SA10	Driveway Crossings
SA11	Materials for Vertical Separation
CU10	Sidewalk Lighting
SN3	Pedestrian Signal Phasing



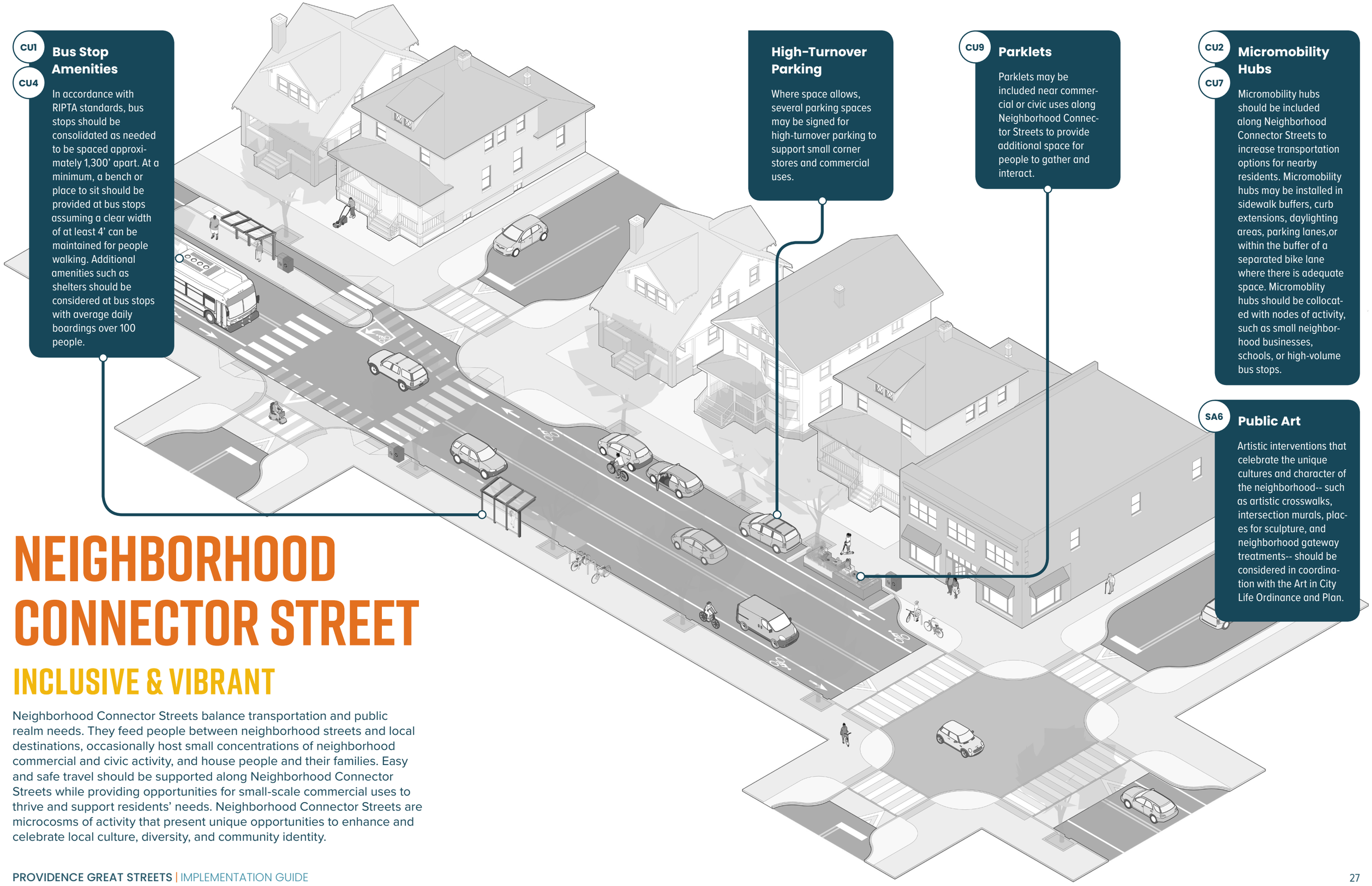
NEIGHBORHOOD CONNECTOR STREET

CLEAN & HEALTHY

Neighborhood Connector Streets should include elements to help keep the street free from trash and litter, manage stormwater, provide shade and temperature control, and reduce energy consumption through microclimate cooling. Where curbside green buffers are not practical due to demand from other uses or maintenance concerns, intermittent pockets of commercial or civic uses may provide additional opportunities to bring green features into the public realm that contribute to the City's sustainability goals while also beautifying the street.

Additional Detail Dictionary References

GI2 Planting Strips
GI3 Plant List



NEIGHBORHOOD CONNECTOR STREET

INCLUSIVE & VIBRANT

Neighborhood Connector Streets balance transportation and public realm needs. They feed people between neighborhood streets and local destinations, occasionally host small concentrations of neighborhood commercial and civic activity, and house people and their families. Easy and safe travel should be supported along Neighborhood Connector Streets while providing opportunities for small-scale commercial uses to thrive and support residents' needs. Neighborhood Connector Streets are microcosms of activity that present unique opportunities to enhance and celebrate local culture, diversity, and community identity.

NEIGHBORHOOD CONNECTOR STREET

URBAN TRAIL

Traffic volumes, speeds, and conditions vary widely across the City's Neighborhood Connector Streets. Depending on speed and volume conditions, Urban Trails on these streets may take the form of neighborhood greenways or, if traffic volumes exceed 3,000 vehicles per day, may require fully separated facilities. When full separation is used, a two-way facility on one side of the street is preferred. Designers should consider a variety of factors when determining where to locate the Urban Trail on including land use and destinations, the number of driveways and curb cuts, ease of access, overall network connectivity, and public input. In instances where the Urban Trail takes the form of a neighborhood greenway, strong traffic calming elements and visual cues should be provided to maintain legibility, connectivity, and comfort along the trail route. Neighborhood greenways on Neighborhood Connector Streets should follow the same guidelines for Urban Trails on Neighborhood Streets.

Trail Width

In general, a trail width of at least 11' is recommended on Neighborhood Connector Streets. When located adjacent to the Downtown core, universities, or high-activity commercial centers, practitioners should consider wider trail widths. Except in extremely constrained scenarios, the Urban Trail should not replace the existing sidewalk, but should provide additional space for people walking, riding bicycles, running, or using other micromobility modes.

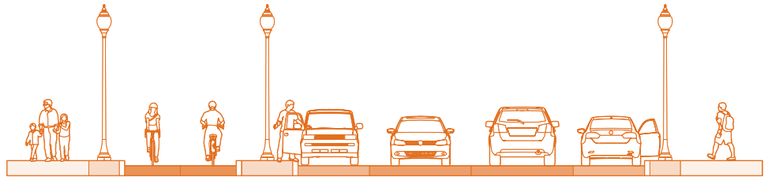
SA4 Bus/Bike Conflict Management

On Neighborhood Connector Streets where an Urban Trail and bus service are provided, floating bus stops should be constructed to mitigate bus activity and contra-flow trail movements. In these cases, on-street parking should be located on the same side of the street as the Urban Trail to provide space for the floating bus stop. If no parking is provided on the same side of the street, a temporary mixing of the sidewalk and Urban Trail may be considered to mitigate conflicts at the bus stop. If the Urban Trail bends in to mix with the adjacent sidewalk, designers should use paint and signage to slow trail users and communicate priority for people walking at the conflict point.

SN2 SN5 Urban Trail Wayfinding

The City of Providence's branded Urban Trail markings and signage should be included at decision points and/or other points of interest to direct Urban Trail Users to important destinations such as parks, schools, libraries, and museums, highlight important cultural and historic information, and provide consistency along the entirety of the Urban Trail.

typical cross section



	sidewalk	landscape buffer	two-way Urban Trail	buffer[2]	parallel parking	travel lane[3]	travel lane[3]	parallel parking	landscape buffer	sidewalk[1]
rec	8'	3'	11'	5'	8'	10'	10'	8'	3'	8'
min	4'	0'	8'	2'	7'	10'	10'	7'	0'	4'
max	-	-	-	-	8'	11'	11'	8'	-	-

[1] When using minimum widths, a 4' clear path should be preserved that is free of utility poles or other obstructions.
[2] When located adjacent to parking, the buffer width should be at least 2' to protect people walking, running, or riding bicycles from open car doors.
[3] 11' recommended along bus routes

Urban Trail

On streets where full separation is appropriate, the Urban Trail may be located either at street level or sidewalk level, depending on drainage and construction costs. When at sidewalk level, a buffer between the sidewalk and Urban Trail is desirable to protect people walking from faster-moving modes generally used in the Urban Trail.

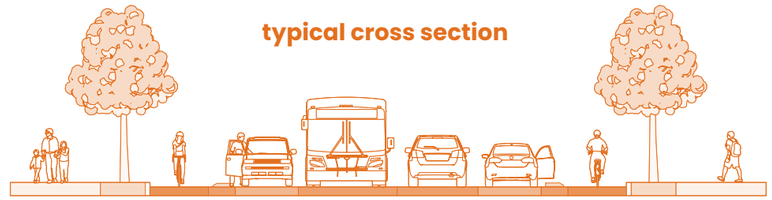
Additional Detail Dictionary References

SA10	Driveway Crossings
SA11	Materials for Vertical Separation
SA18	Intersection Treatments for Bike Lanes and Urban Trails
CU7	Micromobility Hubs
SN3	Pedestrian Signal Phasing
SN7	Urban Trail Signal Strategies

NEIGHBORHOOD MAIN STREET

Neighborhood Main Streets are the hub of community life and culture within Providence's diverse neighborhoods. Though Neighborhood Main Streets throughout Providence may have similar uses and functions – for example, shops, restaurants and cafes, pharmacies, and community centers – each maintains a distinct and unique sense of place. When traveling through or stopping along Neighborhood Main Streets, people feel connected to the people and history of the neighborhood.

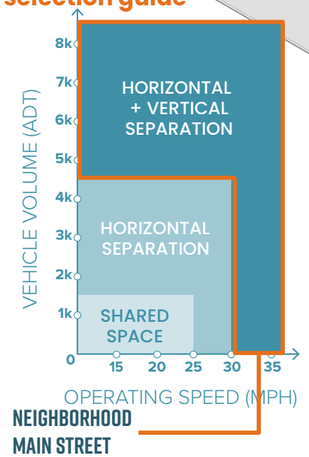
typical cross section



	sidewalk	landscape buffer[1]	bike lane & buffer[2]	parallel parking	travel lane[3]	travel lane[3]	parallel parking	bike lane & buffer[2]	landscape buffer[1]	sidewalk
rec	10'	5'	9.5'	8'	10'	10'	8'	9.5'	5'	10'
min	5'	0'	5'	7'	9'	9'	7'	5'	0'	5'
max	-	-	-	8'	11'	11'	8'	-	-	-

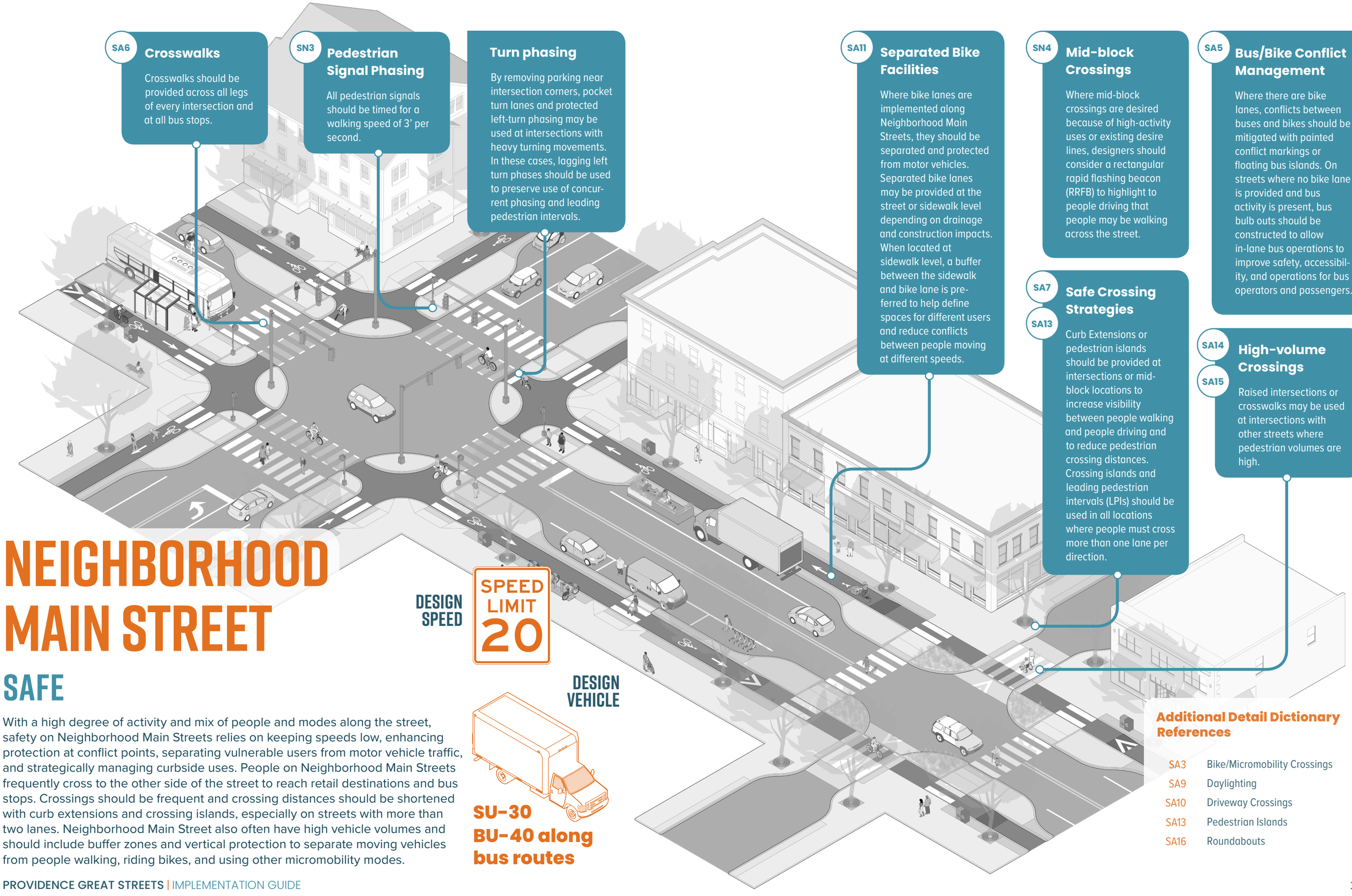
[1] When the project is located within a stormwater priority area, space for stormwater infiltration should be maximized, where appropriate.
[2] Where available space for the bike lane exceeds 8', vertical separation should be used. Where available space for the bike lane exceeds 6', provide a painted buffer between parked cars and the bike lane where there is parallel parking, or between travel lanes and the bike lane where no parallel parking is located. In some cases where total bike lane space is 10-14' for both directions, both directions of bike traffic should be consolidated on one side of the street in a bidirectional facility.
[3] 11' travel lanes are preferable on bus routes.

facility selection guide



example streets

- Broad Street
- Hope Street
- Smith Street
- Atwells Avenue



SA6 Crosswalks

Crosswalks should be provided across all legs of every intersection and at all bus stops.

SN3 Pedestrian Signal Phasing

All pedestrian signals should be timed for a walking speed of 3' per second.

Turn phasing

By removing parking near intersection corners, pocket turn lanes and protected left-turn phasing may be used at intersections with heavy turning movements. In these cases, lagging left turn phases should be used to preserve use of concurrent phasing and leading pedestrian intervals.

SA11 Separated Bike Facilities

Where bike lanes are implemented along Neighborhood Main Streets, they should be separated and protected from motor vehicles. Separated bike lanes may be provided at the street or sidewalk level depending on drainage and construction impacts. When located at sidewalk level, a buffer between the sidewalk and bike lane is preferred to help define spaces for different users and reduce conflicts between people moving at different speeds.

SN4 Mid-block Crossings

Where mid-block crossings are desired because of high-activity uses or existing desire lines, designers should consider a rectangular rapid flashing beacon (RRFB) to highlight to people driving that people may be walking across the street.

SA5 Bus/Bike Conflict Management

Where there are bike lanes, conflicts between buses and bikes should be mitigated with painted conflict markings or floating bus islands. On streets where no bike lane is provided and bus activity is present, bus bulb outs should be constructed to allow in-lane bus operations to improve safety, accessibility, and operations for bus operators and passengers.

SA7 SA13 Safe Crossing Strategies

Curb Extensions or pedestrian islands should be provided at intersections or mid-block locations to increase visibility between people walking and people driving and to reduce pedestrian crossing distances. Crossing islands and leading pedestrian intervals (LPIs) should be used in all locations where people must cross more than one lane per direction.

SA14 SA15 High-volume Crossings

Raised intersections or crosswalks may be used at intersections with other streets where pedestrian volumes are high.

NEIGHBORHOOD MAIN STREET

SAFE

With a high degree of activity and mix of people and modes along the street, safety on Neighborhood Main Streets relies on keeping speeds low, enhancing protection at conflict points, separating vulnerable users from motor vehicle traffic, and strategically managing curbside uses. People on Neighborhood Main Streets frequently cross to the other side of the street to reach retail destinations and bus stops. Crossings should be frequent and crossing distances should be shortened with curb extensions and crossing islands, especially on streets with more than two lanes. Neighborhood Main Street also often have high vehicle volumes and should include buffer zones and vertical protection to separate moving vehicles from people walking, riding bikes, and using other micromobility modes.

DESIGN SPEED

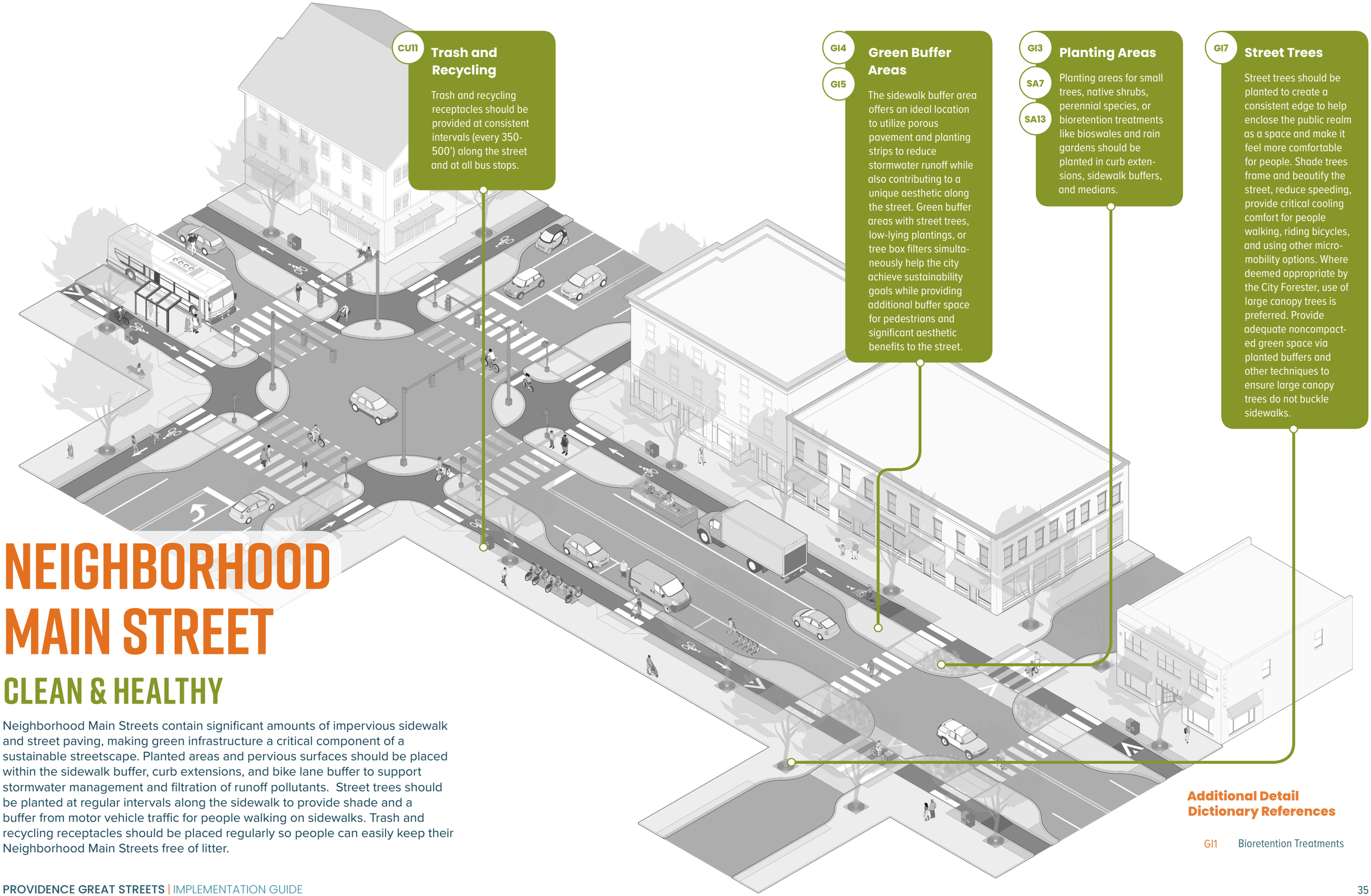
SPEED LIMIT 20

DESIGN VEHICLE

SU-30
BU-40 along bus routes

Additional Detail Dictionary References

SA3	Bike/Micromobility Crossings
SA9	Daylighting
SA10	Driveway Crossings
SA13	Pedestrian Islands
SA16	Roundabouts



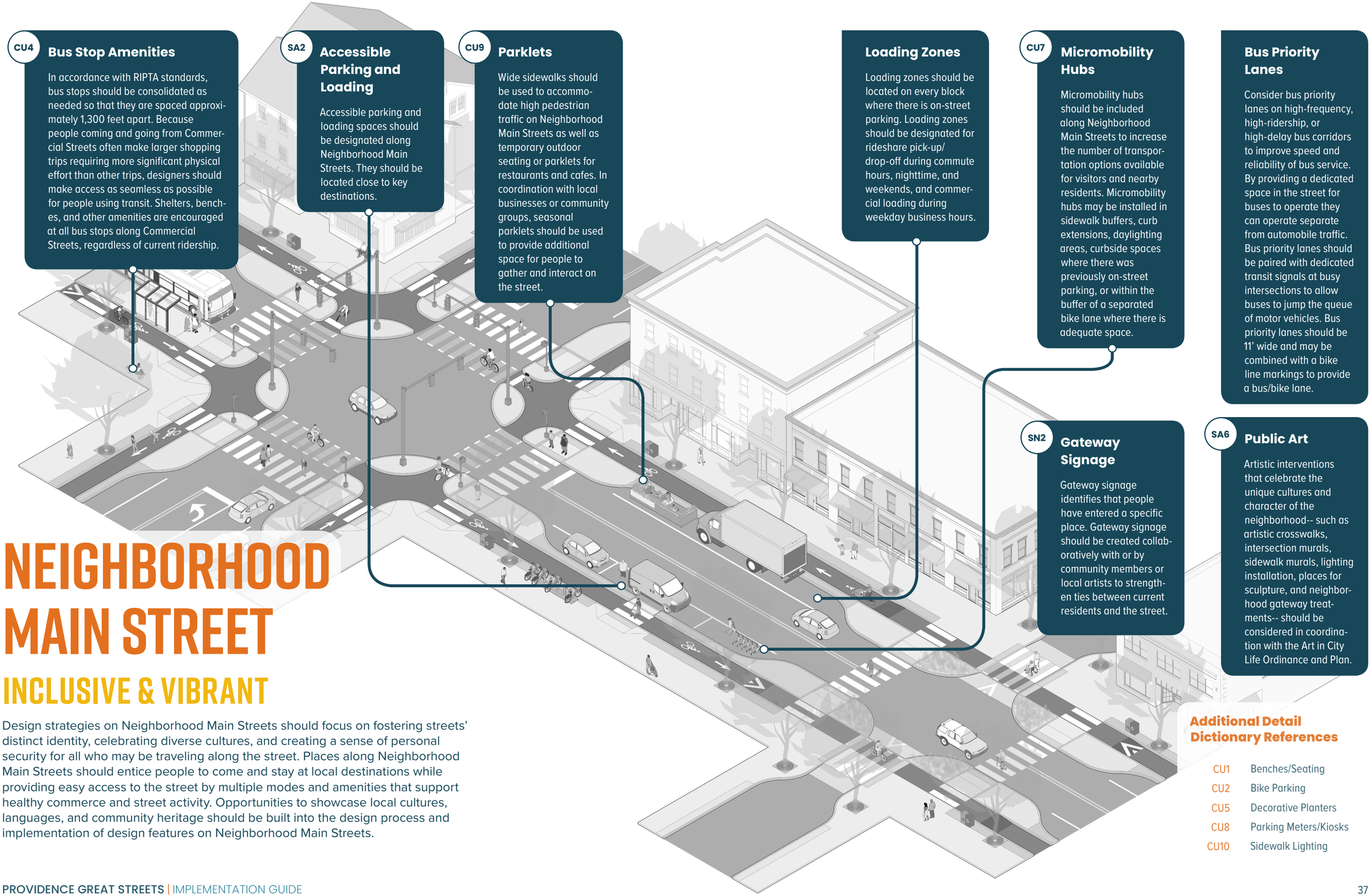
NEIGHBORHOOD MAIN STREET

CLEAN & HEALTHY

Neighborhood Main Streets contain significant amounts of impervious sidewalk and street paving, making green infrastructure a critical component of a sustainable streetscape. Planted areas and pervious surfaces should be placed within the sidewalk buffer, curb extensions, and bike lane buffer to support stormwater management and filtration of runoff pollutants. Street trees should be planted at regular intervals along the sidewalk to provide shade and a buffer from motor vehicle traffic for people walking on sidewalks. Trash and recycling receptacles should be placed regularly so people can easily keep their Neighborhood Main Streets free of litter.

Additional Detail Dictionary References

GI1 Bioretention Treatments



CU4 Bus Stop Amenities

In accordance with RIPTA standards, bus stops should be consolidated as needed so that they are spaced approximately 1,300 feet apart. Because people coming and going from Commercial Streets often make larger shopping trips requiring more significant physical effort than other trips, designers should make access as seamless as possible for people using transit. Shelters, benches, and other amenities are encouraged at all bus stops along Commercial Streets, regardless of current ridership.

SA2 Accessible Parking and Loading

Accessible parking and loading spaces should be designated along Neighborhood Main Streets. They should be located close to key destinations.

CU9 Parklets

Wide sidewalks should be used to accommodate high pedestrian traffic on Neighborhood Main Streets as well as temporary outdoor seating or parklets for restaurants and cafes. In coordination with local businesses or community groups, seasonal parklets should be used to provide additional space for people to gather and interact on the street.

Loading Zones

Loading zones should be located on every block where there is on-street parking. Loading zones should be designated for rideshare pick-up/drop-off during commute hours, nighttime, and weekends, and commercial loading during weekday business hours.

CU7 Micromobility Hubs

Micromobility hubs should be included along Neighborhood Main Streets to increase the number of transportation options available for visitors and nearby residents. Micromobility hubs may be installed in sidewalk buffers, curb extensions, daylighting areas, curbside spaces where there was previously on-street parking, or within the buffer of a separated bike lane where there is adequate space.

Bus Priority Lanes

Consider bus priority lanes on high-frequency, high-ridership, or high-delay bus corridors to improve speed and reliability of bus service. By providing a dedicated space in the street for buses to operate they can operate separate from automobile traffic. Bus priority lanes should be paired with dedicated transit signals at busy intersections to allow buses to jump the queue of motor vehicles. Bus priority lanes should be 11' wide and may be combined with a bike line markings to provide a bus/bike lane.

SN2 Gateway Signage

Gateway signage identifies that people have entered a specific place. Gateway signage should be created collaboratively with or by community members or local artists to strengthen ties between current residents and the street.

SA6 Public Art

Artistic interventions that celebrate the unique cultures and character of the neighborhood-- such as artistic crosswalks, intersection murals, sidewalk murals, lighting installation, places for sculpture, and neighborhood gateway treatments-- should be considered in coordination with the Art in City Life Ordinance and Plan.

NEIGHBORHOOD MAIN STREET

INCLUSIVE & VIBRANT

Design strategies on Neighborhood Main Streets should focus on fostering streets' distinct identity, celebrating diverse cultures, and creating a sense of personal security for all who may be traveling along the street. Places along Neighborhood Main Streets should entice people to come and stay at local destinations while providing easy access to the street by multiple modes and amenities that support healthy commerce and street activity. Opportunities to showcase local cultures, languages, and community heritage should be built into the design process and implementation of design features on Neighborhood Main Streets.

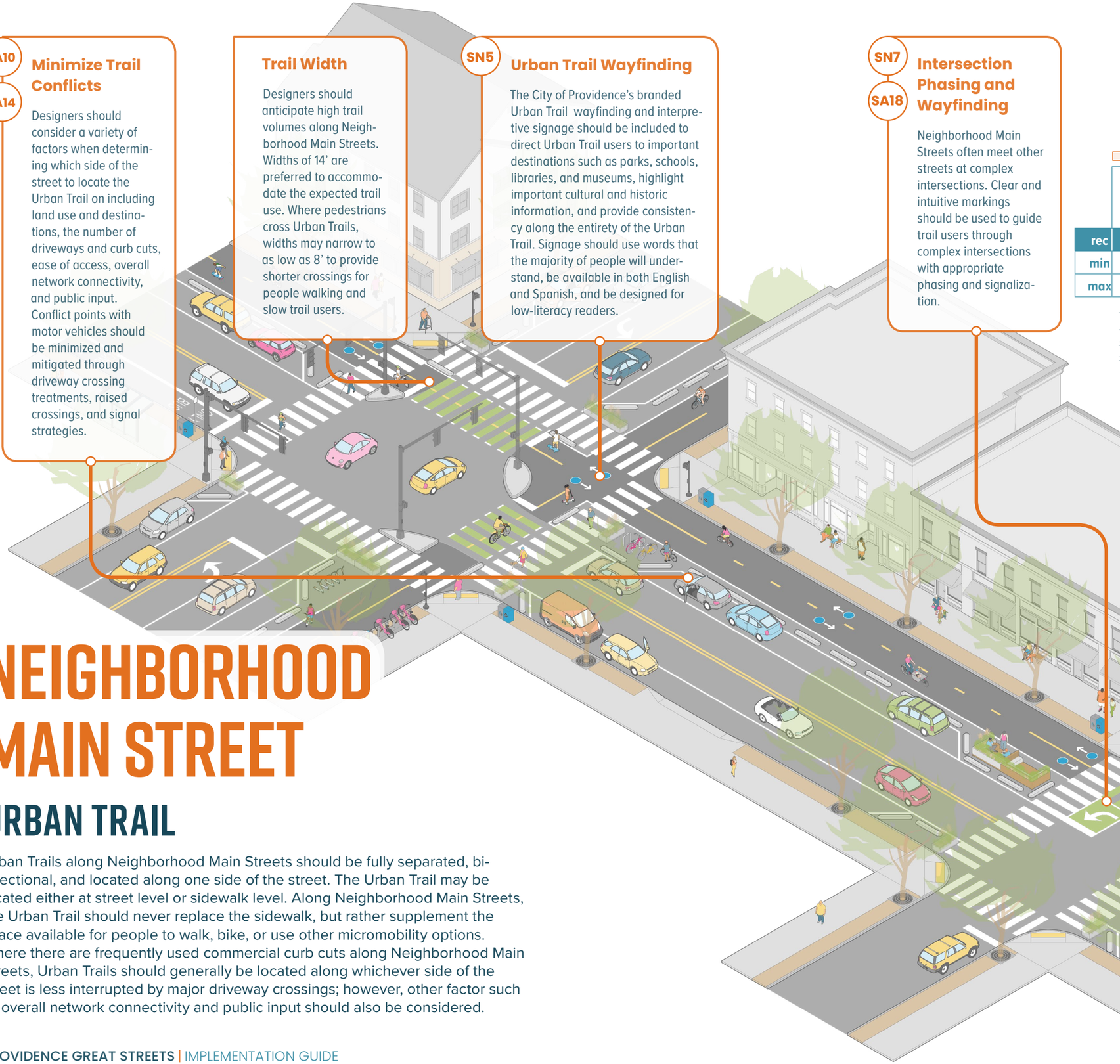
Additional Detail Dictionary References

CU1	Benches/Seating
CU2	Bike Parking
CU5	Decorative Planters
CU8	Parking Meters/Kiosks
CU10	Sidewalk Lighting

NEIGHBORHOOD MAIN STREET

URBAN TRAIL

Urban Trails along Neighborhood Main Streets should be fully separated, bi-directional, and located along one side of the street. The Urban Trail may be located either at street level or sidewalk level. Along Neighborhood Main Streets, the Urban Trail should never replace the sidewalk, but rather supplement the space available for people to walk, bike, or use other micromobility options. Where there are frequently used commercial curb cuts along Neighborhood Main Streets, Urban Trails should generally be located along whichever side of the street is less interrupted by major driveway crossings; however, other factor such as overall network connectivity and public input should also be considered.



SA10 SA14 Minimize Trail Conflicts

Designers should consider a variety of factors when determining which side of the street to locate the Urban Trail on including land use and destinations, the number of driveways and curb cuts, ease of access, overall network connectivity, and public input. Conflict points with motor vehicles should be minimized and mitigated through driveway crossing treatments, raised crossings, and signal strategies.

Trail Width

Designers should anticipate high trail volumes along Neighborhood Main Streets. Widths of 14' are preferred to accommodate the expected trail use. Where pedestrians cross Urban Trails, widths may narrow to as low as 8' to provide shorter crossings for people walking and slow trail users.

SN5 Urban Trail Wayfinding

The City of Providence's branded Urban Trail wayfinding and interpretive signage should be included to direct Urban Trail users to important destinations such as parks, schools, libraries, and museums, highlight important cultural and historic information, and provide consistency along the entirety of the Urban Trail. Signage should use words that the majority of people will understand, be available in both English and Spanish, and be designed for low-literacy readers.

SN7 SA18 Intersection Phasing and Wayfinding

Neighborhood Main Streets often meet other streets at complex intersections. Clear and intuitive markings should be used to guide trail users through complex intersections with appropriate phasing and signalization.

typical cross section

	sidewalk	landscape buffer[1]	two-way Urban Trail[2]	buffer	parallel parking	travel lane[3]	travel lane[3]	parallel parking	landscape buffer[1]	sidewalk
rec	10'	5'	14'	5'	8'	10'	10'	8'	5'	10'
min	5'	0'	11'	2'	7'	9'	9'	7'	0'	5'
max	-	-	16'	-	8'	11'	11'	8'	-	-

[1] When located adjacent to parking, the buffer width should be at least 3' to protect trail users from people opening car doors.
[2] Two-way Urban Trail may reduce to 8' for short segments.
[3] 11' recommended along bus routes.

SA11 Urban Trail/ Sidewalk Buffer

When at sidewalk level, a buffer should be provided between the sidewalk and the Urban Trail to protect people walking from faster-moving modes generally used in the Urban Trail. The buffer between the Urban Trail and sidewalk is an ideal place to reinforce sustainability goals with plantings, trash and recycling bins, or other elements like benches, lighting, signage, and art.

SA5 Bus/Bike Conflict Management

Where there are RIPTA bus routes along Neighborhood Main Streets with Urban Trails, floating bus stops should be constructed to mitigate potential conflicts between buses and contra-flow trail movements. If on-street parking is only provided on one side of the street, it should be located on the same side as the Urban Trail to provide space for the floating bus stop.

Additional Detail Dictionary References

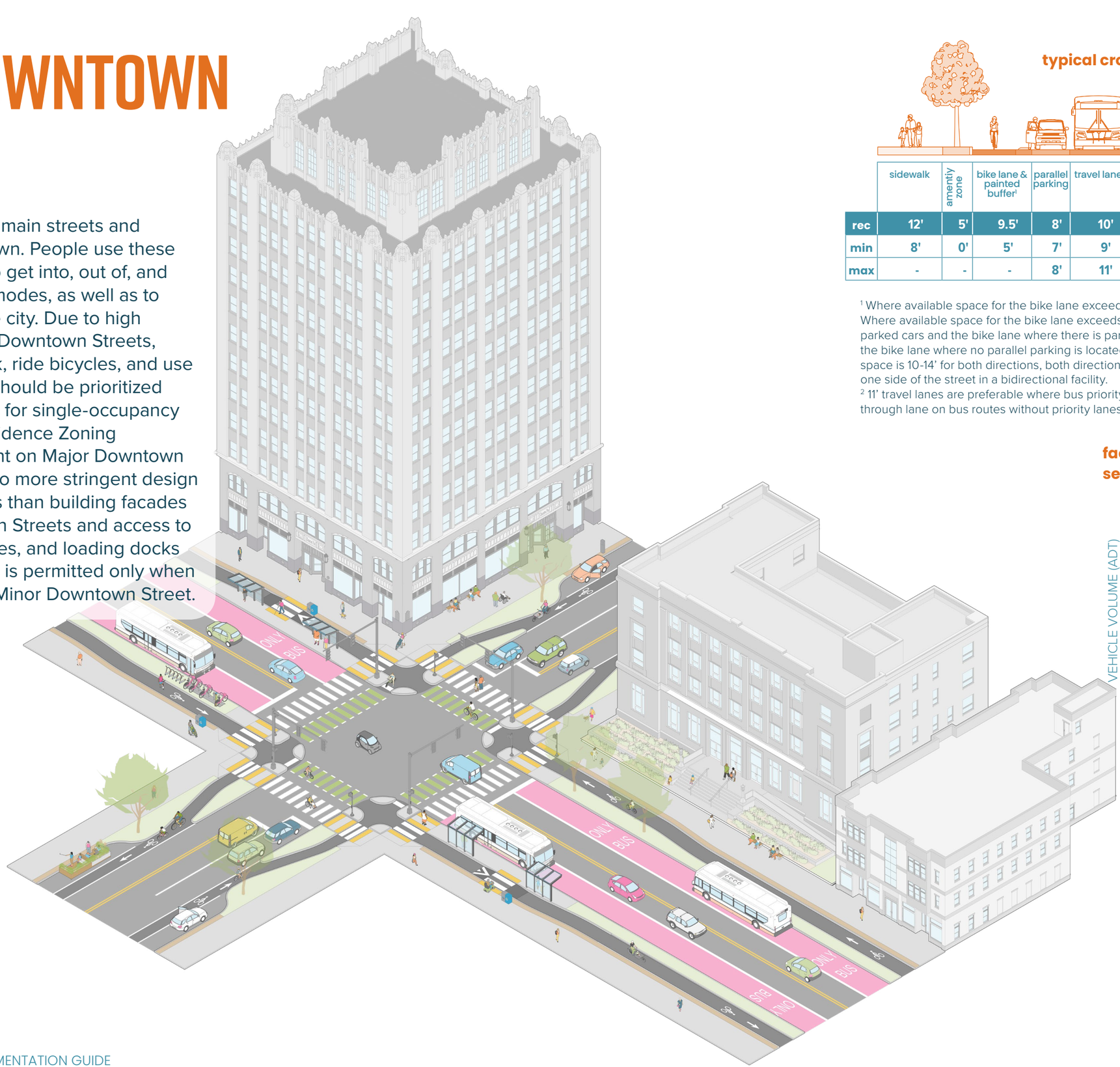
SN3	Pedestrian Signal Phasing
SN6	Urban Trail Network Trailhead Signs/Kiosks

MAJOR DOWNTOWN STREET

Major Downtown Streets are main streets and centers of activity in Downtown. People use these streets throughout the day to get into, out of, and around Downtown using all modes, as well as to sit, shop, relax, and enjoy the city. Due to high volumes of activity on Major Downtown Streets, people who take transit, walk, ride bicycles, and use other micromobility options should be prioritized over parking and travel lanes for single-occupancy vehicles. Per the City of Providence Zoning Ordinance, buildings that front on Major Downtown Streets are typically subject to more stringent design and development regulations than building facades that front on Minor Downtown Streets and access to parking lots, parking structures, and loading docks and areas from Major Streets is permitted only when the lot has no frontage on a Minor Downtown Street.

example streets

- Empire Street
- Fountain Street
- Clifford Street



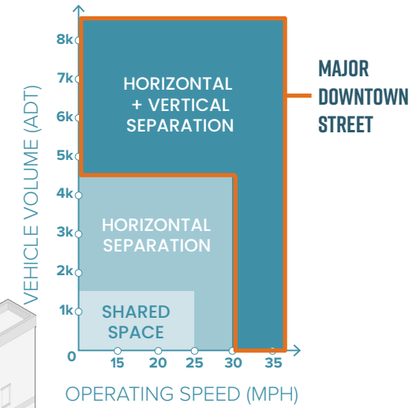
typical cross section

	sidewalk	amenity zone	bike lane & painted buffer[1]	parallel parking	travel lane[2]	travel lane[2]	parallel parking	bike lane & painted buffer[1]	amenity zone	sidewalk
rec	12'	5'	9.5'	8'	10'	10'	8'	9.5'	5'	12'
min	8'	0'	5'	7'	9'	9'	7'	5'	0'	8'
max	-	-	-	8'	11'	11'	8'	-	-	-

[1] Where available space for the bike lane exceeds 8', vertical separation should be used. Where available space for the bike lane exceeds 6', provide a painted buffer between parked cars and the bike lane where there is parallel parking, or between travel lanes and the bike lane where no parallel parking is located. In some cases where total bike lane space is 10-14' for both directions, both directions of bike traffic should be consolidated on one side of the street in a bidirectional facility.

[2] 11' travel lanes are preferable where bus priority lanes are provided or the rightmost through lane on bus routes without priority lanes.

facility selection guide

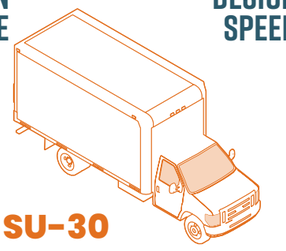


MAJOR DOWNTOWN STREET

SAFE

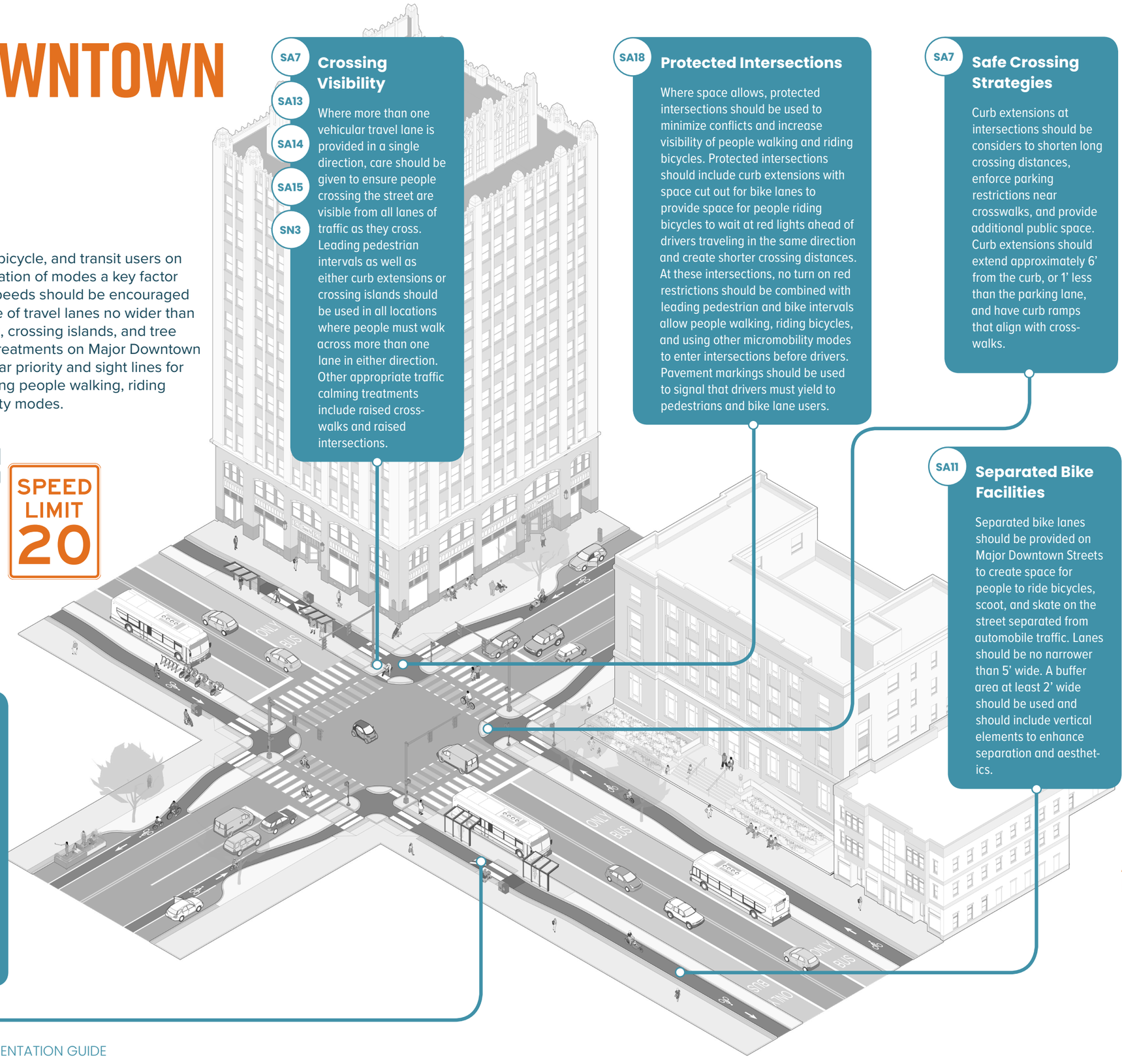
High volumes of vehicle, pedestrian, bicycle, and transit users on Major Downtown Streets make separation of modes a key factor for safety. Low motor vehicle travel speeds should be encouraged through design features including use of travel lanes no wider than 11', on-street parking, curb extensions, crossing islands, and tree canopies. At complex intersections, treatments on Major Downtown Streets should focus on providing clear priority and sight lines for vulnerable users of the street, including people walking, riding bicycles, and using other micromobility modes.

DESIGN VEHICLE



SU-30
BU-40 along bus routes

DESIGN SPEED



SA7 SA13 SA14 SA15 SN3 Crossing Visibility

Where more than one vehicular travel lane is provided in a single direction, care should be given to ensure people crossing the street are visible from all lanes of traffic as they cross. Leading pedestrian intervals as well as either curb extensions or crossing islands should be used in all locations where people must walk across more than one lane in either direction. Other appropriate traffic calming treatments include raised cross-walks and raised intersections.

SA18 Protected Intersections

Where space allows, protected intersections should be used to minimize conflicts and increase visibility of people walking and riding bicycles. Protected intersections should include curb extensions with space cut out for bike lanes to provide space for people riding bicycles to wait at red lights ahead of drivers traveling in the same direction and create shorter crossing distances. At these intersections, no turn on red restrictions should be combined with leading pedestrian and bike intervals allow people walking, riding bicycles, and using other micromobility modes to enter intersections before drivers. Pavement markings should be used to signal that drivers must yield to pedestrians and bike lane users.

SA7 Safe Crossing Strategies

Curb extensions at intersections should be considers to shorten long crossing distances, enforce parking restrictions near crosswalks, and provide additional public space. Curb extensions should extend approximately 6' from the curb, or 1' less than the parking lane, and have curb ramps that align with cross-walks.

SA11 Separated Bike Facilities

Separated bike lanes should be provided on Major Downtown Streets to create space for people to ride bicycles, scoot, and skate on the street separated from automobile traffic. Lanes should be no narrower than 5' wide. A buffer area at least 2' wide should be used and should include vertical elements to enhance separation and aesthet-ics.

Curb Radii

Smaller curb radii should be used to help keep vehicle turning speeds low, improving safety for all, and thus curb radii should be minimized as much as possible while accommodating the turning movements of the vehicle types that most frequently turn in the intersection. Where needed, mountable truck aprons should be used to allow larger vehicles to safely make turns, along with recessed stop bars on smaller intersecting streets to allow large vehicles to encroach on opposing lanes.

SN5 Bus/Bike Conflict Management

At bus stops where there is on-street parking, bus bulbs or floating bus islands should extend into the parking lane to allow bus passen-gers to board and alight without the bus pulling over to the curb, to speed up service, and to make buses more accessible for people with movement disabilities. Bike lanes should continue between the bus bulb or floating island and sidewalk to minimize conflicts between buses and people riding bicycles.

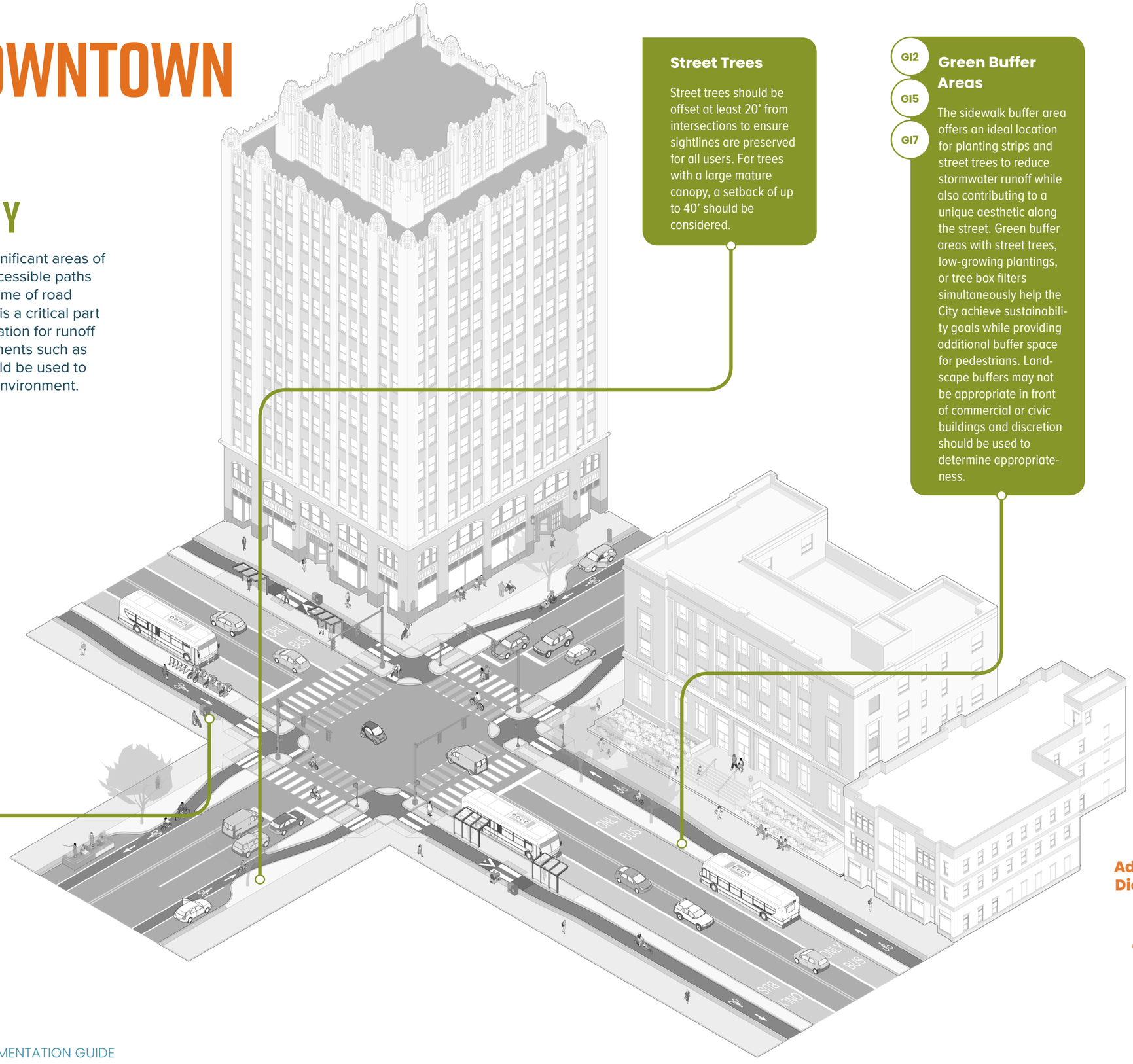
Additional Detail Dictionary References

SA3	Bike/Micromobility Crossings
SA6	Crosswalks
SA8	Curb Ramps
SA9	Daylighting
SA10	Driveway Crossings

MAJOR DOWNTOWN STREET

CLEAN & HEALTHY

Major Downtown Streets contain significant areas of impermeable surface to facilitate accessible paths for a wide range and significant volume of road users. As such, green infrastructure is a critical part of stormwater management and filtration for runoff pollutants. Green infrastructure elements such as street trees and planting areas should be used to create a comfortable and pleasant environment.



CU11 Trash and Recycling

Trash and recycling receptacles should be provided at consistent intervals (every 350-500') along the street and at all bus stops. Curb extensions are an ideal place for trash and recycling containers as they do not interfere with the clear accessible path.

Street Trees

Street trees should be offset at least 20' from intersections to ensure sightlines are preserved for all users. For trees with a large mature canopy, a setback of up to 40' should be considered.

GI2 GI5 GI7 Green Buffer Areas

The sidewalk buffer area offers an ideal location for planting strips and street trees to reduce stormwater runoff while also contributing to a unique aesthetic along the street. Green buffer areas with street trees, low-growing plantings, or tree box filters simultaneously help the City achieve sustainability goals while providing additional buffer space for pedestrians. Landscape buffers may not be appropriate in front of commercial or civic buildings and discretion should be used to determine appropriateness.

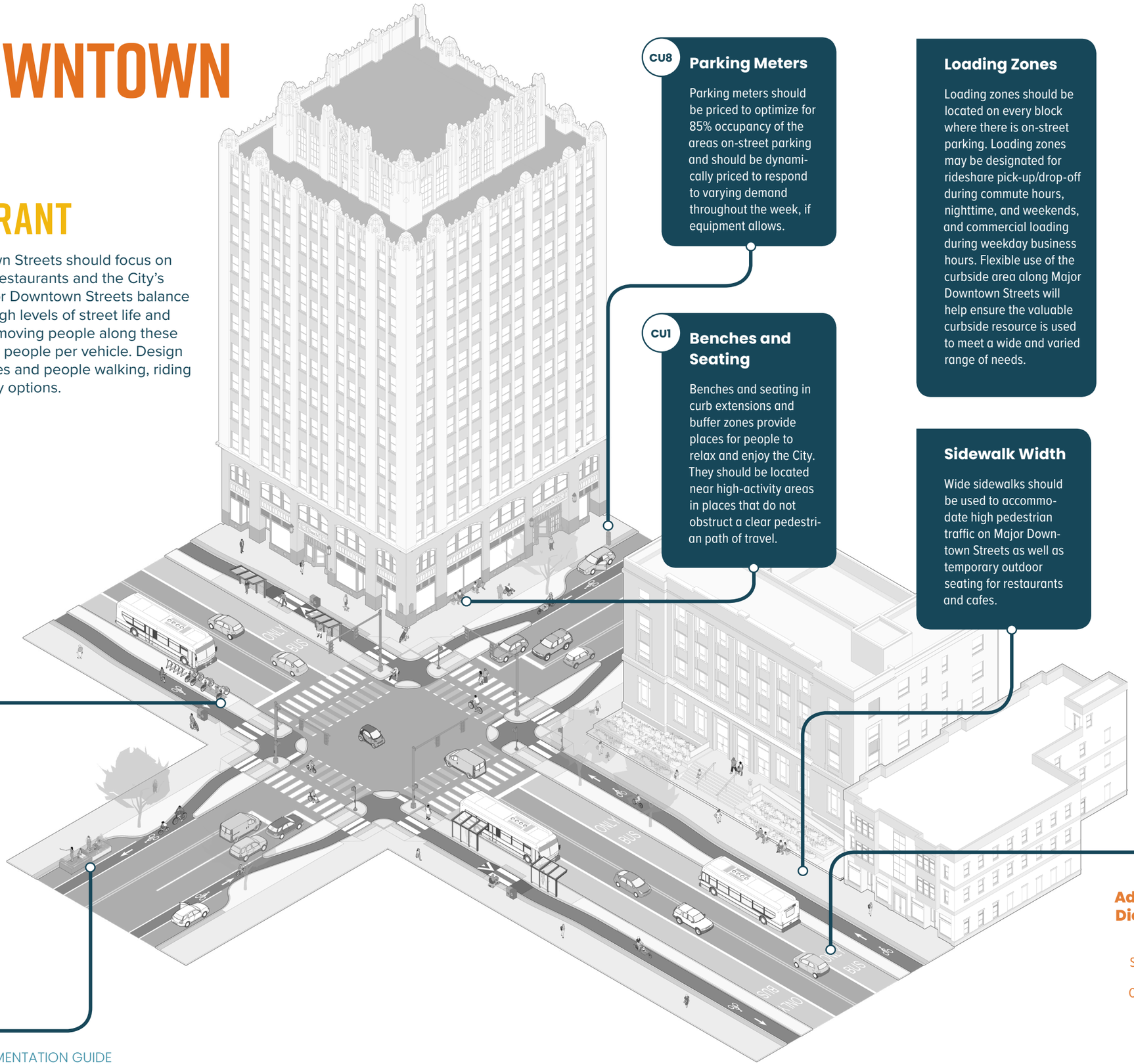
Additional Detail Dictionary References

GI1 Bioretention Treatments
GI3 Plant List

MAJOR DOWNTOWN STREET

INCLUSIVE & VIBRANT

Design strategies on Major Downtown Streets should focus on celebrating Downtown's shops and restaurants and the City's thriving arts and cultural scene. Major Downtown Streets balance a high volume of person-trips with high levels of street life and activity. Buses are a key element of moving people along these busy streets, carrying as many as 60 people per vehicle. Design elements should give priority to buses and people walking, riding bicycles, or using other micromobility options.



CU7 Micromobility Hubs

Micromobility hubs should be included along Major Downtown Streets to increase transportation options. Micromobility hubs may be located on wide sidewalks, within curb extensions, in curbside spaces where there was previously on-street parking, or within the buffer of a separated bike lane where there is adequate space.

CU9 Parklets

In coordination with local businesses or community groups, seasonal parklets should be used to provide additional space for people to gather and interact on the street. In addition to providing a place for community expression, parklets may also help support local businesses along Major Downtown Streets.

CU8 Parking Meters

Parking meters should be priced to optimize for 85% occupancy of the areas on-street parking and should be dynamically priced to respond to varying demand throughout the week, if equipment allows.

CU1 Benches and Seating

Benches and seating in curb extensions and buffer zones provide places for people to relax and enjoy the City. They should be located near high-activity areas in places that do not obstruct a clear pedestrian path of travel.

Loading Zones

Loading zones should be located on every block where there is on-street parking. Loading zones may be designated for rideshare pick-up/drop-off during commute hours, nighttime, and weekends, and commercial loading during weekday business hours. Flexible use of the curbside area along Major Downtown Streets will help ensure the valuable curbside resource is used to meet a wide and varied range of needs.

Sidewalk Width

Wide sidewalks should be used to accommodate high pedestrian traffic on Major Downtown Streets as well as temporary outdoor seating for restaurants and cafes.

Public Art

Artistic interventions that celebrate the unique cultures and character of Providence-- such as lighting installations and places for sculpture-- should be considered in coordination with the Art in City Life Ordinance and Plan.

Bus Priority Lanes

Consider bus priority lanes on high-frequency, high-ridership, or high-delay bus corridors to improve speed and reliability of bus service. By providing a dedicated space in the street for buses to operate they can operate separate from automobile traffic. Bus priority lanes should be paired with dedicated transit signals at busy intersections to allow buses to jump the queue of motor vehicles. Bus priority lanes should be at least 11' wide and may be combined with a bike line to provide a bus/bike lane.

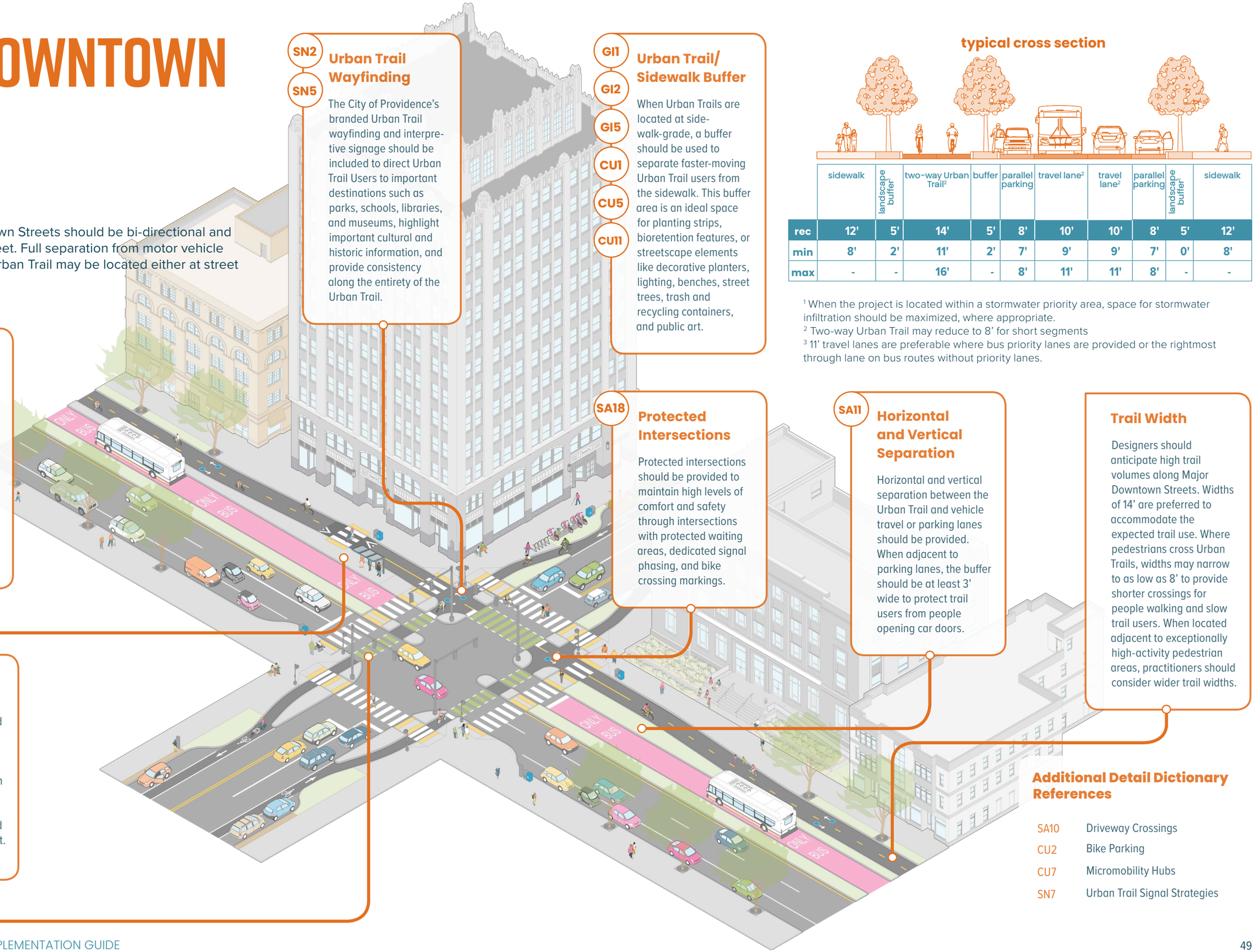
Additional Detail Dictionary References

SA2	Accessible Parking & Pick-up/Drop-off Zones
CU2	Bike Parking

MAJOR DOWNTOWN STREET

URBAN TRAIL

Urban Trails along Major Downtown Streets should be bi-directional and located along one side of the street. Full separation from motor vehicle traffic should be provided. The Urban Trail may be located either at street level or sidewalk level.



SN2 SN5 Urban Trail Wayfinding

The City of Providence's branded Urban Trail wayfinding and interpretive signage should be included to direct Urban Trail Users to important destinations such as parks, schools, libraries, and museums, highlight important cultural and historic information, and provide consistency along the entirety of the Urban Trail.

GI1 GI2 GI5 CU1 CU5 CU11 Urban Trail/ Sidewalk Buffer

When Urban Trails are located at sidewalk-grade, a buffer should be used to separate faster-moving Urban Trail users from the sidewalk. This buffer area is an ideal space for planting strips, bioretention features, or streetscape elements like decorative planters, lighting, benches, street trees, trash and recycling containers, and public art.

SA5 Bus/Bike Conflict Management

Where there RIPTA bus routes and Urban Trails are both present on Major Downtown Streets, floating bus stops should be constructed to mitigate contraflow trail movements through the bus stop. If on-street parking is only provided on one side of the street, the parking should be located on the same side as the Urban Trail to provide space for the floating bus stop.

SA18 Protected Intersections

Protected intersections should be provided to maintain high levels of comfort and safety through intersections with protected waiting areas, dedicated signal phasing, and bike crossing markings.

SA11 Horizontal and Vertical Separation

Horizontal and vertical separation between the Urban Trail and vehicle travel or parking lanes should be provided. When adjacent to parking lanes, the buffer should be at least 3' wide to protect trail users from people opening car doors.

SA3 Intersection Design

Conflict points with motor vehicles should be minimized and mitigated through careful design and signal treatments at intersections and driveway crossings. Clear priority for Urban Trail users should be provided at all major crossings by maintaining the grade of the sidewalk and through use of high visibility paint.

typical cross section

	sidewalk	landscape buffer[1]	two-way Urban Trail[2]	buffer	parallel parking	travel lane[2]	travel lane[2]	parallel parking	landscape buffer[1]	sidewalk
rec	12'	5'	14'	5'	8'	10'	10'	8'	5'	12'
min	8'	2'	11'	2'	7'	9'	9'	7'	0'	8'
max	-	-	16'	-	8'	11'	11'	8'	-	-

[1] When the project is located within a stormwater priority area, space for stormwater infiltration should be maximized, where appropriate.
[2] Two-way Urban Trail may reduce to 8' for short segments
[3] 11' travel lanes are preferable where bus priority lanes are provided or the rightmost through lane on bus routes without priority lanes.

Trail Width

Designers should anticipate high trail volumes along Major Downtown Streets. Widths of 14' are preferred to accommodate the expected trail use. Where pedestrians cross Urban Trails, widths may narrow to as low as 8' to provide shorter crossings for people walking and slow trail users. When located adjacent to exceptionally high-activity pedestrian areas, practitioners should consider wider trail widths.

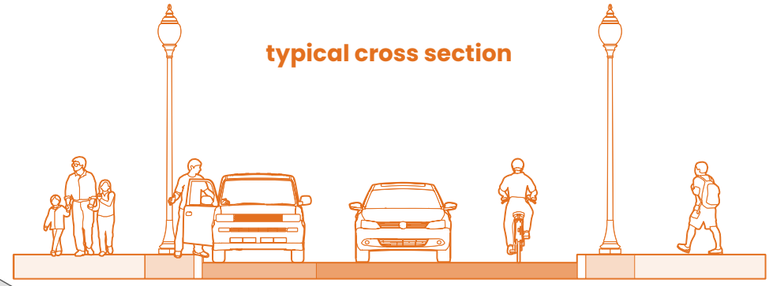
Additional Detail Dictionary References

SA10	Driveway Crossings
CU2	Bike Parking
CU7	Micromobility Hubs
SN7	Urban Trail Signal Strategies

MINOR DOWNTOWN STREET

Minor Downtown Streets are correlated with Downtown B streets in the Zoning Ordinance excepting the following streets, which should be treated on a case-by-case basis: Broad from Empire to 95; Sabin/Broadway; Washington through Kennedy Plaza; Memorial from Washington to Westminster; East Franklin; West Exchange; Friendship; Pine; Dorrance from Washington to Exchange; Canal; Smith; Charles; Orms.

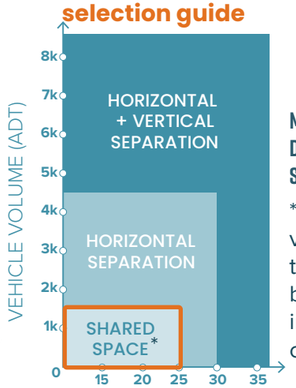
typical cross section



	sidewalk	landscape buffer	parallel parking	1 travel lane	2 travel lanes[2]	landscape buffer	sidewalk
rec	8'	3'	7'	9'	16'	3'	8'
min	5'	0'	7'	9'	12'	0'	5'
max	-	-	8'	10'	18'	-	-

[1] Curbless Minor Downtown Streets should have buffer spaces of at least 2' and should contain a vertical element or another detectable edge to aid visually-impaired people in navigation.
[2] The travelway on two-way Minor Downtown Streets with on-street parking may be as narrow as 12' if parking utilization is low or if curbside space is designated for vehicles to yield to oncoming vehicle traffic.

facility selection guide

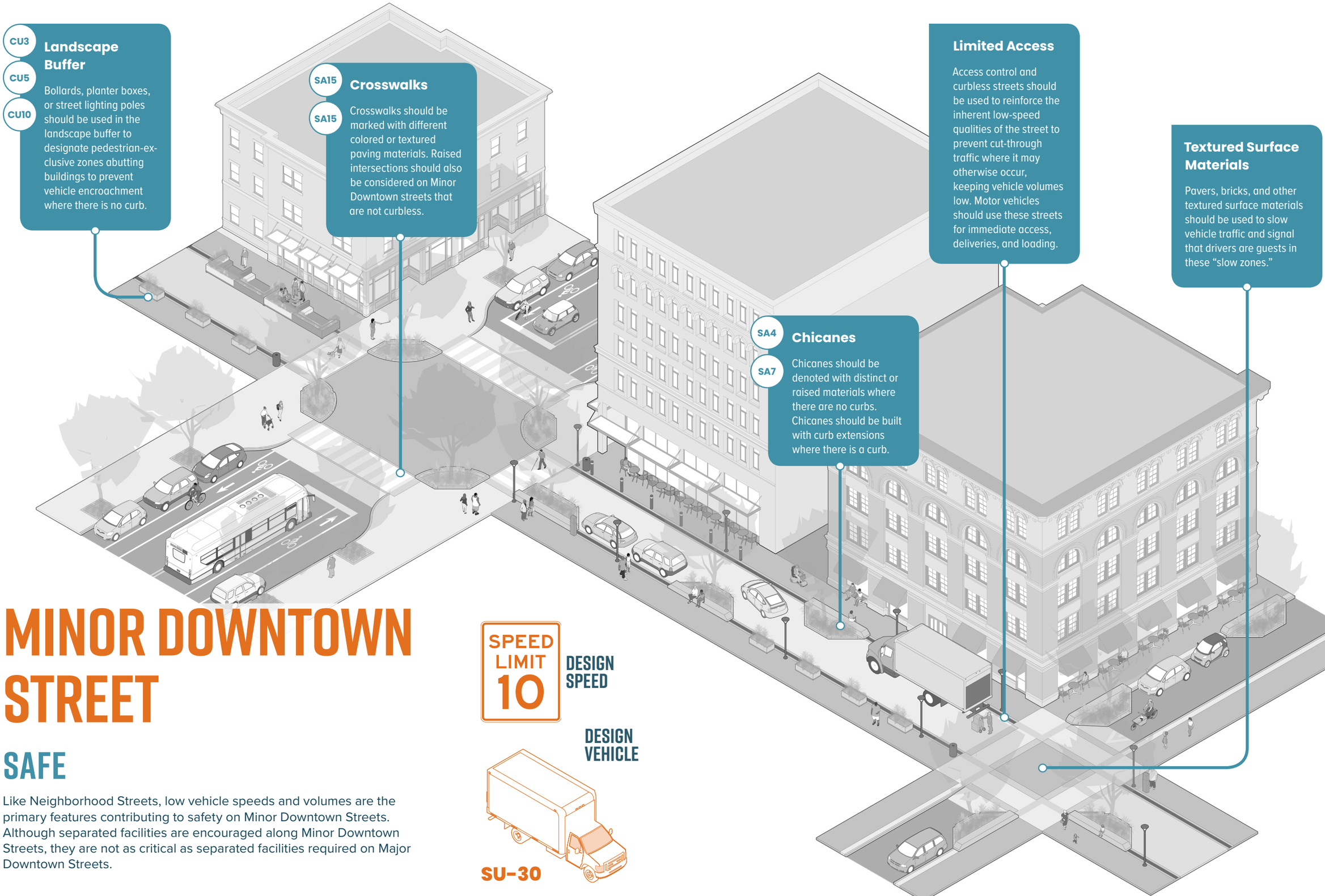


MINOR DOWNTOWN STREET

*vehicle volumes up to 3,000 may be acceptable in limited circumstances

example streets

- Snow Street
- Orange Street
- Elm Street



MINOR DOWNTOWN STREET

SAFE

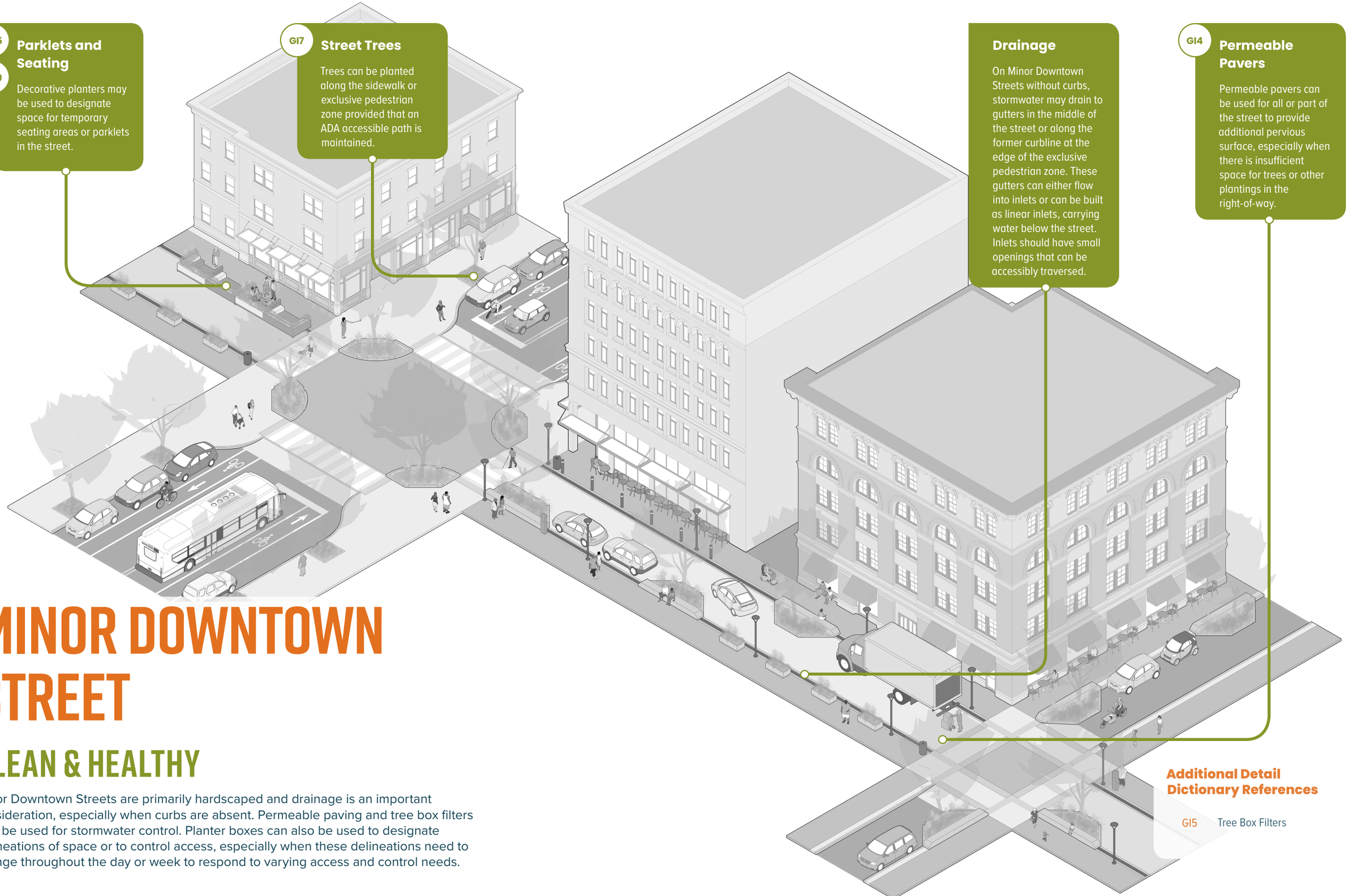
Like Neighborhood Streets, low vehicle speeds and volumes are the primary features contributing to safety on Minor Downtown Streets. Although separated facilities are encouraged along Minor Downtown Streets, they are not as critical as separated facilities required on Major Downtown Streets.

SPEED LIMIT 10

DESIGN SPEED

DESIGN VEHICLE

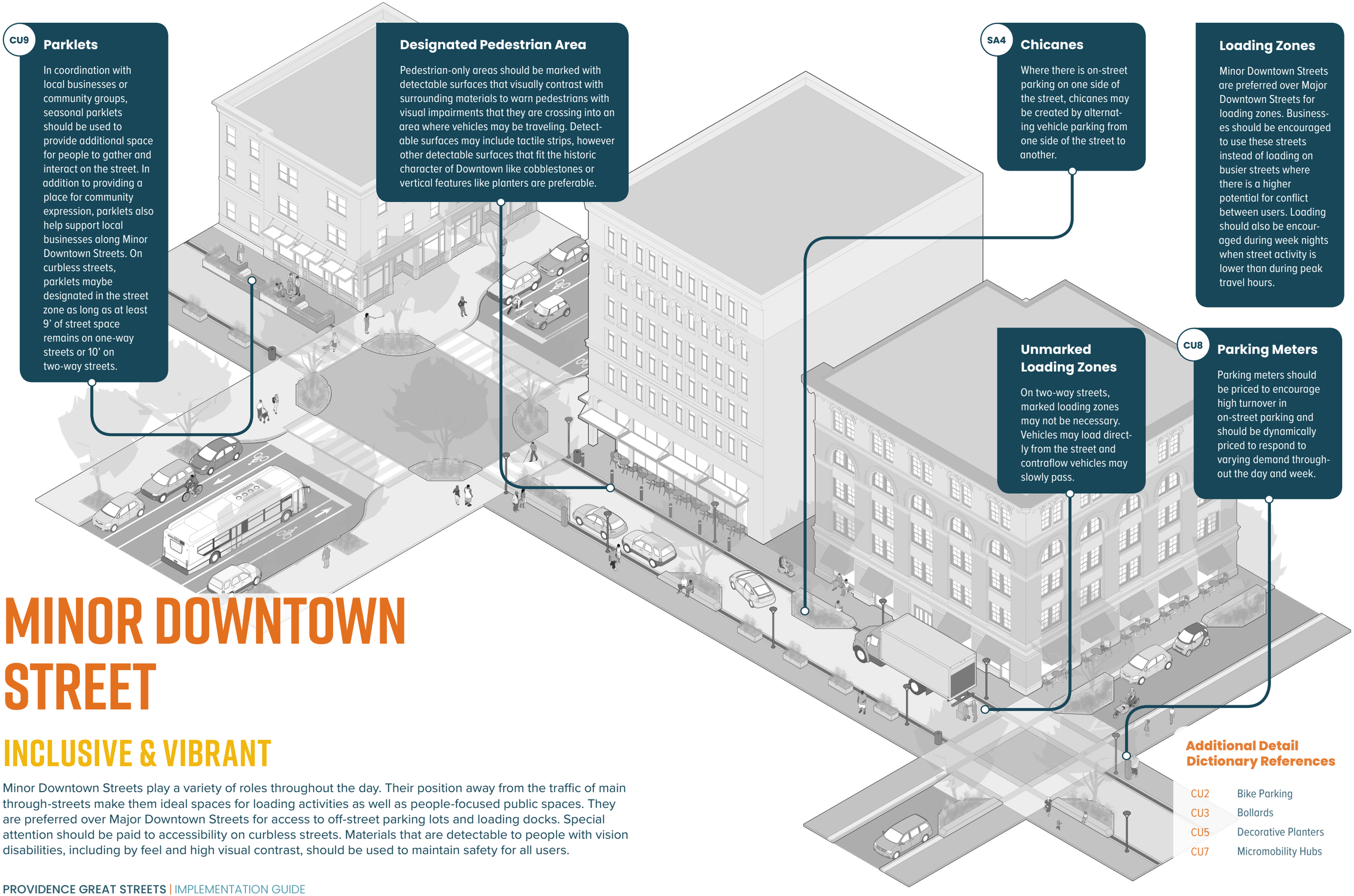
SU-30



MINOR DOWNTOWN STREET

CLEAN & HEALTHY

Minor Downtown Streets are primarily hardscaped and drainage is an important consideration, especially when curbs are absent. Permeable paving and tree box filters may be used for stormwater control. Planter boxes can also be used to designate delineations of space or to control access, especially when these delineations need to change throughout the day or week to respond to varying access and control needs.



CU9 **Parklets**

In coordination with local businesses or community groups, seasonal parklets should be used to provide additional space for people to gather and interact on the street. In addition to providing a place for community expression, parklets also help support local businesses along Minor Downtown Streets. On curbless streets, parklets maybe designated in the street zone as long as at least 9' of street space remains on one-way streets or 10' on two-way streets.

Designated Pedestrian Area

Pedestrian-only areas should be marked with detectable surfaces that visually contrast with surrounding materials to warn pedestrians with visual impairments that they are crossing into an area where vehicles may be traveling. Detectable surfaces may include tactile strips, however other detectable surfaces that fit the historic character of Downtown like cobblestones or vertical features like planters are preferable.

SA4 **Chicanes**

Where there is on-street parking on one side of the street, chicanes may be created by alternating vehicle parking from one side of the street to another.

Loading Zones

Minor Downtown Streets are preferred over Major Downtown Streets for loading zones. Businesses should be encouraged to use these streets instead of loading on busier streets where there is a higher potential for conflict between users. Loading should also be encouraged during week nights when street activity is lower than during peak travel hours.

Unmarked Loading Zones

On two-way streets, marked loading zones may not be necessary. Vehicles may load directly from the street and contraflow vehicles may slowly pass.

CU8 **Parking Meters**

Parking meters should be priced to encourage high turnover in on-street parking and should be dynamically priced to respond to varying demand throughout the day and week.

MINOR DOWNTOWN STREET

INCLUSIVE & VIBRANT

Minor Downtown Streets play a variety of roles throughout the day. Their position away from the traffic of main through-streets make them ideal spaces for loading activities as well as people-focused public spaces. They are preferred over Major Downtown Streets for access to off-street parking lots and loading docks. Special attention should be paid to accessibility on curbless streets. Materials that are detectable to people with vision disabilities, including by feel and high visual contrast, should be used to maintain safety for all users.

Additional Detail Dictionary References

CU2	Bike Parking
CU3	Bollards
CU5	Decorative Planters
CU7	Micromobility Hubs

SA15

Raised Intersections

Intersections should be designed to prioritize people walking, riding bicycles, and using micromobility devices. Raised intersections should be used to signal pedestrian priority at crossings and also provide space to use pavers or other character-appropriate materials along the street.

SN2
SN5
SN6

Urban Trail Wayfinding

The City of Providence's branded Urban Trail pavement markings, wayfinding, and interpretive signage should be included to direct Urban Trail users to important destinations such as parks, schools, libraries, and museums, highlight important cultural and historic information, and provide consistency along the entirety of the Urban Trail.

SA3
SA13
SA13

Intersection Design

Where raised intersections are not feasible crossing busy streets, consider using dedicated signal phasing, refuge medians, and/or additional signage. Where raised intersections are not feasible at offset intersections where Minor Downtown Streets meet a larger or busier street, short trail segments should be built to connect two links using the appropriate context type. These short links should be highly noticeable and legible at each end.

Shared Streets

Where Urban Trails are designated along Minor Downtown Streets, streets should be shared streets that prioritize slow, non-vehicular travel and provide high levels of comfort. If curbless, shared streets are not feasible, the Urban Trail should be bi-directional and located along one side of the street with full separation from motor vehicle traffic provided.

MINOR DOWNTOWN STREET

URBAN TRAIL

Connectivity is the defining feature of Providence's Urban Trail network. Minor Downtown Streets -especially curbless ones - inherently meet many requirements for Providence's Urban Trail Network, excepting connectivity. For Minor Downtown Streets to rise to the level of an Urban Trail, special attention should be paid to ensure a consistent and continuous route is provided across major intersecting streets.

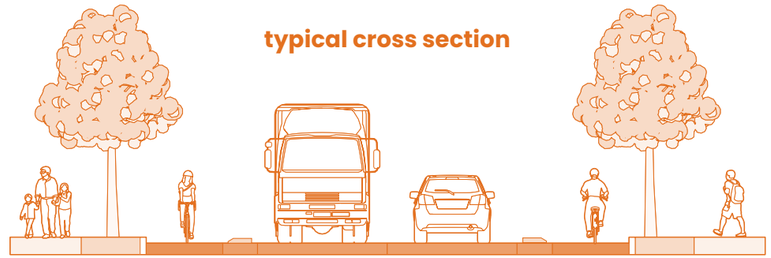
Additional Detail Dictionary References

SA18	Intersection Treatments for Bike Lanes and Urban Trails
SN4	Rectangular Rapid-Flashing Beacons (RRFB)
SN7	Urban Trail Signal Strategies

INDUSTRIAL STREET

Industrial Streets play an important role supporting the local and regional economy. Large trucks regularly use these streets to process and distribute goods from industrial sites within Providence. While Industrial Streets may lack pedestrian-scaled storefronts or other active uses, they should be designed to create an engaging, comfortable, and safe public realm for people who work in or travel through industrial areas.

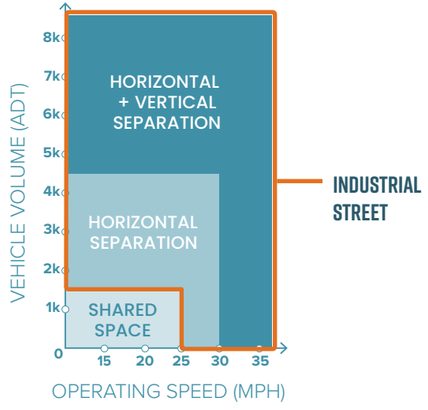
typical cross section



	sidewalk	landscape buffer[1]	bike lane[2]	travel lane	travel lane	bike lane[2]	landscape buffer[1]	sidewalk
rec	6'	5'	9.5'	11''	11''	9.5'	5'	6'
min	5'	0'	5'	10'	10'	5'	0'	5'
max	-	-	-	11'	11'	-	-	-

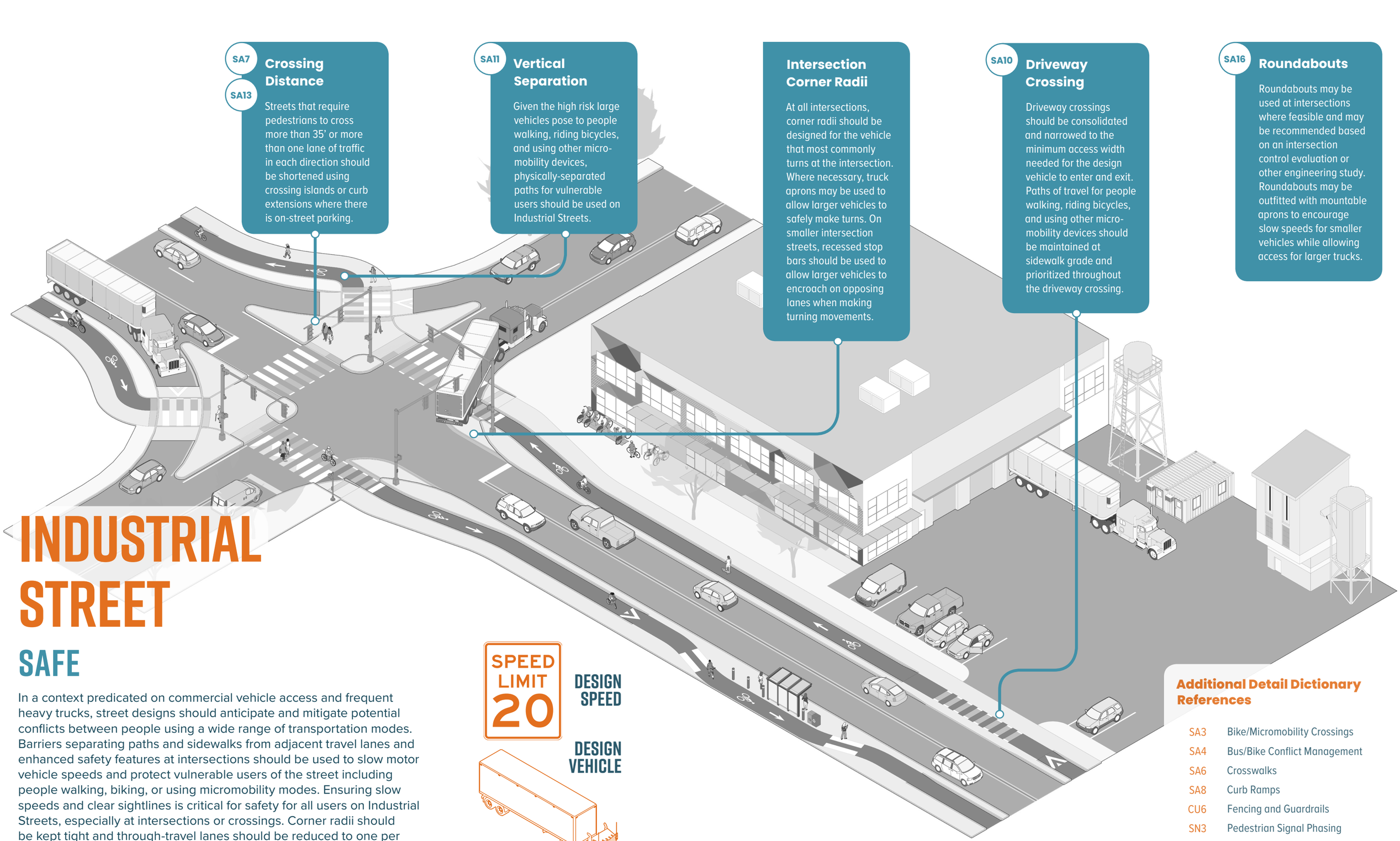
[1] When the project is located within a stormwater priority area, space for stormwater infiltration should be maximized, where appropriate.
[2] Where available space for the bike lane exceeds 8', vertical separation should be used. Where available space for the bike lane exceeds 6', provide a painted buffer between parked cars and the bike lane where there is parallel parking, or between travel lanes and the bike lane where no parallel parking is located. In some cases where total bike lane space is 10-14' for both directions, both directions of bike traffic should be consolidated on one side of the street in a bidirectional facility.

facility selection guide



example streets

- Allens Avenue
- Niantic Avenue
- Dupond Drive
- Magnan Drive



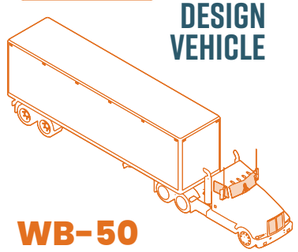
INDUSTRIAL STREET

SAFE

In a context predicated on commercial vehicle access and frequent heavy trucks, street designs should anticipate and mitigate potential conflicts between people using a wide range of transportation modes. Barriers separating paths and sidewalks from adjacent travel lanes and enhanced safety features at intersections should be used to slow motor vehicle speeds and protect vulnerable users of the street including people walking, biking, or using micromobility modes. Ensuring slow speeds and clear sightlines is critical for safety for all users on Industrial Streets, especially at intersections or crossings. Corner radii should be kept tight and through-travel lanes should be reduced to one per direction to create predictable and slow traffic patterns that improve safety for all users.

DESIGN SPEED

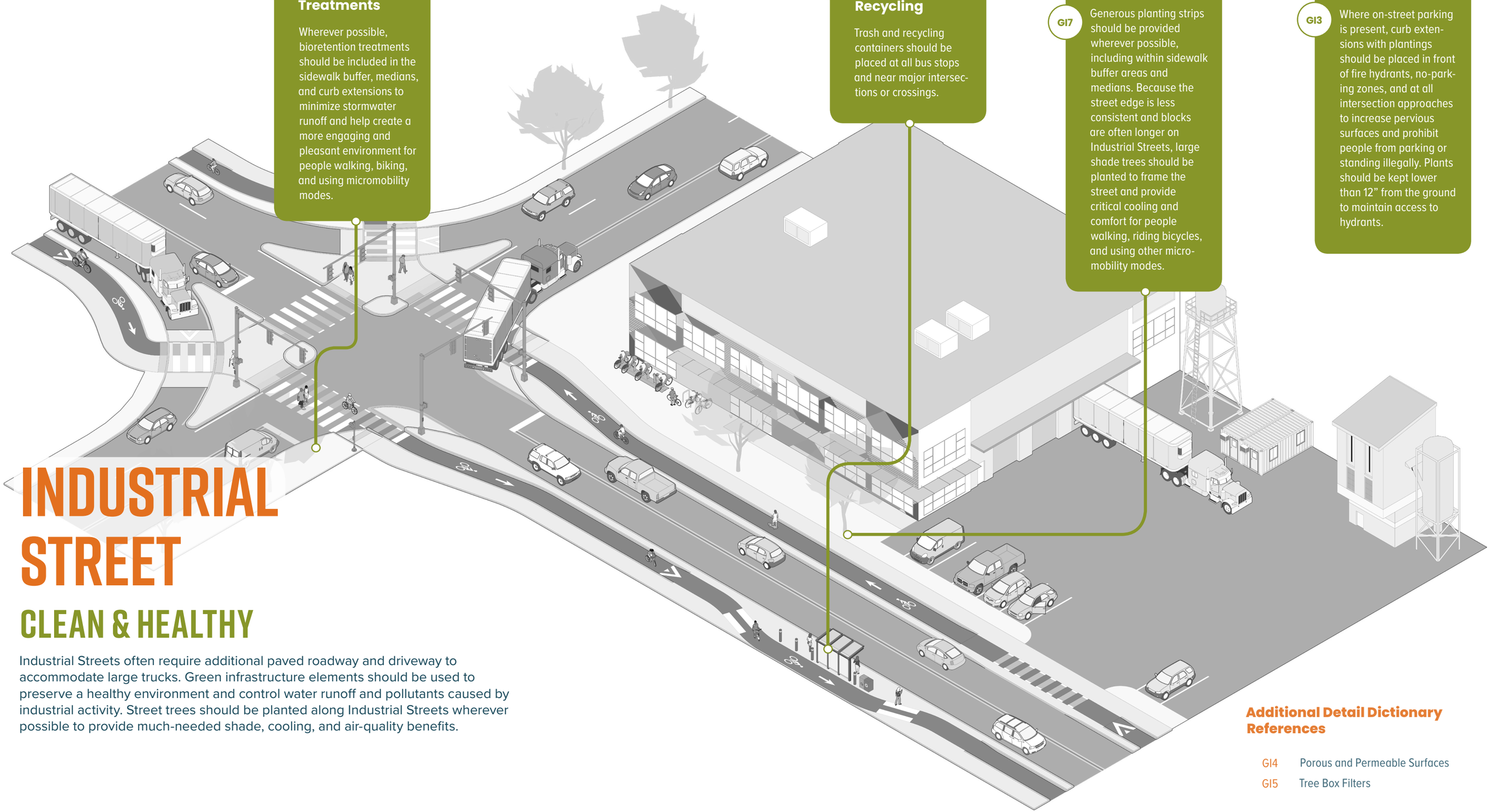
DESIGN VEHICLE



WB-50

Additional Detail Dictionary References

SA3	Bike/Micromobility Crossings
SA4	Bus/Bike Conflict Management
SA6	Crosswalks
SA8	Curb Ramps
CU6	Fencing and Guardrails
SN3	Pedestrian Signal Phasing



INDUSTRIAL STREET

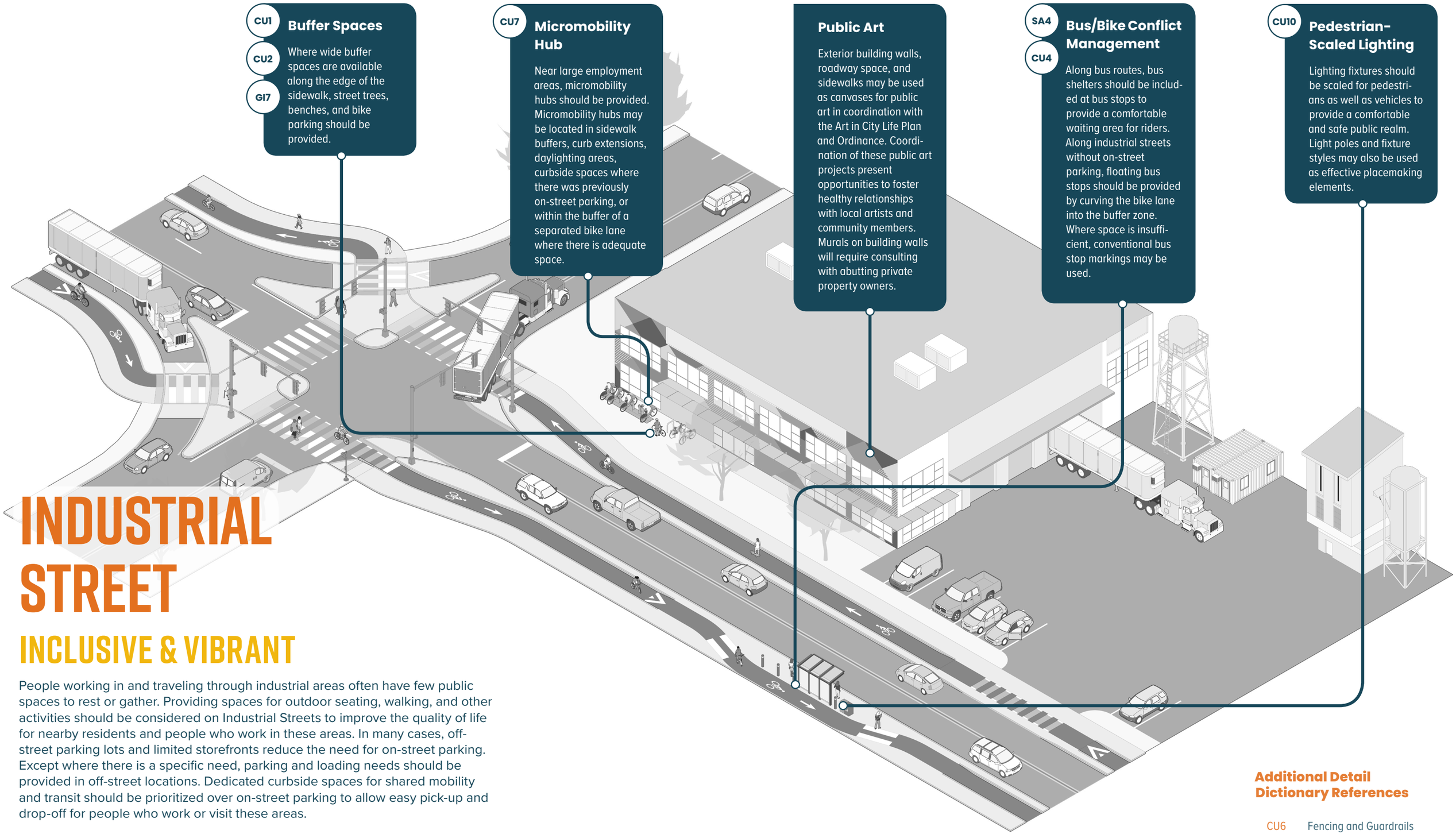
CLEAN & HEALTHY

Industrial Streets often require additional paved roadway and driveway to accommodate large trucks. Green infrastructure elements should be used to preserve a healthy environment and control water runoff and pollutants caused by industrial activity. Street trees should be planted along Industrial Streets wherever possible to provide much-needed shade, cooling, and air-quality benefits.

Additional Detail Dictionary References

GI4 Porous and Permeable Surfaces

GI5 Tree Box Filters



CU1 **CU2** **GI7**

Buffer Spaces

Where wide buffer spaces are available along the edge of the sidewalk, street trees, benches, and bike parking should be provided.

CU7

Micromobility Hub

Near large employment areas, micromobility hubs should be provided. Micromobility hubs may be located in sidewalk buffers, curb extensions, daylighting areas, curbside spaces where there was previously on-street parking, or within the buffer of a separated bike lane where there is adequate space.

Public Art

Exterior building walls, roadway space, and sidewalks may be used as canvases for public art in coordination with the Art in City Life Plan and Ordinance. Coordination of these public art projects present opportunities to foster healthy relationships with local artists and community members. Murals on building walls will require consulting with abutting private property owners.

SA4 **CU4**

Bus/Bike Conflict Management

Along bus routes, bus shelters should be included at bus stops to provide a comfortable waiting area for riders. Along industrial streets without on-street parking, floating bus stops should be provided by curving the bike lane into the buffer zone. Where space is insufficient, conventional bus stop markings may be used.

CU10

Pedestrian-Scaled Lighting

Lighting fixtures should be scaled for pedestrians as well as vehicles to provide a comfortable and safe public realm. Light poles and fixture styles may also be used as effective placemaking elements.

INDUSTRIAL STREET

INCLUSIVE & VIBRANT

People working in and traveling through industrial areas often have few public spaces to rest or gather. Providing spaces for outdoor seating, walking, and other activities should be considered on Industrial Streets to improve the quality of life for nearby residents and people who work in these areas. In many cases, off-street parking lots and limited storefronts reduce the need for on-street parking. Except where there is a specific need, parking and loading needs should be provided in off-street locations. Dedicated curbside spaces for shared mobility and transit should be prioritized over on-street parking to allow easy pick-up and drop-off for people who work or visit these areas.

Additional Detail Dictionary References

CU6 Fencing and Guardrails

SA3
SA10
SN7

Vehicle Conflict Management

Conflict points with motor vehicles should be minimized and mitigated through careful design and signal treatments at intersections and driveway crossings. Due to the presence of high-volume driveways, clear priority for Urban Trail users should be provided at all major driveway crossings by maintaining the grade of the sidewalk, using high visibility paint, and appropriate signage.

CU1
CU10
CU11
GI7

Sidewalk/Trail Buffer

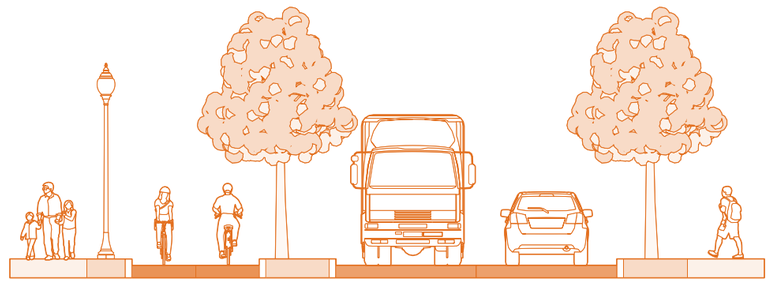
When at sidewalk level, a buffer between the sidewalk and Urban Trail is desirable to protect people walking from faster-moving modes generally used in the Urban Trail. The buffer between the Urban Trail and sidewalk is an ideal place to reinforce clean and healthy streets with plantings, and trash and recycling bins, or to enhance other elements of the street with benches, lighting, and art.

SA11
GI2

Planted Buffer

Where enough right-of-way exists, a wide planting strip should be provided between the Urban Trail and vehicle travel lanes to form a buffer. In constrained sections, the buffer should be at least 2' wide and feature a planting strip or other context-appropriate materials for vertical separation.

typical cross section



	sidewalk	landscape buffer	Urban Trail	buffer	travel lane	travel lane	landscape buffer	sidewalk
rec	6'	3'	10'	5'	11'	11'	5'	6'
min	5'	2'	8'	2'	10'	10'	2'	5'
max	-	-	16'	-	11'	11'	-	-

SA4

Bus/Bike Conflict Management

If bus service is provided, floating bus stops should be used to mitigate bus activity and contra-flow trail movements. If on-street parking is only provided on one side of the street, it should be located on the same side as the Urban Trail to provide requisite space for the floating bus stop. If there is no on-street parking, the Urban Trail may curve towards the sidewalk and may need to share sidewalk space for a short period. In these cases, the Urban Trail should be delineated with different pavement markings and should narrow to 8' to leave the maximum amount of exclusive-pedestrian space possible.

INDUSTRIAL STREET

URBAN TRAIL

Urban trails through industrial areas provide key connections between neighborhoods and to industrial jobs along the street. Urban trails should consist of two-way paths fully separated and protected from vehicle traffic through industrial areas. With a significant number of large vehicles making turns in and out of industrial driveways along the street edge, designers should seek to minimize conflicts with curbside and driveway activity when determining which side of the street is most appropriate for the Urban Trail. The volume of trail users on Industrial Streets will likely be low to moderate, but may be higher along streets that serve as a primary connection between dense residential areas and high-activity destinations such as Downtown or local universities. In constrained areas, it may be appropraite to consolidate the Urbal Trail and sidewalk on one side of the street.

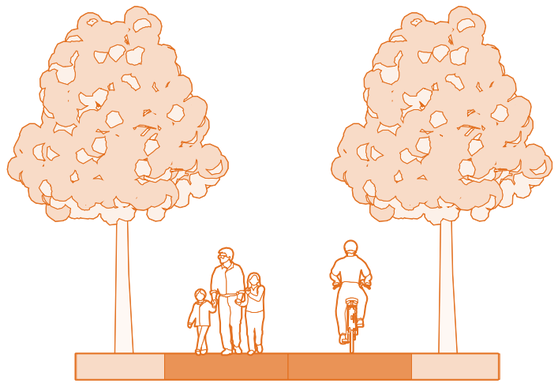
Additional Detail Dictionary References

SA18	Intersection Treatments for Bike Lanes and Urban Trails
SN5	Urban Trail Identification

OFF-STREET PATH

Off-street paths – usually in parks and along greenways – provide people with an important oasis from busy urban life without needing to travel far to access greenery and nature. Though some off-street paths create obvious links within the Urban Trail Network, others may be intended for more passive uses and have different design needs based on their desired use as either active travelways or passive recreation spaces.

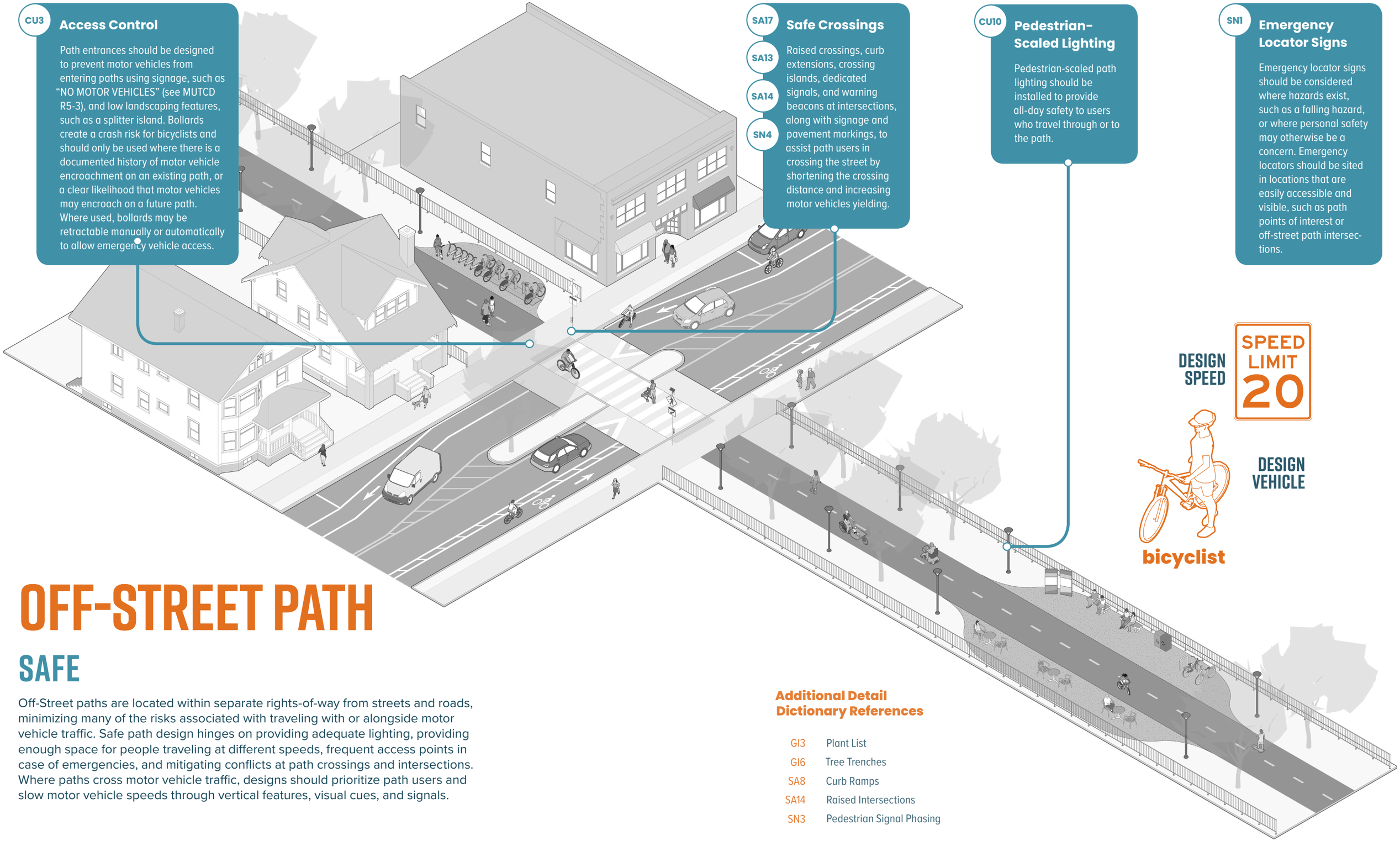
typical cross section



	buffer	trail	buffer
rec	**5'**	**14'**	**5'**
min	**2'**	**10'**	**2'**
max	-	-	-

example paths

- Woonasquatucket River Greenway
- India Point Park Path



CU3 Access Control

Path entrances should be designed to prevent motor vehicles from entering paths using signage, such as "NO MOTOR VEHICLES" (see MUTCD R5-3), and low landscaping features, such as a splitter island. Bollards create a crash risk for bicyclists and should only be used where there is a documented history of motor vehicle encroachment on an existing path, or a clear likelihood that motor vehicles may encroach on a future path. Where used, bollards may be retractable manually or automatically to allow emergency vehicle access.

SA17 SA13 SA14 SN4 Safe Crossings

Raised crossings, curb extensions, crossing islands, dedicated signals, and warning beacons at intersections, along with signage and pavement markings, to assist path users in crossing the street by shortening the crossing distance and increasing motor vehicles yielding.

CU10 Pedestrian-Scaled Lighting

Pedestrian-scaled path lighting should be installed to provide all-day safety to users who travel through or to the path.

SN1 Emergency Locator Signs

Emergency locator signs should be considered where hazards exist, such as a falling hazard, or where personal safety may otherwise be a concern. Emergency locators should be sited in locations that are easily accessible and visible, such as path points of interest or off-street path intersections.

DESIGN SPEED

SPEED LIMIT 20

DESIGN VEHICLE

bicyclist

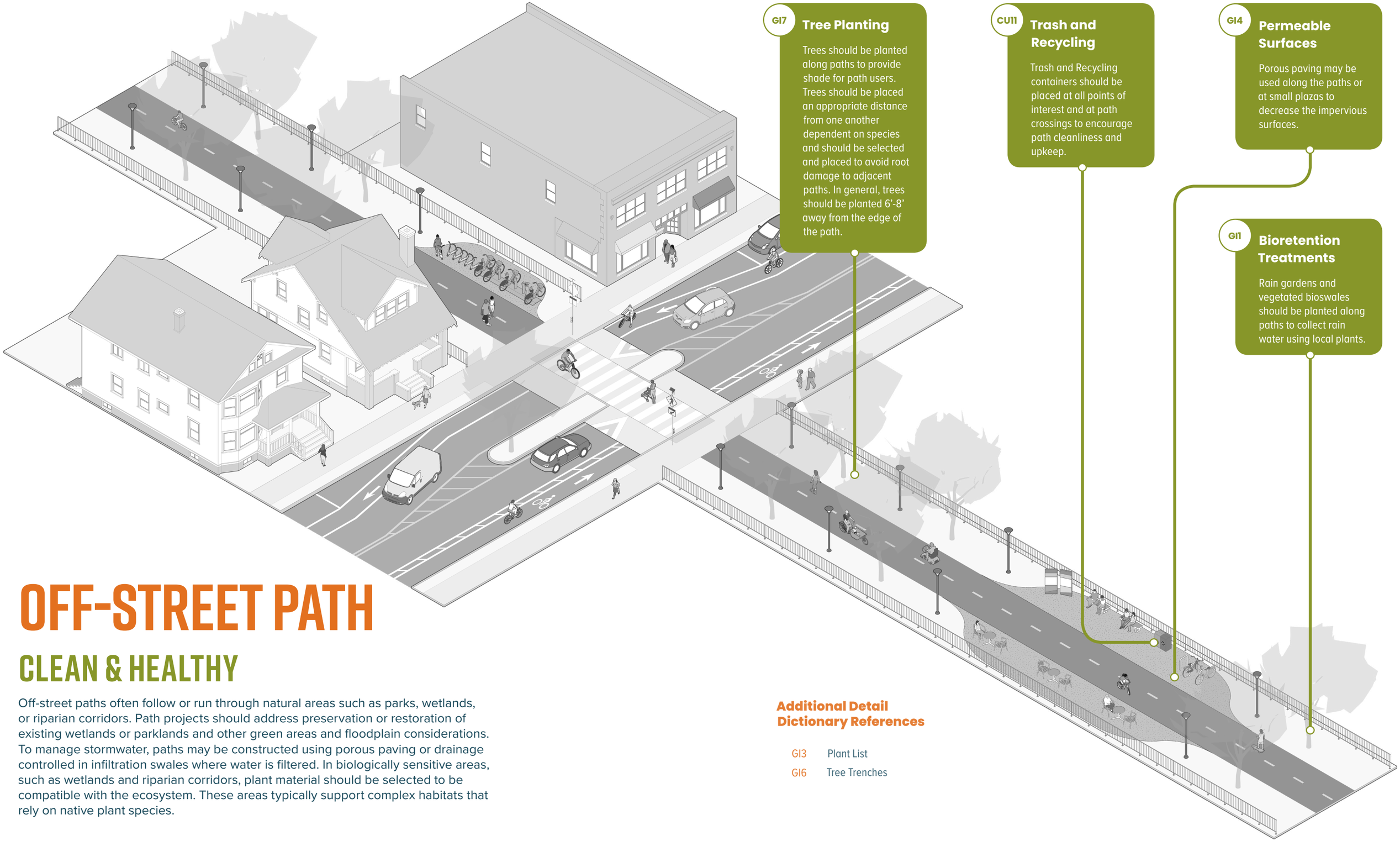
OFF-STREET PATH

SAFE

Off-Street paths are located within separate rights-of-way from streets and roads, minimizing many of the risks associated with traveling with or alongside motor vehicle traffic. Safe path design hinges on providing adequate lighting, providing enough space for people traveling at different speeds, frequent access points in case of emergencies, and mitigating conflicts at path crossings and intersections. Where paths cross motor vehicle traffic, designs should prioritize path users and slow motor vehicle speeds through vertical features, visual cues, and signals.

Additional Detail Dictionary References

GI3	Plant List
GI6	Tree Trenches
SA8	Curb Ramps
SA14	Raised Intersections
SN3	Pedestrian Signal Phasing



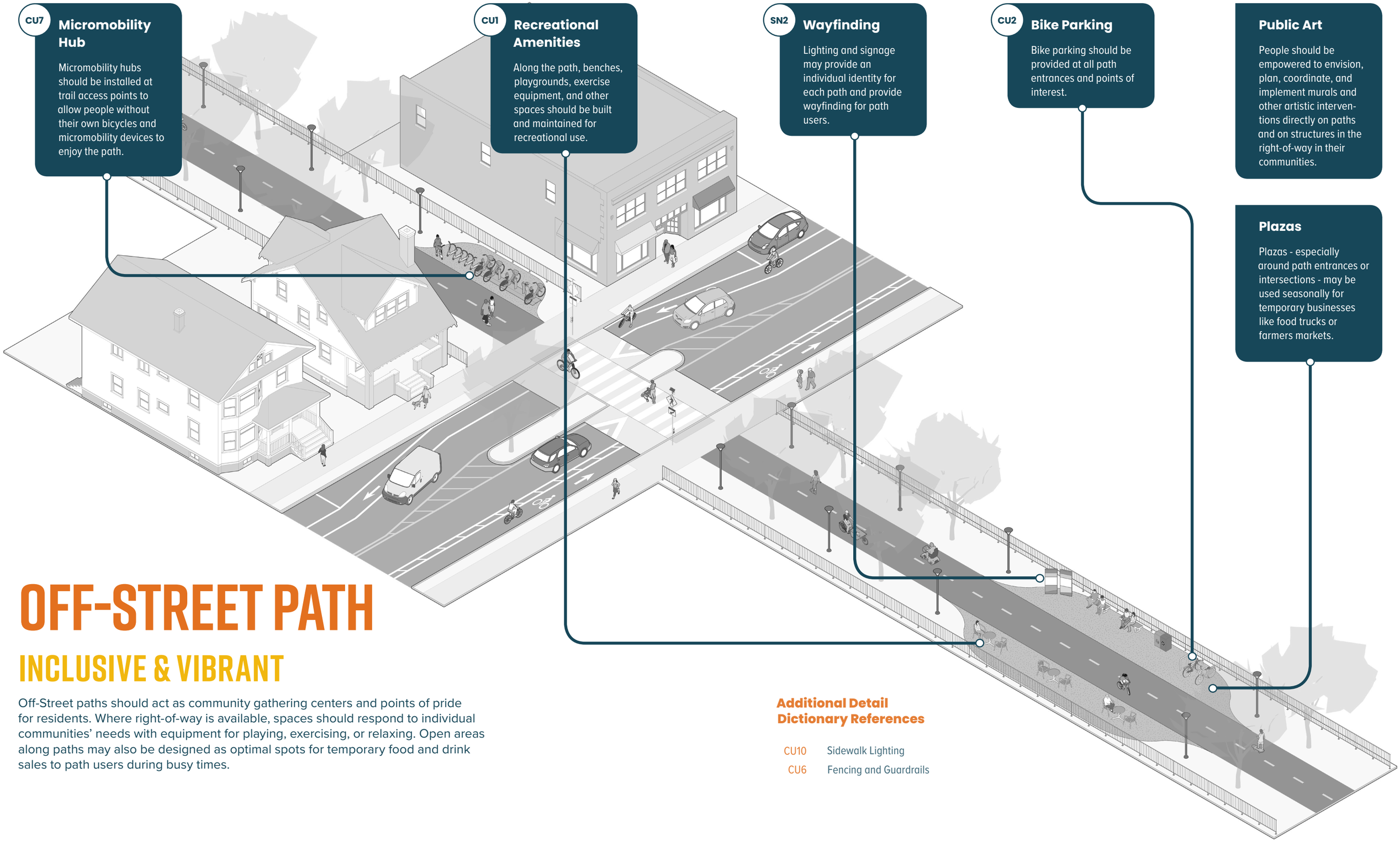
OFF-STREET PATH

CLEAN & HEALTHY

Off-street paths often follow or run through natural areas such as parks, wetlands, or riparian corridors. Path projects should address preservation or restoration of existing wetlands or parklands and other green areas and floodplain considerations. To manage stormwater, paths may be constructed using porous paving or drainage controlled in infiltration swales where water is filtered. In biologically sensitive areas, such as wetlands and riparian corridors, plant material should be selected to be compatible with the ecosystem. These areas typically support complex habitats that rely on native plant species.

Additional Detail Dictionary References

GI3 Plant List
GI6 Tree Trenches



OFF-STREET PATH

INCLUSIVE & VIBRANT

Off-Street paths should act as community gathering centers and points of pride for residents. Where right-of-way is available, spaces should respond to individual communities' needs with equipment for playing, exercising, or relaxing. Open areas along paths may also be designed as optimal spots for temporary food and drink sales to path users during busy times.

Additional Detail Dictionary References

CU10	Sidewalk Lighting
CU6	Fencing and Guardrails

OFF-STREET PATH

URBAN TRAIL

Paths within parks and other natural spaces take on a unique identity based on their surrounding environmental, cultural, and land use features. This section is intended to provide guidance on how to successfully incorporate a range of off-street paths into the Urban Tail network in Providence. Off-street Urban Trails should include wide paths and may include separate pedestrian paths to safely and comfortably accommodate a higher volume and mix of users. Off-street trails should also seamlessly connect to on-street ones with wayfinding and smooth transitions.

SA14

Raised Crossings

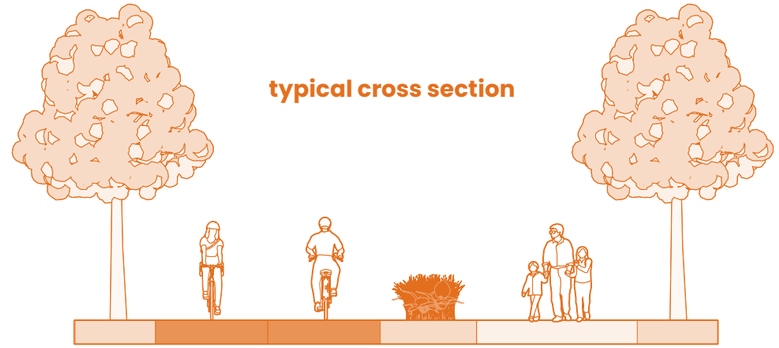
Where Off-Street Urban Trails cross streets, raised crossings should be used to signal to people driving that the trail users have priority and slows vehicle traffic to create a safe and comfortable crossing.

SN3
SN4
SA3

Crossing Signals and Markings

Crossings should be combined with rapid rectangular flashing beacons (RRFBs) or signalization and should also feature additional signage and pavement markings to indicate that drivers should yield to crossing trail users.

typical cross section



	buffer	Urban Trail	buffer	walking path[1]	buffer
rec	-	14’	6’	10’	-
min	5’	11’	2’	6’	5’
max	-	16’	-	10’	-

[1] Separation of walking and biking/micromobility paths should be considered when pedestrian are expected to constitute 30% or more of the total trail traffic. Designers may consult the FHWA Shared Use Path Level of Service Calculator for additional tools to evaluate path width.

SN2
SN5
SN6

Urban Trail Wayfinding

The City of Providence’s branded Urban Trail signage and pavement markings should be used to direct people along the Urban Trail, making navigation easy without the aid of smartphones or other devices.

Trail Width

Trail widths of at least 14’should be used. Wider paths should be considered where high levels of activity are expected.

Additional Detail Dictionary References

SA18 Intersection Treatments for Bike Lanes and Urban Trails

03 DETAIL DICTIONARY

This Detail Dictionary provides additional detail and specificity about the many elements referenced in Chapter 2, Context Types. The details provided in this chapter should be applied with professional engineering judgment. Details are provided for guidance purposes and are not to be used as construction-ready standards or specifications. The Detail Dictionary does not include every detail or feature required for the design of streets and Urban Trails, therefore throughout the chapter, references to other guides and industry standards are provided for supplemental information and detail.

HOW TO USE THE DETAIL DICTIONARY:

Each element in the Detail Dictionary corresponds with the letter/number codes referenced in the Context Types throughout Chapter 2. The individual elements within the Detail Dictionary are grouped under one of the following subject categories:

- **SA - Safety and Accessibility:** Details for elements that provide traffic calming by slowing motor vehicles, provide physical separation for people walking, riding bicycles and using other micromobility options, increase visibility of people walking and riding bicycles, and enhance accessibility for users of all ages and abilities.
- **GI - Green Infrastructure:** Details for elements that beautify streets and mitigate adverse environmental impacts from pollution, stormwater runoff, and heat island effect. Consult the 2019 RIDOT Linear Stormwater Manual for comprehensive information regarding a wide range of stormwater Best Management Practices.
- **CA - Curbside Amenities:** Details for elements that provide seating, shelter at transit stops, waste disposal, storage for bikes and scooters, and other means for enjoying the street environment.
- **SN – Signage and Signals:** Details for traffic signals and signage for streets and Urban Trails. Standard roadway signage is not included in this dictionary. Consult the MUTCD for additional detail about requirements for regulatory signage.

Each detail provides a description and illustration depicting critical guidance including design components and dimensions. In addition, use, requirement, and preference information is provided for each element in the Detail Dictionary.

- **Use:** Defines what the element achieves and where the element is appropriate.
- **Requirements:** Identifies dimensional, placement, and other requirements for design features and elements
- **Additional Considerations:** Describes opportunities for enhancements or alternative design features that practitioners should consider related to use, maintenance needs, and culture.

NOTE ON THE USE OF THE WORD SHOULD

“Should” statements in this Guide denote the official policy or approach of the City of Providence. Exceptions to “Should” statements will be documented and reviewed on a case-by-case basis.

SAFETY & ACCESSIBILITY

Details for elements that provide traffic calming by slowing motor vehicles, provide physical separation for people walking, riding bicycles and using other micromobility options, increase visibility of people walking and riding bicycles, and enhance accessibility for users of all ages and abilities.

- **SA01** Access Control/Diverters
- **SA02** Accessible Parking & Pick-up/Drop-off Zones
- **SA03** Bike/Micromobility Crossings
- **SA04** Chicanes
- **SA05** Bus/Bike Conflict Management
- **SA06** Crosswalks
- **SA07** Curb Extensions
- **SA08** Curb Ramps
- **SA09** Daylighting
- **SA10** Driveway Crossings
- **SA11** Materials for Vertical Separation
- **SA12** Neighborhood Traffic Circles
- **SA13** Pedestrian Islands
- **SA14** Raised Crossings
- **SA15** Raised Intersections
- **SA16** Roundabouts
- **SA17** Speed Lumps
- **SA18** Intersection Treatments for Bike Lanes and Urban Trails

GREEN INFRASTRUCTURE

Details for elements that beautify our streets and mitigate adverse environmental impacts from pollution, stormwater runoff, and heat island effect. Consult the 2019 RIDOT Linear Stormwater Manual for comprehensive information regarding a wide range of stormwater Best Management Practices.

- **GI01** Bioretention Treatments
- **GI02** Planting Strips
- **GI03** Plant List
- **GI04** Porous & Permeable Surfaces
- **GI05** Tree Box Filters
- **GI06** Tree Trenches
- **GI07** Tree Planting

CURBSIDE AMENITIES

Details for elements that provide seating, shelter at transit stops, waste disposal, storage for bikes and scooters, and other means for enjoying the street environment.

- **CU01** Benches/Seating
- **CU02** Bike Parking
- **CU03** Bollards
- **CU04** Bus Shelters & Stop Amenities
- **CU05** Decorative Planters
- **CU06** Fencing and Guardrails
- **CU07** Micromobility Hubs
- **CU08** Parking Meters/Kiosks
- **CU09** Parklets
- **CU10** Sidewalk Lighting
- **CU11** Trash & Recycling Containers

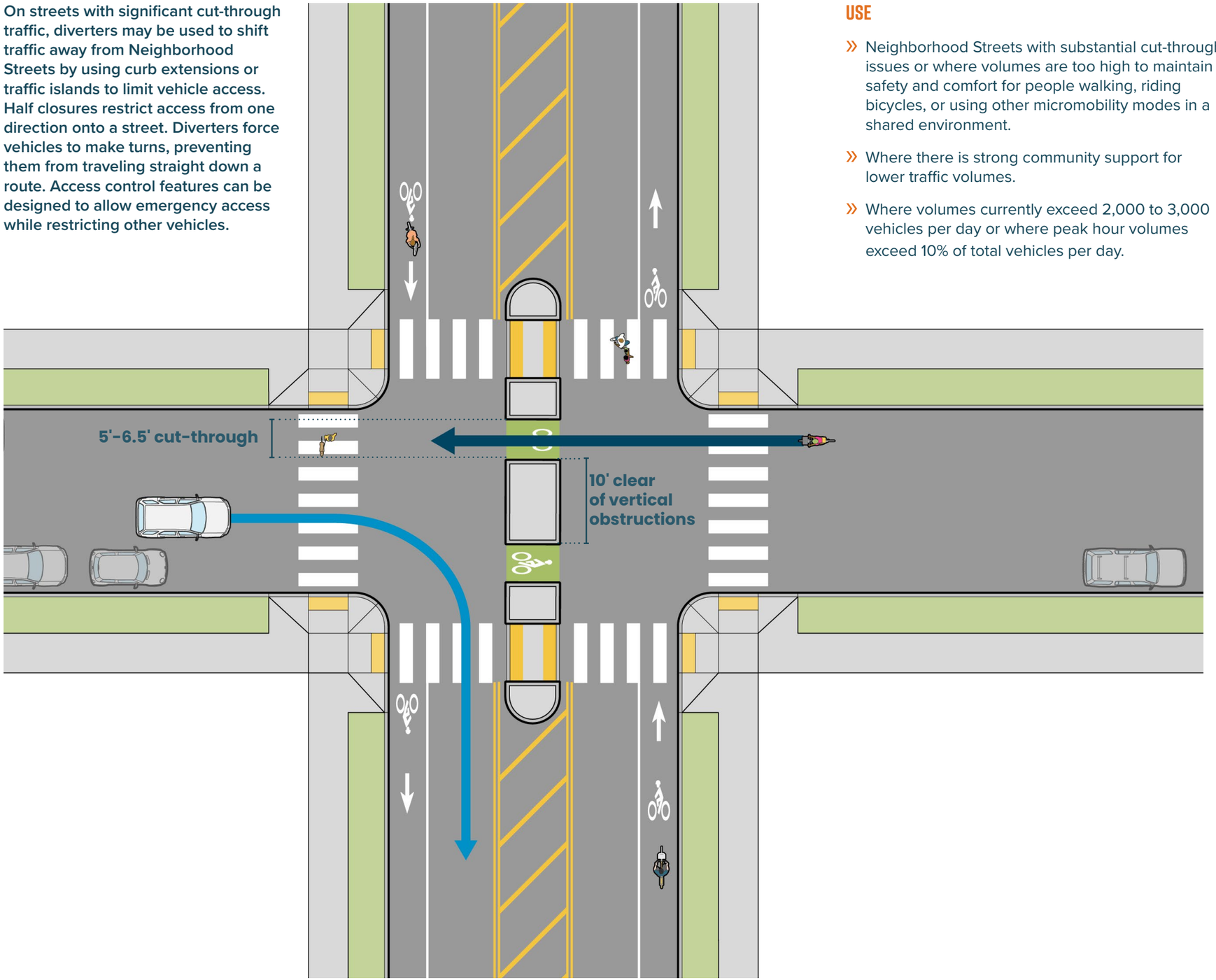
SIGNAGE AND SIGNALS

Details for signals and signage for our streets and Urban Trails. Standard roadway signage is not included in this dictionary. Consult the MUTCD for additional detail about requirements for regulatory signage.

- **SN01** Emergency Locators
- **SN02** Interpretive
- **SN03** Pedestrian Signal Phasing
- **SN04** Rectangular Rapid-Flashing Beacons (RRFB)
- **SN05** Urban Trail Identification
- **SN06** Urban Trail Network Trailhead Signs/Kiosks
- **SN07** Urban Trail Signal Strategies

SA01 ACCESS CONTROL/DIVERTERS

On streets with significant cut-through traffic, diverters may be used to shift traffic away from Neighborhood Streets by using curb extensions or traffic islands to limit vehicle access. Half closures restrict access from one direction onto a street. Diverters force vehicles to make turns, preventing them from traveling straight down a route. Access control features can be designed to allow emergency access while restricting other vehicles.



USE

- Neighborhood Streets with substantial cut-through issues or where volumes are too high to maintain safety and comfort for people walking, riding bicycles, or using other micromobility modes in a shared environment.
- Where there is strong community support for lower traffic volumes.
- Where volumes currently exceed 2,000 to 3,000 vehicles per day or where peak hour volumes exceed 10% of total vehicles per day.

REQUIREMENTS

- Provide accessible routes for people walking through access control features using flush surfaces and curb ramps at crossings.
- Where required, ensure emergency vehicle access is provided by considering the wheelbase of fire and other emergency vehicles when designing diverter islands. Consider using mountable 6” curbs and providing a width of 10’ that is clear of landscaping and rigid vertical elements within the diverter to aid emergency vehicle passage.
- Use cut-throughs of 5' to 6.5' to provide access for people riding bicycles and using other micromobility options while preventing vehicle through-traffic.

ADDITIONAL CONSIDERATIONS

- Consider potential traffic impacts to adjacent Neighborhood Streets before implementing diverters and ensure nearby Neighborhood Streets are adequately traffic calmed. Ensure diverters do not push cut through traffic from one Neighborhood Street to an adjacent Neighborhood Street, but rather deflect traffic to larger collectors and arterials.
- Use mountable curbs to keep vehicle routes narrow while allowing larger vehicles like delivery and garbage trucks to encroach on the barriers in turns.
- Provide W11-15 crossing signs where bicyclists and pedestrian crossings may be unexpected.

ADDITIONAL RESOURCES

- City of Providence Traffic Calming Design Guidelines
- FHWA Traffic Calming ePrimer 3.21 to 3.24

SA02 ACCESSIBLE PARKING & PICK-UP/DROP-OFF ZONES

Accessible parking and loading spaces provide additional space adjacent to parking stalls for vans with ramps to allow passenger alighting and ensure an accessible route from the landing area to the sidewalk. While on-street parking located adjacent to the sidewalk is generally considered accessible, parking that is located away from the sidewalk does not provide a clear accessible path to the sidewalk.

By State law, people with disability placards are permitted to park in any legal parking space without time restrictions and at no cost. However, standard parking stalls are not dimensioned to provide convenient or accessible routes for people using vehicle lifts and ramps.

USE

- For every 25 parking spaces up to 100 per block perimeter, one accessible parking space should be provided.
- For each additional 50 parking spaces up to 200 per block perimeter, one additional space should be accessible. Where more than 200 parking spaces are provided per block perimeter, 4% should be accessible.
- Where dedicated pick-up/drop-off passenger zones are provided, at least one passenger loading zone for each 100' should be accessible.

REQUIREMENTS

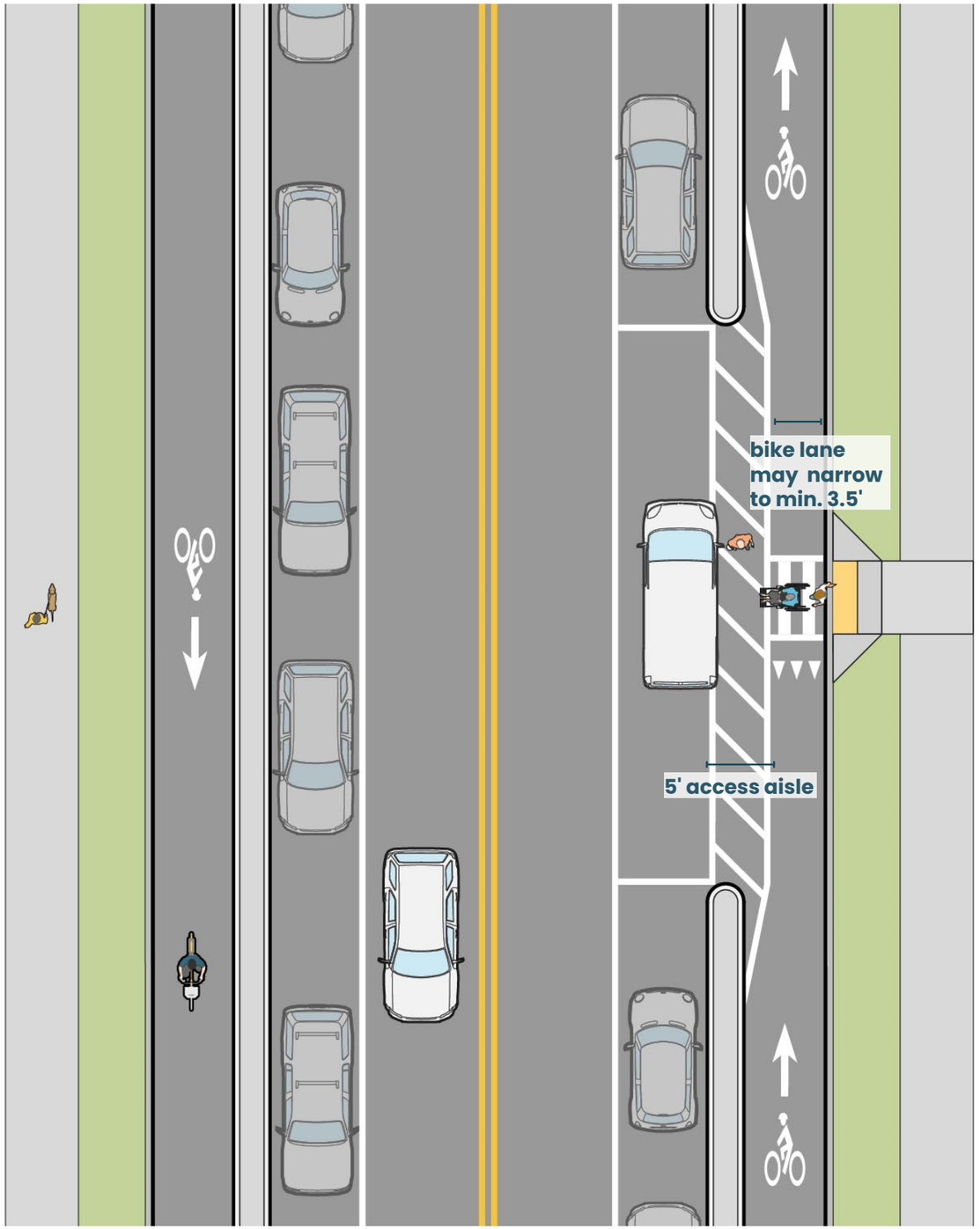
- Provide a 5' street-level access aisle adjacent to accessible spaces.
- In constrained rights-of-way, minimize the width of buffers before any other element. Separated bike lanes should be narrowed before sidewalks and may be reduced beyond their minimum dimensions for short distances. One-way separated bike lanes may narrow to 4.5' between curbs or 3.5' at sidewalk level or adjacent to a street level access aisle for short segments. Two-way separated bike lanes or Urban Trails may narrow to 8' between curbs or 7.5' at sidewalk level or access aisle for short segments.

ADDITIONAL CONSIDERATIONS

- Accessible spaces at the far side or near side of intersections can use existing curb ramps to maintain an accessible route.
- Mid-block spaces should be reserved for locations where intersection locations are not feasible or to facilitate access to a specific destination. A curb ramp to access the sidewalk from the accessible parking space will be required.

ADDITIONAL RESOURCES

- PROWAG



SA03 BIKE/MICROMOBILITY CROSSINGS

Bike Crossings are pavement markings that indicate a path or crossing at intersections or across driveways. They direct people riding bicycles or using other micromobility options to the safest direct path through an intersection and provide a warning to people driving to look for through movements before making a turn.

USE

- Where off-street Urban Trails meet roadways.
- Where bicycle/motor vehicle conflicts are frequent.
- Where the path of travel through the intersection is complex.
- Across wide, high-volume, and/or commercial driveways.

REQUIREMENTS

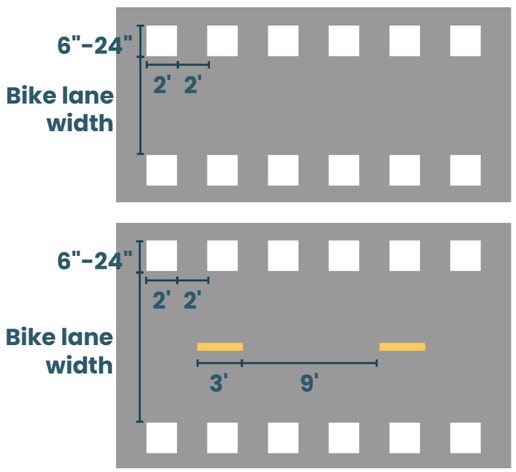
- Use white edge lines (which may be 6" to 24" in width) spaced 2' apart where not adjacent to a crosswalk.
- Maintain the width of the bike/micromobility crossing by aligning the outside lines of the crossing with the feeding and receiving legs of the bike lane or Urban Trail.
- Include a dashed yellow centerline in two-way bike/micromobility crossings.
- Use crossings in conjunction with advance-stop queue boxes, two-stage left turn boxes, and protected intersections (**see SA18**).

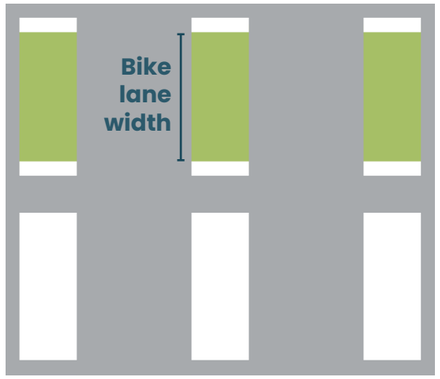
ADDITIONAL CONSIDERATIONS

- Apply green pavement markings along with dashed white edge lines to improve visibility and delineation of the crossing, especially when adjacent to a crosswalk.
- Align the inside of the white crossing markings with the width of the bike/micromobility facility to maintain the full width of the bike/micromobility lanes through the intersection.
- Align bike crossing markings with crosswalk markings where directly adjacent to minimize visual clutter.

ADDITIONAL RESOURCES

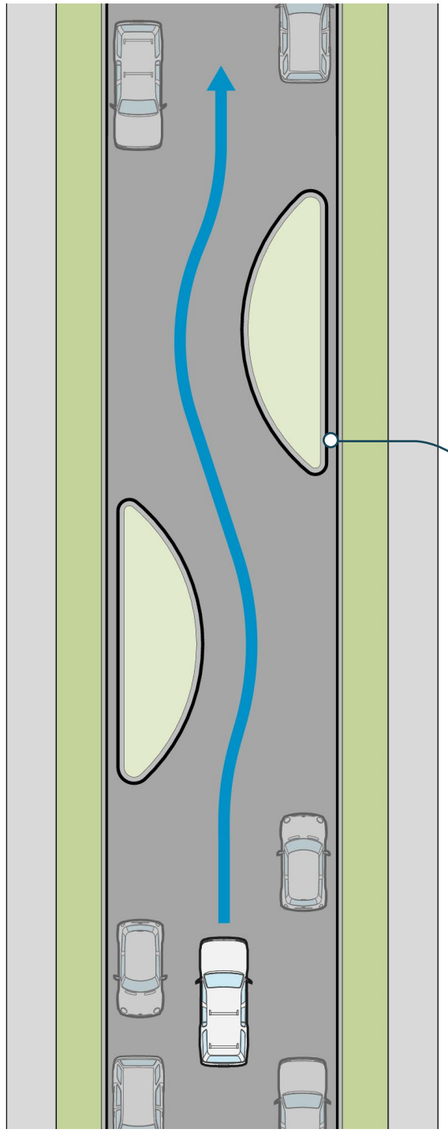
- AASHTO Guide for the Development of Bicycle Facilities
- FHWA Achieving Multimodal Networks
- NACTO Urban Bikeway Design Guide





SA04 CHICANES

Chicanes slow traffic by creating a serpentine travel path by alternating street features from one side of the street to the other. Curb extensions or on-street parallel parking may be used to produce a chicane. Chicanes increase the amount of public space available on a corridor and can be used for stormwater drainage catchment, street tree planting, benches, bicycle parking, and other amenities.



USE

- On low-volume streets including Neighborhood Streets, Neighborhood Connector Streets, and Minor Downtown streets.
- Avoid use on streets with significant volumes of bus, freight, or emergency response activity.

REQUIREMENTS

- Taper chicanes with a maximum ratio of 8:1 at either end.
- Use vertical elements like plantings or a W1-4 sign to warn drivers and snow plow operators of traffic pattern.

ADDITIONAL CONSIDERATIONS

- Use mountable curbs to accommodate larger vehicles while maintaining tight turn radii to slow people driving.
- Construct with 1' to 2' drainage channel between the chicane island and curb to maintain existing drainage patterns.
- Use for stormwater infiltration with bioretention areas or tree filter boxes (**see GI01 and GI05**).
- Consult with community members to identify what amenities within chicanes created with curb extensions are desired, such as public art, street furniture, bicycle parking, or planting area.

ADDITIONAL RESOURCES

- City of Providence Traffic Calming Design Guidelines
- FHWA Traffic Calming ePrimer 3.5
- NACTO Urban Street Design Guide

SA05 BUS/BIKE CONFLICT MANAGEMENT

The design treatments used for bus/bike conflict mitigation will depend on context, and may include either conventional bus stops, floating bus stops, or bus bulbs. Conflicts between curbside transit operations and people riding bicycles or using other micromobility options should be mitigated through design treatments that clearly define space and alert users to any locations where bus and bike/micromobility uses will be mixed within the street.

USE

- Where bus stops intersect two-way Urban Trails, floating bus stops are required to facilitate the contraflow bike/micromobility movement.
- Where bus stops intersect any type of separated bike/micromobility facility, floating bus stops are the preferred design treatment. Floating bus stops are specifically preferred along busy bus or bike/micromobility routes. Floating bus stops may also be used on streets with conventional striped bike lanes to better manage bus/bike conflicts and speed up transit operations.
- Where bike lanes and bus stops operate in a shared condition, conventional bus stop conflict markings should be used to identify conflict points and heighten awareness for both bus operators and people biking or using micromobility modes. Conventional bus stop markings may also be appropriate where one-way separated bike lanes are provided in highly constrained rights-of-way or on corridors with infrequent bus service.
- Where parallel on-street parking is provided and no bike lanes/Urban Trails are provided, bus bulbs may be used to improve transit operations and provide additional amenity space for passengers waiting at bus stops.

ADDITIONAL RESOURCES

- RIPTA Bus Stop Design Guide
- NACTO Transit Street Design Guide
- AASHTO Guide for the Development of Bicycle Facilities

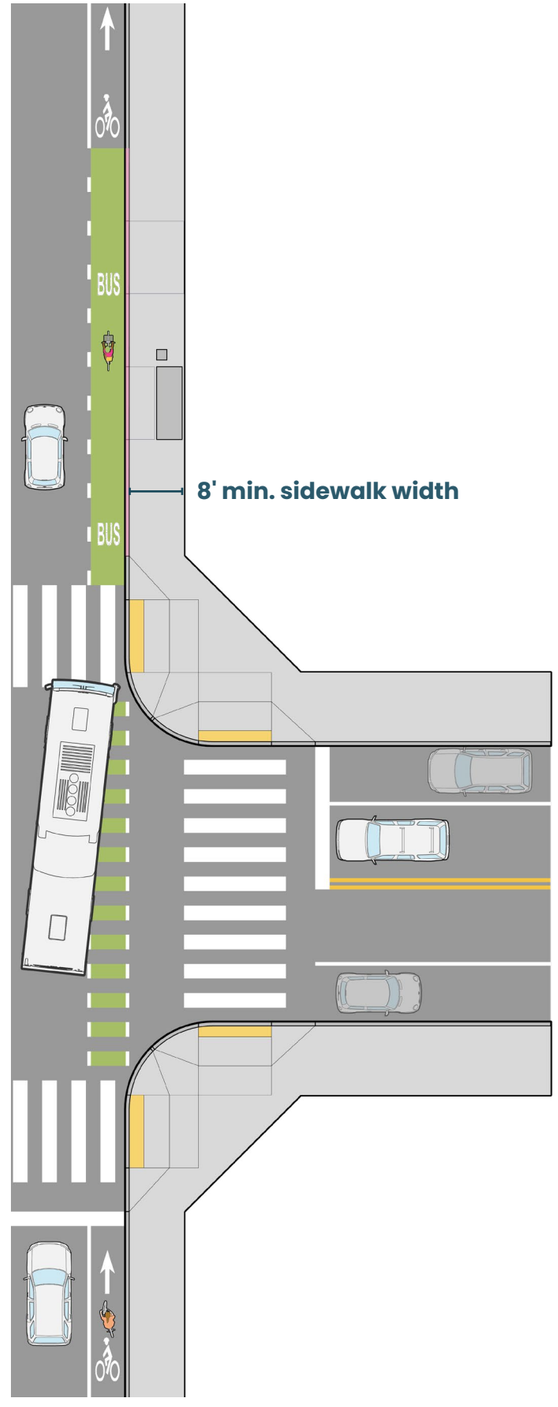
CONVENTIONAL BUS STOPS

CONSIDERATIONS

- The minimum sidewalk width at all bus stops should be 8' in order to accommodate deployment of an accessible ramp and boarding by passengers using wheeled mobility aids.
- Use bicycle lane symbols in conventional bus stops to indicate the best path of travel for people using bike lanes through the bus stop. Conventional bus stop markings should delineate a straight path of travel through the bus stop and to the entrance to the receiving bike lane after the bus stop. The bike lane symbols may be located between the “BUS” and “STOP” pavement markings.
- Provide adequate space for curbside bus stops to ensure buses can pull in fully parallel to the curb. Refer to Table 2.5 of the RIPTA Bus Stop Design Guide for specific requirements.

ADDITIONAL CONSIDERATIONS

- Include a bus shelter, seat, and trash and recycling receptacles at all stops.
- Provide smooth vertical transitions with a minimum slope of 1:12 and a maximum slope of 1:24 where bike/multimodal lanes rise to meet the sidewalk at grade at a bus platform.



SA05 BUS/BIKE CONFLICT MANAGEMENT (CONT.)

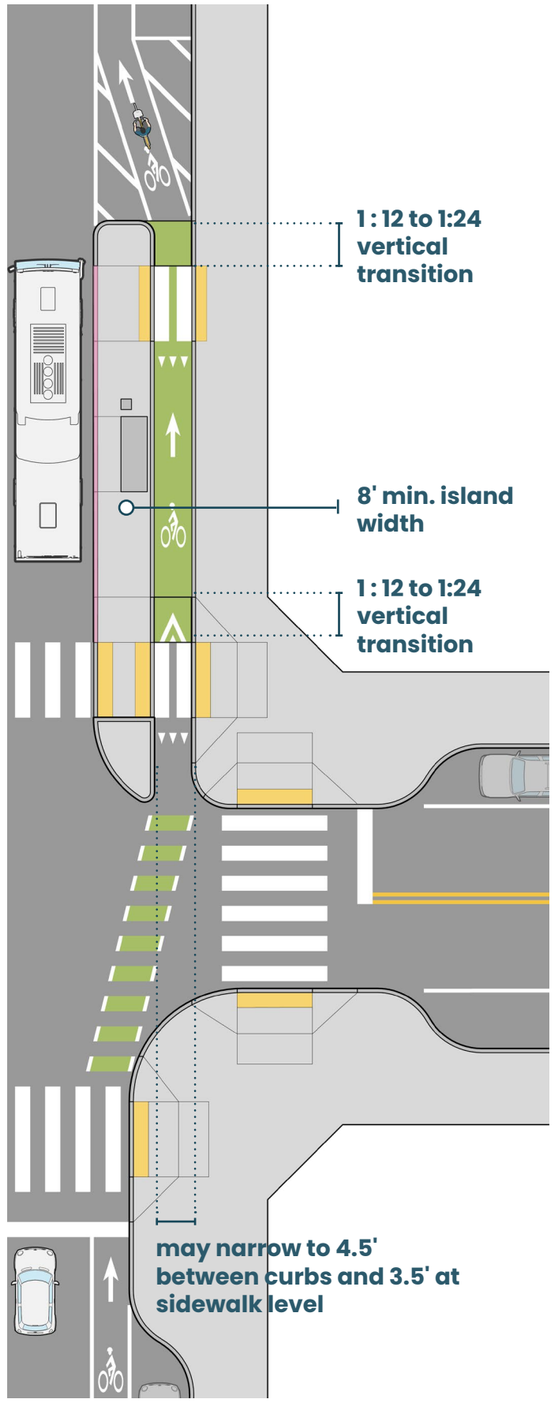
FLOATING BUS STOPS

REQUIREMENTS

- The minimum sidewalk width at all bus stops should be 8' in order to accommodate deployment of an accessible ramp and boarding by passengers using wheeled mobility aids.
- In constrained environments where a floating bus stop is required or desired, reduce the width of separated bike lanes before reducing space for the sidewalk or other features. One-way separated bike lanes may lanes narrow to 4.5' between curbs or 3.5' at sidewalk level. Two-way separated bike lanes or Urban Trails may narrow to 8' between curbs or 7.5' at sidewalk level.
- Provide a marked, level crossing with curb ramps or raise the bike lane or Urban Trail to sidewalk level where pedestrians must cross to the bus stop. Tactile strips should be used to communicate to blind or low-vision people where the bus stop crossing location is located.
- Use a gradual taper to route the bike/micomobility lane behind a floating bus stops, where needed. The maximum allowable taper ratio is 1:5, with a preferred ratio of 1:10.
- Ensure shy distances of 1' to 2' are kept between vertical elements (e.g. bus shelter or railings) and adjacent bike lanes.
- Provide smooth vertical transitions with a minimum slope of 1:12 and a maximum slope of 1:24 where bike/multimodal lanes rise to meet the sidewalk at grade at a bus platform.

ADDITIONAL CONSIDERATIONS

- Include a bus shelter, seat, and trash and recycling receptacles at all stops.
- Consider art installations and other community amenities on bus bulb outs and floating bus stops, provided that a fully accessible route and sightlines are preserved.



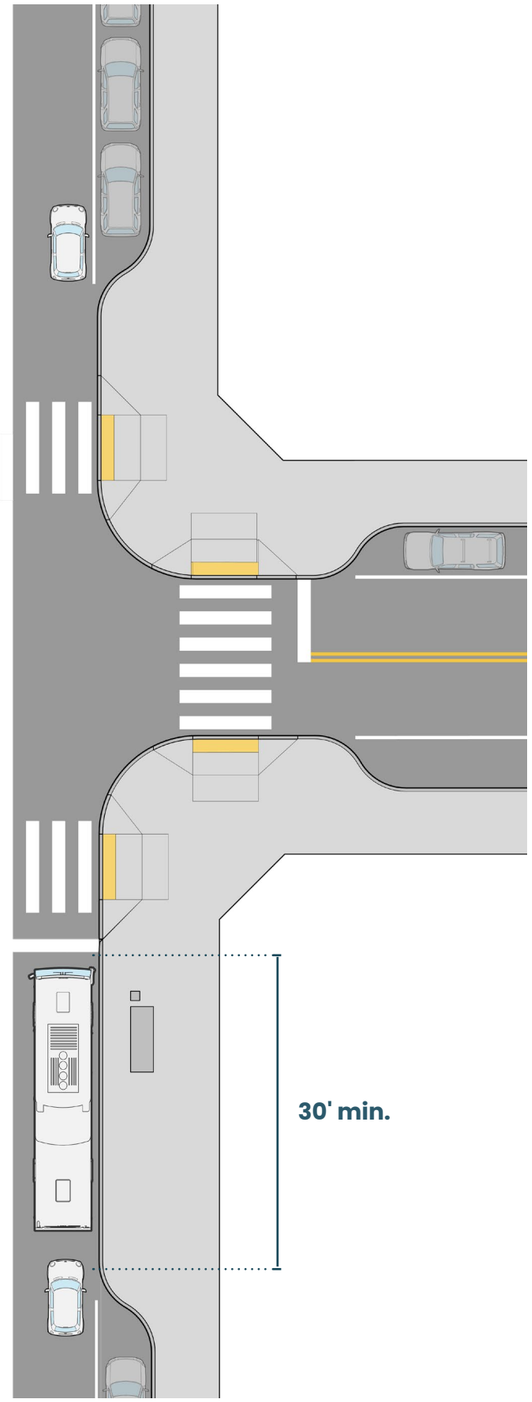
BUS BULBS

REQUIREMENTS

- Avoid use when bike lanes are present.
- The minimum sidewalk width at all bus stops should be 8' in order to accommodate deployment of an accessible ramp and boarding by passengers using wheeled mobility aids.
- Ensure bus bulbs are at least as long as one bus as measured from the front of the bus to the back of the rear door (approximately 30'). For higher-volume stops, a longer bus bulb equivalent to the length of two full buses (approximately 80') is desirable.
- Extend the outside curb of bus bulbs to 1' shy of the edge of the parking lane.

ADDITIONAL CONSIDERATIONS

- Include a bus shelter, seat, and trash and recycling receptacles at all stops.
- Consider art installations and other community amenities on bus bulb outs and floating bus stops, provided that a fully accessible route and sightlines are preserved.

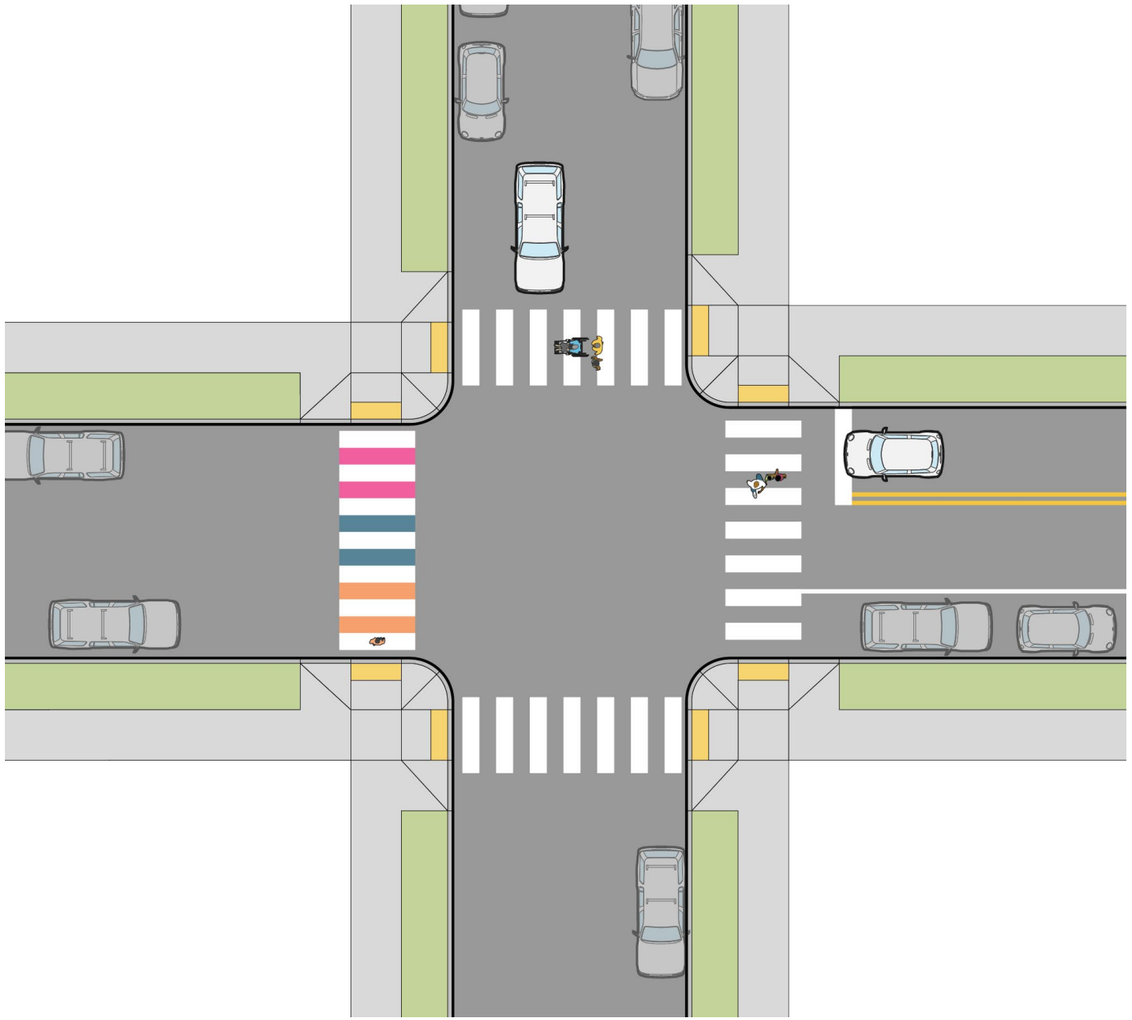


SA06 CROSSWALKS

Crosswalks indicate a designated path for people walking through intersections and high-volume driveways. Marked crosswalks should be located at intersections, high-demand midblock points, and across wide driveways in the path of travel for people walking. At select locations, creative crosswalks that incorporate art into a standard crosswalk marking may be appropriate to reinforce and celebrate community character and culture.

USE

- At all signalized intersections.
- At all intersections regardless of signalization along Neighborhood Connector Streets, Commercial Streets, and Major Downtown and B streets or at least every 500'.
- At intersections and midblock locations with bus stops.



- At midblock locations with significant walking trip generators such as schools, libraries, recreation centers, community centers, senior centers, parks, playgrounds, and places of worship.
- Across wide, at-grade commercial driveways.
- Creative Crosswalks
  - At high-volume stop-controlled or signalized intersections.
  - At signalized mid-block locations.

REQUIREMENTS

- Consult the FHWA Safe Transportation for Every Pedestrian (STEP) Guide to select appropriate pedestrian crash countermeasures when designing new or improved crosswalks.
- Install ADA-compliant curb ramps (or blended transitions for raised crosswalks) to connect to accessible routes when constructing new crosswalks. Parallel curb ramps are preferred to apex ramps (**see SA08**).
- At controlled intersections, provide a stop bar in advance of the crossing and consider signal timing guidance at signalized intersections. Consider location of vehicle stop bars based on design vehicle turning envelope.
- Provide yield lines and regulatory sign R1-5 in advance of uncontrolled midblock crossings.
- Restrict on-street motor vehicle parking at least 20' in advance of the crossing to provide adequate sight distance (**see SA09**). Depending on context, signage, paint, or curb extensions, or other strategies to daylight crosswalks may be appropriate.
- Crosswalks should be as wide or wider than the connecting sidewalk.
- Where an Urban Trail or separated bike lane crosses a crosswalk, yield markings on the bike lane or Urban Trail approach can emphasize that people biking or using micromobility modes must yield to pedestrians within the crosswalk.
- Where creative crosswalks are used, artistic elements must not interfere with the white, regulatory paint used for the crossing. Artistic paint may only be applied between the crosswalk markings.

ADDITIONAL CONSIDERATIONS

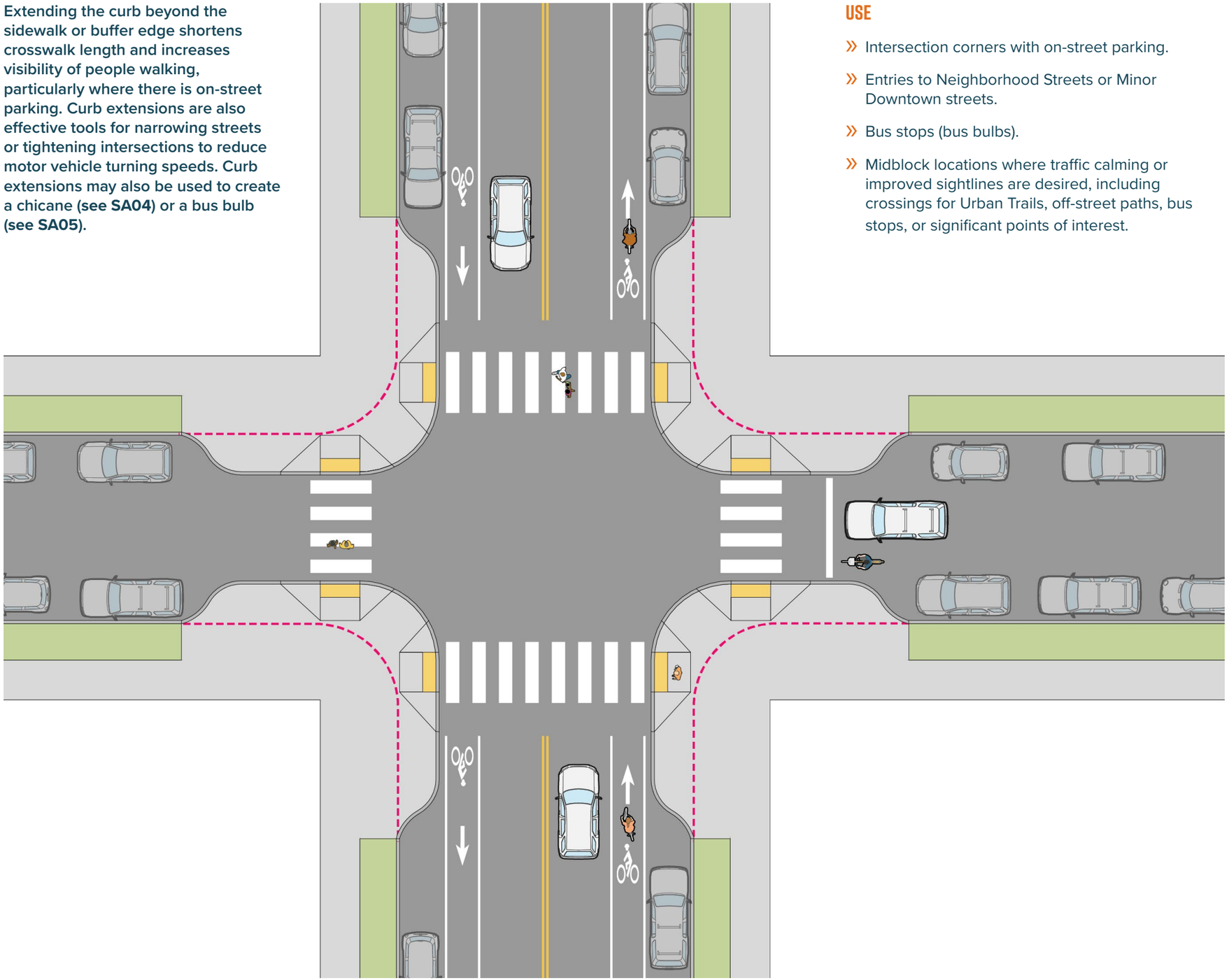
- Streetlights should be located to front-light crosswalks, with the light source situated in advance of the crosswalk in the direction of motor vehicle travel. For wider intersections, it may be necessary to place light poles on all four corners of each intersection to adequately light a crosswalk.
- Use special paving or pavers to match local context in historic districts. Include white striping on both sides of the special pavers or materials.

ADDITIONAL RESOURCES

- RI Gen L § 31-18
- PROWAG
- FHWA STEP Guide
- MUTCD
- FHWA Achieving Multimodal Networks
- NACTO Urban Street Design Guide

SA07 CURB EXTENSIONS

Extending the curb beyond the sidewalk or buffer edge shortens crosswalk length and increases visibility of people walking, particularly where there is on-street parking. Curb extensions are also effective tools for narrowing streets or tightening intersections to reduce motor vehicle turning speeds. Curb extensions may also be used to create a chicane (**see SA04**) or a bus bulb (**see SA05**).



USE

- Intersection corners with on-street parking.
- Entries to Neighborhood Streets or Minor Downtown streets.
- Bus stops (bus bulbs).
- Midblock locations where traffic calming or improved sightlines are desired, including crossings for Urban Trails, off-street paths, bus stops, or significant points of interest.

REQUIREMENTS

- Extend curb extensions to at least 20’ from the crosswalk at uncontrolled intersectiond or 30' from controlled intersections.
- Keep corner radii small as possible while still accommodating the design vehicle at a crawl speed.
- Provide curb ramps (**see SA08**) at each crosswalk, except in the case of raised crosswalks or intersections.
- Ensure curb extensions do not impede stormwater management. If needed, preserve 1’ to 2’ between the sidewalk and curb extension to provide space for drainage structures or install additional drainage inlets to prevent ponding water.

ADDITIONAL CONSIDERATIONS

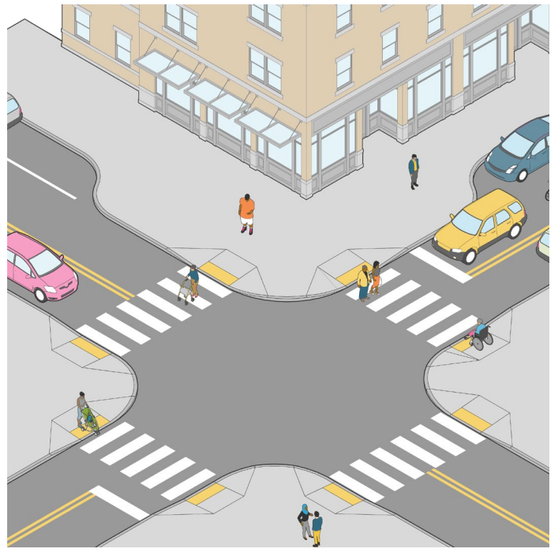
- Incorporate green infrastructure into curb extensions to collect stormwater and provide planting area.
- Incorporate street furniture or other public space elements such as public art, wayfinding, bike parking, trash and recycling receptacles, micromobility hubs, and street lighting.
- Accommodate large design vehicles with mountable curbs or aprons while keeping corner radii tight to maintain slow turning speeds.

ADDITIONAL RESOURCES

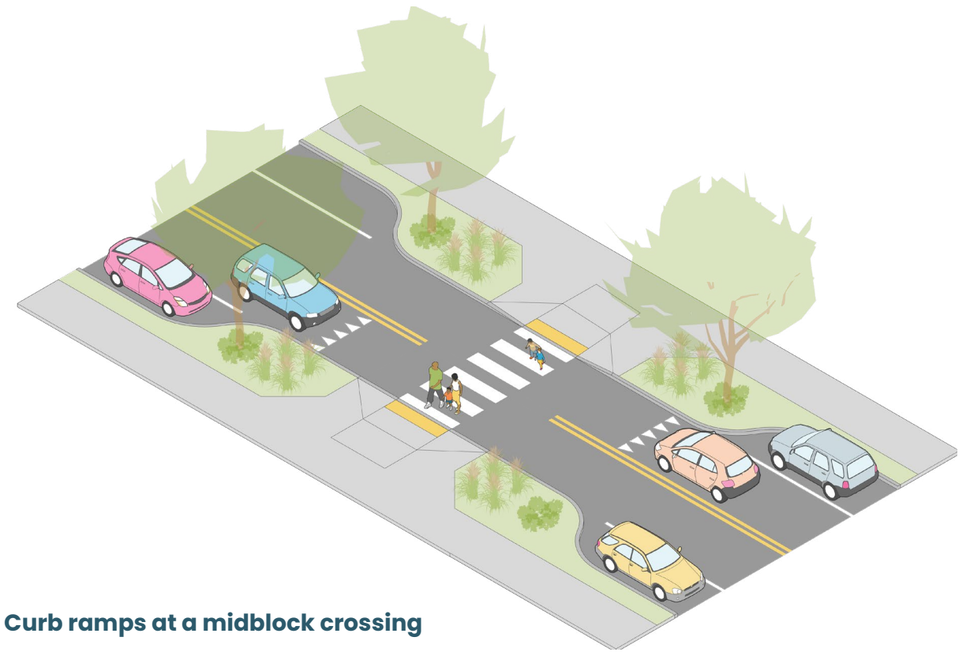
- City of Providence Traffic Calming Design Guidelines
- NACTO Urban Street Design Guide

SA08 CURB RAMPS

Curb ramps are required at all intersection, midblock, and other crossings where curbs and vertical elevation changes are present. Curb ramps support independent travel for all people, including people with physical disabilities, people pushing strollers, or people towing suitcases or other wheeled objects.



Directional curb ramps at an intersection



Curb ramps at a midblock crossing

USE

- Pedestrian crossing locations where vertical grade changes occur, including at wide driveway or parking lot entrances and alleyways.

REQUIREMENTS

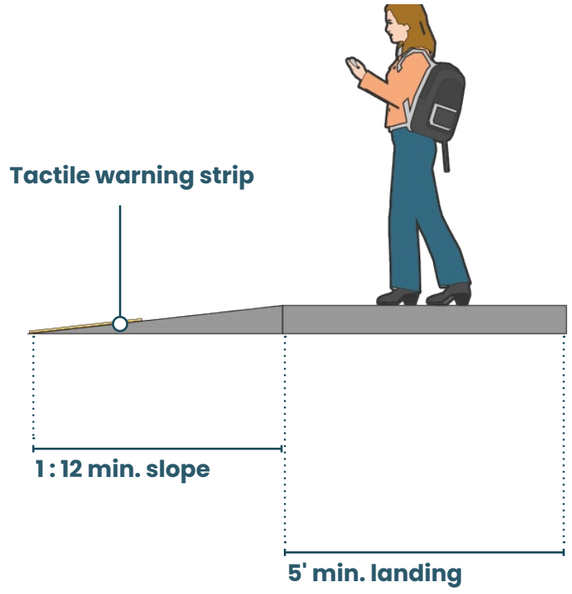
- Provide a clear level landing zone of at least 4’ by 4’ at the sidewalk level at the back of the ramp.
- Provide a ramp that is at least 3’ wide. A ramp that matches the width of the crosswalk or that is at least 5’ wide ramp is preferable.
- Provide a ramp slope not greater than 1:12
- Install detectable warning surfaces at the bottom of the ramp immediately behind the curb.
- Provide ramp flares with a maximum slope of 1:10 when pedestrians may travel across the ramp. When a level landing cannot be provided, the maximum slope for ramp flares is 1:12.

ADDITIONAL CONSIDERATIONS

- Use parallel curb ramps instead of apex curb ramps to channelize pedestrian traffic and improve navigability for low-vision and blind people.
- Lengthen ramp and reduce slope beyond the maximum allowable standards where possible.
- Widen ramp to sidewalk’s clear width when the connecting sidewalk is wider than 8’.
- Widen ramp to accommodate multiple user types when connecting to an Urban Trail.

ADDITIONAL RESOURCES

- City of Providence Standard Details
- PROWAG
- Rhode Island Department of Transportation Standard Detail 43.3
- FHWA Achieving Multimodal Networks



SA09 DAYLIGHTING

Daylighting provides appropriate sightlines and visibility by restricting parking or stopping near crossings, intersections, and driveways. Daylighting can be provided by using signs, pavement markings, flexposts, and/or curb extensions.

USE

- Locations where there is on-street parking approaching crosswalks, intersections, or driveways.

REQUIREMENTS

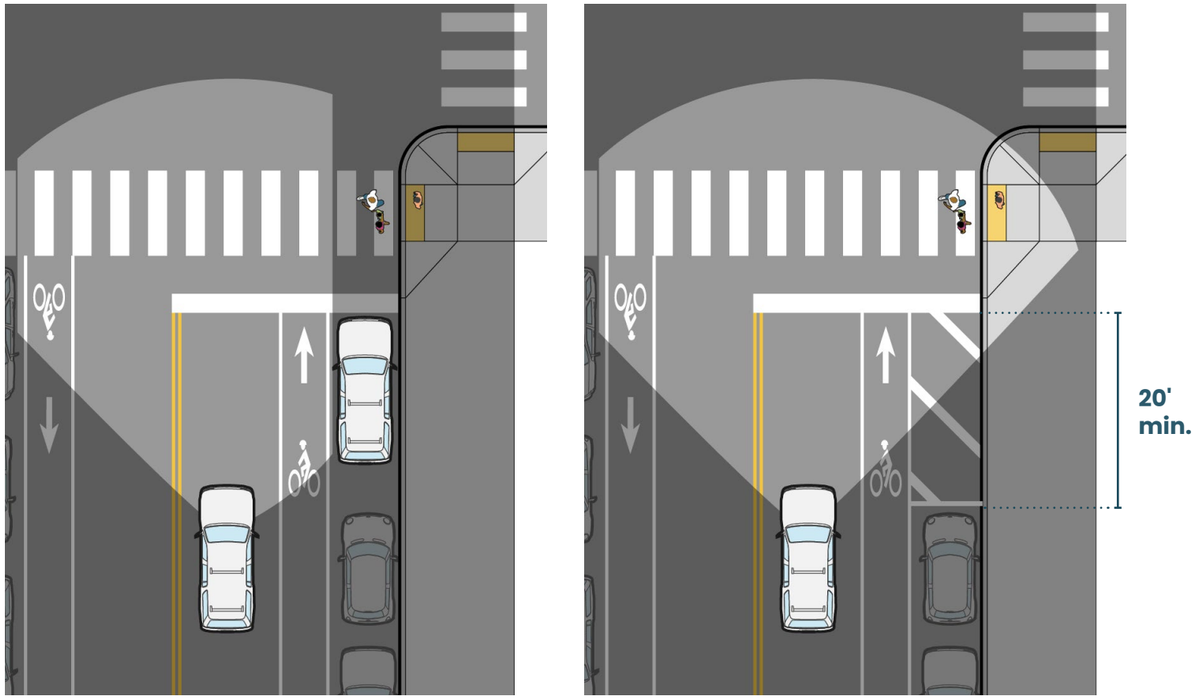
- Sign or mark at least 20' of space from a marked crosswalk or 30' of space from the stop bar at a controlled intersection as "No Parking."
- Sign or mark at least 5’ of space from a lower-volume driveway as ‘No Parking.’
- Sign or mark at least 20’ of space from a marked crosswalk, crossing, controlled intersection, or high-frequency driveway as ‘No Stopping.’

ADDITIONAL CONSIDERATIONS

- Use engineering judgement to determine if longer daylighting areas should be used based on prevailing vehicle speeds or other intersection features.
- Use physical delineators like flexposts or curb extensions to prevent vehicles from stopping in daylighted areas (**see SA07**).
- Consider ground murals, decorative planters, bike parking or multimodal hubs in daylighting areas (**see CU02, CU05, and CU07**).

ADDITIONAL RESOURCES

- NACTO Urban Street Design Guide
- RI General Laws § 31-21-4 (2012)



SA10 DRIVEWAY CROSSINGS

Driveways for residential or commercial uses should be constructed to be level with the sidewalk or pedestrian path of travel and provide a minimum clear width of 4’ across the driveway. A level, continuous sidewalk eliminates the need for curb ramps while also communicating priority for people walking along the sidewalk.

USE

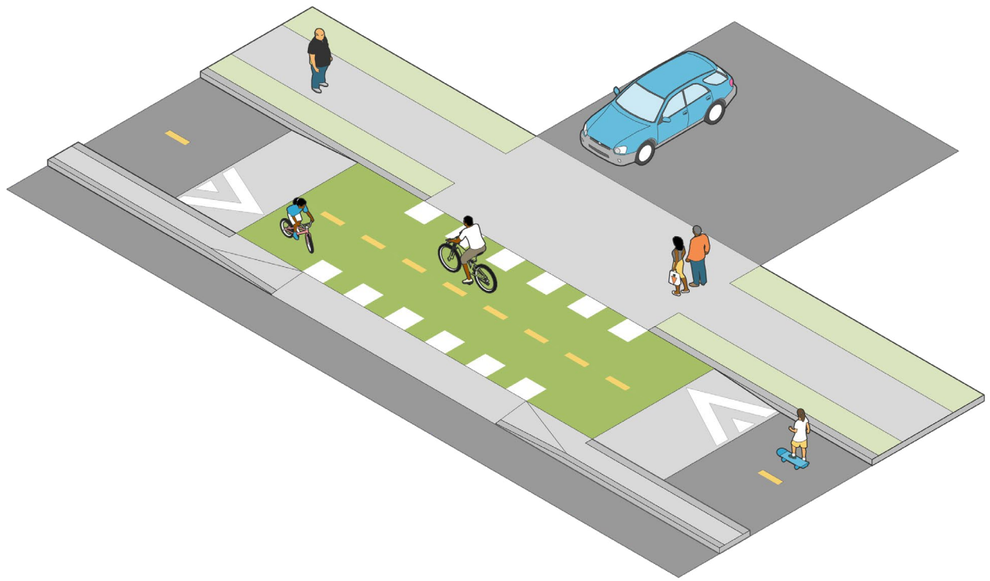
- All residential and commercial driveways.

REQUIREMENTS

- Maintain a continuous sidewalk grade crossing width of at least 4’ across all driveway crossings.
- Maintain a cross slope of 2% or less.
- Design for adequate sight distance for people driving using daylighting where necessary (**see SA09**).
- Align the edge of the transition apron with the face of the curb.

ADDITIONAL CONSIDERATIONS

- Contain driveway apron to the sidewalk buffer, where provided, to maintain sidewalk grade for entire length of the driveway crossing.
- Maintain sidewalk and path materials (usually concrete) across driveway crossings to communicate priority for people walking, riding bicycles, and using other micromobility options.
- Raise street-level separated bike lanes and Urban Trails to sidewalk grade for major driveway crossings. Where the density of major driveway crossings would result in a rapid succession of transition ramps, practitioners should consider raising the entire bike lane or Urban Trail to sidewalk level.
- Use bike/micromobility crossing pavement markings at high-volume or wide driveway crossings when a bike lane or Urban Trail is present (**see SA03**).
- Include audible warning for people walking across major driveways in commercial areas and where parking garage exits cross sidewalks.
- Where low- clearance vehicles are expected to use driveways, the elevation should be reduced to 4 inches or less.



SA11 MATERIALS FOR VERTICAL SEPARATION

Vertical barriers like planter boxes, bike parking, flexposts, concrete barriers, permanent curbs, precast concrete curbs, and grade separation can be used to separate bike lanes and Urban Trails from motor vehicle travel lanes and adjacent pedestrian spaces.

USE

- Vertical separation should be used for all bicycle facility on roads with observed average speeds over 30 mph or motor vehicle volumes over 6,000 VPD.
- Any Urban Trail, other than those on Neighborhood Streets and Minor Downtown Streets.

REQUIREMENTS

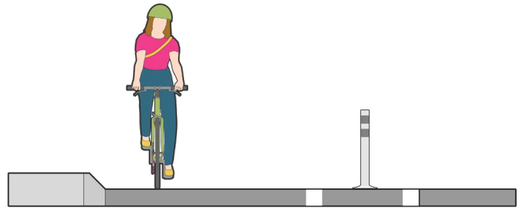
- Consider operational and posted speeds when selecting a material for vertical separation.
  - Flexposts, which are most commonly used in retrofit or quick-build projects, are appropriate in both low and high-speed conditions.
  - Planters may be used on streets with speeds up to 40 mph. When speeds are above 30 mph, a highly durable planter material should be used.
  - Precast and permanent curb are appropriate on streets with speeds up to 45 mph.
  - Parking stops are appropriate on streets with speeds up to 40 mph.
- Locate vertical elements within the buffer area or on the outside edge line of separated bike lanes or Urban Trails. When installing vertical elements, a buffer width at least 2’ wide is preferred.
- Use painted edge lines and vertical elements to guide motorists to park at least 3’ away from the bike lane or Urban Trail when a parking-protected bike lane or Urban Trail is used.

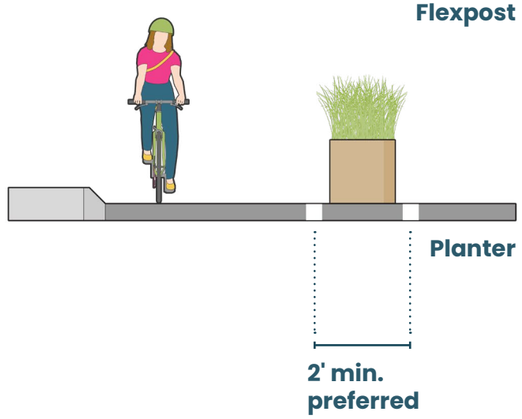
ADDITIONAL CONSIDERATIONS

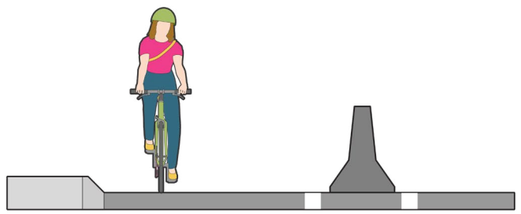
- Use concrete or weighted plastic barriers during construction activity to guide people walking or biking around constructions zones.
- Consider using flexposts, planter boxes, and precast concrete curbs as temporary and lower-cost materials to consider for rapid implementation, pilot projects, and when construction budgets are constrained.
- Use of permanent vertical elements, i.e. curbs, is preferred on all Urban Trails. Planter boxes may be used in addition to curb separation for aesthetics and additional separation. Use of planters will introduce additional maintenance considerations.
- Assume a 1' to 2 shy distance from vertical elements when determing where to site vertical elements relative to the bike lane.
- Use of materials such as planter boxes and precast curb are preferred over flexposts.

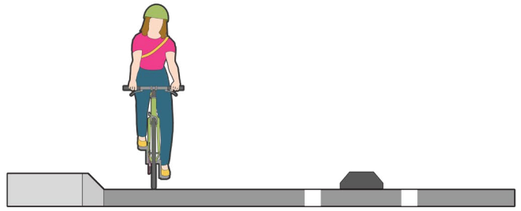
ADDITIONAL RESOURCES

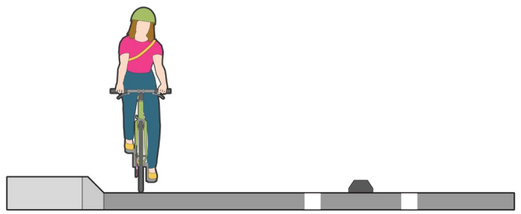
- FHWA Achieving Multimodal Networks
- NACTO Urban Bikeway Design Guide





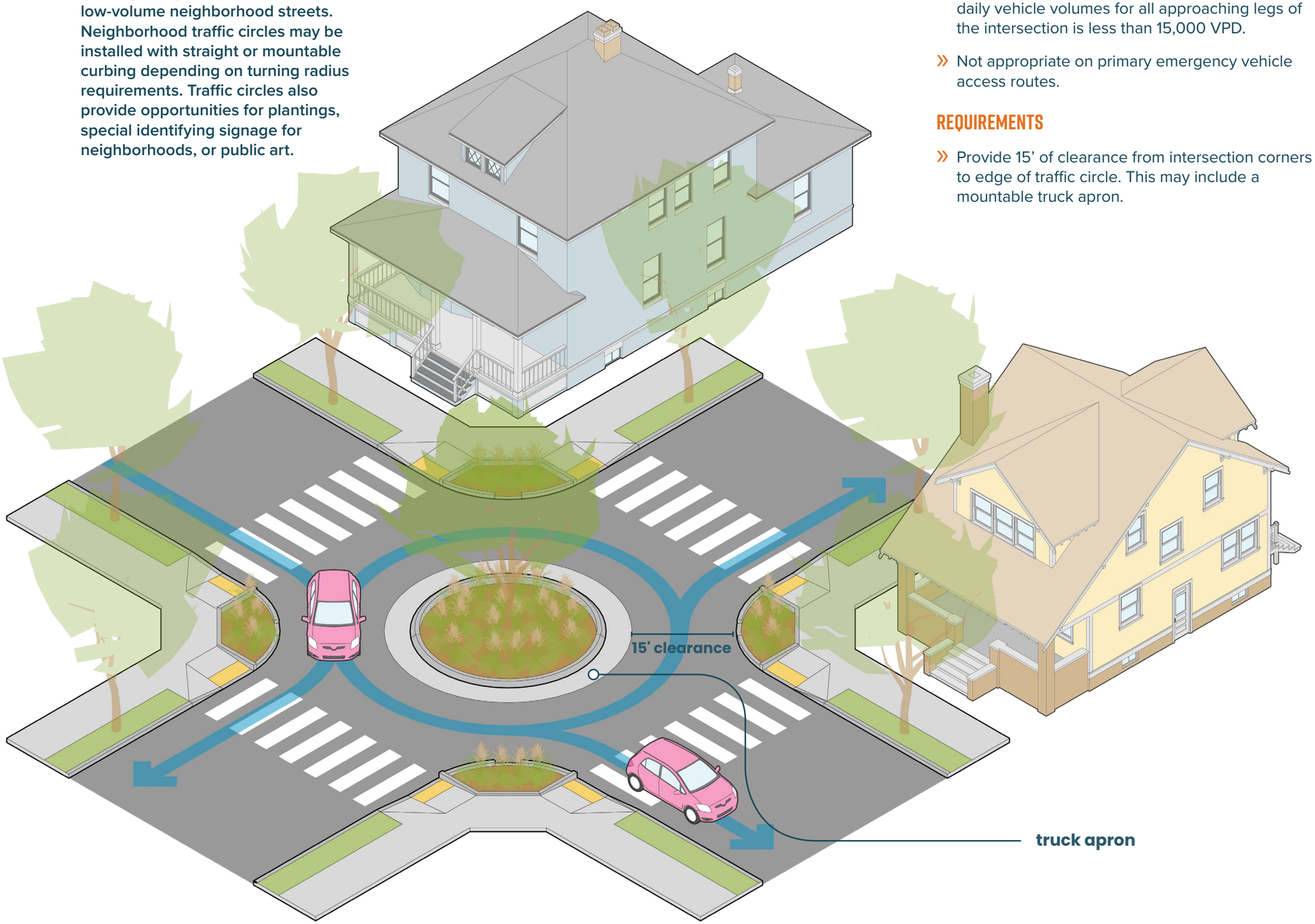






SA12 NEIGHBORHOOD TRAFFIC CIRCLES

Neighborhood traffic circles or mini roundabouts are effective traffic calming design alternatives for low-volume neighborhood streets. Neighborhood traffic circles may be installed with straight or mountable curbing depending on turning radius requirements. Traffic circles also provide opportunities for plantings, special identifying signage for neighborhoods, or public art.



USE

- Intersections in primarily residential areas where daily vehicle volumes for all approaching legs of the intersection is less than 15,000 VPD.
- Not appropriate on primary emergency vehicle access routes.

REQUIREMENTS

- Provide 15’ of clearance from intersection corners to edge of traffic circle. This may include a mountable truck apron.

ADDITIONAL CONSIDERATIONS

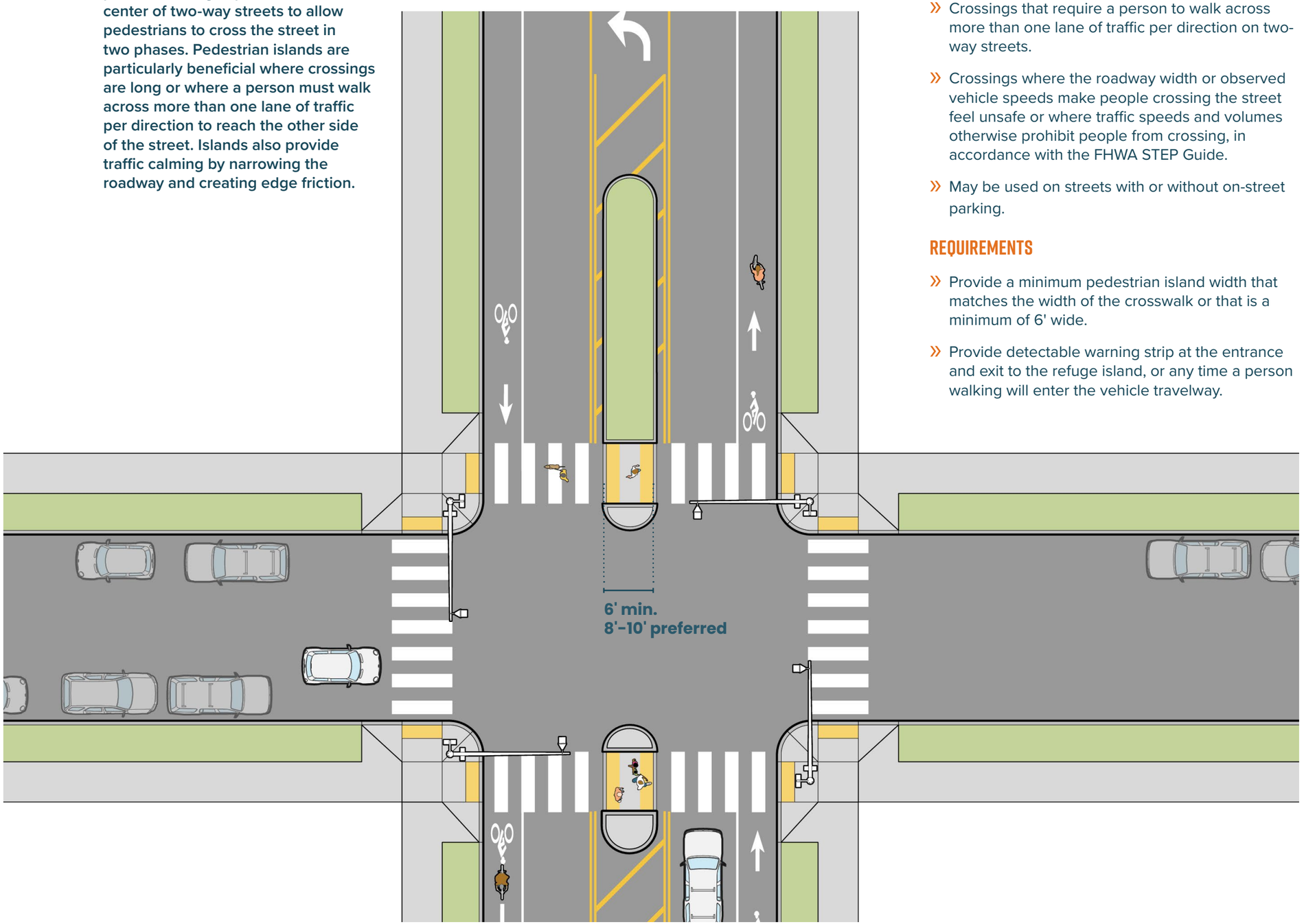
- Use the largest traffic circle radius possible to encourage slow speeds.
- Mark crosswalks ahead of each approach/ entrance to the traffic circle.
- Traffic controls may be used in addition to the traffic circle. If used, mount YIELD (R1-2) or STOP (R1-1) control signs at vehicle approaches to the circle.
- Mount a R6-4 directional sign in the circle when possible. Mount the R6-5P on the STOP or YIELD sign post if a sign can’t be mounted within the circle. Use corner curb extensions or splitter islands to channelize vehicles and further reduce speeds.
- Include mountable truck aprons around the outside of the circle to allow large vehicles to use the intersection without encouraging high speeds by smaller vehicles.
- Consider planting native and/or seasonal vegetation in the center of the circles to provide neighborhood beautification, traffic calming elements, and stormwater infiltration.
- Consider custom neighborhood identification signage or public art to the circle interior.

ADDITIONAL RESOURCES

- NACTO Urban Street Design Guide
- FHWA Traffic Calming ePrimer 3.7

SA13 PEDESTRIAN ISLANDS

Pedestrian islands provide a protected refuge space in the center of two-way streets to allow pedestrians to cross the street in two phases. Pedestrian islands are particularly beneficial where crossings are long or where a person must walk across more than one lane of traffic per direction to reach the other side of the street. Islands also provide traffic calming by narrowing the roadway and creating edge friction.



USE

- Crossings that require a person to walk across more than one lane of traffic per direction on two-way streets.
- Crossings where the roadway width or observed vehicle speeds make people crossing the street feel unsafe or where traffic speeds and volumes otherwise prohibit people from crossing, in accordance with the FHWA STEP Guide.
- May be used on streets with or without on-street parking.

REQUIREMENTS

- Provide a minimum pedestrian island width that matches the width of the crosswalk or that is a minimum of 6' wide.
- Provide detectable warning strip at the entrance and exit to the refuge island, or any time a person walking will enter the vehicle travelway.
- At signalized intersections, pedestrian signal heads must be oriented and timed to serve people in the refuge island. Where pedestrian signalization is not on automatic recall, a push button should be provided in the refuge island.
- Follow MUTCD guidance for warning signage, signalization, pavement markings and painted curb on the island approach.

ADDITIONAL CONSIDERATIONS

- Maximize the width of the crossing island to narrow vehicle travel lanes and provide additional pedestrian comfort. An island width of 8-10' is preferred over the 6' minimum.
- Consider flush accessible paths through the pedestrian island to minimize the need for ramps. When a flush route through the island is used, detectable warning panels must be installed to indicate the transition from the pedestrian refuge island to the vehicle travelway.
- Consider bioretention planters, street trees, or other stormwater management techniques into the interior of the refuge island. Ensure plantings do not interfere with visibility.
- At locations where people biking may also be crossing, such as shared use path crossings, a width of 10' is preferred over the 6' minimum.

ADDITIONAL RESOURCES

- City of Providence Traffic Calming Design Guidelines
- MUTCD
- FHWA Achieving Multimodal Networks
- FHWA STEP Guide
- NACTO Urban Street Design Guide
- PROWAG

SA14 RAISED CROSSINGS

Raised crossings are used for traffic calming and to improve motorist yirlding to people walking and biking at intersections and midblock crossings. Crosswalks are elevated to reduce or eliminate the transition from the sidewalk to the street crossing. Transition aprons on each approach to the raised intersection are marked with pavement markings to alert drivers of the grade change.

USE

- Urban trail crossings.
- Intersections or midblock locations where increased visibility, priority, or accessibility for people walking, riding bicycles, or using other micromobility options is desired or needed.
- Across Channelized right-turn lanes.
- Along Neighborhood Main, Neighborhood Connector, and Major Downtown street where they intersect Neighborhood Streets.
- Locations where corner radii exceed 20'.
- Not appropriate on streets with steep roadway grades higher than 8%
- Not appropriate for installation directly adjacent to driveway aprons

REQUIREMENTS

- Ensure raised crosswalk is at least as wide as the connecting sidewalk or path of travel.
- Provide detectable warning strip at edge of sidewalk to indicate to pedestrians that they are exiting the sidewalk and entering the street.
- Restrict on-street parking and stopping at least 20' before the marked crosswalk to provide adequate sight distance and visibility between people crossing and people driving (**see SA09**).
- Include warning pavement markings for drivers on transition aprons and RAISED CROSSWALK signs at the crossing.

ADDITIONAL CONSIDERATIONS

- Provide transition apron slopes between 5% and 8%.
- Supplement parking restrictions with signage, pavement markings, and vertical elements such as flexible delineators, bollards, or planters (**see SA09**).
- Consider use of raised crosswalks with curb extensions to maximize visibility and further slow traffic.
- Where vehicles with low height wheelbases are likely (e.g. - lowboy trailers), the raised crosswalk height should be limited to 3 inches.

ADDITIONAL RESOURCES

- City of Providence Traffic Calming Design Guidelines
- PROWAG

raised crossing at an unsignalized intersection

midblock raised crossing

SA15 RAISED INTERSECTIONS

Raised intersections are effective traffic calming measures at intersections on streets with high volumes of people walking. The entire intersection area is elevated to create a level transition from sidewalk to street crossing. Transition aprons on all sides of the raised area are marked with pavement markings to alert drivers of grade change.

USE

- Minor intersections with high volumes of people walking in Downtown locations.
- Intersections in residential neighborhoods near major walking trip generators, such as schools or parks.
- Appropriate at both signalized and unsignalized locations.

REQUIREMENTS

- Locate vehicle stop bars 20’ back from transition apron.
- Include warning pavement markings for drivers on transition aprons.
- Examine the impact to drainage patterns to ensure that the flow of water is properly accommodated.

ADDITIONAL CONSIDERATIONS

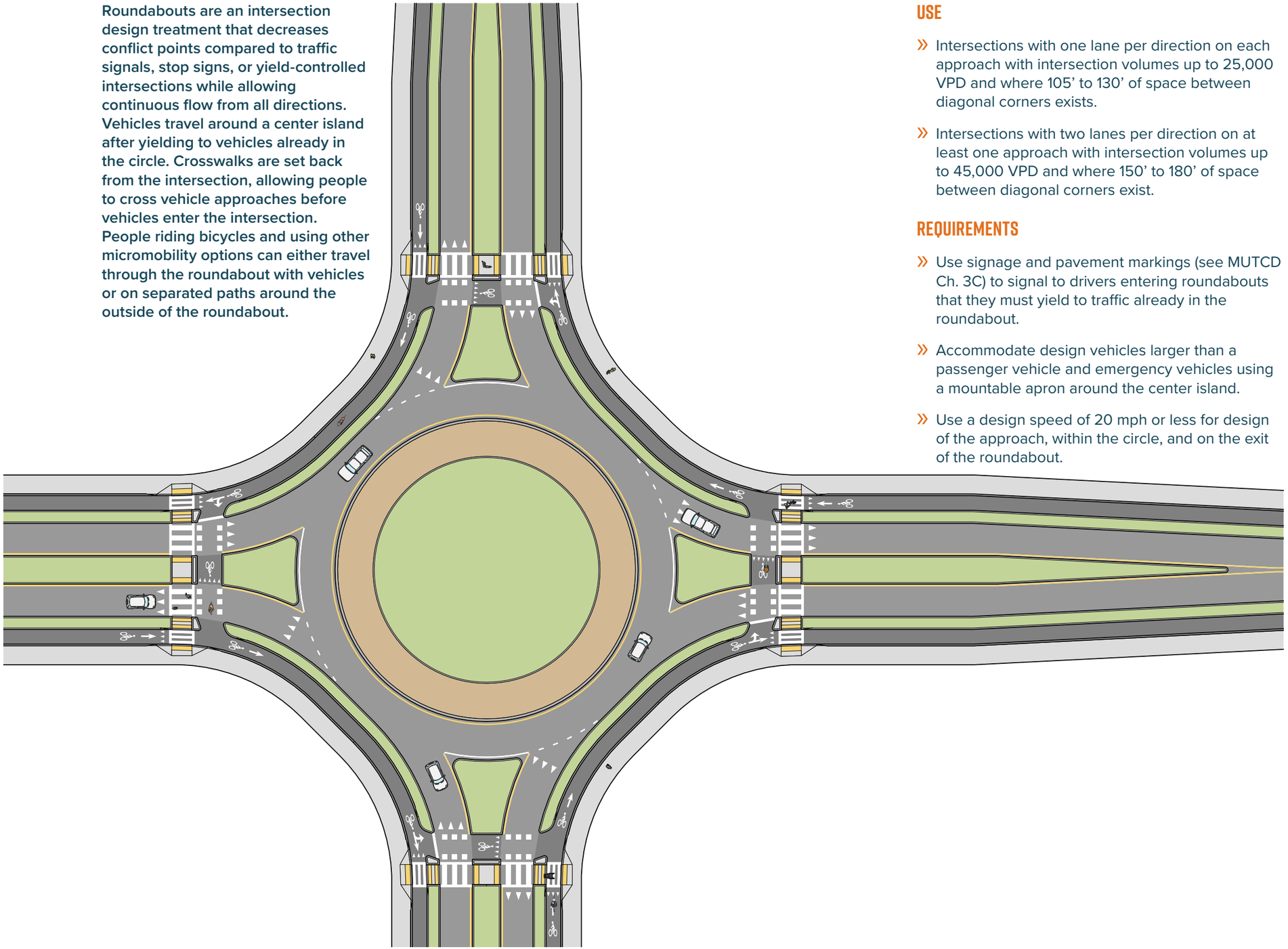
- Use bollards or raised planter barriers along intersection corners to prevent people from driving vehicles onto the sidewalk (**see CU03 and CU05**).
- Consider use of special paving material, color, and/or pattern to delineate and accentuate raised intersections.

ADDITIONAL RESOURCES

- City of Providence Traffic Calming Design Guidelines
- NACTO Urban Street Design Guide
- FHWA Traffic Calming ePrimer 3.15

SA16 ROUNDABOUTS

Roundabouts are an intersection design treatment that decreases conflict points compared to traffic signals, stop signs, or yield-controlled intersections while allowing continuous flow from all directions. Vehicles travel around a center island after yielding to vehicles already in the circle. Crosswalks are set back from the intersection, allowing people to cross vehicle approaches before vehicles enter the intersection. People riding bicycles and using other micromobility options can either travel through the roundabout with vehicles or on separated paths around the outside of the roundabout.



USE

- Intersections with one lane per direction on each approach with intersection volumes up to 25,000 VPD and where 105’ to 130’ of space between diagonal corners exists.
- Intersections with two lanes per direction on at least one approach with intersection volumes up to 45,000 VPD and where 150’ to 180’ of space between diagonal corners exist.

REQUIREMENTS

- Use signage and pavement markings (see MUTCD Ch. 3C) to signal to drivers entering roundabouts that they must yield to traffic already in the roundabout.
- Accommodate design vehicles larger than a passenger vehicle and emergency vehicles using a mountable apron around the center island.
- Use a design speed of 20 mph or less for design of the approach, within the circle, and on the exit of the roundabout.

ADDITIONAL CONSIDERATIONS

- Consider raising crosswalks on low-volume approaches to the roundabout (**see SA14**).
- Provide separated bicycle paths or Urban Trails around the outside of the circle when traffic volumes are greater than 6,000 VPD. The Urban Trail or separated bike lane crossing may be raised with the pedestrian crossing and should use pavement markings to indicate a bike/micromobility crossing (**see SA03**).
- Where traffic volumes are under 6,000 VPD, provide shared lane markings where Urban Trails or bike lanes merge with vehicle traffic to traverse the roundabout.
- Control speed through the roundabout by using the smallest inscribed circle diameter that still accommodates the design vehicle. Where wide variation in vehicle type through the roundabout is expected, use mountable aprons to maintain slower vehicle speeds while providing access for larger vehicles.
- Minimize footprint and conflict points by using one-lane roundabouts. Hybrid and two-lane roundabouts should be considered only where needed based on traffic volume and intersection operations.

ADDITIONAL RESOURCES

- City of Providence Traffic Calming Design Guidelines
- NCHRP Report 672 – Roundabouts: An Informational Guide, Second Edition
- MUTCD

SA17 SPEED LUMPS

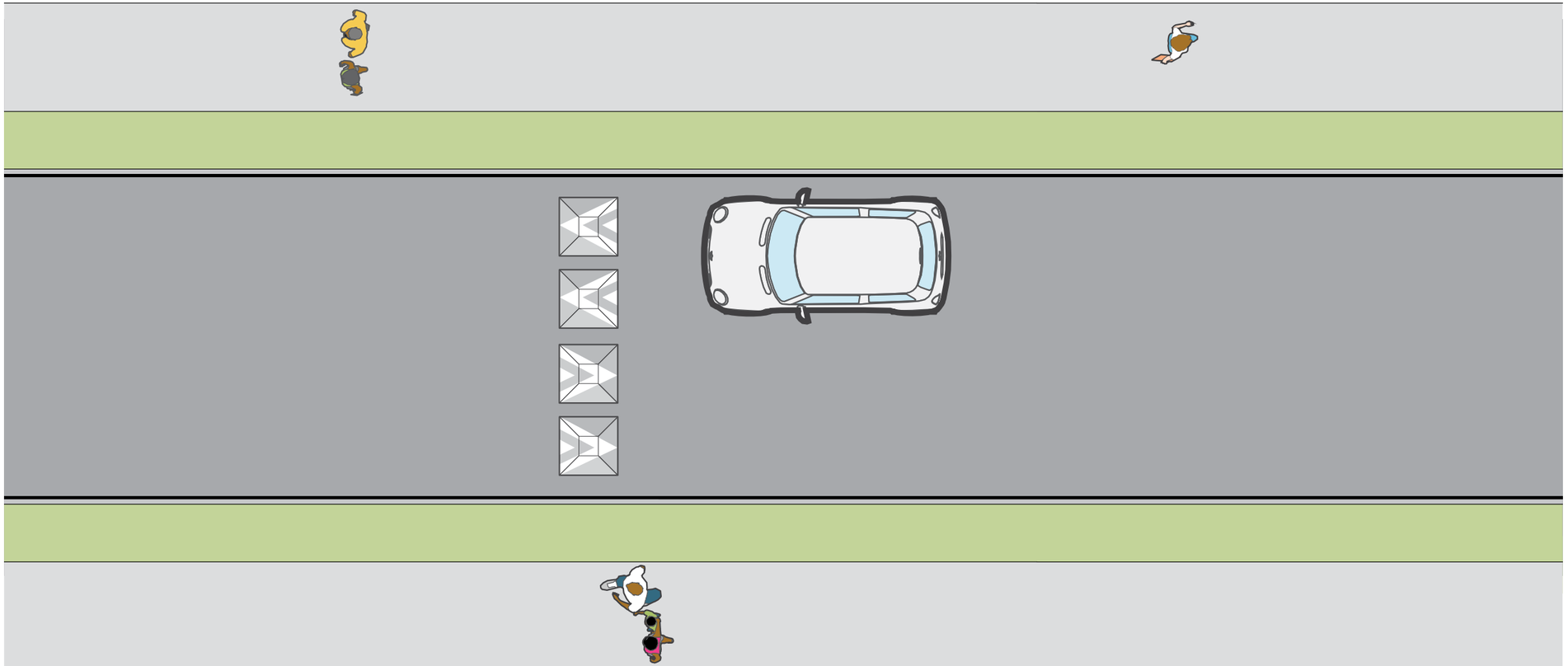
Speed lumps provide intermittent vertical elements to slow traffic and include gaps to allow vehicles with wide wheelbases such as buses, large trucks, and emergency vehicles to pass through unimpeded.

USE

- Midblock locations on Neighborhood Streets, Neighborhood Connector Streets, and Minor Downtown Streets.

REQUIREMENTS

- Design speed lumps to a half curb reveal height, typically 3”.
- Use transition apron slopes no greater than 1:10 and no less that 1:25.
- Taper sides of speed cushions with slopes or 1:3 or less.
- Space gaps in speed cushions for the appropriate fire truck wheelbase.
- Accompany speed lumps with warning signage (MUTCD W17-1).
- Provide adequate visibility and lighting at speed lumps.
- Do not place speed lumps within bike lanes.



ADDITIONAL CONSIDERATIONS

- Install as paved features or prefabricated rubber mats anchored to the roadway surface.
- Consider a trial period with temporary speed lump installation. Evaluate results for permanent installation.

ADDITIONAL RESOURCES

- City of Providence Traffic Calming Design Guidelines
- NACTO Urban Street Design Guide
- MUTCD

SA18 INTERSECTION TREATMENTS FOR BIKE LANES AND URBAN TRAILS

Intersection design can improve the safety of people riding bikes and using micromobility devices by separating them from vehicle traffic. Forward bike queue boxes separate people using the bike lane or Urban Trail by allowing them to stop at red lights ahead of the vehicle stop bar, allowing them to start riding before motor vehicles and move into left turn lanes while motor vehicles are stopped. Two-stage turn boxes allow people using the bike lane or Urban Trail to make left turns by crossing straight through an intersection in two phases, avoiding a merge across vehicle travel lanes. Protected intersections provide dedicated space for people using the bike lane or Urban Trail to navigate intersections while slowing motor vehicle speeds at conflict points.

FORWARD BIKE QUEUE BOX

USE

- Intersections along routes with conventional or separated bike lanes.
- Intersections where people using the bike lane or Urban Trail are likely to make left turns.

REQUIREMENTS

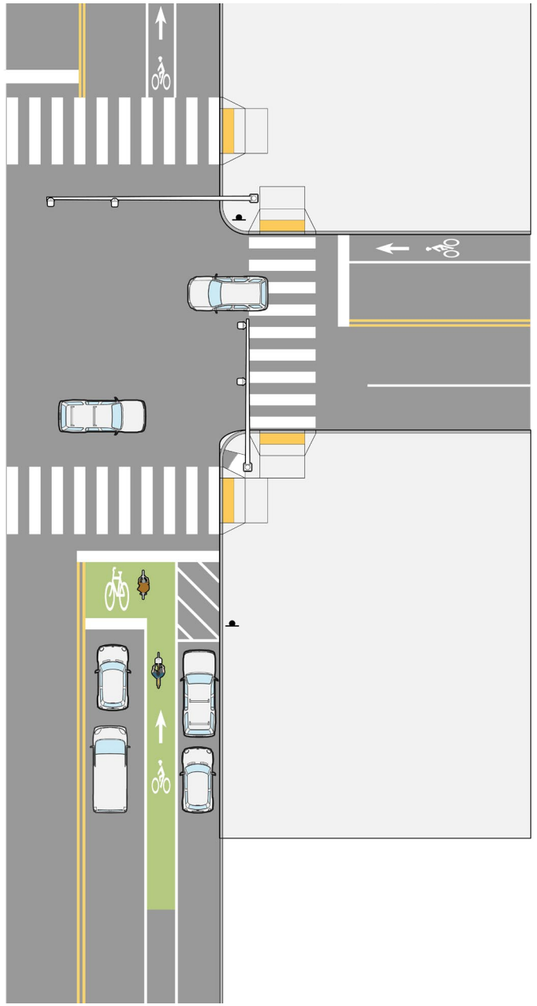
- Mark an area at least 8’ deep that extends the full width of the bicycle lane or Urban Trail and at least one adjacent travel lane with green paint. Mark bicycle symbols in the box. Mark vehicle stop bars behind the bike queue box.
- Where a dedicated left-turn lane is provided for motor vehicles, extend the queue box across the through lane and left-turn lane to allow people biking to make a left turn. If more than one through lane is provided, forward queue boxes should not be used to facilitate left turns. Two-stage queue boxes should be used instead.
- Provide a “No Turn on Red” restriction for vehicle lanes behind the queue box to prevent vehicles from encroaching in the queue area.

ADDITIONAL CONSIDERATIONS

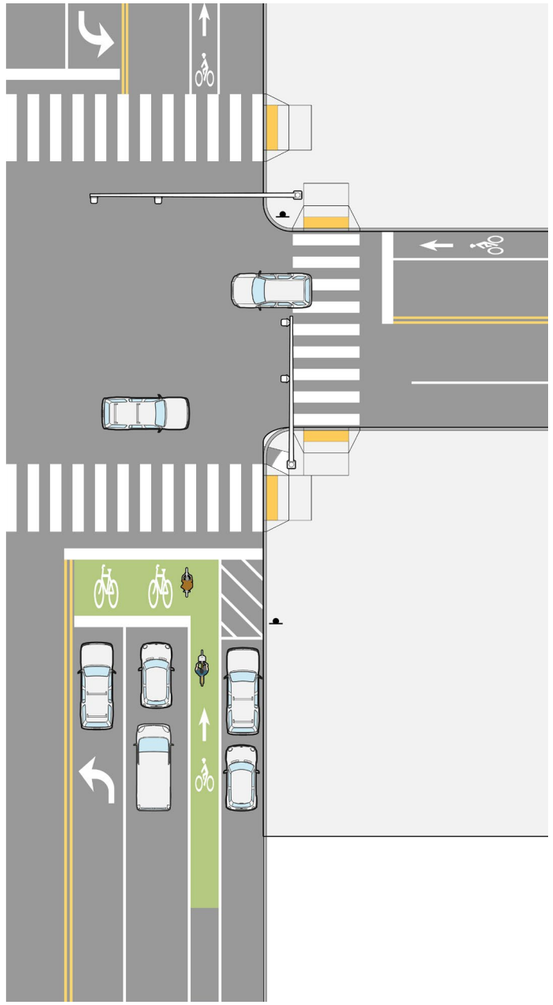
- Expand queuing areas to 10’ deep to accommodate people riding cargo bicycles or bicycles with trailers.
- Pair pavement markings and signage with dedicated signalization and phasing at complex intersections (see **SN7**).

ADDITIONAL RESOURCES

- NACTO Urban Bikeway Design Guide



forward queue box with no turn lane



forward queue box with turn lane

SA18 INTERSECTION TREATMENTS FOR BIKE LANES AND URBAN TRAILS (CONT.)

TWO-STAGE TURN BOX

USE

- Signalized intersections where people riding using the bike lane or Urban Trail are likely to make left turns from the right side of the street.

REQUIREMENTS

- Locate outside of the vehicle path of travel, between the bike lane or Urban Trail crossing and crosswalk. If necessary, relocate the crosswalk, curb ramps, and vehicle stop bar behind the queue area to maintain an ADA-accessible path.
- Mark an area 4’ to 8’ wide and 8’ to 10’ long with green paint surrounded by a white box to designate the space where people using the bike lane or Urban Trail can wait before continuing to their left across the intersection.
- Include a bicycle symbol and left turn arrow inside the box.
- Provide a “No Turn on Red” restriction for vehicle lanes behind the queue box to prevent vehicles from encroaching in the turn box area.
- If on-street parking is provided, Install daylighting at intersection approaches to improve visibility at the intersection (see **SA9**).

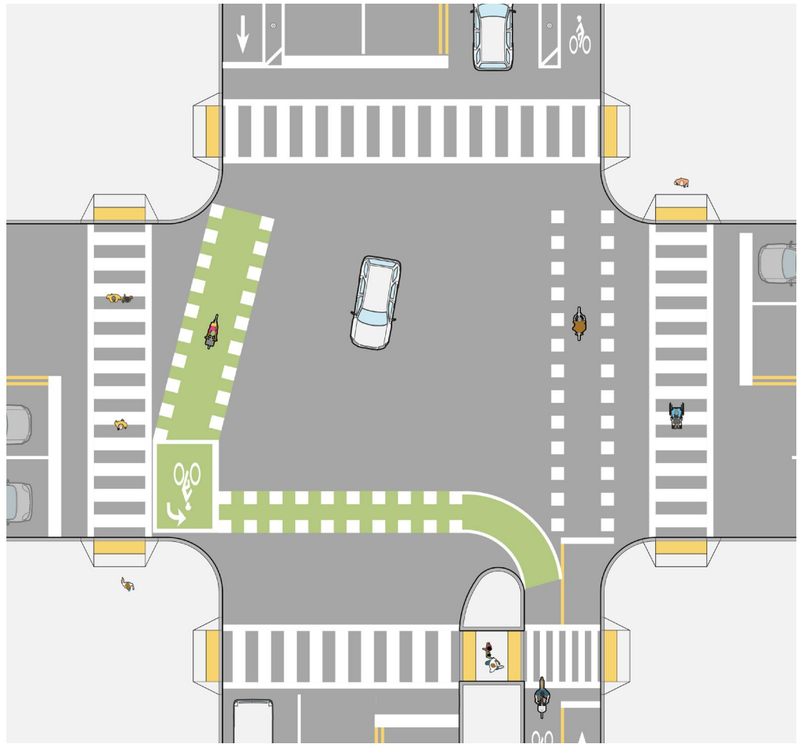
ADDITIONAL CONSIDERATIONS

- Expand queuing areas to 10’ deep to accommodate people riding cargo bicycles or bicycles with trailers.
- Pair pavement markings and signage with dedicated signalization and phasing at complex intersections (see **SN7**).

ADDITIONAL RESOURCES

- NACTO Urban Bikeway Design Guide

two-stage queue box



PROTECTED INTERSECTION

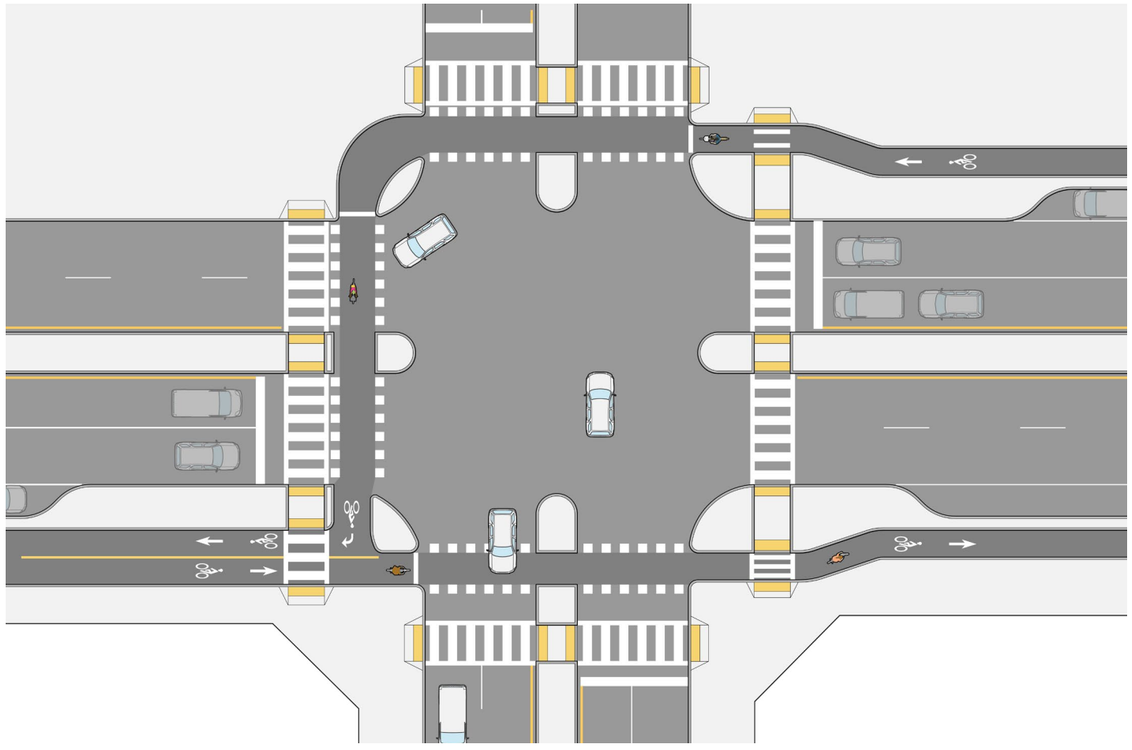
USE

- Intersections where a separated Urban Trail meets a high-volume street.
- Intersections that carry a high volume of mixed vehicle traffic (i.e. high motor vehicle and high bicycle volumes).
- Intersections where a separated Urban Trail turns from one street onto another.

REQUIREMENTS

- Use curbs, flexposts, bollards, or modular speed bumps to provide a physically separated area at the corners of an intersection. This space provides a queuing area beyond the crosswalk for people using the bike lanes or Urban Trail.
- Install daylighting at intersection approaches to improve visibility at the intersection and create space needed for queuing areas (see **SA9**).
- Mark a stop bar for people using the bike lane or Urban Trail to wait at red lights at the edge of the queuing area.
- Implement Bike/Micromobility Crossing markings across all legs of the intersection (see **SA4**).
- Sign a “No Turn on Red” restriction for vehicle lanes parallel to a Bike/Micromobility Crossing.
- Install a dedicated bicycle signal (see **SN7**) or use MUTCD sign R9-5 to inform people using the bike lane or Urban Trail that they should cross with the pedestrian signal.
- Design vehicle right-turns for use at slow speeds and use mountable features to accommodate design vehicles while keeping turning speeds low.

protected intersection



SA18 INTERSECTION TREATMENTS FOR BIKE LANES AND URBAN TRAILS (CONT.)

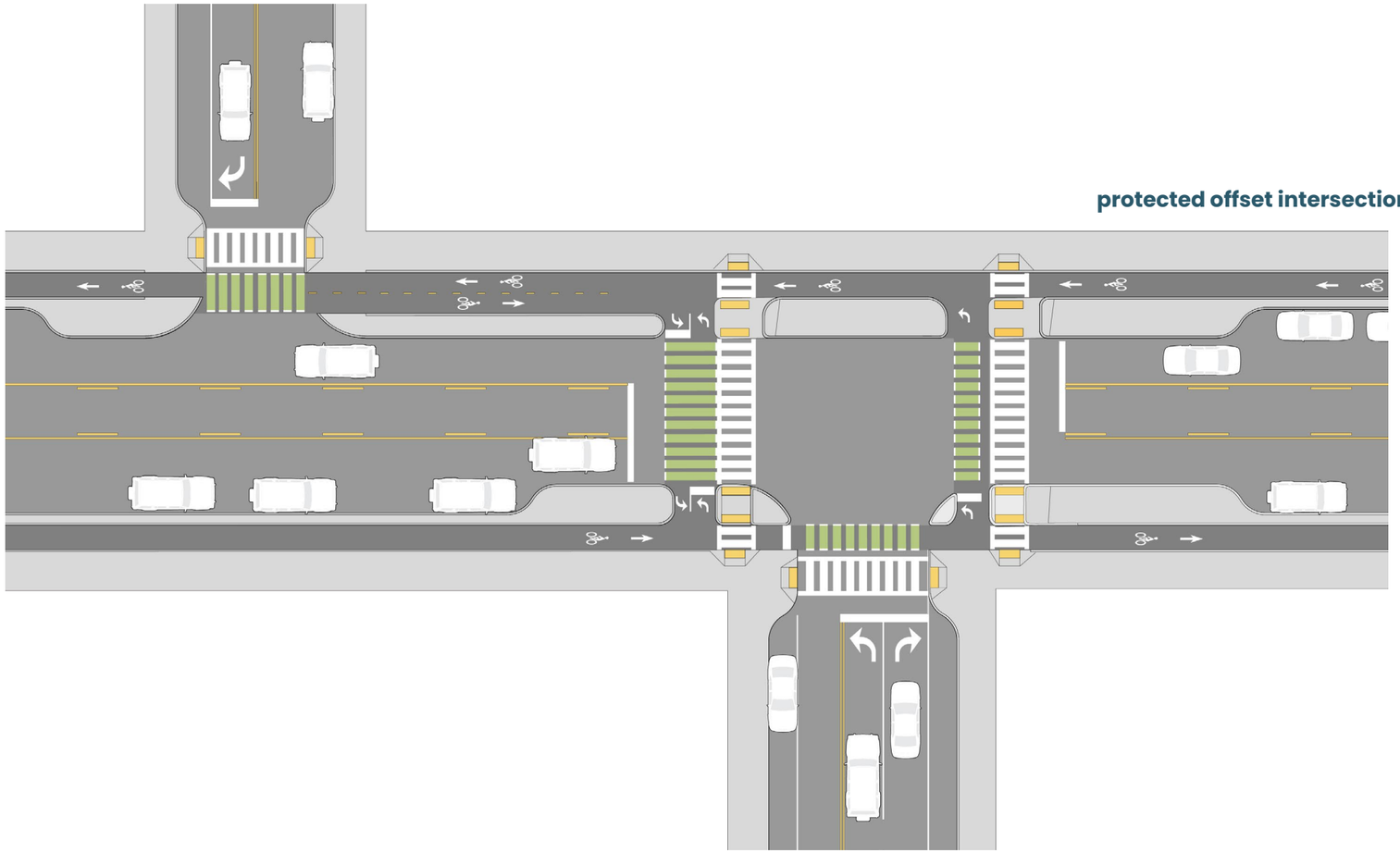
ADDITIONAL CONSIDERATIONS

- Consider marking yielding markings on the bike lane or Urban Trail in advance of the crosswalk to communicate pedestrian priority.
- Use curbs to delineate protected queuing area for people using bike lanes or Urban Trails.
- Pair pavement markings and signage with dedicated signalization and phasing at complex intersections (see **SN7**).

ADDITIONAL RESOURCES

- NACTO Urban Bikeway Design Guide

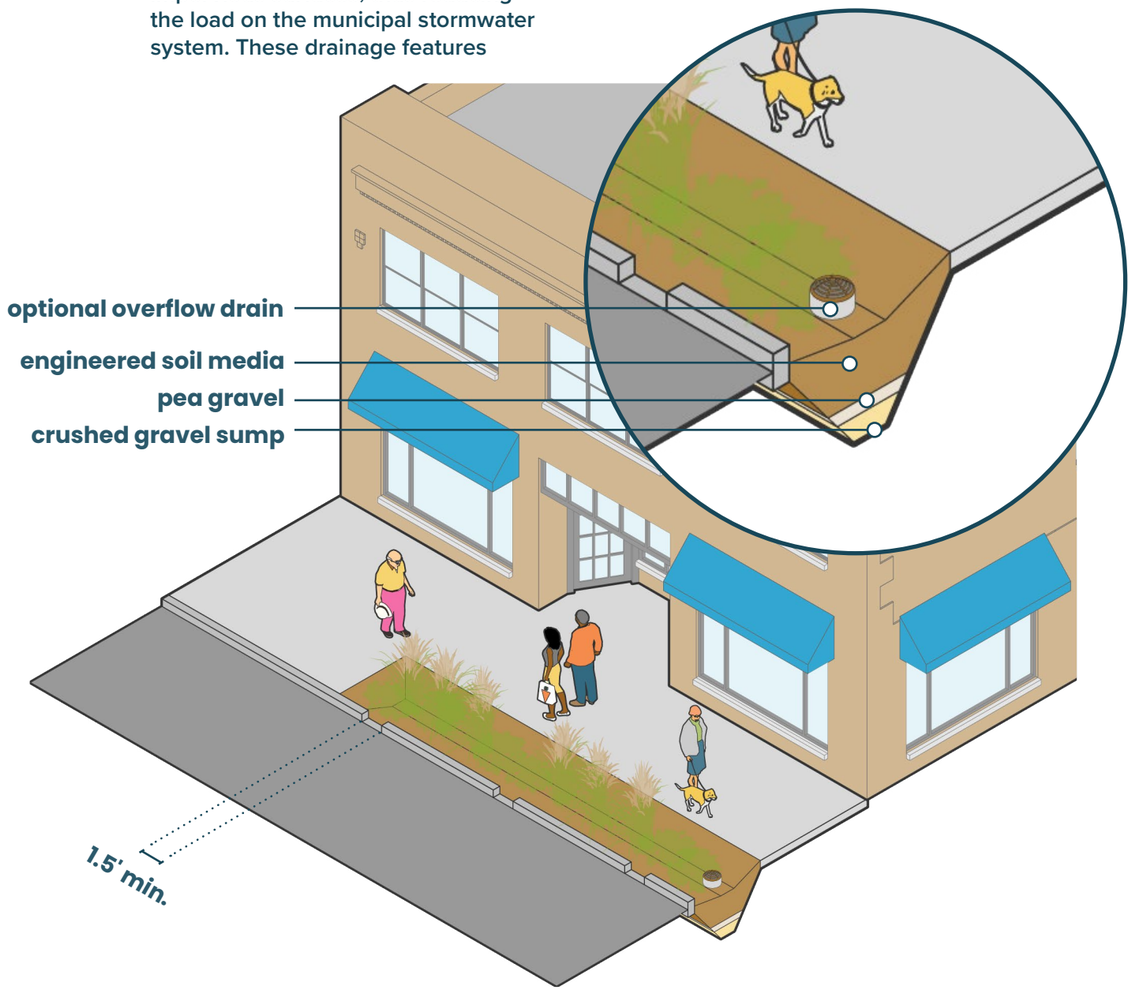
protected offset intersection



GI01 BIORETENTION TREATMENTS

Bioretention treatment areas are landscaped areas that temporarily store and infiltrate and filter stormwater runoff from impervious surfaces (surfaces like sidewalks and roadways that do not allow water to drain through the surface). Depending on their location, bioretention treatments may also provide traffic calming benefits to streets. Treatments may be incorporated into many areas of the streetscape to allow for temporary storage and infiltration of stormwater runoff from impervious surfaces, thus reducing the load on the municipal stormwater system. These drainage features also reduce the load on the municipal stormwater system, reduce runoff into our rivers, ponds, and streams, filter pollutants from runoff, and increase vegetation that helps clean our air and beautify our neighborhoods.

Treatments include: bioretention planters, which filter stormwater before it enters drainage systems; vegetated bioswales, which are shallow, linear depressed areas designed to manage a specific volume of runoff from adjacent impervious surfaces; and rain gardens, which are small systems with a slight depression that collect rain water and are planted with species that can withstand wet conditions (see GI03).



USE

- Within buffer areas, curb extensions, parking islands, medians, traffic circles and roundabouts, off-road trailside areas, and pedestrian refuge islands where at least 3' of width is provided.

REQUIREMENTS

- Bioretention treatments should not interfere with the accessible pedestrian path on sidewalk.
- Native pollinator plants should be used when vegetation is included to support beneficial insects that are important to neighborhood plant health.
- Vegetation should be suited for the conditions of the site and maintenance requirements.
- Low-growing plants (under 3' tall) should be used in locations where sight distance (e.g. for crosswalk locations) must be preserved or where personal safety is a concern.
- Green stormwater infiltration treatments located adjacent to building foundations should consider building drainage infrastructure, roof drainage and runoff, waterproofing of the foundation, and existing underground utilities. Typically, infiltration features should allow for a 5' minimum setback from building basement foundations. Additional conveyance infrastructure may be necessary to prevent inundation of below-ground building structures.

ADDITIONAL CONSIDERATIONS

- Treatments should be calculated and designed for the expected volume of stormwater. Overflow piping mechanisms should be provided where necessary. Retention areas should drain surface water within 72 hours after storm events to prevent insect habitat and bacteria accumulation.
- Subsurface soil, geology, and groundwater table should be sampled and tested to ensure adequate drainage capacity. Consider using engineered soil to adequately temporarily store runoff in bioswales.
- Inlet curb cut openings should be designed to effectively channel stormwater into the adjacent stormwater feature by achieving at least a 2" drop in grade between the curb cut and the feature's finished surface. An inlet width of at least 18" should be provided to reduce the likelihood of clogging. The curb cut surface area should be sloped downward into the feature.
- Check dams or serpentine swale alignments should be used to control stormwater flow within the swale on longitudinal slopes of 2-5% with bioswales.
- Consider rain gardens in neighborhood areas between sidewalks and curbs or along trails in off-street segments. These features do not typically require special engineered sub soil.

ADDITIONAL RESOURCES

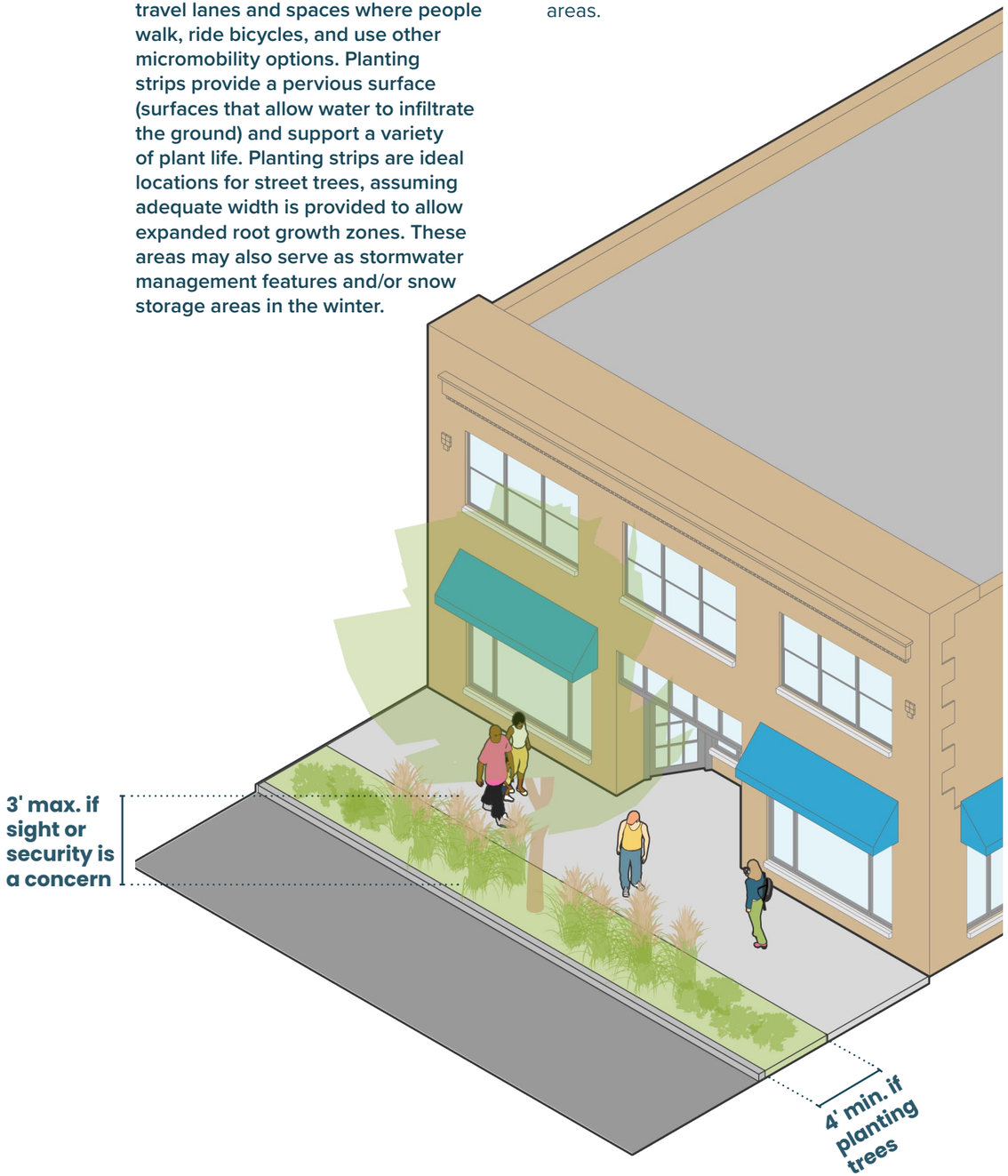
- RIDOT Linear Stormwater Manual

GI02 PLANTING STRIPS

Planting strips are located along sidewalks and paths and provide an effective buffer between vehicle travel lanes and spaces where people walk, ride bicycles, and use other micromobility options. Planting strips provide a pervious surface (surfaces that allow water to infiltrate the ground) and support a variety of plant life. Planting strips are ideal locations for street trees, assuming adequate width is provided to allow expanded root growth zones. These areas may also serve as stormwater management features and/or snow storage areas in the winter.

USE

- Within sidewalk, bike lane, and Urban Trail buffer areas.



REQUIREMENTS

- Planting strips may include grass only or may also include trees, shrubs, and other vegetation depending on width and goals for planting strip; however, street trees may not be appropriate where there is less than 4' available for the planting strip (**see GI06**).
- Adjacent walkways and travel lanes or visibility should not be obstructed with plantings. Plantings 3' or shorter should be used in areas where there are visibility or personal safety concerns.
- Plant material selection should consider ability to withstand winter snow storage.
- When other vegetation is included in planting strips, native, pollinator plants should be used to support beneficial insects that are important to all neighborhood plant health.

ADDITIONAL CONSIDERATIONS

- On Neighborhood Streets where a strong preference for greenery is indicated by residents or other stakeholders, consider use of a 4'-minimum width sidewalk to provide additional space for planting strips.

ADDITIONAL RESOURCES

- RIDOT Linear Stormwater Manual

GI03 PLANT LIST

The following plant lists are provided for reference. The Forestry Division of the Parks Department, which manages the City's trees along streets and other public property, should be consulted prior to final selection for urban tree planting.

USE

- All areas where planting may occur including sidewalk planting buffer strips, tree boxes, curb extensions, sidewalk amenity zones, bike lane and Urban Trail buffers, pedestrian refuge islands, medians, planter boxes, pocket parks, and parklets.

REQUIREMENTS

- Plants that need minimal water should be selected, as planting areas are unlikely to be mechanically irrigated.
- Low-growing shrubs and perennials should be used to maintain sightlines where necessary. Plants with a maximum mature height of 3' should be used in areas with visibility, public safety, or sightline concerns.
- Hardiness zones, plant species trends, and disease research should be consulted before selecting plant varieties.
- Native, pollinator plants should be used as much as possible.

ADDITIONAL CONSIDERATIONS

- Avoid invasive species.
- Plant for seasonal interest.
- Avoid trees and shrubs with fruit-drop in pedestrian areas.
- Seek opportunities for community participation and collaboration, such as the Providence Neighborhood Planting Program (PNPP) for new plantings.

ADDITIONAL RESOURCES

- Department of Public Parks Providence Tree List
- Providence Neighborhood Planting Program

SMALL TREES

Hedge Maple
Amur Maple
Serviceberry
Shantung Maple
Thornless Cockspur Hawthorn
Amur Maackia
Flowering Plum
Sargent Cherry
Kwanzan Cherry
Schubert Cherry
Yoshino Cherry
Japanese Tree Lilac

MEDIUM TREES

Red Horsechestnut
European Hornbeam
Katsura Tree
Tellowwood
Turkish Filbert
Hardy Rubber Tree
Golden Raintree
Black Tupelo
Hophornbeam
Callery Pear
Sawtooth Oak

LARGE TREES

Red Maple
Sugar Maple
River Birch
Hackberry
Ginkgo
Honeylocust
Kentucky Coffeetree
Sweetgum
Tulip Tree
Dawn Redwood
London Planetree
Swamp White Oak
Shingle Oak
Pin Oak
Willow Oak
English Oak
Red Oak
Sophora
Baldcypress
Basswood
Littleleaf Linden
Silver Linden
Homestead Elm
American Elm
Chinese Elm
Japanese Zelkova

RARE NATIVE TREES

American Larch
Black Spruce
Striped Maple
Mountain Maple
Round-leaved Dogwood
Dawarf Chestnut Oak
Post Oak
Black Ash
Swamp Cottonwood
Bog Willow
Slippery Elm

UNAUTHORIZED TREES

Norway Maple
Sycamore Maple
Tree of Heaven
Mimosa
Mulberry
Amur Corktree
Bradford Pear

GI04 POROUS & PERMEABLE SURFACES

Porous or permeable paving (paving that allows water to pass through the surface into the ground) is an important component of green infrastructure, especially in urban areas where hardscape features are often needed to provide access. In areas that require hardscape or paved surfaces, porous paving can provide stormwater infiltration and prevent surface runoff. Because porous paving allows snow and ice melt to infiltrate directly into the paving surface, porous pavement can help eliminating puddling and freezing and may reduce winter salt and sand use by as much as 75%. There are several types of porous paving materials and associated cost ranges. Initial installation costs may be offset by eliminating the need for installation of drainage structures and piping.

USE

- Where slopes do not exceed 5% and within:
  - Gutter strips or parking lanes along the curb that are not used as traffic lanes or bus stops.
  - Tree trenches
  - Pedestrian walkways, bike lanes, and Urban Trails.
  - Public plazas and other public gathering spaces.

REQUIREMENTS

- Porous and permeable pavement surfaces should be stable, firm, and slip-resistant.
- Joints between pavers should not exceed a width of 0.5”.
- Maintenance requirements and plans for maintenance should be considered as part of material selection.
- Appropriate subsurface materials and depths to handle the runoff load of the design area should be used.
- Salt and sand should be limited on porous surfaces during winter months.

ADDITIONAL CONSIDERATIONS

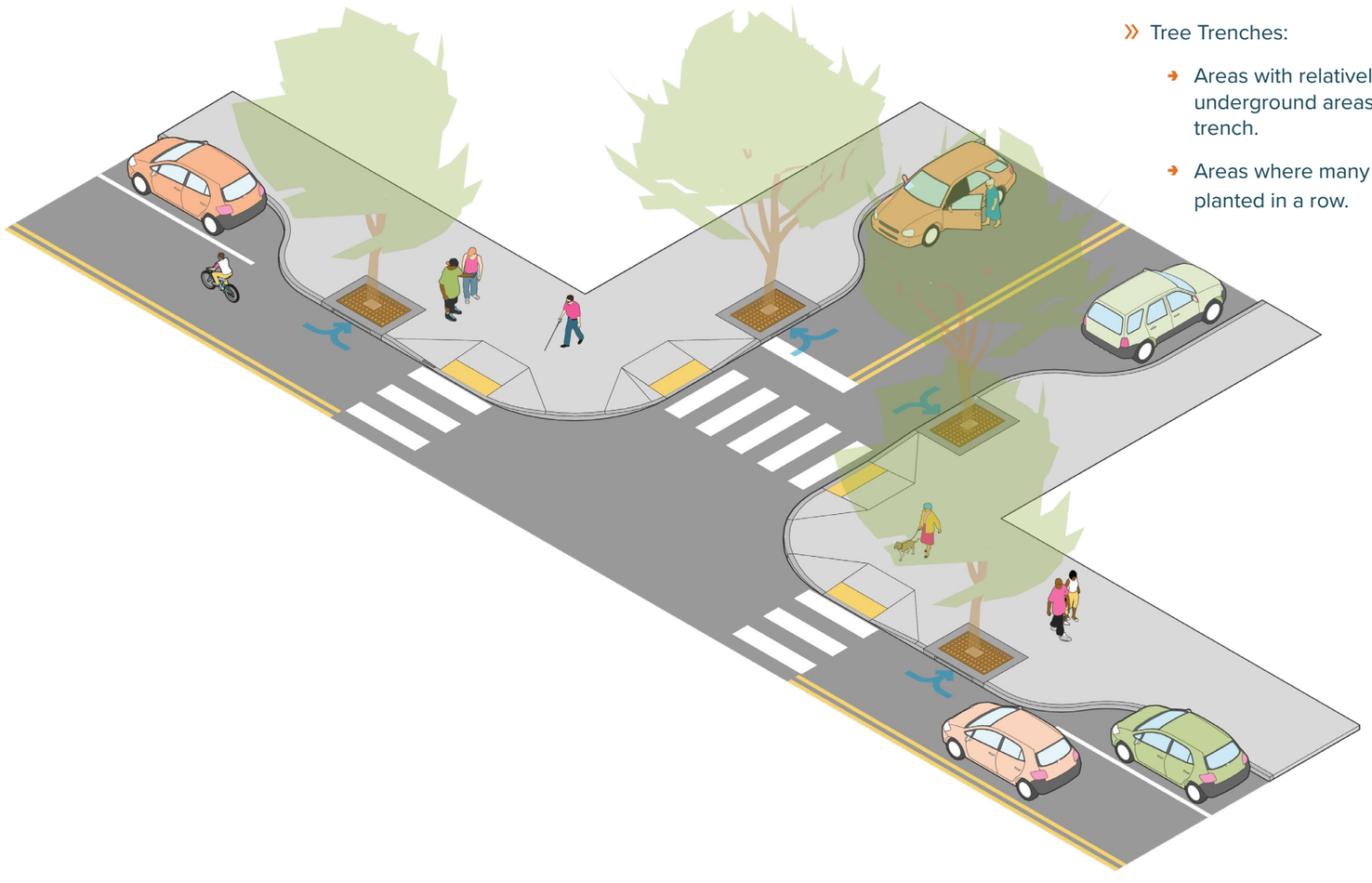
- Consider surrounding materials and context when selecting paving materials and colors.
- Soil testing and percolation rates should be used to inform subsurface material selection.
- Underdrains should be used when necessary.
- Porous surfaces should be vacuumed when standing water is observed, or at least every two years. Vacuuming activities will be most effective during the springtime, after a winter thaw.

ADDITIONAL RESOURCES

- PROWAG
- RIDOT Linear Stormwater Manual

GI05 TREE BOX FILTERS & TRENCHES

Tree box filters and trenches provide space to temporarily store and infiltrate stormwater runoff. Tree box filters are small, individual structures, while tree trenches are linear, continuous underground bioretention structures that provide a single structure to support multiple trees. These infrastructure features work by infiltrating stormwater below the surface into the boxes or trenches that contain special soil mixtures and subsurface aggregate materials that support tree growth while also allowing for water storage. The soil also irrigates trees and filters stormwater runoff, cleaning pollutants before allowing water to enter surrounding soil or conveying water to a drainage system. The surface material above the box or trench may be paved with accessible porous pavement and/or covered with tree grates that can be walked over. Structural soil or soil cells should be used to support paving while allowing for expanded root growth.



USE

- Areas where trees are planted among hardscaping elements such as sidewalks, plazas, and parking lots.
- Where paving or accessible surfaces are required for pedestrian access or street furniture between or surrounding street trees.
- Tree Box Filters:
  - Areas where utility or other underground structures constrain space and necessitate a well-contained tree structure.
  - Areas where trees punctuate the streetscape or are intermittent.
- Tree Trenches:
  - Areas with relatively unconstrained underground areas that can accept a large trench.
  - Areas where many trees line the street or are planted in a row.

REQUIREMENTS

- Underdrains should be tied into traditional drainage systems or filtration areas for control of extreme stormwater inundation.
- Stormwater should be directed to tree boxes through drain inlets in curbs or through sheet flow.
- The number and dimensions of filters should be adjusted according to stormwater management goals for streetscape. Trench areas should be designed according to calculated runoff volume requirements for the streetscape.
- ADA regulations concerning surface treatments and materials such as tree grates or pervious pavers within the pedestrian travel way should be followed. Grate openings and pavement joints should not exceed 0.5” and should be oriented so that longest openings are perpendicular to the path of travel for people walking.
- Tree species should be specified in accordance with the recommended street tree list and site conditions (**see GI03**).

ADDITIONAL CONSIDERATIONS

- Proper functioning soil media should be installed once other site work is completed to prevent premature compaction and clogging. Sand-based structural soils and cells should be used where feasible.
- Tree box filters and trenches should be maintained through routine trash removal, periodic soil inspections, and cleaning to prevent clogging once trees are established.
- Provide a continuous trench with shared soil between trees where possible to increase root growth zone.

ADDITIONAL RESOURCES

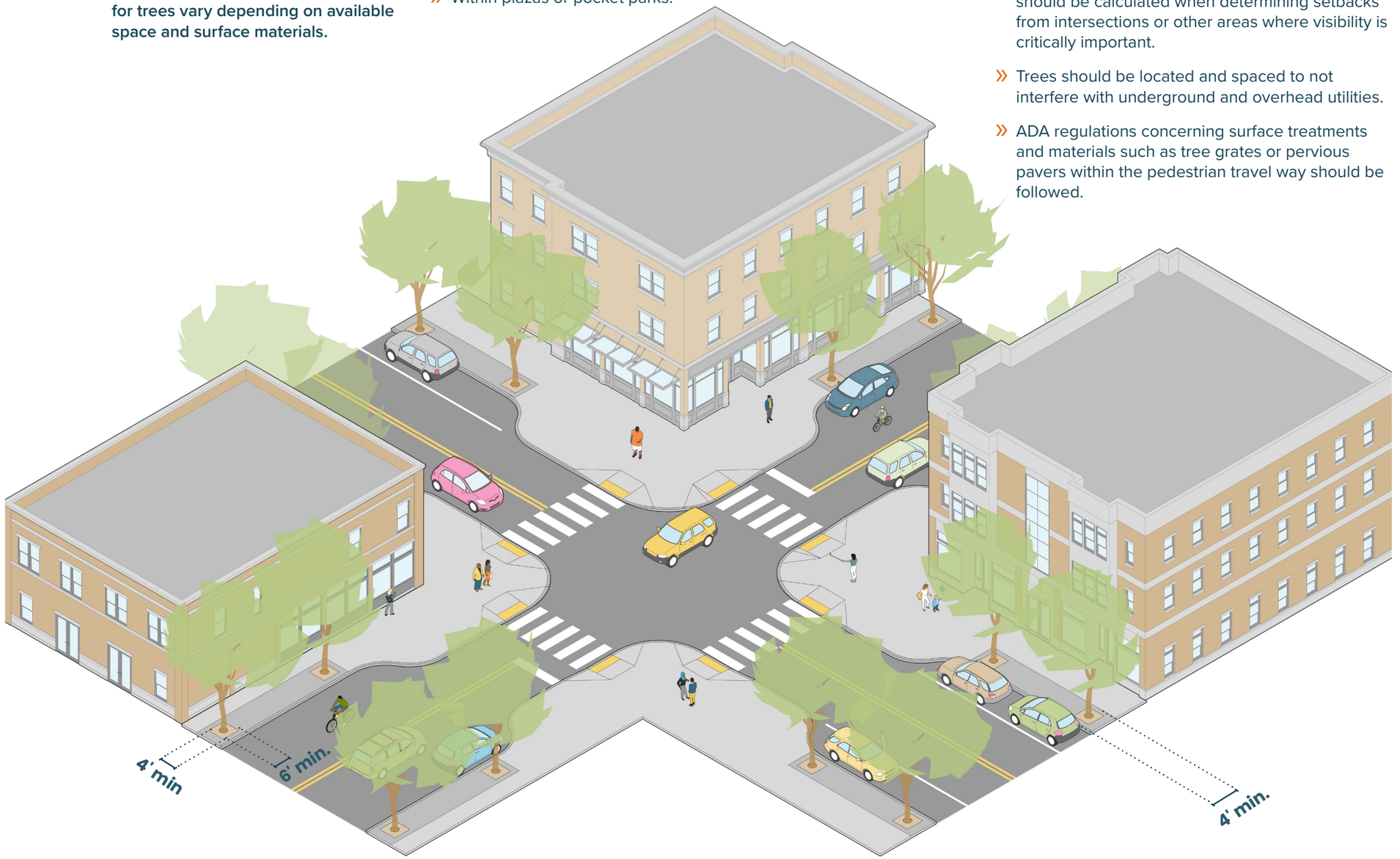
- PROWAG
- Department of Public Parks Providence Tree List

GI06 TREE PLANTING

Street trees contribute to neighborhood health, shade, urban wildlife and insect habitat, climate control, carbon sequestration, stormwater runoff mitigation, and, when strategically planted along street corridors, a visual traffic calming effect. Planting techniques for trees vary depending on available space and surface materials.

USE

- Within planting strips and buffers with a minimum width of 4’.
- Within curb extension planting areas, chicanes, traffic islands, and traffic circles.
- Within plazas or pocket parks.



REQUIREMENTS

- The Department of Parks’ Providence Tree List should be consulted for recommended species.
- Trees should be placed to ensure adequate sight lines are preserved at conflict points. Mature tree trunk width, height, and spread of the canopy should be calculated when determining setbacks from intersections or other areas where visibility is critically important.
- Trees should be located and spaced to not interfere with underground and overhead utilities.
- ADA regulations concerning surface treatments and materials such as tree grates or pervious pavers within the pedestrian travel way should be followed.
- Tree pit dimensions should be a minimum of 4’ wide by 6’ long. Larger areas may be required to accommodate large root balls or additional plant materials.
- Root growth zone for urban tree planting should be maximized wherever possible. Mature tree size and root growth requirements should be considered when locating trees and selecting tree species.

ADDITIONAL CONSIDERATIONS

- Plant trees with a maximum caliper size of 3” to 4” for best adaptability.
- Soil volumes for root growth should be expanded by placing specially formulated structural soils or soil cells beneath paving areas to the extent possible.
- Select a variety of species when planting large numbers of street trees to avoid massive die-off during biological blight events.
- Allow for maximum root growth zones with continuous planting strips or subsurface enlarged planting pits.

ADDITIONAL RESOURCES

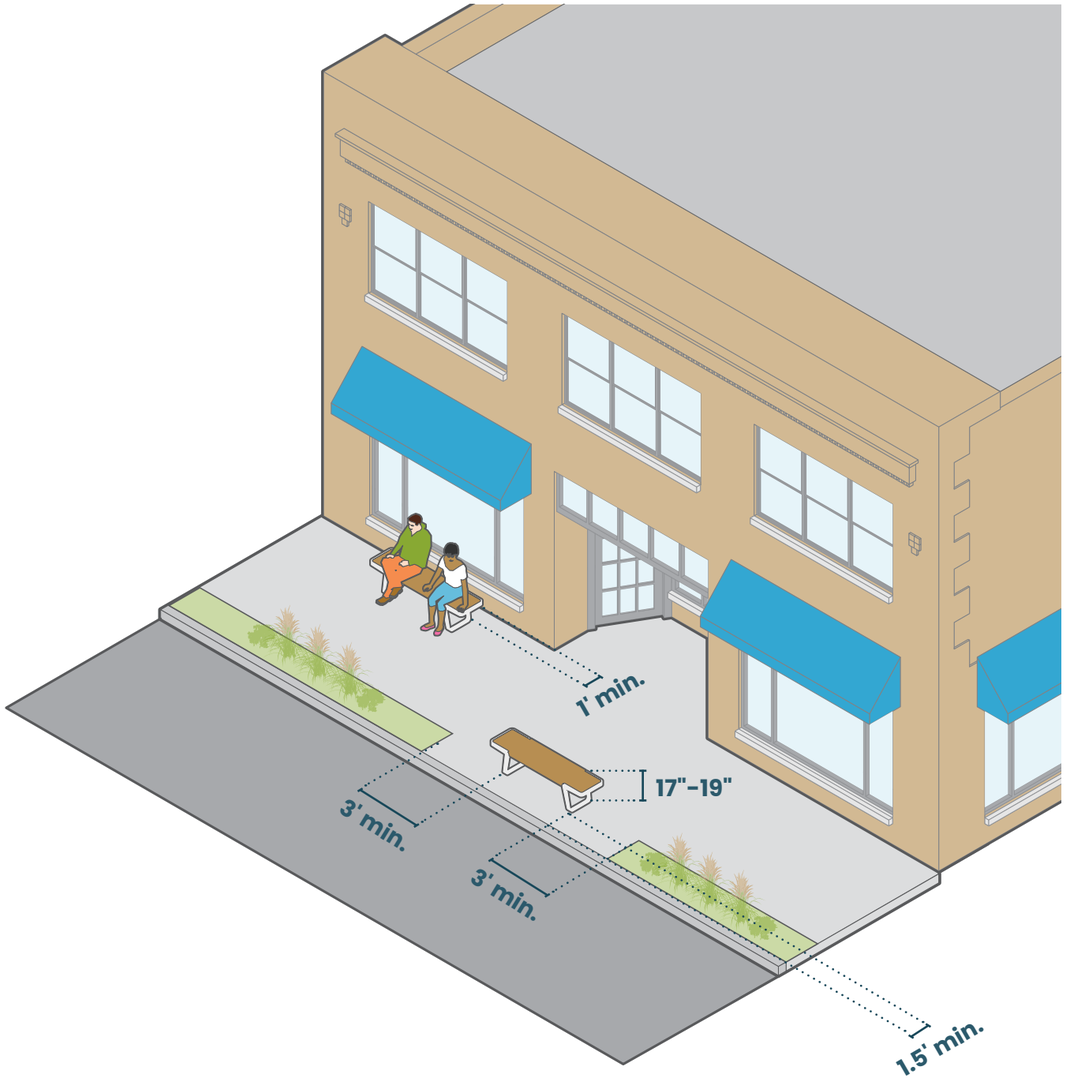
- PROWAG
- Department of Public Parks Providence Tree List

CU01 BENCHES/SEATING

Benches and other seating amenities provide opportunities for social interaction and rest. Seating should be provided where widths allow for required seating clearances and where a 4' unobstructed path of travel for people walking can be maintained. Seating styles and materials may vary depending on location and neighborhood context.

USE

- At bus stops.
- Within sidewalk buffer areas.
- Within plazas and pocket parks.
- At points of interest and intermittently along trails.



REQUIREMENTS

- A 3'-wide clear width should be maintained on either side of seating.
- Bench/seat back should be placed a minimum 12” from face of building when located at the back of sidewalk.
- When located at the front of sidewalk:
  - A minimum setback of 36" should be provided from face of curb to the seat/bench when the bench faces the street or when the bench is perpendicular to the curb.
  - A minimum setback of 18” should be provided from the face of curb to the seat/bench when the bench faces the sidewalk.
- Durable, low-maintenance seating materials and material finishes/coatings should be used.
- Siting benches arbitrarily may result in underuse or misuse. Consider adjacent land uses and sidewalk features, such as proximity to sidewalk cafes, bus stops and bus shelters (where the bench could provide additional or supplemental seating), and land uses that may occasionally result in people waiting to enter, such as a theater or restaurant when selecting the number and location of seating.

ADDITIONAL CONSIDERATIONS

- Consider what value a new bench will provide, and how it will be used, prior to siting.
- Use benches with backs and armrests for improved comfort and accessibility.
- Use benches with a seat height that is a minimum of 17” and a maximum of 19” from the ground.
- Where sidewalk widths allow, provide benches perpendicular to the street edge in groupings that face each other to encourage sociability and vibrancy.
- Consider historical or other cultural context when selecting seat style. Consult stakeholders, residents, the Historic District Commission, or other relevant groups when making a bench style selection.
- Locate benches under trees when possible to provide shade during summer months.
- Consider using wood or other soft materials for seating instead of granite or stone that may become too cold to comfortably use when temperatures drop.

ADDITIONAL RESOURCES

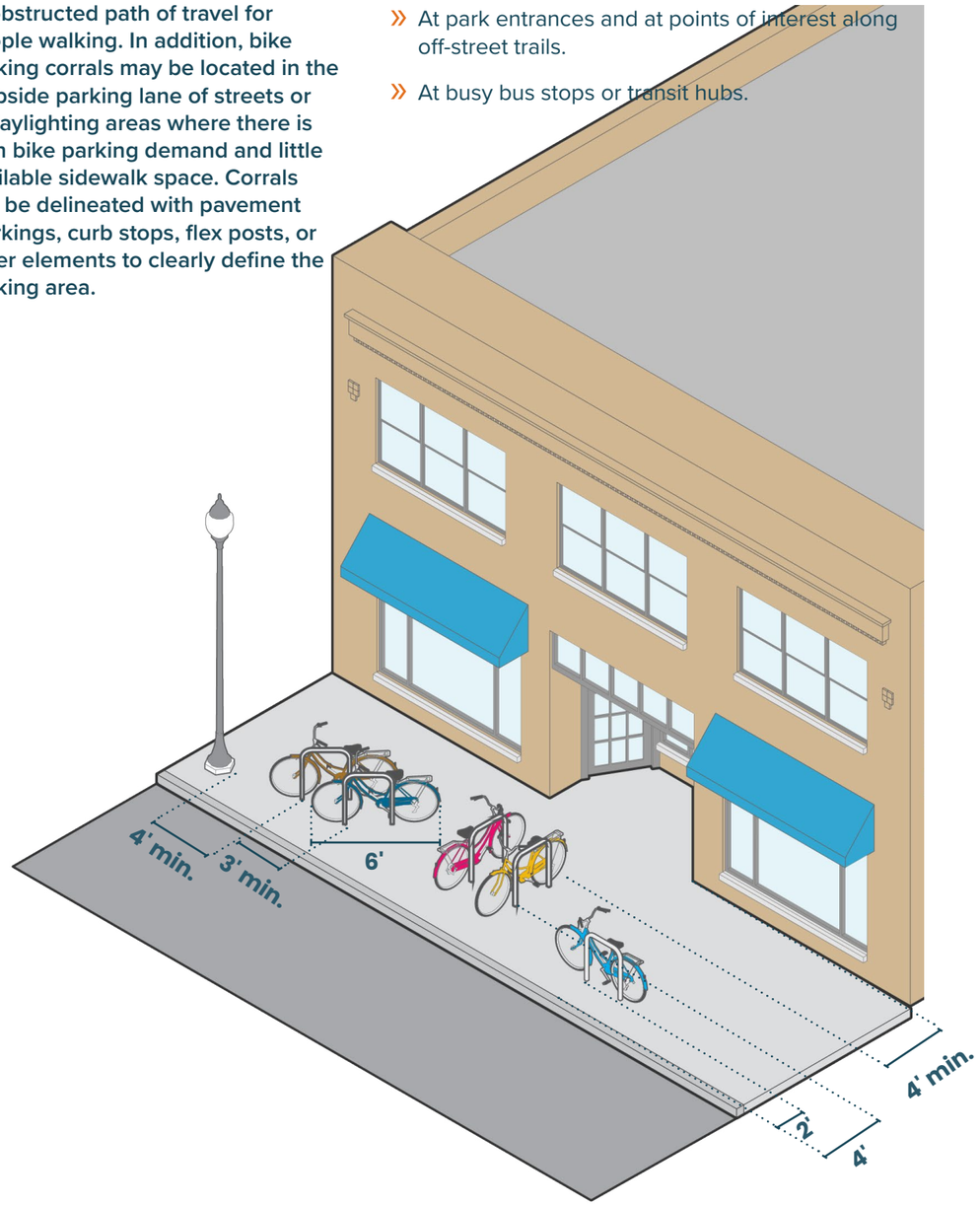
- PROWAG

CU02 BIKE PARKING

Bike racks and parking corrals provide structures for people to securely lock their bicycles. On sidewalks, bike racks may be located in the curbside buffer area, provided there is adequate width to maintain an unobstructed path of travel for people walking. In addition, bike parking corrals may be located in the curbside parking lane of streets or in daylighting areas where there is high bike parking demand and little available sidewalk space. Corrals can be delineated with pavement markings, curb stops, flex posts, or other elements to clearly define the parking area.

USE

- Within sidewalk buffers and wide Urban Trail or separated bike lane buffers.
- Within daylighting areas or vehicle parking lanes.
- At park entrances and at points of interest along off-street trails.
- At busy bus stops or transit hubs.



REQUIREMENTS

- Only inverted U (hoop) or post and ring (hitch) rack styles should be permitted to be installed within the public realm. These rack styles are versatile and intuitive, allowing bicycles of all shapes and sizes to be property locked through the frame and of least one wheel.
- Bike parking within sidewalk buffer areas should not encroach on the clear pedestrian zone when a bicycle is parked there. A minimum clear width of 4' should be preserved.
- Bike racks within the sidewalk buffer may be installed perpendicular, parallel, or at an angle to the curb.
  - Parallel bike parking should be set back 24" from the curb.
  - Perpendicular bike parking should be set back 48" from the curb.
  - Angled bike parking should be sufficiently set back from the curb to ensure a bicycle of at least 6' in length will fit on the curb and will not be damaged by car doors within an adjacent parking lane.
- When a group of bicycle racks are provided, 36" should be provided between bike racks. A minimum clear distance of 4' should be provided between a bicycle rack and any other streetscape element.
- Racks should be placed a minimum of 8' from all fire hydrants.
- Racks should not be places within 4' of the corner of any building
- In-street corrals should be clearly delineated with a vertical element such as a parking stop, concrete barrier, or flexpost to prevent vehicle encroachment.

ADDITIONAL CONSIDERATIONS

- Place racks in visible, well-lit locations and within 75' of commercial/residential building entrance doors.
- Ensure bike racks are installed on a flat surface where the rack may be bolted or securely fastened to the ground.
- Consider use of bike corrals in busy locations to provide up to 12 bike parking spaces in what would otherwise accommodate a single vehicle parking space.

ADDITIONAL RESOURCES

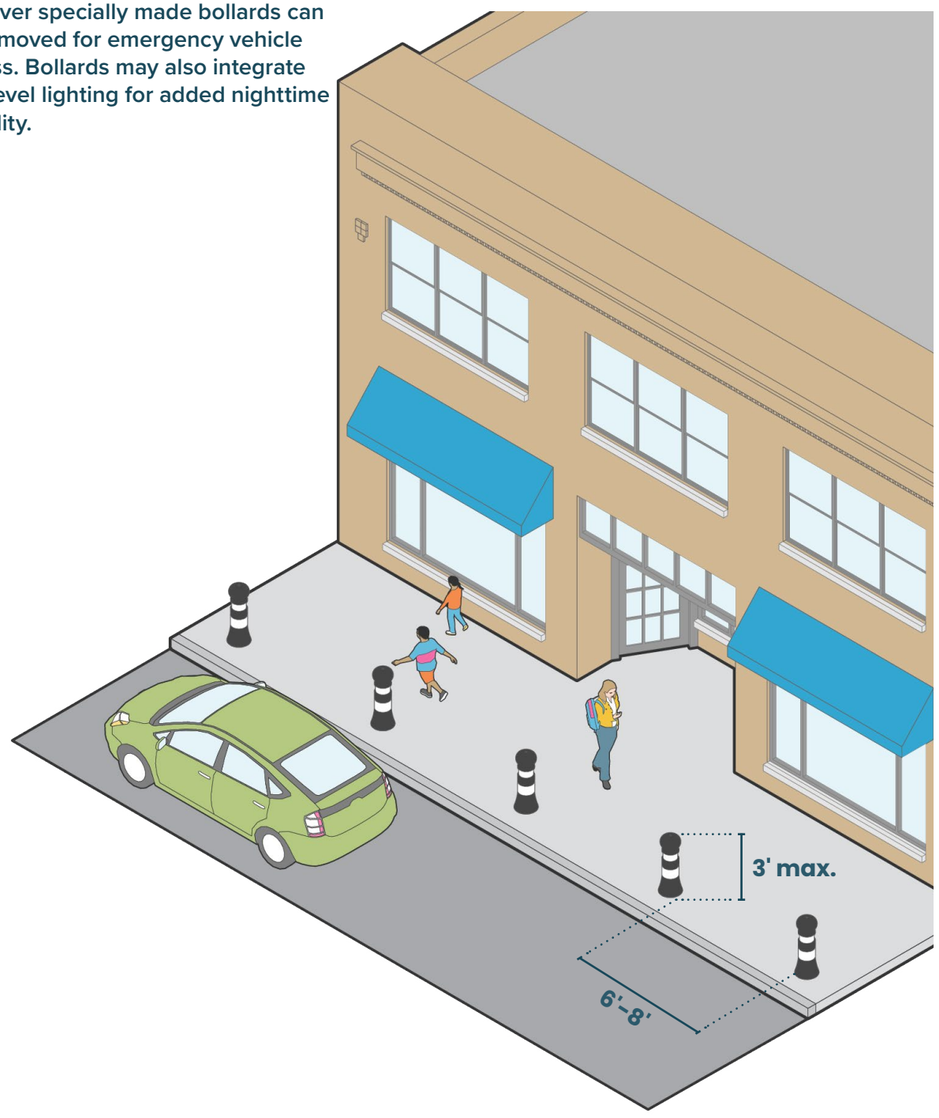
- APBP Essentials of Bike Parking
- PROWAG
- Providence Dimensional Requirements for JUMP bikes

CU03 BOLLARDS

Bollards are short, sturdy posts used to control vehicle access while allowing for people walking or riding bicycles to pass through. Posts are typically steel or cast iron, but may also be made out of precast concrete, granite, or other dense stone material. Most bollards are installed as permanent fixtures with concrete footings in the ground, however specially made bollards can be removed for emergency vehicle access. Bollards may also integrate low-level lighting for added nighttime visibility.

USE

- Within shared street environments to delineate pedestrian-only zones.
- At the corners of raised intersections to prevent vehicles from driving on to pedestrian walkways.
- In buffers between cars and bike lanes or Urban Trails.



REQUIREMENTS

- On shared streets and at raised intersections, bollards should be spaced close enough to discourage automobile encroachment while maintaining adequate width to preserve the street's aesthetics and not impede on pedestrian, bicyclist, or micromobility user travel. A 6' minimum and 8' maximum spacing is preferred.
- Bollards should not exceed 36" in height to avoid conflicts with handlebars and to maintain clear sightlines and visibility between users.

ADDITIONAL CONSIDERATIONS

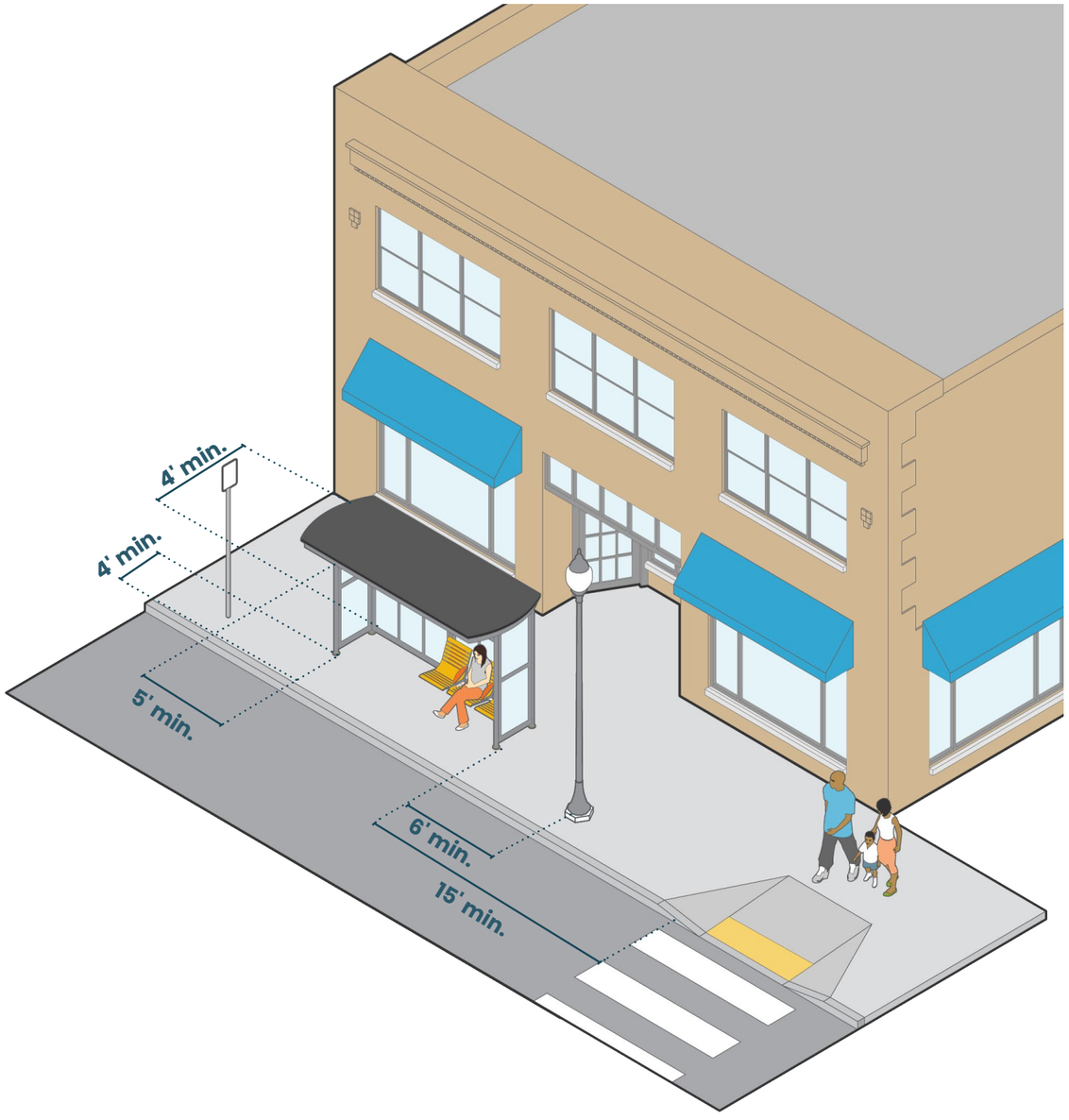
- Consider historical or other cultural context when selecting bollard style. Consult stakeholders, residents, the Historic District Commission, or other relevant groups when making a bollard style selection.
- Mount bollards in-ground as part of new construction and sidewalk concrete repairs.
- Incorporate lit bollards into lighting scheme along the side of off-street paths where needed.

ADDITIONAL RESOURCES

- FHWA Accessible Shared Streets

CU04 BUS SHELTERS & STOP AMENITIES

Bus shelters provide weather protection and a designated waiting area for bus passengers. Shelters are typically provided at frequently used bus stops and locations used by vulnerable passengers such as at schools and senior centers, but are appropriate and encouraged at all bus stops regardless of use. Benches, trash and recycling receptacles, and bike parking are other amenities that are often collocated with bus stops and provide additional comfort and functionality to the public transit system.



USE

- At any bus stop locations, but especially those with at least 50 passenger boardings per day.
- Near schools, community and senior centers, and hospitals.

REQUIREMENTS

- Boarding and alighting areas should be at least 8’ deep (perpendicular to the curb) and 5’ wide.
- Clear and level landings should be provided to both the front and rear doors of the bus. Bus doors are generally spaced 20’ apart.
- A clear pedestrian access aisle of at least 4’ wide should be preserved behind the bus shelter and the back of the sidewalk or nearest building façade.
- An appropriate shelter size should be selected based on site constraints and ridership demand. Typical shelters are 5’ deep and vary in length.
- At least 15’ should be provided between the edge of the shelter and crosswalks to maintain adequate visibility.
- Conflicts with trees and other streetscape amenities should be minimized by providing at least 6’ between the edge of the shelter and other vertical streetscape elements.
- Trash and recycling receptacle should be installed at all bus stops.

ADDITIONAL CONSIDERATIONS

- Where floating bus stops are used, shelters should be located on the floating island (**see SA04**).
- Include transparent wall panels in all shelters to promote feelings of personal safety and security.
- Consider incorporating art, advertising, or informational wayfinding signage within bus shelters.
- Install solar lighting where solar exposure is adequate.
- Provide bench seating while maintaining a minimum 30” wide by 40” long accessible space under shelter (**see CU01**).
- Provide real-time information displays to keep users informed about the arrival of their bus and other information, including delays on connecting lines, weather, and news.
- Provide heated solar-powered lamps for use in cold weather during transit operating hours.

ADDITIONAL RESOURCES

- Rhode Island Bus Stop Guide
- FHWA Achieving Multimodal Networks
- PROWAG

CU05 DECORATIVE PLANTERS

Raised planters may be used as effective edge barriers and space-defining elements. Planter boxes add to the aesthetic quality of the streetscape and come in many sizes and styles. Decorative planters are often preferred to other vertical buffer elements, but require maintenance agreements or other provisions to ensure adequate upkeep and plant health.

USE

- On curb extensions or on pedestrian refuge islands.
- Within buffers separating bike lanes or Urban Trails from motor vehicles within commercial or high-activity areas.
- Within buffers separating sidewalks from sidewalk-level separated bike lanes or Urban Trails.
- Around parklets and sidewalk seating areas to provide an enclosure.
- Adjacent to on-street bike or scooter parking corrals to prevent vehicle encroachment.

REQUIREMENTS

- When planters are used within buffers between bike lanes and cars to prevent vehicle parking or encroachment, they should be spaced 10’ to 15’ apart (edge to edge).
- Planters should not be located in areas that will obstruct vehicle visibility. Plant material should not exceed 36” when located within a buffer area adjacent to a bike lane or Urban Trail.
- A maintenance plan should be in place before installation of decorative planters.
- Low-maintenance plant materials that are resilient to heat or other elements should be used based on site conditions.

ADDITIONAL CONSIDERATIONS

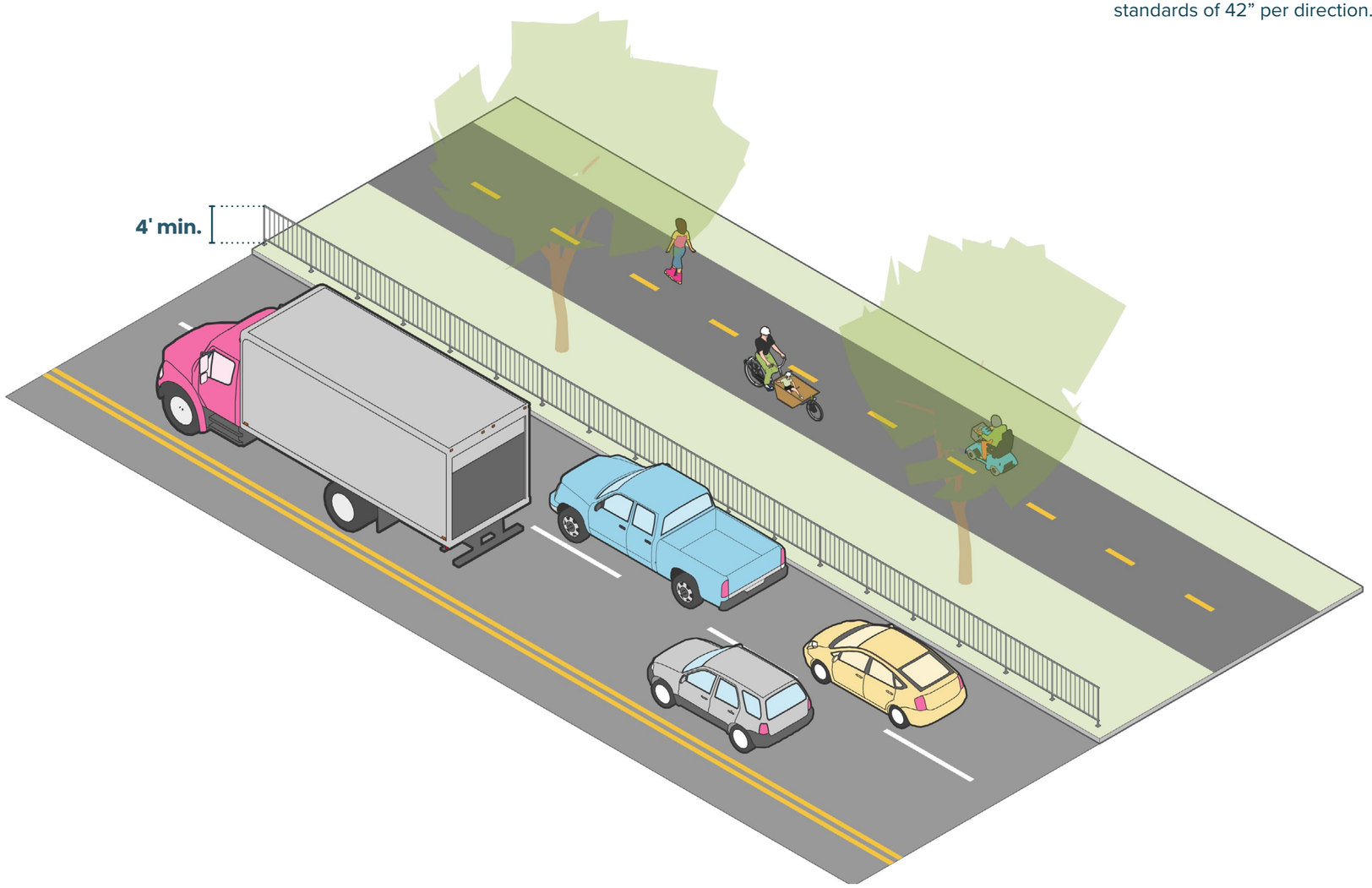
- Partner with nearby businesses, partner organizations, or community groups to adopt maintenance responsibilities, where feasible.
- Consider alternating planters and other vertical elements in buffers between vehicle and bike lanes or Urban Trails to reduce costs and allow easier maintenance and emergency vehicle access.
- Consider neighborhood and/or architectural context when selecting a planter style.

CU06 FENCING AND GUARDRAILS

Fencing and/or guardrails are used only in circumstances where other forms of barriers or buffers are not adequate to meet safety standards. These elements provide edge protection and separation of uses when necessary. The choice of material for fences may vary depending on site constraints, maintenance needs, and cost. Guardrail materials and installation should follow RIDOT standards.

USE

- Where fence enclosure or a guardrail barrier reduces safety hazards for people walking or riding bicycles.
- Where Urban Trails and off-street paths are parallel to adjacent to active rail lines.
- To separate Urban Trails and two-way bikeways from exceedingly high-volume or high-speed streets when available buffer space is narrow.



REQUIREMENTS

- Fences should be constructed to a minimum height of 4'.
- The impact of shy distance should be considered when determining widths of adjacent Urban Trails or separated bike lanes adjacent to fences or guardrails. Shy distances of 1' to 2' should be considered when located adjacent to a trail or bike lane. After accounting for shy distances, the minimum operating width of the adjacent trail or bike lane should not fall below minimum width standards of 42" per direction.

ADDITIONAL CONSIDERATIONS

- Use of chain link fences adjacent to trails or bike lanes are discouraged. Consider use a of a rub-rail where chain-link fences are used directly adjacent to an Urban Trail or off-street path to prevent handlebars from catching on the fence.
- Consider aesthetic goals for fence or rail in relation to design area.

ADDITIONAL RESOURCES

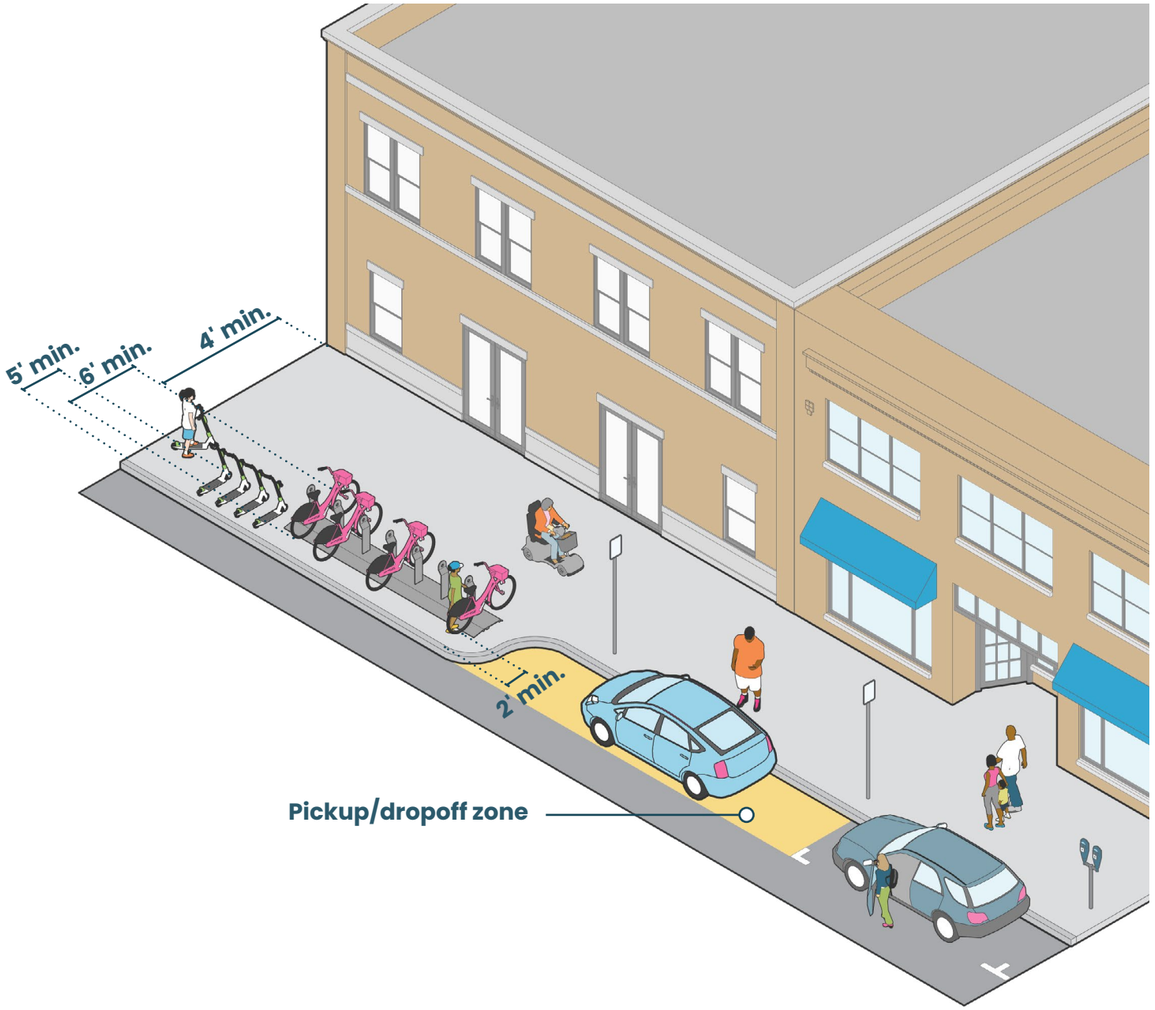
- RIDOT Standard Details

CU07 MICROMOBILITY HUBS

Micromobility hubs may provide designated parking areas or corrals for bikeshare, scooter-share to reduce sidewalk clutter and make use of curbsides more efficient. Bikeshare docks typically feature semi-permanent structures that hold bicycles, while scooters may be parked in spaces designated by pavement markings and/or signage. Scooter stands may be installed to prevent scooters from tipping over.

USE

- Near commercial or high-activity areas.
- On sidewalks with large buffer areas.
- Within curb extensions.
- Within pedestrian plazas.
- Near transit stops.
- Within on-street parking spaces or no parking zones where sidewalks are too narrow or pedestrian space is limited.



REQUIREMENTS

- A 4' minimum clear pedestrian path should be maintained behind any designated dock or designated micromobility parking area.
- A minimum distance of 2' should be provided from the hub to the face of the curb.
- A depth of 6' for bikeshare docks and 5' for scooter zones should be provided.
- In high-volume pedestrian areas, provide at least 2' clearance between hub and clear pedestrian path on sidewalks
- Provide 4' minimum clearance between the edge of a dock or designated parking area and any other vertical streetscape element.
- Docks should be oriented to allow people to pull a bicycle out onto the sidewalk instead of into the street.
- Bikeshare pay and informational kiosks (if provided) should be accessed from the sidewalk.
- Hubs may be located in parking lanes where there is not enough room in designated no-parking zones, such as daylighting areas (**see SA09**). Placing hubs in-street where traffic volumes are excessively high should be avoided. Vertical barriers, such as flexposts, precast curbs, or planters should be used to restrict motor vehicle encroachment on on-street docks and corrals.
- Hubs should be clearly delineated with striping, paint, and signage.
- Adequate sun exposure should be ensured if docks are solar powered.

ADDITIONAL CONSIDERATIONS

- Co-locate multiple micromobility options in the same location to maximize transportation choices for people and minimize sidewalk clutter and maximize curbside efficiency.
- Locate in well-lit areas with clear sight lines from sidewalks and pedestrian areas.
- Locate hubs in curb extensions and near bus stops to preserve maximum pedestrian access aisles.
- Consider use of on-street hubs as protective buffers between travel lanes and bike lanes or Urban Trails.
- Site hubs next to a curb extension to enhance and extend the intersection sight distance benefits provided by curb extensions (**see SA07 and SA09**).

ADDITIONAL RESOURCES

- Providence Dimensional Requirements for JUMP bikes
- ITE Curbside Management Practitioners Guide

CU08 PARKING METERS/KIOSKS

Parking meters and kiosks are devices people use to pay for on-street parking. They are installed in convenient curbside locations for user access while avoiding obstruction of the pedestrian path of travel. Modern parking meters and kiosks often take credit cards in addition to cash and/or coins and allow for prices to be dynamically changed based on demand, time of day, or day of the week. Parking meters typically allow payment of one to two directly adjacent parking spaces while parking kiosks typically allow payment for multiple parking spaces within a block.

USE

- Where on-street parking is provided proximate to commercial land uses fronting the street.
- Where on-street parking is provided proximate to occasional high-demand uses, such as sports or special event venues.

REQUIREMENTS

- If used, individual meters should be located within 3’ of the head or foot of the parking space to maintain potential lift operations where parallel on-street ADA parking exists.
- Meters should be mounted with centerline of controls at no more than 42” high per ADA standards.
- Meters should be placed as close as possible to the front of the curb or the back of the sidewalk to maintain ADA accessibility along sidewalks.
- Parking kiosks should be placed within the middle of the parking spaces they serve or, when possible, in curb extensions at one end of the spaces.
- When parking kiosks are used, signs should be placed approximately every 100’, using existing sign posts when possible, to direct people to parking kiosks.

ADDITIONAL CONSIDERATIONS

- Use parking kiosks where there are at least 8 parking spaces on a block face to reduce visual clutter of the street. Use parking meters on streets where there are fewer parking spaces.
- Convert current parking meters or meters that have been removed into bike parking with attachments that convert meter posts into post and ring racks. Do not use this conversion at ADA accessible parking meters.
- Select materials and styles for parking meters that match the local design context.

ADDITIONAL RESOURCES

- PROWAG

CU09 PARKLETS

Parklets are seating areas located in curbside on-street parking lanes that extend the pedestrian realm. These amenities provide a vibrant community space and places for social interaction. Parklets are often designed in partnership with local businesses and residents who manage and maintain the space. Parklets often become a focal point of the neighborhood and should be welcoming and accessible to all. The size and design of parklets is typically constrained by the on-street parking lane width and necessary clearances. Parklets typically occupy two standard on-street parking spaces. Parklets should be designed to be easily assembled and disassembled to provide flexibility of use.

USE

- On streets where vehicle speed limits are 25 mph or less.
- On streets with a running slope of 5% or less.
- On streets with moderate to high levels of current or projected people walking, land uses that encourage walking such as restaurants and cafes, and existing on-street parking.
- Where sidewalks are too narrow to accommodate sidewalk seating areas and on-street parking exists.

REQUIREMENTS

- Each end of the parklet should be buffered with parking stops, fencing, bollards, or other vertical elements. A minimum distance of 3' should be provided from the edge of the parklet to the vertical element.
- The deck of the parklet should be flush with the adjacent curb to maintain accessibility from the sidewalk.
- The deck of the platform should be constructed to meet ADA surface standards.
- The parklet should not extend more than 7' from the curb, regardless of the width of the parking lane.
- A consistent vertical edge should be provided along all sides of the parklet except the side open to the sidewalk. The height of the edge parallel to the street should be a minimum of 36" tall and a maximum of 42" tall. The height of the edges perpendicular to the street should be a minimum of 14" tall.
- Parklets should not block existing hydrants, manhole covers, or street drains.
- To maintain sightlines to crosswalks, parklets should not be located close to corners at intersections.
- Components of the parklet including the deck, vertical elements, seating, tables and planters should be low-maintenance and vandal-resistant.
- Prior to approval of installation, coordination with adjacent businesses and landowners should be completed to gauge support for parklets, develop maintenance partnerships, and ensure activation of the space.

ADDITIONAL CONSIDERATIONS

- Consider day and night surveillance when selecting sites.
- Provide bicycle parking or micromobility hubs at, near, or within the parklet (**see CU02 and CU07**).
- Disassemble and remove parklet during winter months if snow removal is prohibitive or materials will deteriorate.
- Consider temporary or pop-up installations to test the potential of the parklet and gauge community and other stakeholders.
- Use parklets as a temporary means to evaluate permanent curb extensions or sidewalk expansions.

ADDITIONAL RESOURCES

- PROWAG

CU10 SIDEWALK LIGHTING

Human-scale lighting is an important way to ensure public spaces feel safe and active at all times of day. Lighting also enhances the aesthetics of a streetscape and may help reinforce distinct neighborhood identities. Light poles may be used for decorative banners, advertising events, and seasonal decorations.

USE

- Commercial areas where streetlights do not light both roadway and sidewalk.
- Areas with high volumes of people walking or riding bicycles such as plazas, schools, parks, transit stations, Urban Trails, or in areas where personal safety is a concern.

REQUIREMENTS

- Fixtures should be spaced based on desired illumination levels, trees, and utility conflicts.
- A minimum clear accessible aisle of 3' should be maintained between all light poles and the back of sidewalk (4' minimum preferred).
- Lighting fixtures should be located at least 14' above the sidewalk level.
- Light poles should be placed a minimum of 18" back from the face of the curb. Wider setbacks (up to 3') may be appropriate where sidewalk widths are greater than 7'.
- In extremely constrained environments, engineering judgment should be used to locate needed lighting poles and fixtures.
- Where banners or hanging plants are affixed to light poles, adequate clearances should be provided below the hanging elements. A minimum of 9' should be provided below the bottom of a hanging plant or banner.

ADDITIONAL CONSIDERATIONS

- Consult International Dark Sky guidelines for luminaries.
- Consider neighborhood character and context when selecting light and pole style. Consult the Historic District Commission if working within a designated historic district.
- Select color temperature not to exceed 3,000 Kelvins that fits the feel and character of the street.

ADDITIONAL RESOURCES

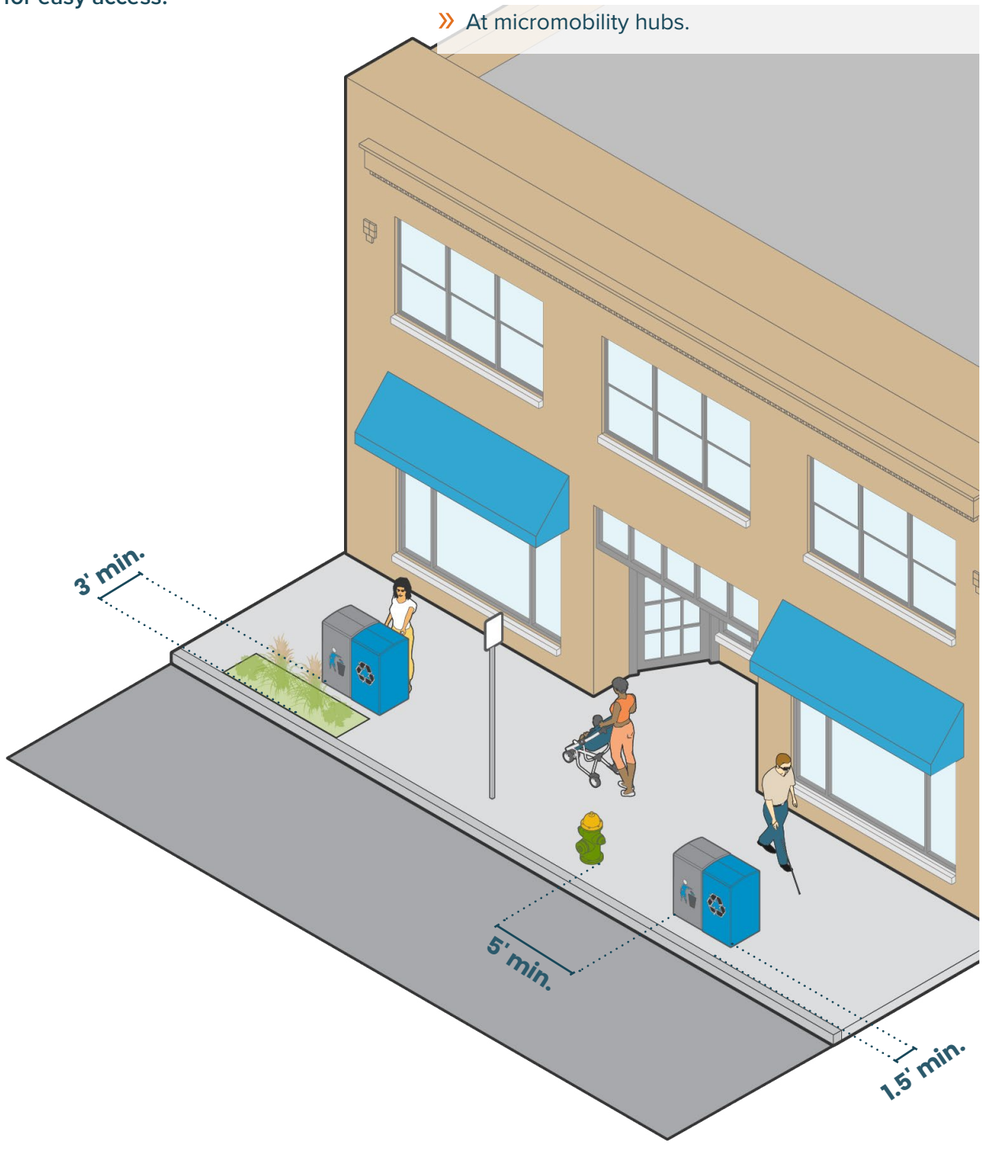
- International Dark Sky Association Outdoor Lighting Basics

CU11 TRASH & RECYCLING CONTAINERS

Trash and recycling receptacles are extremely important amenities in active streetscape areas. Properly sized and located receptacles reduce litter and help maintain a clean and attractive public realm. Receptacles require frequent maintenance and should be located alongside the curb for easy access.

USE

- On sidewalks and at intersections where there is a high volume of people walking.
- At all bus and transit stops.
- At intermittent trailside locations in conjunction with seating areas or points of interest.
- At micromobility hubs.



REQUIREMENTS

- Receptacles should be placed a minimum of 18" back from the face of the curb (3' minimum if next to parking).
- Receptacles should be oriented to face the sidewalk.
- A minimum of 3' should be provided from the edge of the receptacles to any other streetscape element.
- A minimum of 5' should be provided from the edge of the receptacles to any fire hydrant.
- Durable and vandal-resistant materials and designs should be used to withstand urban conditions and public use.
- Installation of new receptacles should be coordinated with Department of Public Works to ensure routine maintenance schedules can be guaranteed.
- Trash receptacles should be black and recycling receptacles should be blue.
- Receptacle capacity and design should conform to the standards most convenient for waste pick-up. Capacity should be 55 gallons and lids should be lift-off for both receptacle types, with a single-stream slot for recycling receptacles and hoods for trash receptacles.
- Materials should prevent ultraviolet damage, pest infiltration, and color fading.

ADDITIONAL CONSIDERATIONS

- Recycling receptacles should be co-located with trash receptacles anywhere they are installed.
- Provide information on recycling containers indicating what material types are appropriate to deposit into recycling receptacles.
- Consider streetscape character and context, and other streetscape elements when selecting style.
- Place trash and recycling containers every 200' along streets with commercial land uses.

SN01 EMERGENCY LOCATORS

Emergency locator signs (ELS) contain GPS-based information that help people communicate their location to emergency personnel while on off-street trails. ELS are important where trails run through parks or areas where people may be far enough off-road that they are uncertain of the nearest intersection or landmark reference.

USE

- Off-street trail network intersections.
- Locations along off-street trails where hazards exist, such as a falling hazard, or where personal safety may otherwise be a concern.

REQUIREMENTS

- Determine ELS locations based on use notes above and based on the character of an off-street trail network area.

ADDITIONAL CONSIDERATIONS

- Avoid using the United States National Grid (USNG) system for ELSs due to its complex numbering and sizing, which is more appropriate for rural areas.

ADDITIONAL RESOURCES

- PROWAG

SN02 INTERPRETIVE SIGNS

Interpretive signs should be used on streets and trails to provide information about the history, culture, environmental, and other characteristics of an area. Signage may be designed to address sites individually that do not fall within the Urban Trail Network. Sites that fall along the Urban Trail Network should be developed in coordination with the larger Urban Trail Network branding and signage requirements.

USE

- All sites where history, art, or special features of a site, such as stormwater treatment areas, may be explained and where adequate space exists.

REQUIREMENTS

- Sign location, height, and readability should be ADA-compliant.
- Sign placement should not interfere with a clear accessible aisle of at least 4’ on the sidewalk. Placement of signage is preferred within the buffer area when along a street.
- Durable and graffiti-resistant sign materials, such as high-pressure laminate, with an anti-graffiti coating, should be used.
- Refer to the PROWAG for specific guidance on character height, spacing, and proportions.
- Signs should use words and language that the majority of people will understand, be available in both English and Spanish, and be designed for low-literacy readers.

ADDITIONAL CONSIDERATIONS

- Use consistent signage styles across the City to connect the culture and history of Providence across locations, trail networks, or other unique cultural features. Color schemes and fonts should follow Urban Trail Network and City of Providence brand guidelines.
- Consider providing sign text in multiple language, adding braille descriptions, incorporating equipment to facilitate audio tours, including tactile textures, and using other features to accommodate different language proficiencies and abilities.
- Use high-contrast colors and low-glare finishes to ensure signs are legible to people with low vision disabilities.

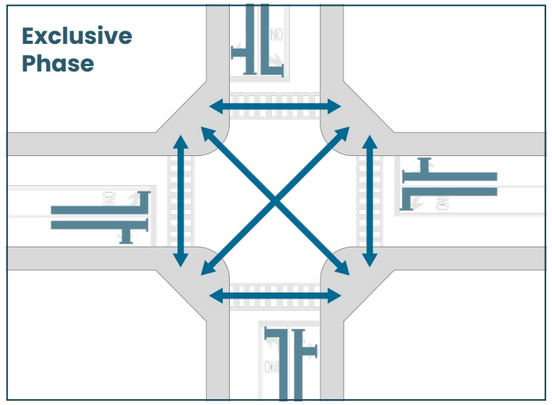
ADDITIONAL RESOURCES

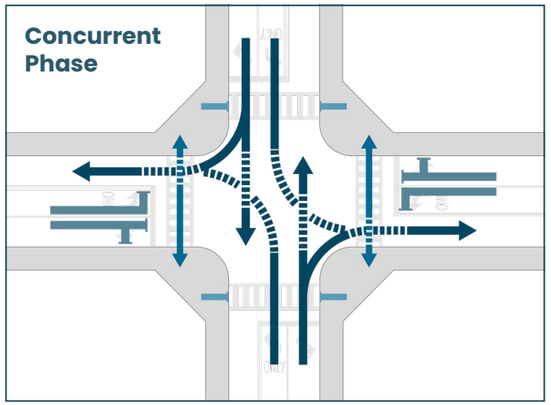
- PROWAG

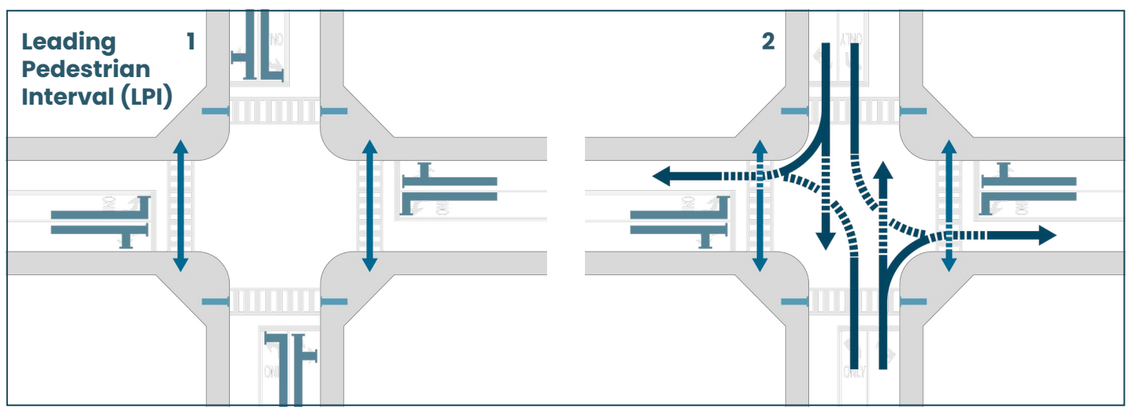
SN03 PEDESTRIAN SIGNAL PHASING

Pedestrian signals are part of a system of traffic signals that control intersection operations for people walking. Pedestrian signal phasing is intended to minimize exposure of people walking to motor vehicles, minimize delay for people waiting to cross the street, reduce non-compliant and unsafe crossing behavior, and provide accessibility benefits to disabled people. Pedestrian phasing falls into three categories: concurrent, exclusive, or a hybrid of the two. As much as possible, consistent approaches to pedestrian phasing should be used across the City to help make the walking network predictable and consistent.

Concurrent phasing refers to phasing schemes that allow people to walk across the street at the same time and in the same direction as motor vehicle traffic. Concurrent phasing minimizes delay for all users. Exclusive phasing provides a separate phase for people walking that prohibits all motor vehicle movements while people walk across the street. Exclusive phasing can provide safety benefits by eliminating conflicts with motor vehicles, however exclusive phasing creates longer delays for all modes and may lead to non-compliant crossing behavior if delay is excessive. A hybrid phasing scheme may be beneficial at complex intersections including those with skewed intersections, multiple lanes of traffic, and leading protected left-turn phases. Hybrid pedestrian phasing uses concurrent phasing to minimize delay for people walking on those legs of the intersection where conflicts are minimal, while providing an exclusive phase for more challenging legs of the intersection.







USE

- All signalized intersections where people walking are likely to be present.

REQUIREMENTS

- A walking speed of 3' per second should be used to time all pedestrian phases and ensure adequate time is provided for people to cross the street.
- Concurrent Phasing
  - Use concurrent phasing at all signalized intersections, except where a strong safety concern is noted due to high turning movement volumes (250 or more turning movements per hour).
  - Leading pedestrian intervals (LPIs) should be used where concurrent phasing is applied to give people walking across the street a head start before other street users are allowed to proceed. LPIs encourage people driving to yield to pedestrians while they are turning and improve visibility between all users. No Turn on Red restrictions should be implemented at all locations where LPIs are used.
  - Where concurrent phasing is used, signals should be placed on automatic pedestrian recall. Automatic recall is especially important in high pedestrian traffic areas, such as within commercial areas and within a 10-minute walk shed of bus routes or transit stations.
  - Protected left-turn phases provide an exclusive phase for people driving to turn left and may be warranted if there is a pocket lane or center turn lane and high volumes of turning or opposing traffic on the street. In these cases, lagging left turns (left turn signal at the end of the 'green' phase) should be used instead of leading left turns (left turn signal at the beginning of the 'green' phase) to preserve the ability to use LPIs with concurrent phasing. The lagging left turn phase should be provided for both directions of traffic to avoid conflicts between through movements and permissive left turns, also known as a 'yellow trap.'
- Exclusive Phasing
  - Consider use of exclusive phasing where high concentrations of people walking are present or where at least 250 motor vehicles turn right per hour along any approach.
  - No Turn on Red restrictions should be implemented at all locations where exclusive phasing is used.
- Ensure all pedestrian signal heads are correctly oriented to be visible to all users who are directed to follow the signal indications. In locations where people riding bicycles or using other micromobility devices must use pedestrian signal heads to cross an intersection, signal heads must be visible from both the crosswalk and the approaching bike lane or Urban Trail. Where users of a bike lane or Urban Trail should use the pedestrian signal phase to cross an intersection, sign R9-5 should be provided.

ADDITIONAL CONSIDERATIONS

- Time signal phasing so that people walking have adequate time to cross both sides of a median-divided street during a single walk phase.
- Provide accessible pedestrian signals (APS) to assist people with disabilities.
- Provide a pedestrian countdown in pedestrian signal heads to assist people with street crossings.

ADDITIONAL RESOURCES

- MUTCD
- FHWA Achieving Multimodal Networks
- PROWAG

SN04 RECTANGULAR RAPID-FLASHING BEACONS (RRFB)

RRFBs combine signage and lights in a specific flashing pattern to help alert motorists to unexpected pedestrian and bicyclist crossings.

USE

- Unsignalized crossings at intersections or midblock locations where people walking, riding bicycles, or using other micromobility options are already observed crossing the street or where a new development is expected to create demand for a crossing.
- Uncontrolled crossings where vehicle yielding compliance is low and determined to be unsafe.
- Streets with posted speed of limits 35 mph or lower.

REQUIREMENTS

- Provide a high-visibility crosswalk, curb ramps, and tactile strips at all locations where an RRFB is used.
- Use accessible pedestrian actuation features and a R10-25 sign anywhere an RRFB is used.
- RRFBs should be mounted with W11-2 signs and W16-7P L (on the right side of the road, pointing to the left) or R (on the left side of the road, pointing to the right) plaques.

ADDITIONAL CONSIDERATIONS

- Pair RRFBs with raised crossings to slow motor vehicle traffic and further improve pedestrian safety at high-volume crossing locations (10,000ADT or above).
- Pair RRFBs with crossing islands to provide a pedestrian refuge on multi-lane streets.
- Consider use of side or overhead-mounted W11-2 (Pedestrian Crossing), S1-1 (School), and W11-15 (Bike and Ped Crossing) or W11-15P (Trail Crossing) signs depending on context. Where multiple lanes are provided in each direction or vehicle speeds exceed 35mph, overhead-mounted signs should be used instead of side-mounted signage.
- Maintain motorist sightlines in the immediate area around the RRFB by minimizing tall vegetation and other signage.

ADDITIONAL RESOURCES

- MUTCD
- FHWA Achieving Multimodal Networks
- NCHRP Research Report 841
- Interim Approval 1A-21

SN05 URBAN TRAIL IDENTIFICATION

A strong visual identity of the Urban Trail Network is a critical to provide legibility and consistency to trail users. Urban Trail identification is used to help trail users navigate through intersections and make transitions from two-way Urban Trail segments to neighborhood greenway Urban Trail segments. Urban trail identification may include a combination of signage, paint, or other materials such as thermoplastic and vinyl decals. Highly-intuitive identification treatments – such as paint – are strongly preferred rather than relying on signage to direct Urban Trail users.

USE

- All segments of the Urban Trail Network, including off-street trails, on-street trails, and neighborhood greenways.

REQUIREMENTS

- Surface-painted Urban Trail symbols should be painted every 200’ and at all intersections to guide users through crossings and onto the next segment of the Urban Trail.
- Consistent color and stenciling should be used across the city for all Urban Trail segments in accordance with the City’s standards for Urban Trail branding and signage.
- Where pole-mounted signs are determined to be necessary, signs should be spaced according to intersection density only as often as needed to reduce sign clutter. Signage should be provided at key decision points and/or where painted symbols are not feasible or adequate. Where intersections are within 300’ of each other, signs should be placed at intersections and midblock locations should be avoided.
- Signs should be mounted according to ADA and MUTCD standards.
- Regulatory and warning signage should be prioritized over identification signage when there is not space for both according to MUTCD standards.
- Bike/Micromobility crossing markings should be provided through all Urban Trail crossings. Urban trail pavement stencils should be visible from Urban Trail approaches to the receiving segment of the Urban Trail (see SA3).

ADDITIONAL RESOURCES

- MUTCD
- PROWAG

SN06 URBAN TRAIL NETWORK TRAILHEAD SIGNS/KIOSKS

Urban Trail Network trailhead sign/ kiosks may be located at important locations along Urban Trails where the provision of information to Urban Trail users is desired or necessary. Trailhead signs and kiosks may include destination information, maps, etiquette, and interpretive information.

USE

- At the beginning of trail segments, key destination connections or crossings, and at resting spots and/ or bike parking areas along trail segments.

REQUIREMENTS

- Kiosks should be installed according to ADA standards to preserve clear accessible aisles.
- The same kiosk type and style should be installed throughout the Urban Trail Network in adherence with established Urban Trail Network branding and signage.
- Signs should use words and language that the majority of people will understand, be available in both English and Spanish, and be designed for low-literacy readers.

ADDITIONAL RESOURCES

- PROWAG

SN07 URBAN TRAIL SIGNAL STRATEGIES

At signalized intersections, Urban Trails will require careful consideration to ensure conflicts between trail users and turning motorists are mitigated. Dedicated signals may be used to guide Urban Trail users through an intersection. Dedicated signals for Urban Trails should be strongly considered at complex intersections including skewed intersections, intersections where motorists must cross multiple lanes of vehicles traffic to make a turn, or where a two-way Urban Trail segment terminates and trail users must transition from two way-operations on one side of the street to one-way operations on both sides of the street. Though dedicated signals are preferred, pedestrian indicators may also be used to signal to trail users when it is appropriate to proceed through an intersection.

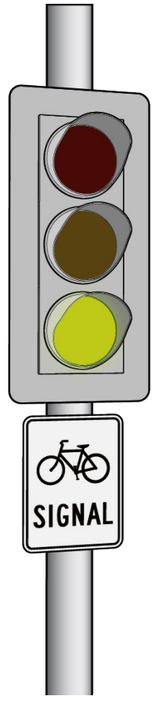
USE

- At all signalized intersections where an Urban Trail crossing is present.

REQUIREMENTS

- Signal heads or indicators intended to direct Urban Trail users should be visible from all approaches of the Urban Trail.
- Dedicated Urban Trail Signal
  - An 8” circular indicator with R10-10B sign should be used at intersections where contra-flow Urban Trail movements cannot be safely accommodated with pedestrian indications.
  - Where dedicated Urban Trail signals are used, the minimum green time should be calculated to allow for a typical user to make it at least half-way across the intersection before the yellow phase begins. Depending on grade and typical or expected trail users, a design speed between 3 mph and 8 mph should be used to determine minimum green cycles.
  - Where conflicts between turning motor vehicles and Urban Trail users are determined to be too significant to mitigate with any concurrent phasing scheme, an exclusive phase should be considered.
- Pedestrian Signal
  - At locations where Urban Trail users must use pedestrian signal heads to cross an intersection, signal heads should be visible from both the crosswalk and the approaching Urban Trail.
  - Provide a R9-5 sign at all locations where Urban Trail users must use pedestrian indicators to cross. Adjustments to the signal phase length should be made accordingly to provide adequate time for trail users to cross during the WALK signal. Automatic pedestrian recall should be used when Urban Trail users must follow pedestrian phases. A maximum crossing speed of 3.5’ per second should be used when timing Urban Trail crossing phases.
- Where motor vehicle turning movements across the Urban Trail exceed 100 right turn movements and/or 50 left turn movements per hour or where left turning vehicles cross more than one travel lane before the Urban Trail, an exclusive signal phase or protected turn signals should be used to prevent vehicles from conflicting with crossing Urban Trail users.
- Where motor vehicle turning movements across the Urban Trail are less than 100 right turn movements and 50 left turn movements per hour and where left turning vehicles cross one travel lane or less before the Urban Trail, concurrent phases with leading intervals may be used.
- No Turn on Red restrictions should be provided for all vehicle crossing movements that could conflict with Urban Trail crossings.
- Bike/Micromobility Crossing markings should be provided at all Urban Trail crossings of signalized intersections (**see SA3**)
- Detection– passive or push-button-based– should not be required for dedicated Urban Trail signals to activate; all Urban Trail signals should be automatic. Where detection is provided, it should allow trail users to request a quicker green light.

R9-5



R10-10B

When to Use Exclusive Phasing Based on Turning Volumes

		Motor Vehicles per Hour Turning across Separated Bike Lane/Urban Trail			
		Two-way Street			One-way Street
		Right Turn	Left Turn across One Lane	Left Turn across Two Lanes	Right or Left Turn
Separated Bike Lane/ Urban Trail Operation	One-way	150	100	50	150
	Two-way	100	50	0	100

SN07 URBAN TRAIL SIGNAL STRATEGIES (CONT.)

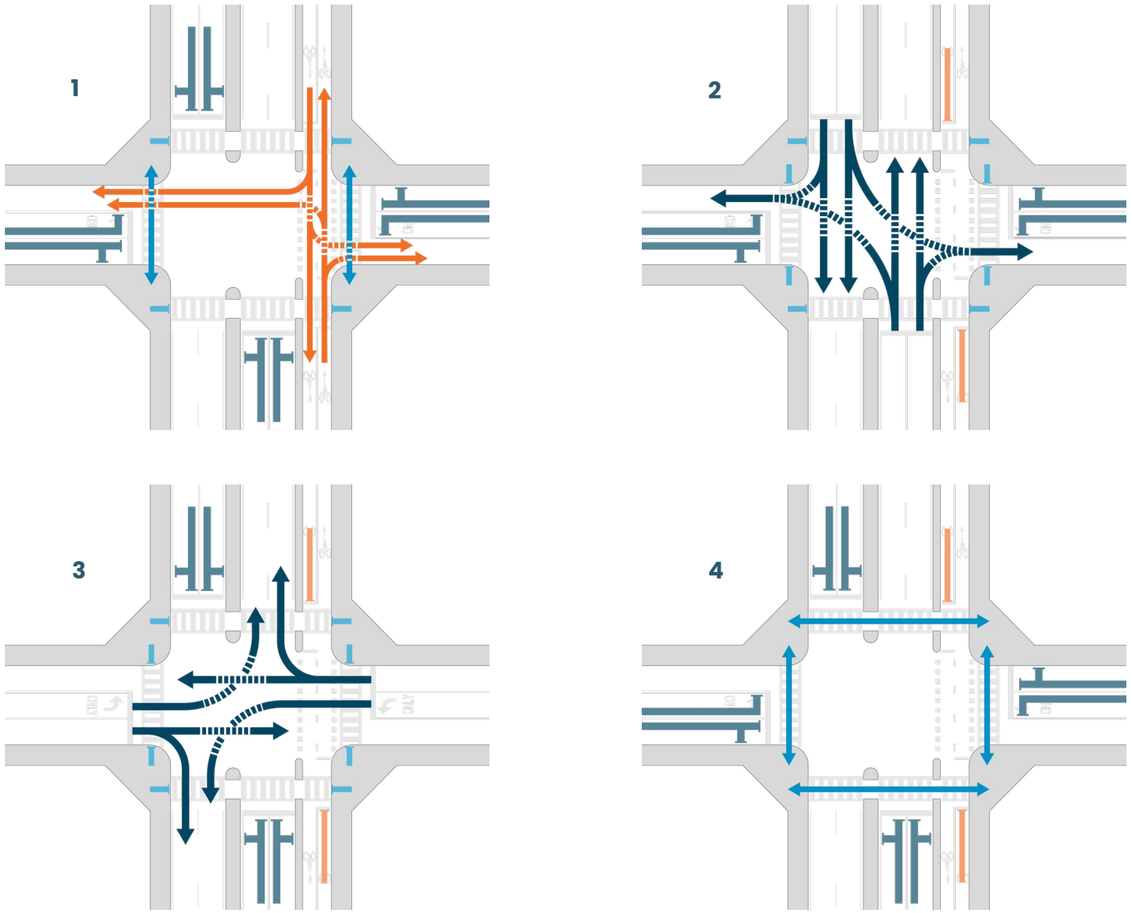
ADDITIONAL CONSIDERATIONS

- Consider use of R10-15 series signage to warn motorists and direct them to yield for movements that cross the Urban Trail.
- Locate far-side Urban Trail indication within 5’ of the edge of the Urban Trail to ensure indications are visible to trail users.
- Mount signals intended to direct Urban Trail users so that the bottom of the signal head is no less than 8’ and no more than 19’ above the ground or sidewalk.
- Provide accessible pedestrian signals (APS) to assist people with disabilities.
- Provide a pedestrian countdown to assist people with street crossings.
- Consider use of a flashing yellow arrow for motorists making turns (both left and right) across an Urban Trail where permissive turns are permitted and vehicle volumes exceed 50 vehicles per hour during peak periods.

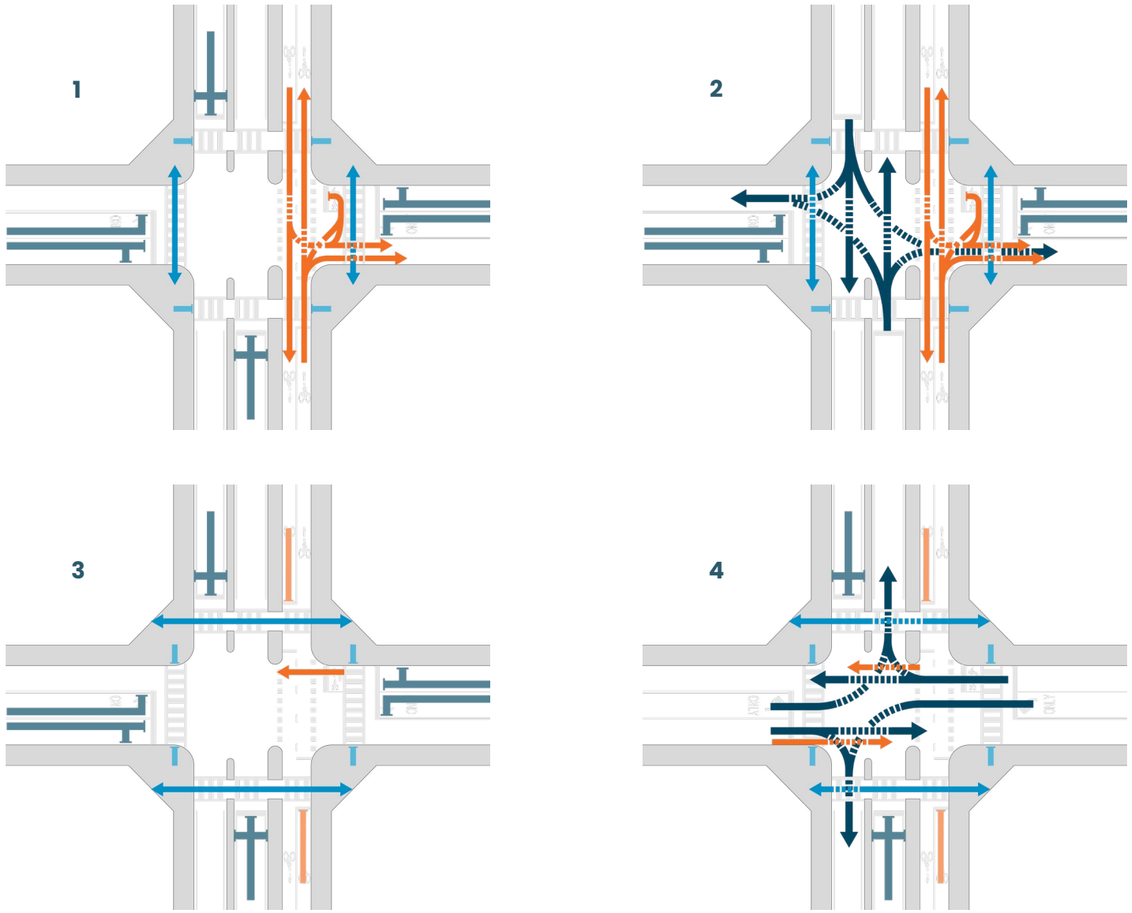
ADDITIONAL RESOURCES

- MUTCD
- NACTO Urban Bikeway Design Guide

Exclusive Phase



Concurrent Phase with Leading Interval



Motor Vehicles Pedestrians Bike and Micromobility Users

04 MAINTENANCE

A strong, systemic commitment to maintenance is required to ensure the longevity, dependability, and quality of great streets. This chapter outlines maintenance considerations for seasonal maintenance, vegetation maintenance, maintenance of street amenities and art, and provision of temporary access during construction activities.

For new construction projects or retrofits, the following general maintenance best practices should be followed to ensure City operational staff are adequately prepared to maintain new components of the public right-of-way:

- Begin developing maintenance plans during the planning and design stages of projects and coordinate with City departments and other stakeholders responsible for enforcing and carrying out maintenance practices.
- Where necessary, prepare and execute maintenance agreements for elements of the public realm – such as parklets, planters, bus shelters, traffic signals, and public art – to ensure longevity and consistent quality.
- Consider materials, maintenance vehicle availability, resources for upkeep, and equipment needs for snow removal, sweeping, vegetation care, and general clean-up as design decisions are made to ensure feasibility of proper maintenance.
- Carefully plan for seasonal maintenance requirements to ensure year-round accessibility and safety within the public realm.

WHO MAINTAINS OUR PUBLIC REALM?

PROVIDENCE DEPARTMENT OF PUBLIC WORKS

- Responsible for the routine and seasonal upkeep of City-owned travelways and elements of the public realm including sidewalks, pavement, sewers and drainage structures, traffic control devices, parking meters, etc.

PROVIDENCE DEPARTMENT OF PUBLIC PROPERTIES

- Responsible for the management, maintenance, upkeep and expansion of the City's street lights.

PROVIDENCE DEPARTMENT OF PARKS

- Responsible for the maintenance of all city-owned park land and pruning of City street trees.

PROVIDENCE DEPARTMENT OF ART, CULTURE, AND TOURISM

- Responsible for maintaining a catalogue of the City's public art collection and ensuring their upkeep.

RHODE ISLAND DEPARTMENT OF TRANSPORTATION

- Responsible for routine and seasonal upkeep of state-owned highways and right-of-way.

RHODE ISLAND PUBLIC TRANSIT AUTHORITY

- Responsible for routine maintenance and seasonal upkeep of bus shelters and stops, not including snow removal.

BUSINESS OWNERS

- Responsible for snow removal of sidewalks in front of their business.

RESIDENTS

- Responsible for snow removal of sidewalks in front of their homes.

SEASONAL MAINTENANCE

Successful seasonal maintenance programs require knowledgeable staff and crew, proper equipment, and consistent procedures and preventive strategies.

SEASONAL MAINTENANCE PLANNING

- Develop proactive strategies including regular facility inspection, repair, replacement, and clear record keeping to ensure seasonal maintenance practices are manageable and efficient.
- Develop strategic assessment, prioritization, and maintenance plans to care for all elements of the public realm, including sidewalks, roadways, catch basins, vegetation, signage, traffic signals, lighting, trash and recycling bins, street furniture, and pavement markings.
- Encourage the public to report issues and conditions via the City's 311 app.

SNOW CLEARANCE

Adequate snow clearance is critical to maintaining accessible trails and travelways throughout the year.

- Except in snow emergencies or unusually heavy snowfall, keep Urban Trails and bike lanes free of snow and ice.
- Develop a communication plan in alignment with City's Limited English Proficiency Plan to regularly remind property owners that they are responsible for clearing snow and ice from adjacent sidewalks.

Prioritization

A balanced snow clearance prioritization strategy ensures that essential services– such as emergency access– are provided while also tending to the needs of the most vulnerable users of our streets. People walking – especially those with physical disabilities – require a clear sidewalk in order to travel. People riding bicycles or using other micromobility options are more sensitive to snowfall than people driving due to smaller, thinner wheels and the need to keep balance on their vehicles.

- Establish a map of priority routes where emergency and multimodal access are most critical.

Clearances

- Maintain a minimum clear width of 4' per direction on separated bike lanes. On two-way Urban Trails, provide a minimum clear path of 8'.
- Maintain a clear width of 3' per direction on sidewalks and pedestrian paths.

Snow Storage

- Use buffers and landscape areas for snow storage. Ensure adjacent pedestrian paths remain clear and that snow does not impede sight lines.
- Consider the impacts of melting snow and resulting drainage as part of snow storage planning.

Equipment

- Use existing DPW plowing equipment (8' and 9' blades attached to pickups and landscapers) on travelways that are at least 8' wide.
- Procure special snow plowing equipment for one-way trails or bike lanes narrower than 8'.
- Procure snow throwers to push snow farther off paths than possible with snow plows, if needed.
- Consider procuring specialized equipment that can be outfitted with other attachments such as brooms, plow blades, snow throwers, and loaders.

Ice Control Treatments

- Treat Urban Trails, bike lanes, and shared use paths with salt, salt brine, or other ice control treatments to reduce icy and slippery conditions.
- Consider porosity of pavement materials, adjacent landscape areas, wetlands, or other environmentally sensitive sites when selecting ice control treatments. Salt and brine may damage tree and vegetation routes. Environmentally-friendly treatment options should be considered. Porous paving generally requires substantially reduced applications of ice control materials. Heavy use of sand may compromise the drainage capacity of these pavements.
- When the temperature remains above 15 degrees F, use potassium chloride to melt ice to prevent harm to humans or vegetation. Magnesium chloride releases 40% less chloride into the environment than rock salt or calcium chloride and continues to melt snow and ice until the temperature reaches -13 degrees F.
- Continue ice control treatment after snowfall events, as snow can melt and refreeze.
- If necessary, remove snow from buffer areas or improve capacity for drainage in areas where freezing is common.

STREET SWEEPING AND DEBRIS REMOVAL

Removal of sand and debris from trails and pathways is critical to maintaining high-quality travelways.

- Include on-street Urban Trails and bike lane facilities in regular sweeping schedules, including:
  - In the spring to remove accumulated winter sand, salt and other debris; and,
  - In the fall to prevent leaf buildup on paths.
- Monitor off-street infrastructure on a quarterly to ensure prompt removal of debris build-up.
- Clean and remove debris from buffers between streets and separated bike lanes or Urban Trails on a quarterly basis. In buffers where green infrastructure structures such as bioswales and infiltration systems are in place, debris clearance is especially important to ensure the system can perform stormwater management functions.

VEGETATION

Maintaining healthy street trees and other vegetation is critical to the beauty, sustainability, and resiliency of green infrastructure throughout the City. Detailed requirements for the maintenance and management of street trees can be found in Sec. 23 of the City Ordinance.

PLANT MATERIAL SELECTION AND SITING

- Select trees and plants for microclimate suitability based on their urban environment tolerance and low maintenance properties.
- Locate trees so that they don't block visibility of crosswalks or traffic control devices such as signs and traffic signals.
- Based on available space, work with the City Forester to select large tree species to maximize environmental benefits. Choose species based on sidewalk width, overhead utility wires, proximity to below-ground utilities, street lights, and other infrastructure.
- Mulch plant beds and tree pits to improve soil health. As a secondary approach, focus fertilizing on monitoring nutrient levels and feeding the soil. Soil health is the key to strong healthy plant material.
- Based on available space, maximize soil volume for tree roots including use of new soil technologies.

PLANT MATERIAL MAINTENANCE

- Ensure experienced arborists and/or urban foresters monitor and maintain streets trees, as needed. Established trees should be inspected once annually, with new trees or trees in poor health inspected more frequently. New street trees should be inspected and either accepted and rejected by the City arborist prior to planting.
- Include replacement of damaged or dead plant material in plans and budgets for routine maintenance.
- Trim trees and vegetation according to seasonal plant species requirements. Plants should be trimmed or pruned at the appropriate time of year for each specimen. Permits are required prior to trimming any City-owned trees. Coordinate with City Forester as needed.
- Maintain vegetation to ensure clear visibility for the safety of all users. With the exception of grass or other low-growing groundcover, do not allow vegetation to encroach within 12" of the edge of pathways or 100" vertically above the surface paving to allow for adequate user head-room and maintenance vehicles.

PROTECTION FOR VEGETATION

- Tree protection plans should be developed prior to construction activity near trees. Protection should include tree trunks and branches as well as the critical root zone and soil surrounding trees. Coordinate with City Forester as needed.
- Monitor sensitive and fragile ecosystems such as wetlands and riparian areas for invasive species. Successful removal of invasive species depends on prompt identification and appropriate removal procedures. Use current best practices and professional consultation in these cases.

STREET FURNITURE, ART, SIGNAGE, AND AMENITIES

Material and product durability are essential to low-maintenance design elements that will withstand the urban environment. As a premiere feature of the urban landscape in Providence, art is a core asset requiring maintenance like other elements of the streetscape. With artistic installations ranging from landmark to temporary, maintenance of the City's art collection requires cooperation by a number of agencies and private landowners.

SELECTION AND SITING OF STREETSCAPE ELEMENTS

- Select high-quality and low-maintenance benches, trash and recycling receptacles, bike racks, signage, and other amenities to save costs on repairs or replacements over their life cycle. Consider product maintenance requirements and warranties, and ability to fabricate in-house, when selecting elements.
- Ensure elements are installed property to prevent unnecessary maintenance.

MAINTENANCE OF ARTISTIC INSTALLATIONS

- Maintain permanent art works in accordance with the policies outlined in the Art in City Life Plan. Ensure 10% of each project cost is endowed for maintenance and conservation of these works.
- Establish maintenance and/or phasing out plans for new and temporary art installations introduced into the City's collection.

PRIORITIZATION

- Prioritize placement and maintenance of street furniture, art, signage, and other amenities in areas with significant foot-traffic. Poorly maintained amenities may contribute to feelings of personal insecurity, especially for people walking, riding bicycles, or using other micromobility options.

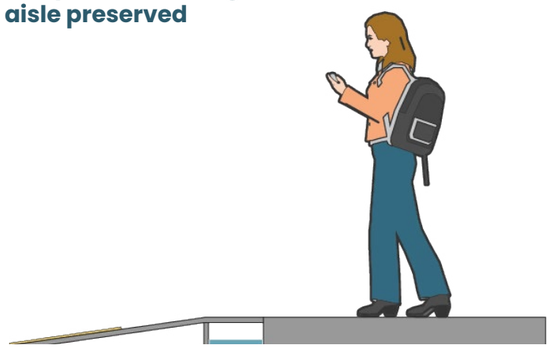
ACCESS DURING CONSTRUCTION

Construction activities can create difficult access and safety issues for all street users. Due to the time and effort required to make detours, people waking, riding bicycles, or using micromobility devices are particularly sensitive to detours.

ACCESS

- Maintain ADA-compliant accessibility throughout all construction zones. Use temporary ramps constructed of metal plates, wood, or asphalt as needed.
- Temporary ramps should not be located near drainage structures.
  - All slopes and ramps within pedestrian pathways should adhere to ADA accessibility guidelines.
  - Contractors should ensure drainage is able to enter the drainage system. If a ramp can only be placed such that it blocks drainage flow completely, a PVC pipe should be placed at the gutter to allow for flow. The pipe should be maintained by the contractor responsible for the project.

temporary curb ramps with drainage aisle preserved



- Ensure all project construction management plans are MUTCD-compliant.
- Establish a plan for clear protocols and lines of communication between City staff, inspectors, project managers, consultants (if used by the project), and contractors to quickly address work zone access issues that emerge during construction for people walking and riding bicycles.
- Minimize vertical and horizontal deflection in construction management plans for all that will affect the public right-of-way. Provide a detour that is as close as possible to the normal path of travel. To the extent possible, the layout of the street should remain consistent throughout construction. For example, where an Urban Trail and sidewalk are usually side-by-side when no construction is present, minimum widths for both should be continued through the construction zone. Whenever possible, maintain protected detours on the same side of the street as they normally exist around work zones. Detours that require people walking or riding bicycles to cross the street should be minimized, especially in locations where there are high volumes of people walking and riding bicycles.
- Where detours require channelization into a temporary path of travel within the street, detectable barriers should be used to ensure those with vision impairments can dependably use a cane to detect their path of travel.
- Regular maintenance – including snow removal and sweeping – should be conducted by the contractor in construction zones. Construction related debris should be cleared by the contractor.

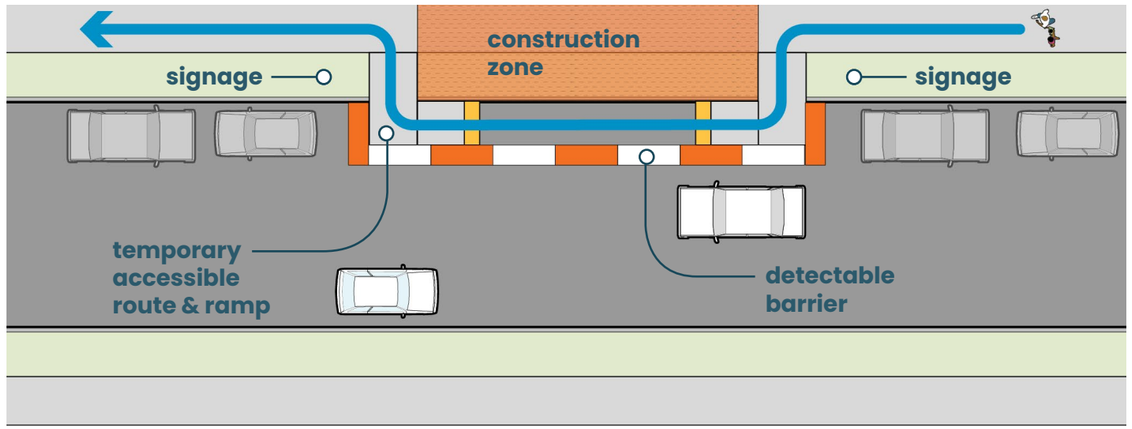
SIGNAGE

- Provide clear signage ahead of construction sites indicating detours or other special conditions. If detours or route changes are necessary, these should be clearly signed throughout the detour route. Signage should use words that the majority of people will understand and designed for low-literacy readers.
- Signs and equipment should not be placed within paths, trails, and bike lanes or in any way that impedes ADA access on sidewalks.
- Signage height should be appropriate for intended users. Signs and other devices mounted lower than 7 feet above the ground should not project more than 4 inches into the temporary path of travel.

ART

- Consider using art to offset feelings of disruption and annoyance for detoured travelers and adjacent residents and businesses. Project plans for temporary creative interventions on construction fencing or street paintings should be designed and approved in accordance with the Art in City Life Plan.

temporary pedestrian path of travel with detectable barriers



REFERENCES

- RIDOT Traffic Design Manual. Chapter 4: Work Zone Traffic Control
- MUTCD Part 6: Temporary Traffic Control
- PROWAG

PVD GREAT STREETS

Appendix F: Via Providence Plan

A network of urban trails is only a network if its parts connect in one legible, intuitive, and cohesive whole. To that end, the City worked with Roll Barresi & Associates in 2020 along with city residents to make a plan for wayfinding signage and to determine a name and identiy for the urban trail network: Via Providence.

MAYOR JORGE O. ELORZA
CITY OF PROVIDENCE

https://www.providenceri.gov/planning/great-streets/

MAYOR JORGE O. ELORZA
CITY OF PROVIDENCE

Via PROVIDENCE

Sign Master Plan

JUNE 2022

Acknowledements

Jorge O. Elorza, Mayor

Thank you the Advisory Committee members and City staff who contributed their time, input, and expertise to the creation of the ViaProvidence Sign Master Plan:

Bonnie Nickerson, AICP, *Director of Planning and Development*

Martina Haggerty, *Director of Special Projects*

Alex Ellis, *Principal Planner*

Leah Bamberger, *Director of Sustainability*

Liza Burkin, *Providence Streets Coalition*

Ellen Cynar, *Director of Healthy Communities*

Stephanie Fortunato, *Director Dept. of Art, Culture + Tourism*

Alexis Kievning, *Neighborhood Liaison and Digital Communications Specialist*

Emily Koo, *Sustainability Strategy Manager*

Rachel Newman Greene, *Deputy Director Healthy Communities Office*

Wendy Nilsson, *Superintendent, Providence Parks Department*

Gina Rodriguez-Drix, *Cultural Affairs Manager*

Thank you to our consultants:

Roll Barresi & Associates, Inc.

Klopfer Martin Design Group

Margie Butler Brand Strategy

Thank you to the Stakeholders who generously gave of their time and expertise throughout this planning and design process:

Providence Preservation Society

RIPTA

I-195 Commission

RI Latino Arts

Providence Warwick Convention & Visitors Bureau

Young Voices RI

The Providence Foundation

Woonasquatucket River Watershed Council

Rhode Island School of Design

Providence Community Library

RI Bicycle Coalition

RI Black Heritage Society

The Nature Conservancy

The Partnership for Providence Parks

The Downtown Hospitality Group

Brown University

Providence Bicycle and Pedestrian Advisory Commission

Thayer Street District Management Authority

Providence Coalition of Neighborhood Associations

Providence Streets Coalition

Contents

01
Introduction

Executive Summary

Providence's Urban Trail Network will connect every neighborhood with high-quality routes for people walking, riding bicycles, accessing transit, or using shared micromobility options, like scooters and e-bikes, with a goal that residents and visitors can safely and comfortably travel to schools, jobs, and other important destinations like parks, libraries, and museums. The Urban Trail Network will also seamlessly and comfortably connect Providence residents to regional trails and paths, including the East Bay Bike Path, Blackstone Bike Path, Woonasquatucket River Greenway Bike Path, and Washington Secondary Trail.

The Urban Trail Network needs to be connected to work well. Using the Urban Trail Network, people will be able to access destinations using active modes without having to traverse high-stress segments or intersections. The Network will be intuitive to use and easy to navigate through the use of consistent design elements and branded wayfinding signage.

Opening Up Our City

The overarching principle of the Urban Trail Network that shaped the branding and wayfinding approach is "Opening Up Our City." This idea was formed from the research and input that was gathered from resident focus groups, advisors and stakeholders, and served as the foundation for the strategy and design. "Opening Up Our City" means that at the most fundamental level, the Urban Trail Network must invite everyone – of all backgrounds and abilities – to experience Providence and all it has to offer. It is about safely connecting neighborhoods and providing access for the city's many vibrant communities.

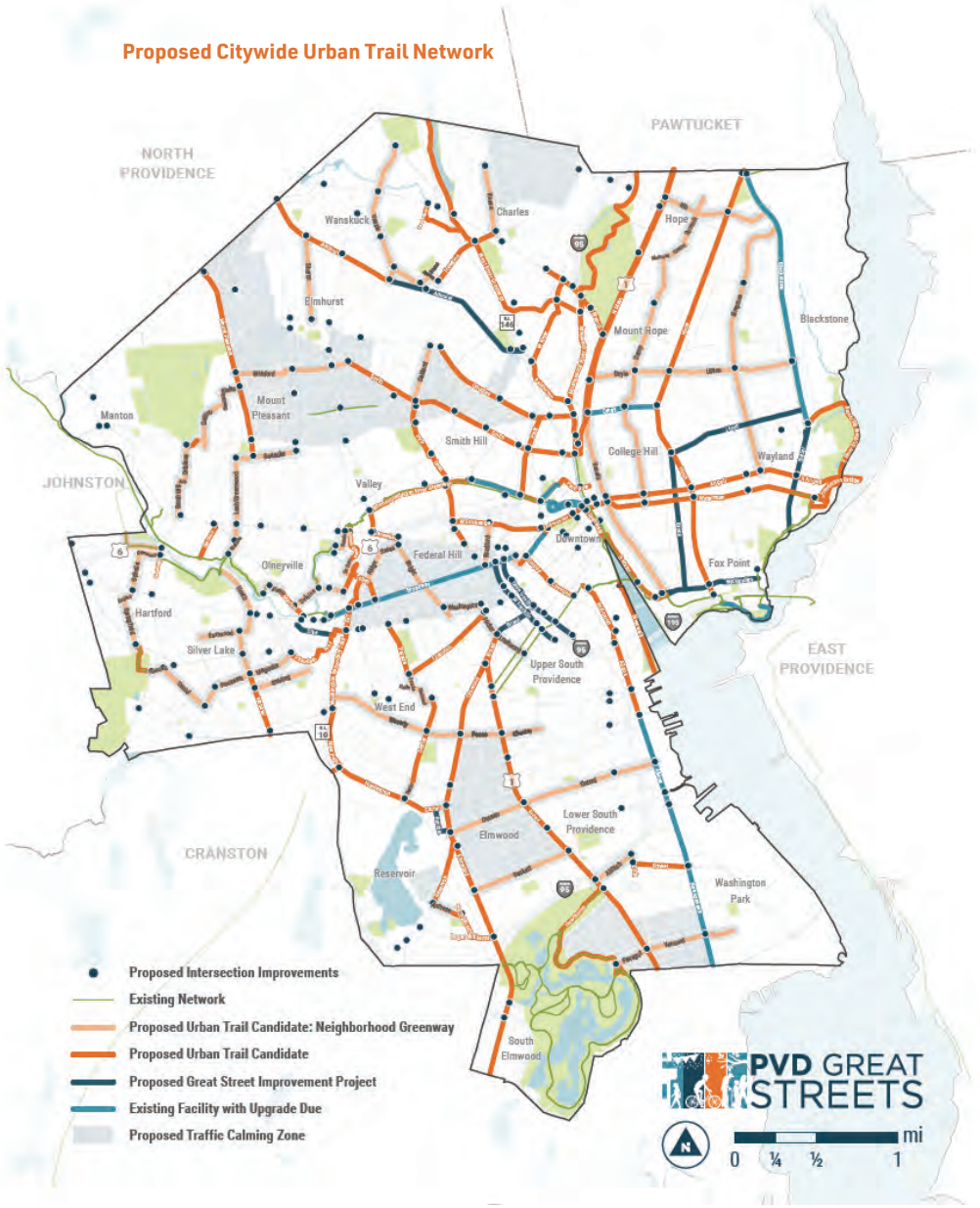
The Urban Trail Network

The Urban Trail Network comprises:

- Over 150 projects along corridors
- Over 300 intersections prioritized for improvements.
- 78 miles of new projects, including 43 miles of new separated on-street or off-street/shared use path Urban Trails, 22 miles of new neighborhood greenways, 6 miles of walkability projects, and 6 miles of upgrades to existing bike lanes and shared use paths to improve conditions for people walking, cycling, and using micromobility.

The proposed Urban Trail Network touches every part of Providence, bringing 93 percent of residents and 93 percent of jobs within easy walking distance. The Urban Trail Network:

- Connects 166,792 Providence residents living within ¼-mile of the proposed network (compared to 36,452 living within ¼-mile of the existing network), resulting in a 458 percent increase in the number living within easy walking distance of the Urban Trail Network
- Connects 99,324 people who work within ¼-mile of the proposed network (compared to 38,596 working within ¼-mile of the existing network), resulting in a 257 percent increase in the number of people working within easy walking distance of the Urban Trail Network



Process

Resident voices informed the brand strategy from the onset. Three virtual focus groups were assembled and conducted in October of 2020 by brand strategist and Providence resident, Margie Butler. A total of 31 Providence residents participated, representing a diverse mix of backgrounds, neighborhoods and walking/biking habits.

Focus Group Summary:

- 2 groups representing mixed levels of walkers/lighter biking habits
- 1 group of residents who bike a lot
- Ages ranged from 17–55
- Mix of gender: 11 Male, 16 Female, 4 Non-Binary
- Mix of ethnicity: 13 White, 10 Hispanic, 3 Black, 3 Multi-Racial
  2 Asian/Pacific Islander

Feedback and perspective from these Focus Groups were distilled into three brand platforms as well as name recommendations and design directions, and brought to the Advisory Commitee and Stakeholders for consideration and input. From the Fall of 2020 through the Spring of 2021, the Advisory Committee was engaged at critical stages in the strategy and design process, a total of 5 times. The Stakeholders were engaged twice at major decision points to reach a consensus on the trail name, logo and visual identity. The cumulative participation of these residents, advisors and stakeholders resulted in a thoroughly considered end product that kept the best interest of the city and its people at the forefront of our process.

Focus Group Profiles:

UTN Focus Group 1 Participants: October, 27, 2020

Tuesday 3:30-5 Group Combination walking/biking residents

Name	Age, gender	Ethnicity	Neighborhood	Walking	Biking	Transportation v. Fitness/Recreation %	zip (+0)
Dravy	17, M	Hispanic	Silver Lake	often	sometimes	more Transportation	2909
Hector	23, M	Hispanic	College Hill	often	rarely/never	50/50	2906
Ana	24, F	Hispanic	Wayland	sometimes	a lot	more Transportation	2906
Elvira	24, F	Hispanic	N. Main/Hope	a lot	rarely/never	more Transportation	2904
Zebulon	28, non-binary	white	West End	often	rarely	more Recreation	2907
Andy	30, non-binary	white	East Side	a lot	often	50/50	2906
Alba	32, F	Hispana bla	Federal Hill	a lot	rarely/never	50/50	2903
Romeo	33, M	Hispanic	Silver Lake	often	sometimes	more Recreation	2909
Joe	33, M	white	Downtown	often	a lot	50/50	2903
Valerie	65, F	white	Fox Point	a lot	rarely/never	more Transportation	2906
Janice	70, F	white	Smith Hill	sometimes	rarely/never	48/52	2908

UTN Focus Group 2 Participants: October, 27, 2020

Tuesday 6:30-8 Group Combination walking/biking residents, somewhat lighter incidence walking/biking

Nu	21, non-binary	Hispanic	Hope St. 02906	often	rarely/never	left blank	2906	tech difficult
Yasmine	25, F	Black/Arab	Mount Hope	sometimes	sometimes	more Recreation	2906	
William	29, M	multiracial	Summit	often	a lot	more Transportation	2906	
Andrea	31, F	Biracial	Mount Hope	often	rarely/never	more Recreation	2906	
Scott	38, M	As/Pac Is	West End	sometimes	sometimes	more Transportation	2907	
Alozie	47, M	Black	Amrory/W Bway	often	often	more Transportation	2906	
Mimi	51, F	white	South Side	sometimes	sometimes	50/50	2907	
Vinicio	53, M	Hispanic	West End	a lot	often	more Transportation	2909	
John W	55, M	white	Silver Lake	sometimes	sometimes	49/51	2909	

UTN Focus Group 3 Participants: October, 28, 2020

Wednesday Focus Group 5:30-7pm — People who Bike ***a lot!***

Name	Age, gender	Ethnicity	Neighborhood	Walking	Biking	Transportation v. Fitness/Recreation %
Leishla	28, F	Hispanic	College Hill	often	a lot	50/50
David	36, M	Black	Fed Hill/West End	often	a lot	more Transportation
Shawn	52, M	White/NA	West End	often	a lot	50/50
Francesca	30, F	Black/White	Fox Point	sometimes	a lot	left blank
Amber	32, F	As/Pac Is	West End	a lot	a lot	more Transportation
Roby	45, non-binary	white	West End	often	a lot	more Transportation
Ligia	35, F	Hispanic	Wayland Sq	sometimes	often	50/50
Madi	25, F	white	Smith Hill	often	a lot	50/50
Erin	34, F	white	West End	often	a lot	more Transportation
Pam	34, F	white	Summit	often	a lot	more Transportation
Laurel	68, F	white	Reservoir Triangle	often	sometimes	39/61

02
Graphic Standards

Primary Logo

The following graphic standards illustrate the primary components of the sign system graphics, including the ViaProvidence logo lock-ups, typography, colors, and standard symbols and icons. Substitutions for these elements is not permitted.

Detailed information pertaining to these elements and other ViaProvidence brand graphics can be found in the ViaProvidence Brand Guidelines.

Via
PROVIDENCE

Via
PROVIDENCE
Pathways around our City

Primary Logo with Descriptor

Via
PROVIDENCE
Caminos por nuestra Ciudad

Primary Logo with Descriptor
Spanish Translation

Secondary Logo

Via PROVIDENCE

Via PROVIDENCE
Pathways around our City

Secondary Logo with Descriptor

Via PROVIDENCE
Caminos por nuestra Ciudad

Secondary Logo with Descriptor
Spanish Translation

Logos on a Dark Background

Primary Logo on a Dark Background

Secondary Logo on a Dark Background

Palette

PRIMARY PALETTE

Pedestrian Green

PMS 382c
C22 **M**0 **Y**100 **K**0
R196 **G**214 **B**0
#C4D600
Vinyl: Custom Color

Deep River Blue

PMS 3025c
C100 **M**19 **Y**0 **K**56
R0 **G**79 **B**113
#004F71
Vinyl: Custom Color

Providence Orange

PMS 158c
C0 **M**66 **Y**100 **K**7
R227 **G**111 **B**30
#E36F1E
Vinyl: 3M Scotchcal
Series 7125 "Bright Orange 14"

WAYFINDING PALETTE

Streetscape

PMS 7477c
C85 **M**39 **Y**29 **K**52
R36 **G**76 **B**90
#244C5A
Vinyl: Custom Color

Pavement

PMS Cool Gray 7C
C20 **M**14 **Y**12 **K**40
R151 **G**153 **B**155
#97999B
Vinyl: 3M Scotchcal
Series 7125 "Medium Gray 31"

SECONDARY PALETTE

Mango Yellow

PMS 109c
C0 **M**5 **Y**100 **K**0
R255 **G**209 **B**0
#FFD100
Vinyl: 3M Scotchcal
Series 7125 "Bright Yellow 15"

Patina Teal

PMS 3272c
C100 **M**0 **Y**51 **K**0
R0 **G**164 **B**153
#00A499
Vinyl: 3M Scotchcal
Series 7125 "Dark Aqua 307"

Landmark Red

PMS 186c
C0 **M**100 **Y**80 **K**5
R200 **G**16 **B**46
#C8102E
Vinyl: 3M Scotchcal
Series 7125 "Atomic Red 293"

Playful Purple

PMS 249c
C43 **M**100 **Y**0 **K**17
R128 **G**40 **B**108
#80286C
Vinyl: 3M Scotchcal
Series 7125 "Dark Violet 98"

Typography

URW DIN Bold

ABCDEFGHIJKLMNOPQRSTUVWXYZ
abcdefghijklmnopqrstuvwxyz
1 2 3 4 5 6 7 8 9 0
! @ # $ % ^ & * ( ) _ +

MINUTES

Typical Format
Tracking: 80/1000 em
Kerning: Optical

URW DIN Medium

ABCDEFGHIJKLMNOPQRSTUVWXYZ
abcdefghijklmnopqrstuvwxyz
1 2 3 4 5 6 7 8 9 0
! @ # $ % ^ & * ( ) _ +

Downtown

Typical Format
Tracking: 10/1000 em
Kerning: Optical

URW DIN Condensed Bold

ABCDEFGHIJKLMNOPQRSTUVWXYZ
abcdefghijklmnopqrstuvwxyz
1 2 3 4 5 6 7 8 9 0
! @ # $ % ^ & * ( ) _ +

15

Typical Format
Tracking: 0/1000 em
Kerning: Optical

Typography

Stencil Allround

ABCDEFGHIJKLMNOPQRSTUVWXYZ
1 2 3 4 5 6 7 8 9 0
! @ # $ % ^ & * ( ) _ +

OUR HIDDEN
HISTORY

Typical Format
Tracking: 30/1000 em
Kerning: Optical

Wayfinding Symbols

Directional Arrows

Modes of Travel

Bike

Pedestrian

Skateboard

Scooter

Stroller

Rollerblade

Transportation Hubs

Bus Station

Train Station

Ferry Terminal

Landmarks, Destinations & Services

Park

Commercial Area

Library

Hospital

Museum

Accessible

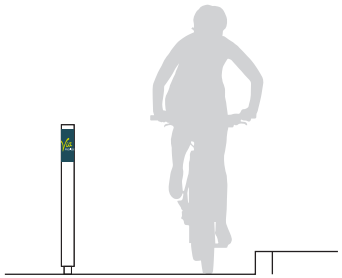
03

Sign System Components

Kit of Parts

Directional & Orientation

Sign Type 01
Trailblazer, Pole Mounted



Sign Type 02
Trailblazer, Reflector

Sign Type 03A
Directional Sign, Lg. Pole Mounted

Sign Type 03B
Directional Sign, Sm. Pole Mounted

Sign Type 04A
Directional Sign, Lg. Freestanding

Sign Type 04B
Directional Sign, Lg. Freestanding

Sign Type 05
Orientation Map, Freestanding

Sign Type 06
Orientation Map, Bus Shelter

Scale:
1/4" = 1' - 0"

Kit of Parts

Information and Interpretation

Sign Type 07A
Bike Share Sign, Lg.

Sign Type 07B
Bike Share Sign, Sm.

Sign Type 10
Interpretive Wayside, Large

Sign Type 11
Interpretive Wayside, Small

Sign Type 12
Interpretive Broadside, Building Mounted

Sign Type 13
Interpretive Broadside, Construction Scrim

Scale:
1/4" = 1' - 0"

Kit of Parts

Pavement Markings

Sign Type 20
Trail Stencil

Sign Type 21
Pavement Zone Graphics

Sign Type 22
Lane Graphics

Sign Type 01:
Trailblazer Pole Mounted

Description:
1'-8" diameter painted aluminum sign panel with reflective vinyl graphics, mounted on both sides of a utility or light pole.

Criteria:
- Located on the trail at a minimum of every 1/4 mile
- Located at changes in direction (or trail jogs) unless a directional sign already exists there

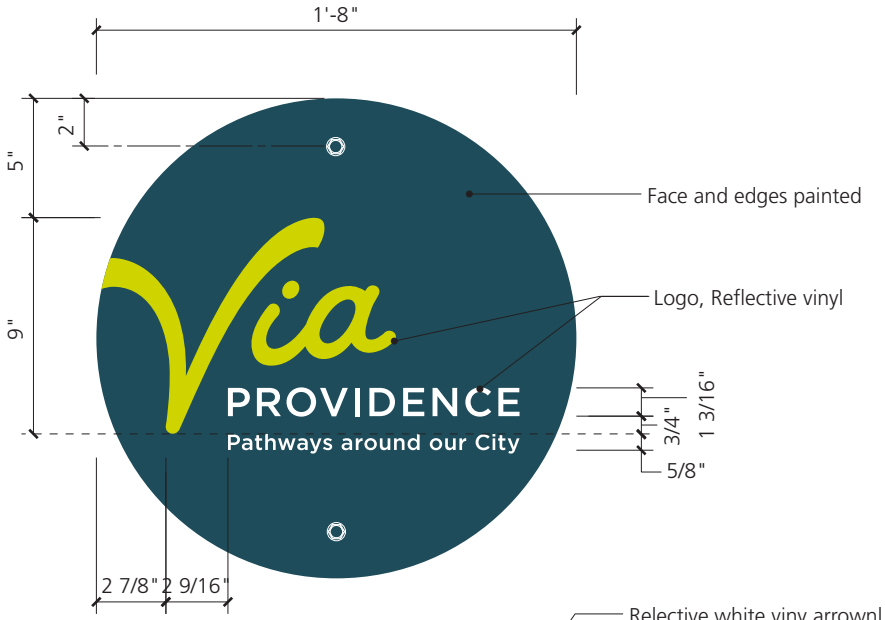
Colors/Finishes:
Panel Front Side: Streetscape
Panel Back Side: Providence Orange
Logo: Reflective Pedestrian Green, Reflective White Vinyl

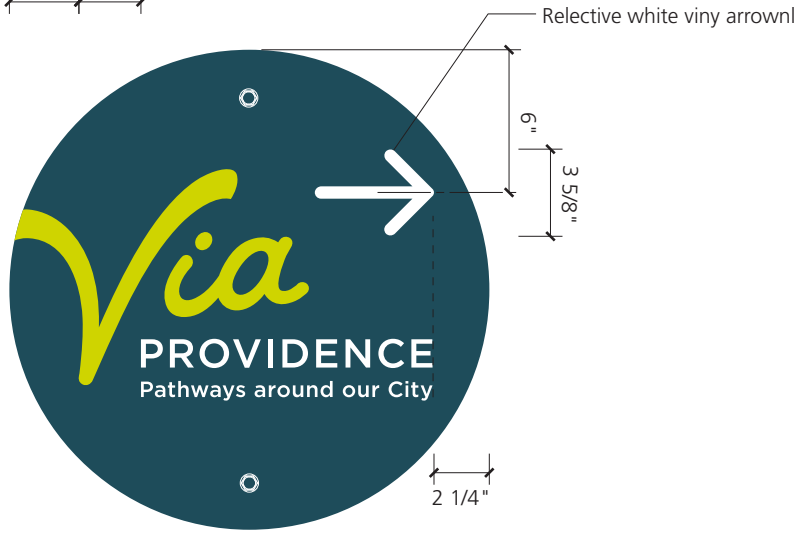
Typography:
N/A

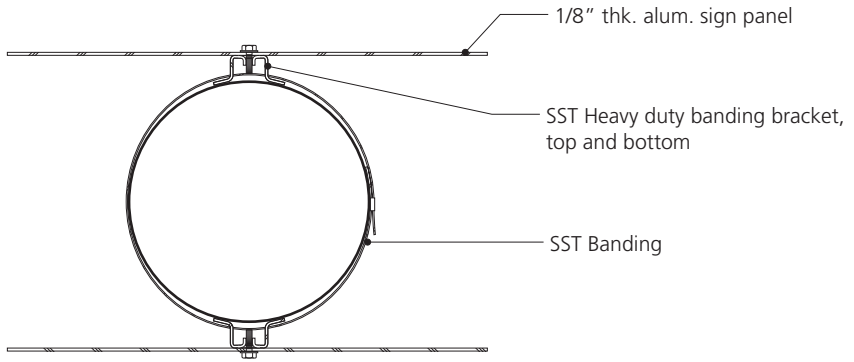
Installation Condition:
Install at existing light pole or cedar pole

Scale: 1/2" = 1' - 0"

Sign Type 01:
Trailblazer Pole Mounted







Horizontal Section: 1 1/2" = 1' - 0"

Sign Type 02:
Trailblazer Reflector

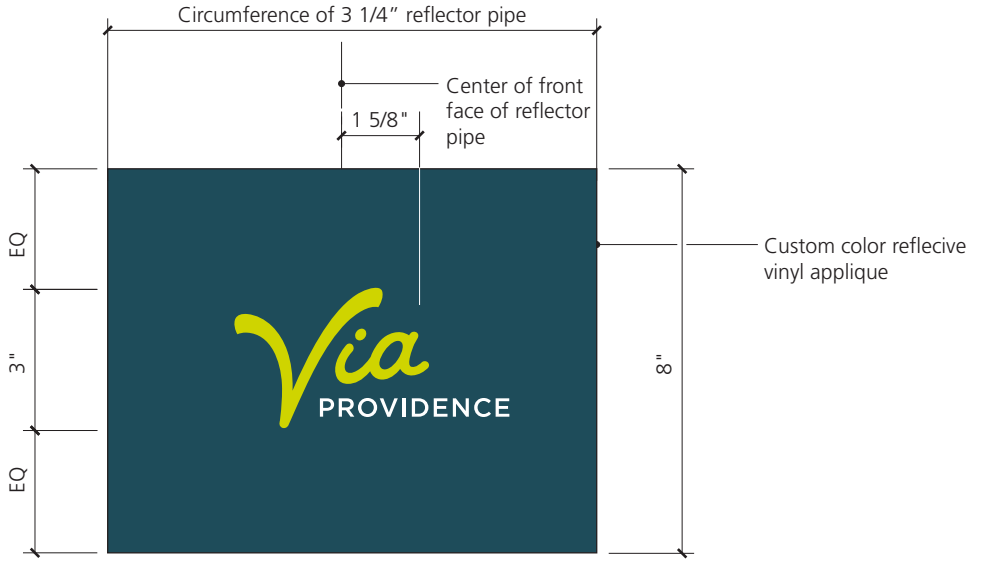
Description:
Reflective vinyl decal applied to reflector pipe for separated bike lanes

Criteria:
Apply decals to every sixth reflector pipe along a separated bike lane

Colors/Finishes:
Background: Reflective Streetscape
Logo: Reflective Pedestrian Green, Reflective White

Typography:
N/A

Installation Condition:
Wrap reflector pipe over reflective bands provided with reflector pipe



Scale: 3" = 1' - 0"

Scale: 1/2" = 1' - 0"

Sign Type 03A:
Directional Sign, Large Pole Mounted

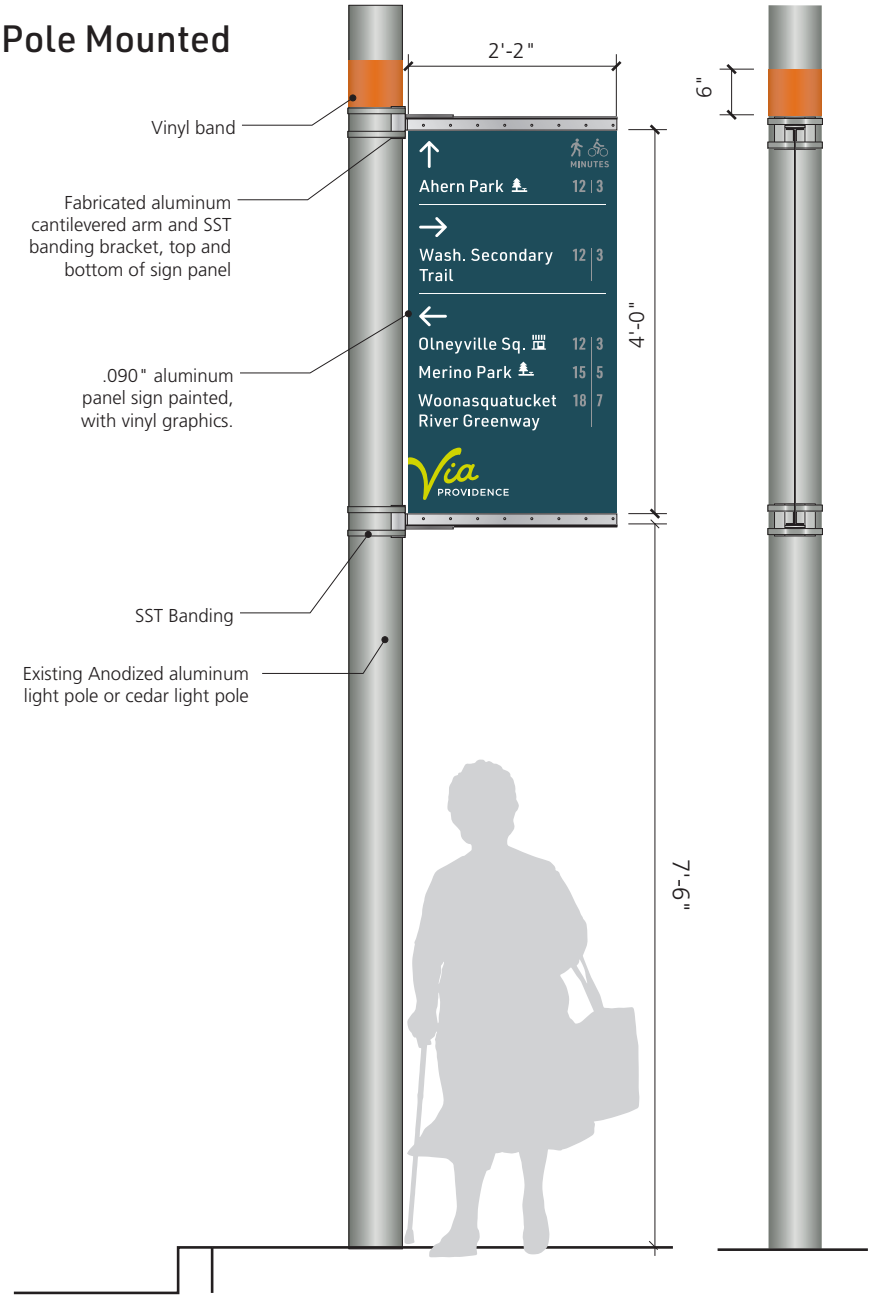
Description:
2'-2" x 4'-0" two-sided painted aluminum sign panel with reflective vinyl graphics affixed to pole with cantilevered arm and stainless steel banding bracket at top and bottom. 6" orange vinyl band wraps pole above top bracket.

Criteria:
- Located on the trail at a minimum of every 1/2 mile
- Located at intersections or major decision points
- Located at trailheads

Colors/Finishes:
Panel: Streetscape
Directional text /graphics: Reflective White
Numerals/graphics: Pavement
Logo: Pedestrian Green/White
Vinyl Band: Providence Orange
Bracket: Matte Clear Coated

Typography:
URW DIN Medium
URW DIN Bold
URW DIN Condensed Bold

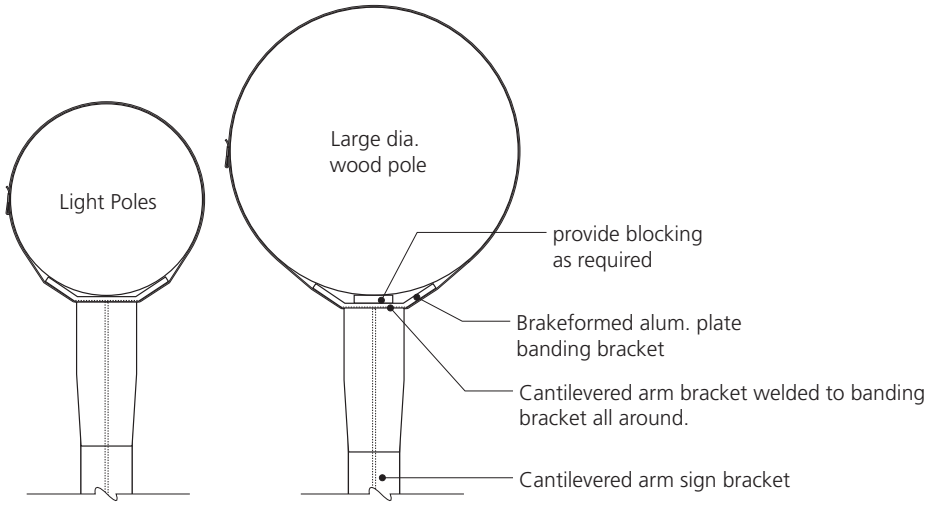
Installation Condition:
Install at existing light pole or cedar pole

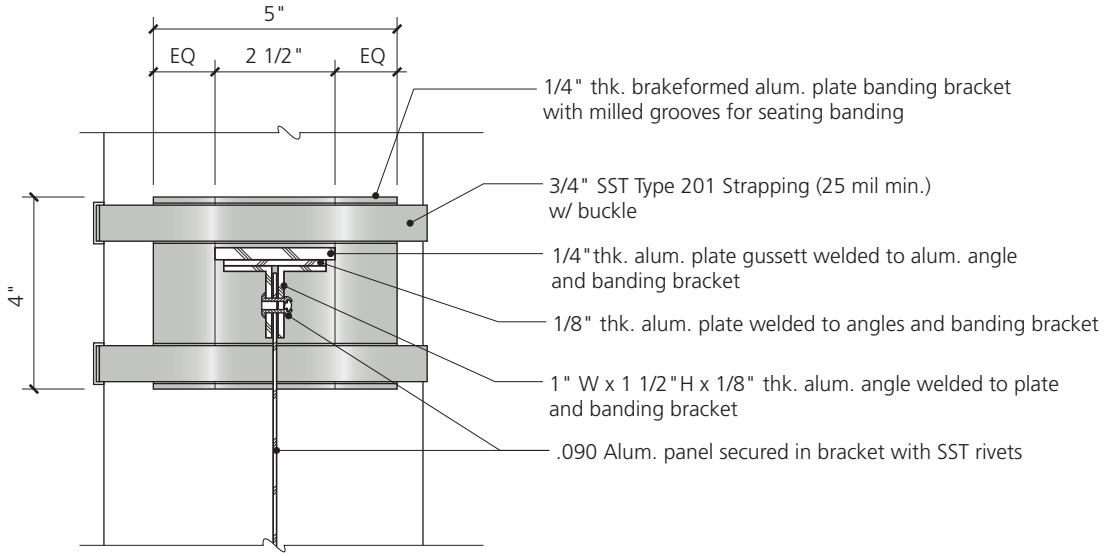


Scale: 1/2" = 1' - 0"

Sign Type 03A:

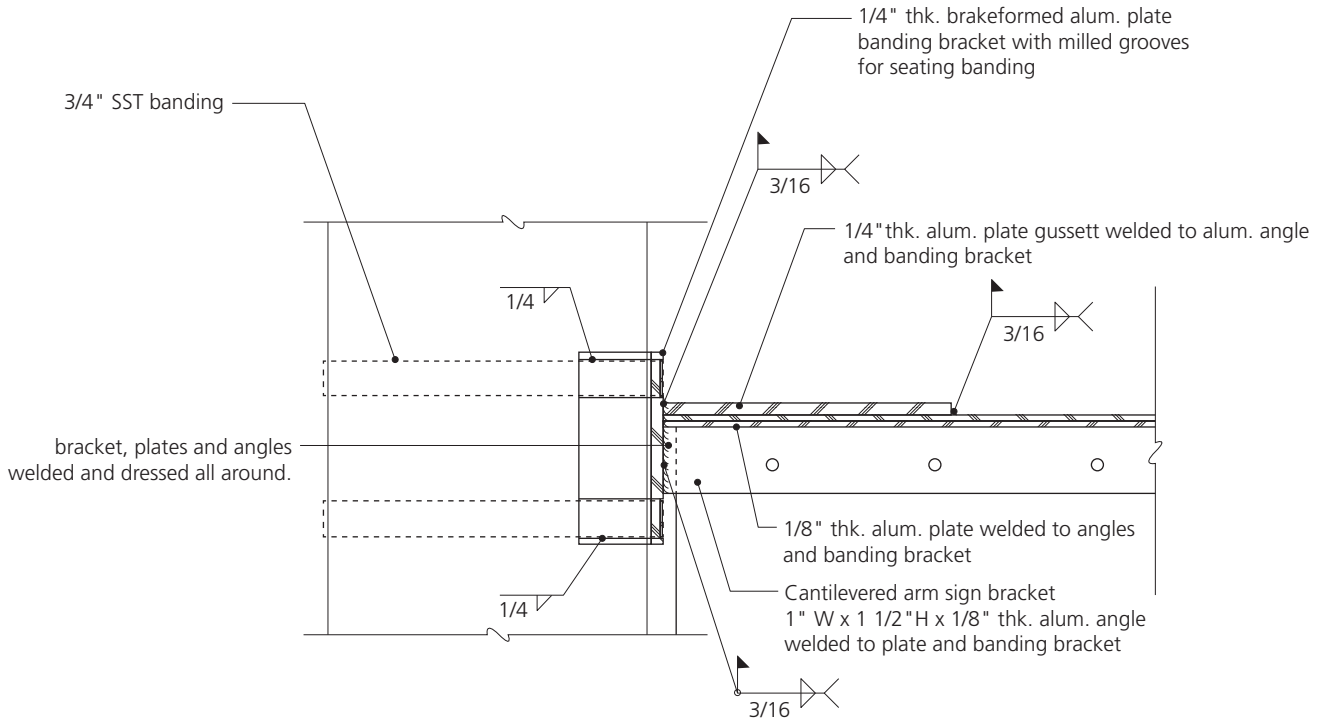
Directional Sign, Large Pole Mounted





Vertical Section
Scale: 3" = 1' - 0"

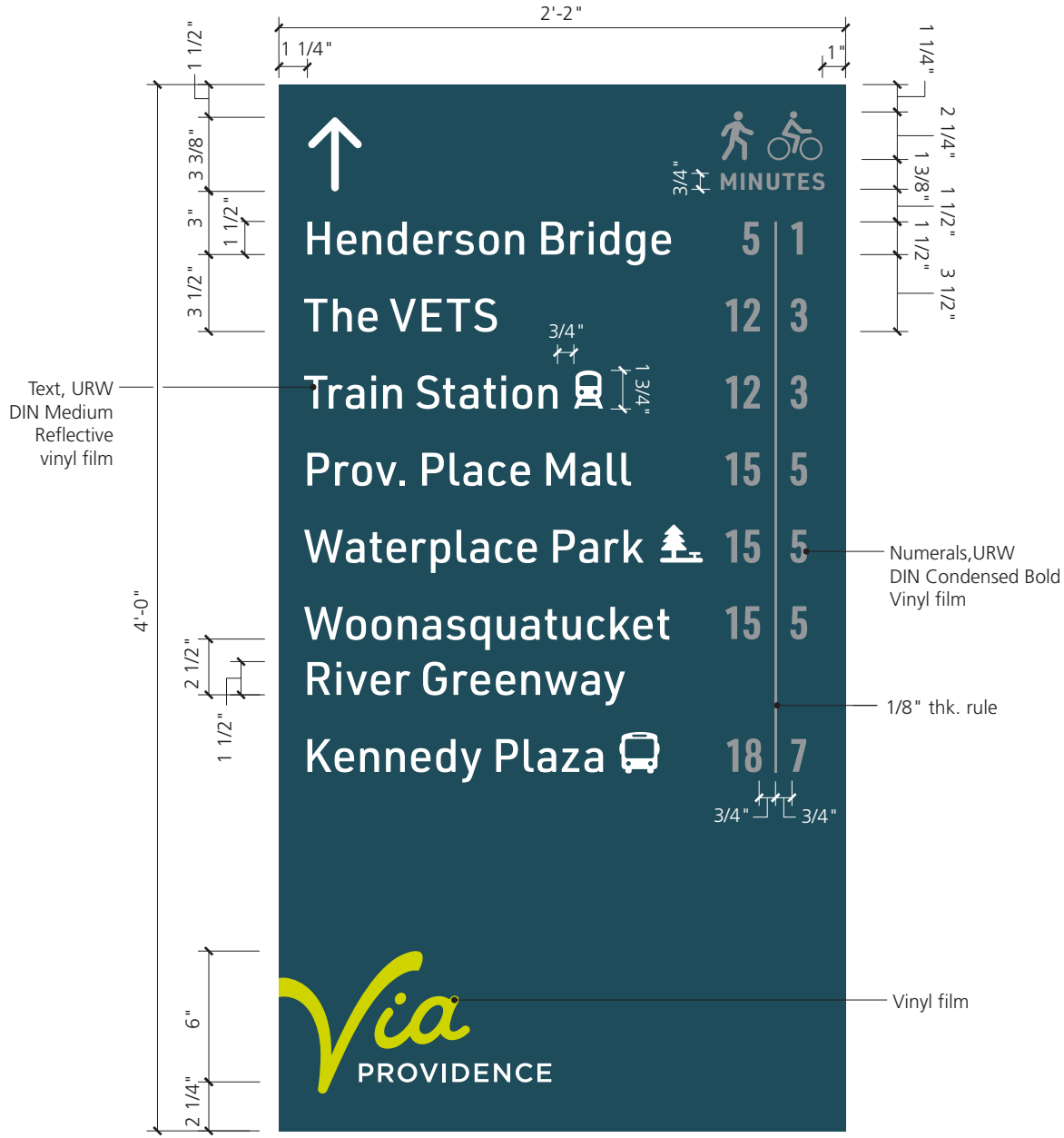
Sign Type 03A:
Directional Sign, Large Pole Mounted



Side View Section
Scale: 3" = 1' - 0"

Sign Type 03A:

Directional Sign, Large Pole Mounted

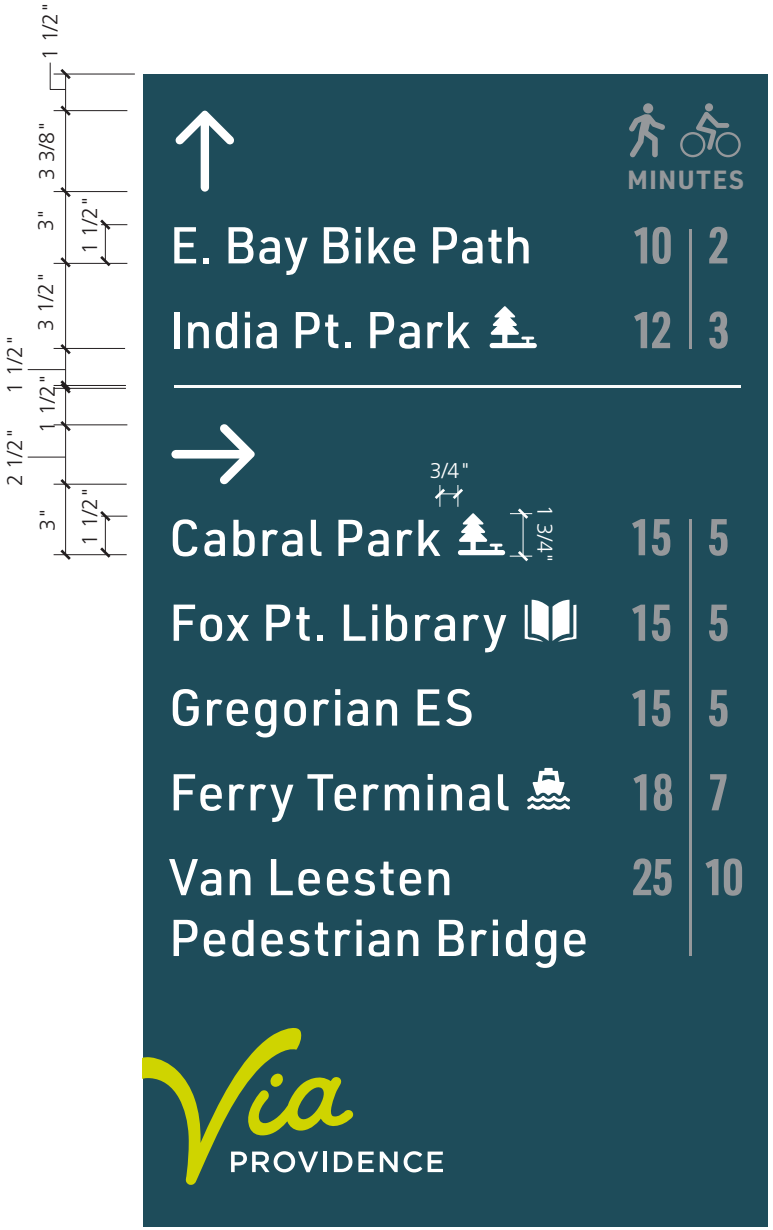


1 Arrow: Max 7 Destinations

Scale: 1 1/2" = 1' - 0"

Sign Type 03A:

Directional Sign, Large Pole Mounted

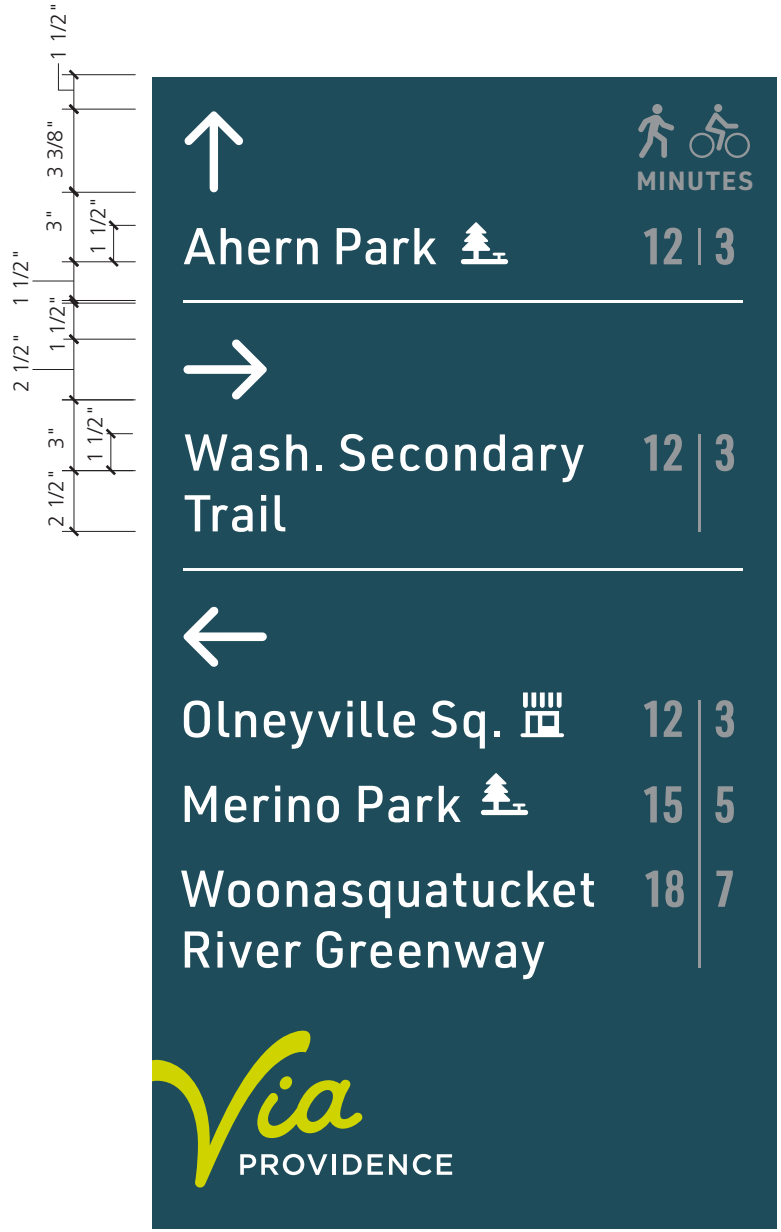


2 Arrows: Max 8 Lines

Scale: 1 1/2" = 1' - 0"

Sign Type 03A:

Directional Sign, Large Pole Mounted



3 Arrows: Max 7 Lines

Scale: 1 1/2" = 1' - 0"

Sign Type 03B:
Directional Sign, Small Pole Mounted

Description:
2'-2" x 2'-9" two-sided painted aluminum sign panel with reflective vinyl graphics affixed to pole with cantilevered arm and stainless steel banding bracket at top and bottom. 6" orange vinyl band wraps pole above top bracket.

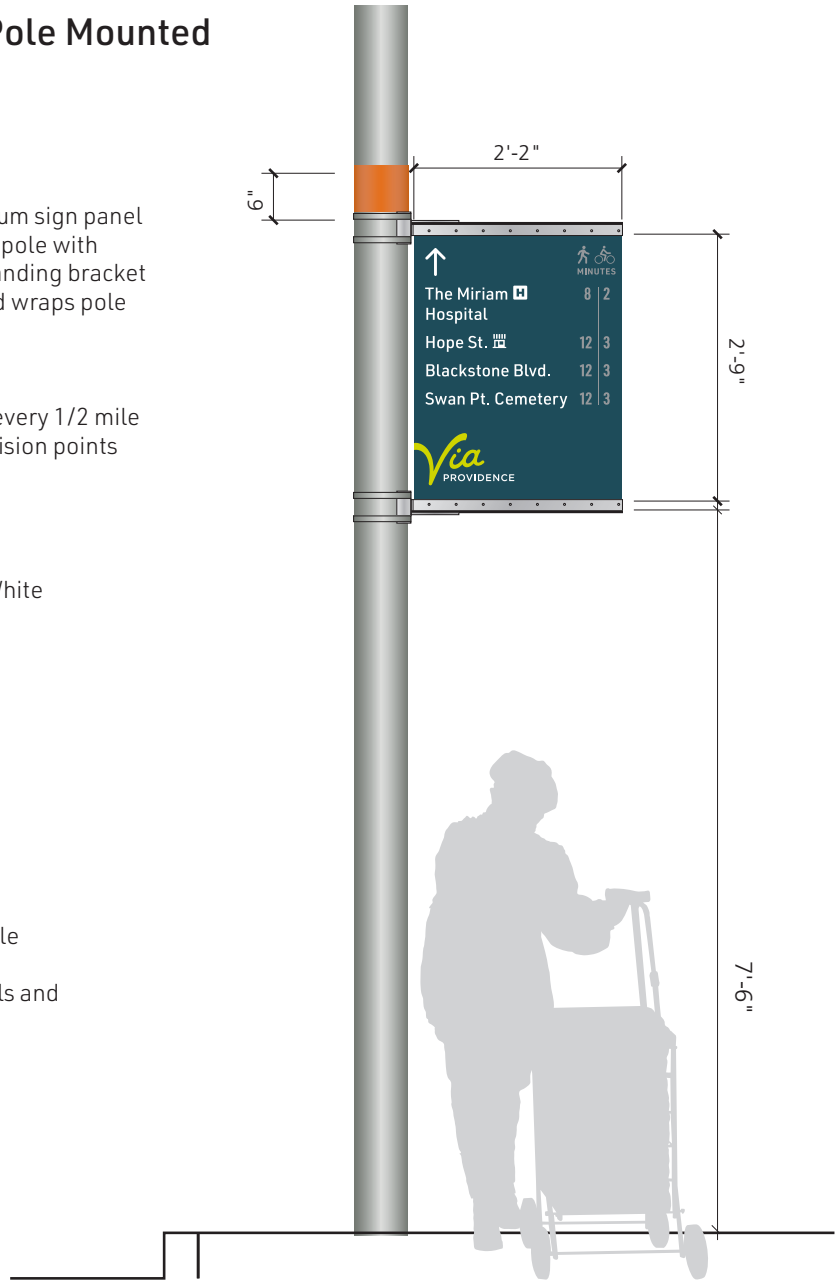
Criteria:
- Located on the trail at a minimum of every 1/2 mile
- Located at intersections or major decision points
- Located at trailheads

Colors/Finishes:
Panel: Streetscape
Directional text /graphics: Reflective White
Numerals/graphics: Pavement
Logo: Pedestrian Green/White
Vinyl Band: Providence Orange
Bracket: Matte Clear Coated

Typography:
URW DIN Medium
URW DIN Bold
URW DIN Condensed Bold

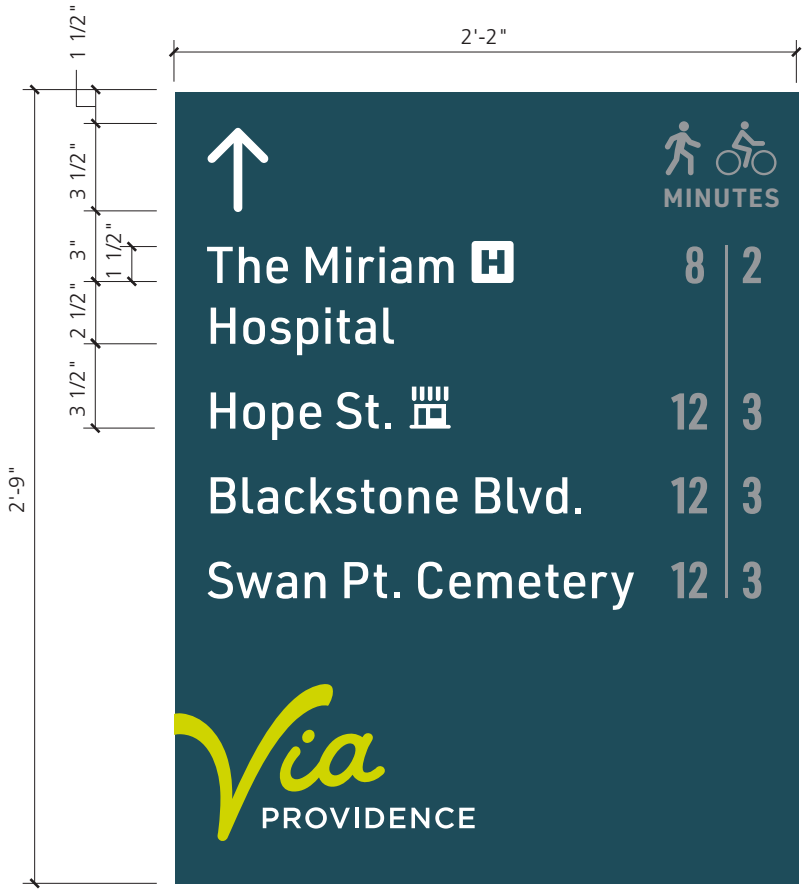
Installation Condition:
Install at existing light pole or cedar pole

NOTE: Refer to Sign Type 03A for details and specifications



Scale: 1/2" = 1' - 0"

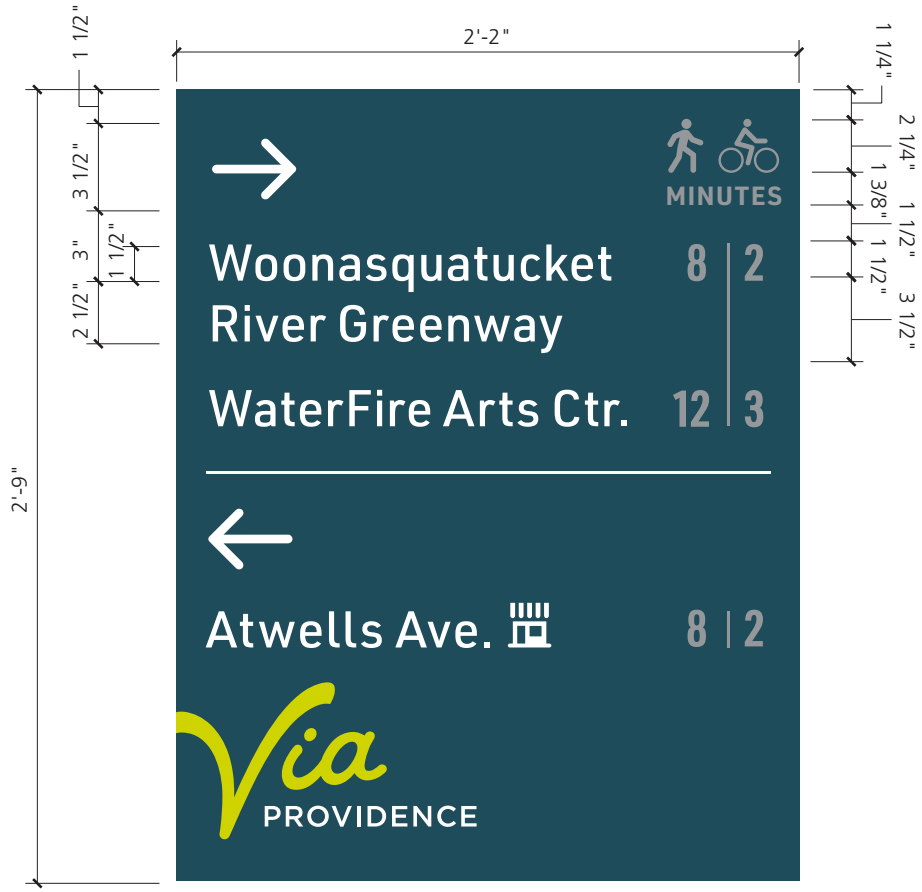
Sign Type 03B:
Directional Sign, Small Pole Mounted



1 Arrow: Max 5 Lines
Scale: 1 1/2" = 1' - 0"

Sign Type 03B:

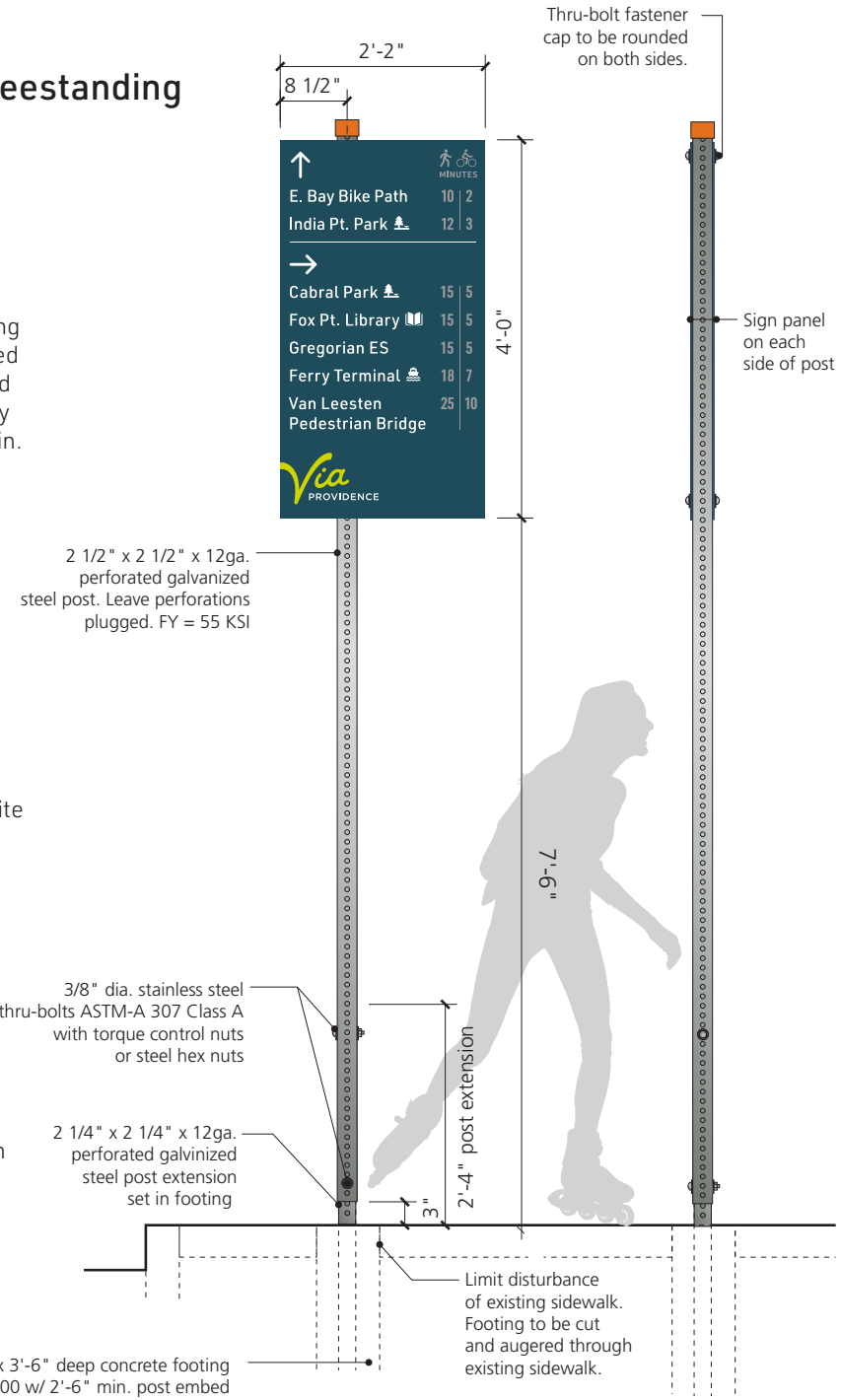
Directional Sign, Small Pole Mounted



2 Arrows: Max 4 Lines

Scale: 1 1/2" = 1' - 0"

Sign Type 04A:
Directional Sign, Large Freestanding



Description:
2, 2'-2" x 4'-0" single-sided painted aluminum sign panels mounted with stainless steel thru-bolts with self-locking nuts on each side of perforated galvanized steel post. Sign panels shall be fabricated of aluminum sheets per ASTM B209, alloy 6061-T6, and shall be 0.125 inch thick min. Fabricated alum. post cap with painted finish, bonded to galv. steel post at top.

Criteria:
- Located on the trail at a minimum of every 1/2 mile
- Located at intersections or major decision points
- Located at trailheads

Colors/Finishes:
Panel Front Side: Streetscape
Directional text /graphics: Reflective White
Numerals/graphics: Pavement
Logo: Pedestrian Green/White
Post Cap: Providence Orange
Post and Sleeve: Galvanized Steel

Typography:
URW DIN Medium
URW DIN Bold
URW DIN Condensed Bold

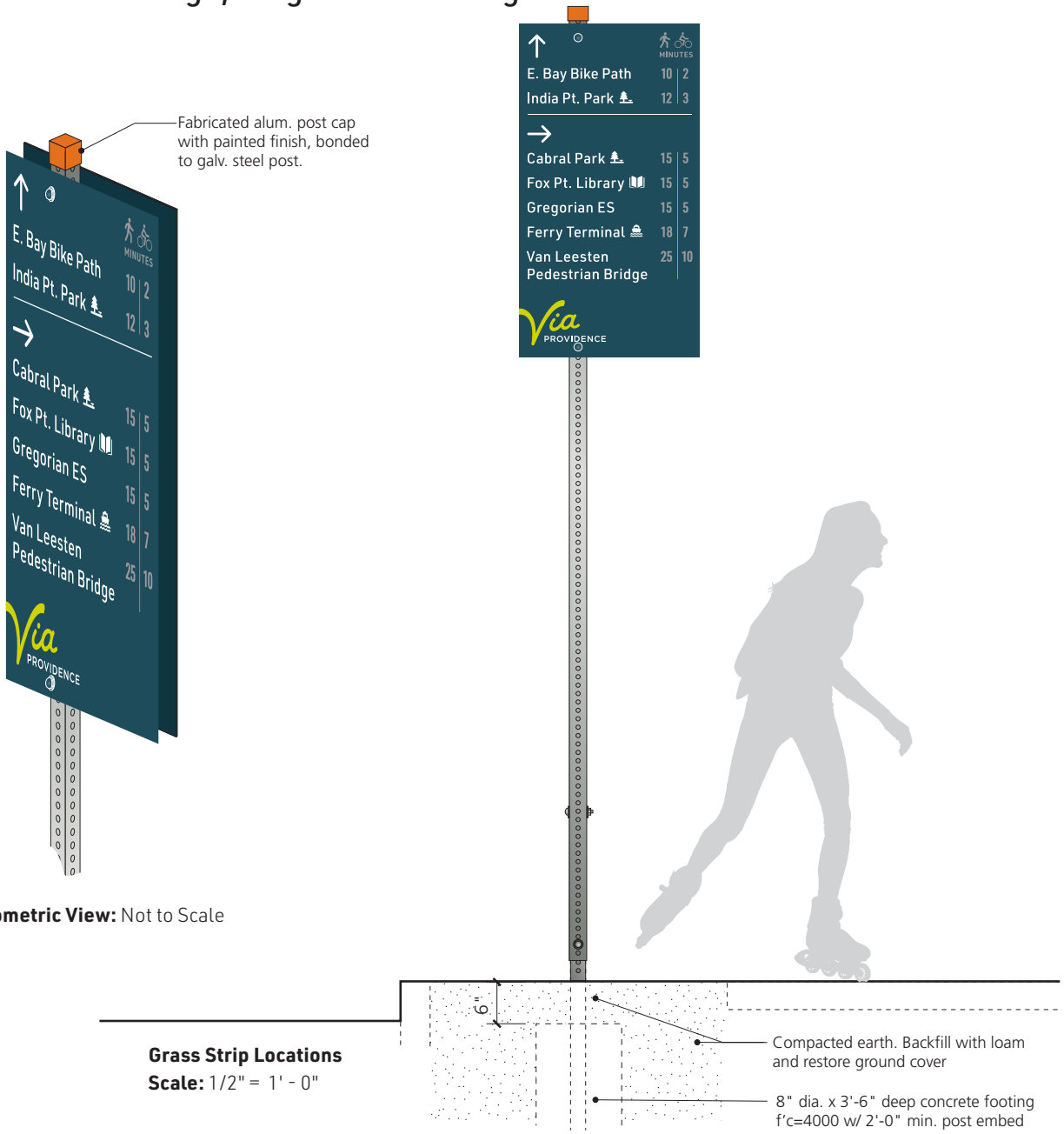
Installation Condition:
Concrete installation or Earth installation

NOTE: Refer to Sign Type 03A for Sign Panel Layouts

Sidewalk Locations
Scale: 1/2" = 1' - 0"

Sign Type 04A:

Directional Sign, Large Freestanding



Isometric View: Not to Scale

Grass Strip Locations
Scale: 1/2" = 1' - 0"

JENNIFER McCLAIN
No. 13221
REGISTERED
PROFESSIONAL ENGINEER
STRUCTURAL

Sign Type 04B:

Directional Sign, Small Freestanding

Description:
2, 2'-2" x 2'-9" single-sided painted aluminum sign panels mounted with stainless steel thru-bolts with self-locking nuts on each side of perforated galvanized steel post. Sign panels shall be fabricated of aluminum sheets per ASTM B209, alloy 6061-T6, and shall be 0.125 inch thick min. Fabricated alum. post cap with painted finish, bonded to galv. steel post at top.

Criteria:
- Located on the trail at a minimum of every 1/2 mile
- Located at intersections or major decision points
- Located at trailheads

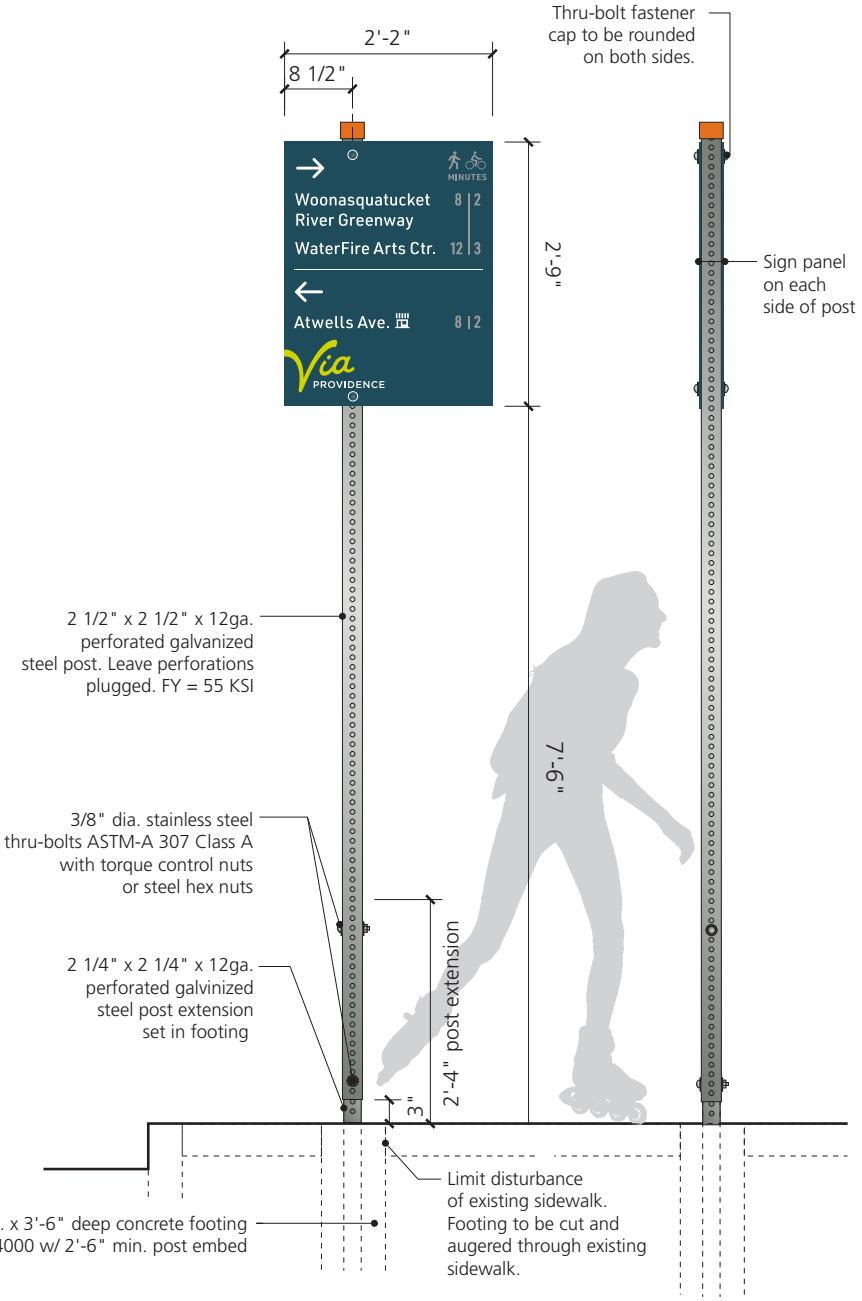
Colors/Finishes:
Panel Front Side: Streetscape
Directional text /graphics: Reflective White
Numerals/graphics: Pavement
Logo: Pedestrian Green/White
Post Cap: Providence Orange
Post and Sleeve: Galvanized Steell

Typography:
URW DIN Medium
URW DIN Bold
URW DIN Condensed Bold

Installation Condition:
Contrete installation or earth installation

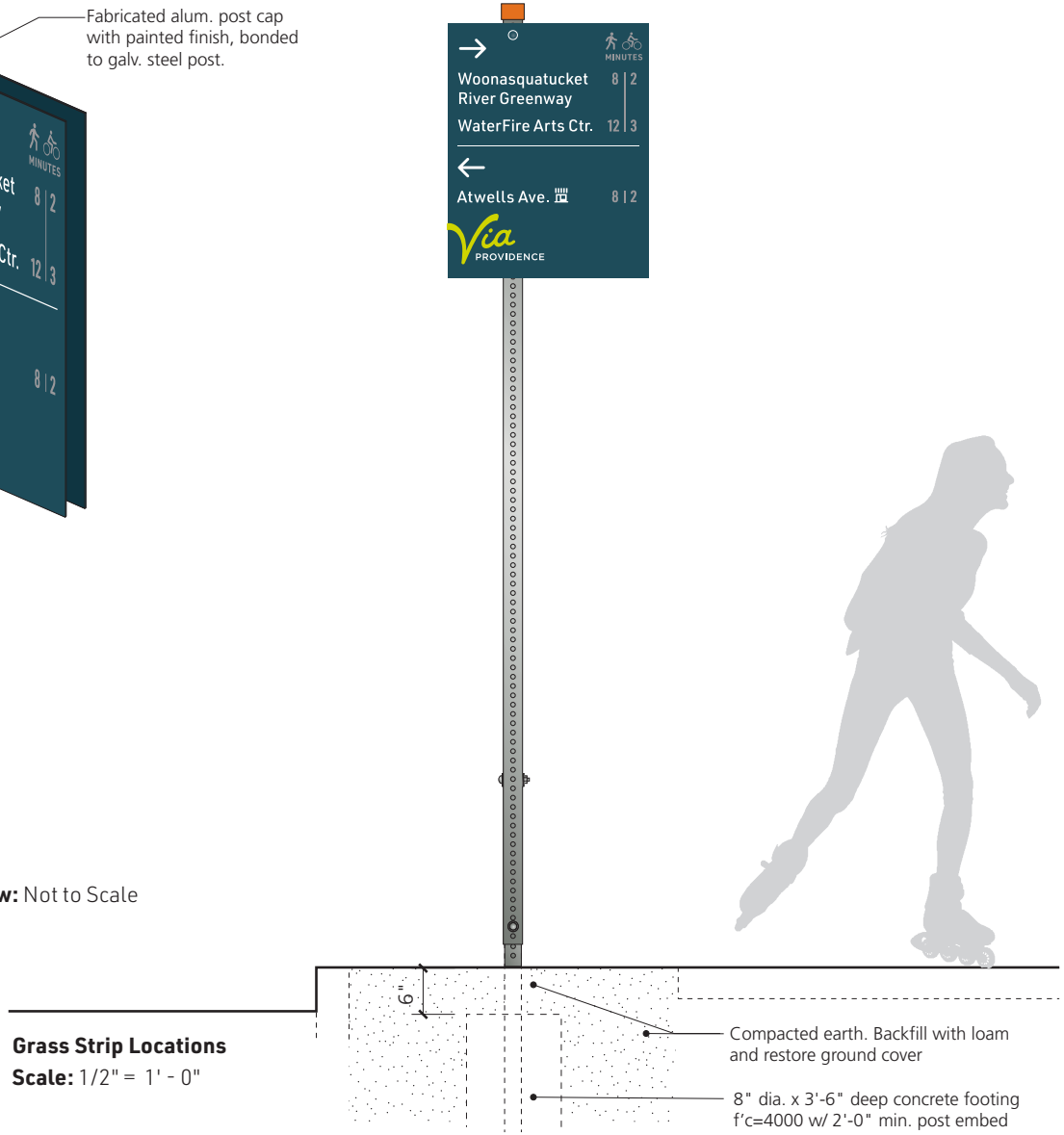
NOTE: Refer to Sign Type 03B for Sign Panel Layouts

Sidewalk Locations
Scale: 1/2" = 1' - 0"



Sign Type 04B:
Directional Sign, Small Freestanding

Isometric View: Not to Scale



Grass Strip Locations
Scale: 1/2" = 1' - 0"

JENNIFER McCLAIN
No. 13221
REGISTERED
PROFESSIONAL ENGINEER
STRUCTURAL

Sign Type 05:
Orientation Map, Freestanding

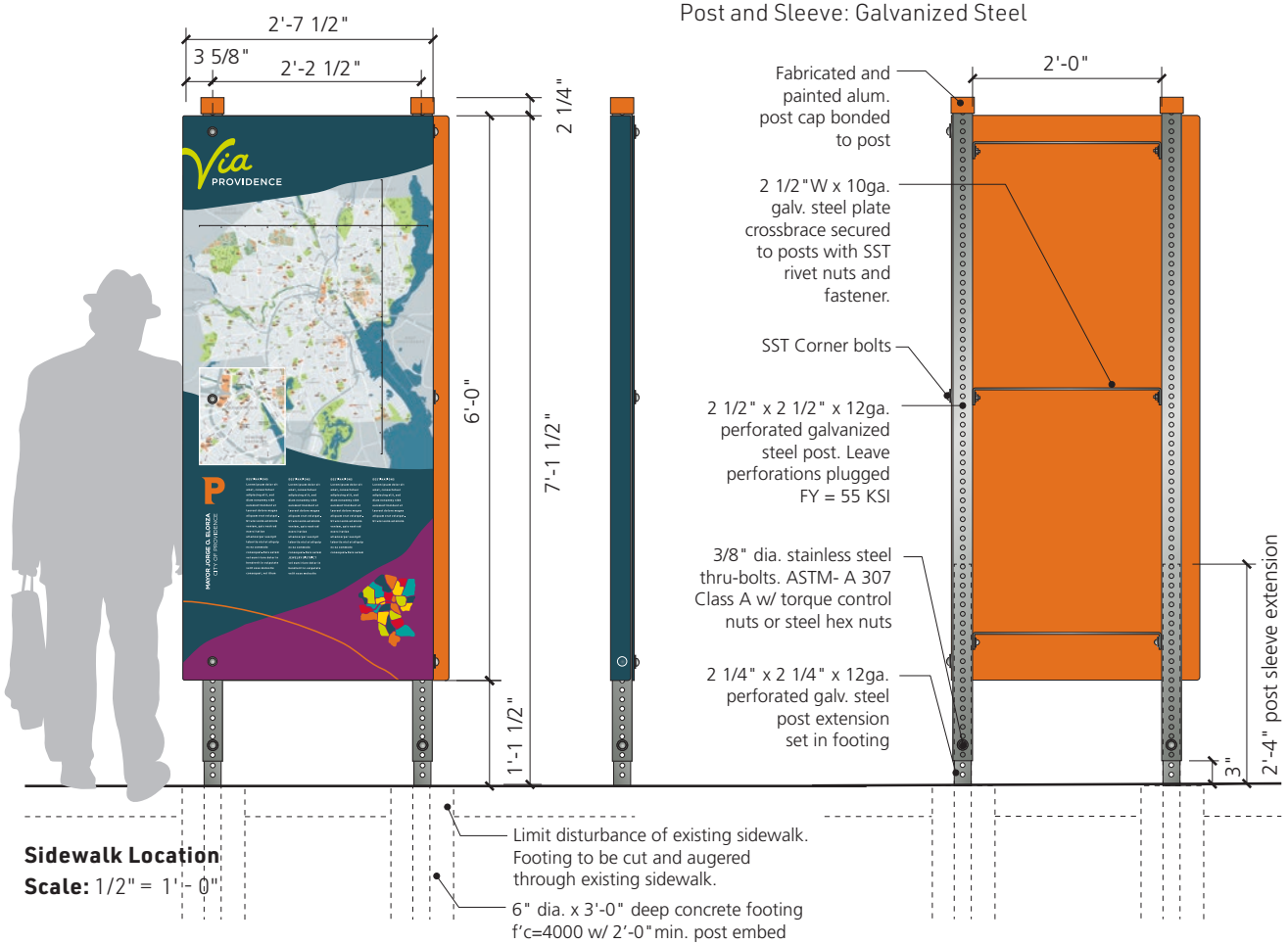
Description:
Double-sided painted aluminim sign panels on perforated galvanized steel posts with fabricated and painted aluminum post caps. Map Graphics to be exterior grade digital print on adhesive vinyl applied to panel with low lustre laminate.

Installation Condition:
Concrete installation or earth installation

Note: Artwork provided by designer

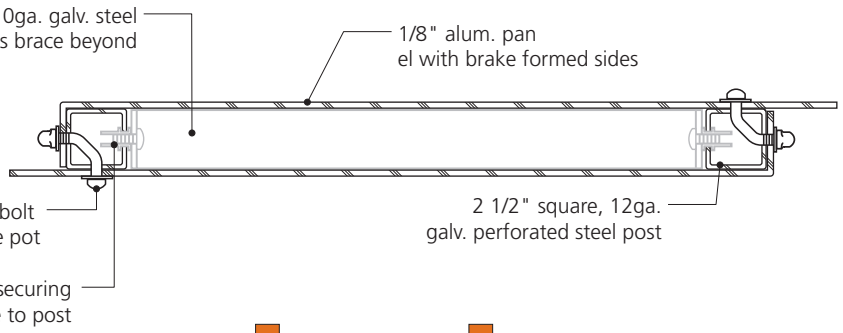
Criteria:
- Located on trail, no greater than 1/2 mile apart
- Located at major destinations
- Located at major parks/open spaces
- Located at major intersections
- Located at trailheads

Colors/Finishes:
Panel Front Side: Streetscape
Panel Back: Providence Orange
Digital Print Graphics: Full Color
Post Cap: Providence Orange
Post and Sleeve: Galvanized Steel



Sidewalk Location
Scale: 1/2" = 1'- 0"

Sign Type 05:
Orientation Map, Freestanding



Horizontal Section
Scale: 1 1/2" = 1' - 0"

Soil/Grass Location
Scale: 1/2" = 1' - 0"

JENNIFER McCLAIN
No. 13221
REGISTERED
PROFESSIONAL ENGINEER
STRUCTURAL

Sign Type 06:
Orientation Map, Bus Shelter

Description:
2'-7 1/2"W x 6' - 0 "H Painted aluminum panel with exterior grade digital print on adhesive vinyl applied to panel, with low lustre laminate.

Criteria:
- Located on trail, no greater than 1/2 mile apart
- Integrated with city bus shelters

Colors/Finishes:
Digital print: Full color Via brand graphics
Panel Back: Providence Orange

Installation Conditions:
Aluminum panel mounted to existing perforated metal panel with tamperproof round head fasteners.

Typical Condition
Scale: 3/8" = 1' - 0"

Sign Type 07A:
Bike Share Signage, Large

Description:
1/8"thk. aluminum panels with diginal print graphics on face and wrapped around side, mountd to existing bike share sign frame

Criteria:
- Located on the trail at bike share hub locations designated by Engineer

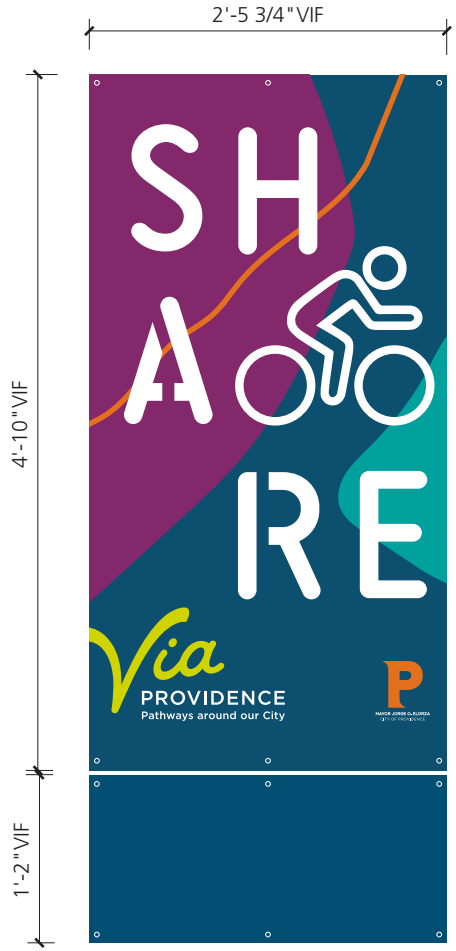
Colors/Finishes:
Print Graphics: Full color Via brand graphics

Typography:
URW DIN Medium
URW DIN Bold
URW DIN Condensed Bold

Installation Condition:
Secure to existing bike share frame structure with round headed tamper proof self tapping screws.

Scale: 3/4" = 1' - 0"

Sign Type 07A:
Bike Share Signage, Large



Bike Rack Side
3/4" = 1' - 0"

Outward Facing Side
3/4" = 1' - 0"

Note: Artwork is for Reference Only.
Final Artwork to be provided by Designer.

Sign Type 07B:
Bike Share Signage, Small

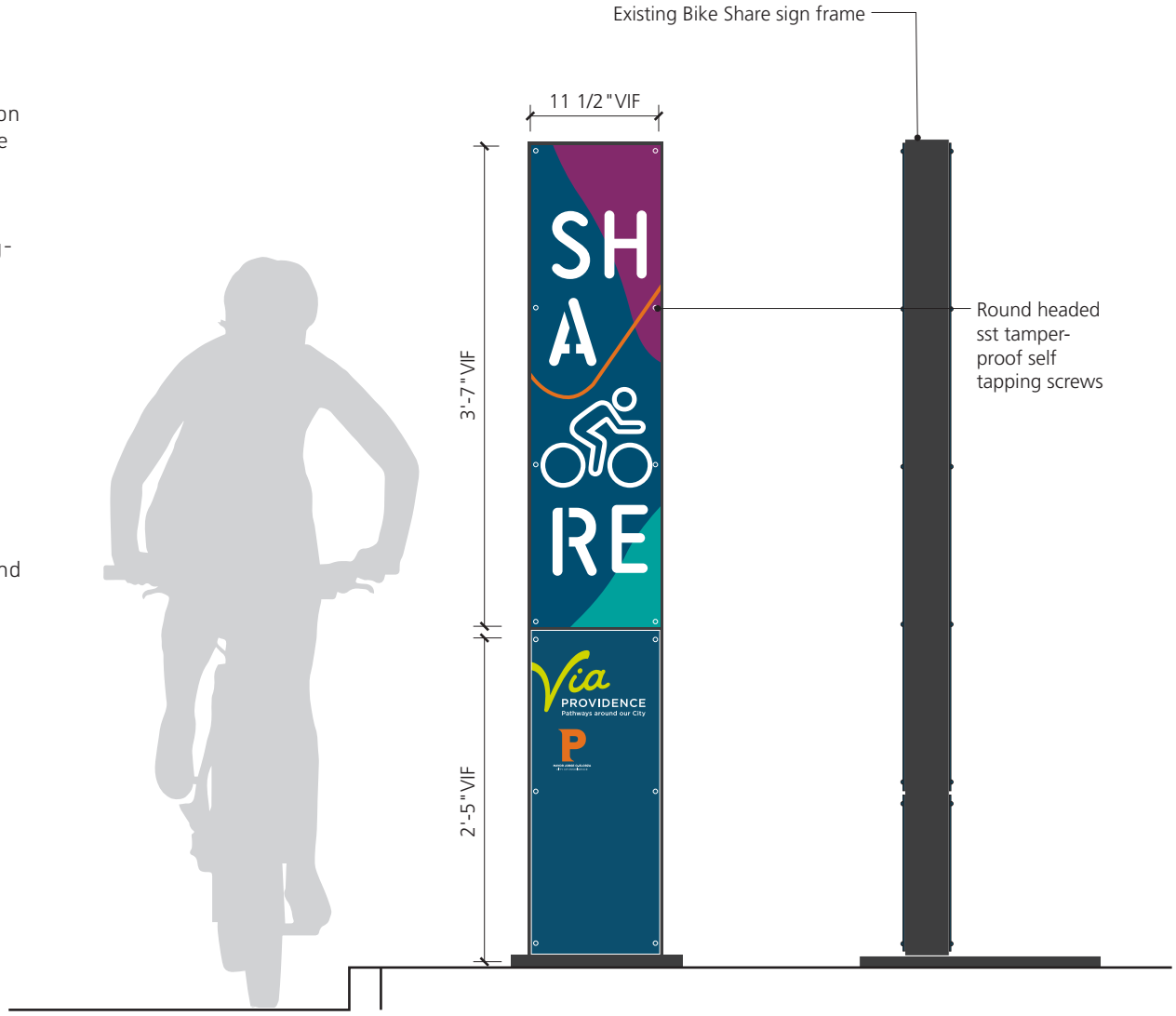
Description:
1/8"thk. aluminum panels with diginal print graphics on face and wrapped around side, mountd to existing bike share sign frame

Criteria:
- Located on the trail at bike share hub locations designated by Engineer

Colors/Finishes:
Print Graphics: Full color Via brand graphics

Typography:
URW DIN Medium
URW DIN Bold
URW DIN Condensed Bold

Installation Condition:
Secure to existing bike share frame structure with round headed tamper proof self tapping screws.



Scale: 3/4" = 1' - 0"

Sign Type 07B:
Bike Share Signage, Small

Bike Rack Side
3/4" = 1' - 0"

Outward Facing Side

Note: Artwork is for Reference Only.
Final Artwork to be provided by Designer.

Sign Type 10:
Interpretive Wayside, Large

Description:
3'-0" x 2'-0", 1/8" thk. brake formed aluminum panel with direct embed powder coated digital graphics fastened to backer panel with aluminum plate and welded, perforated galvanized steel posts.

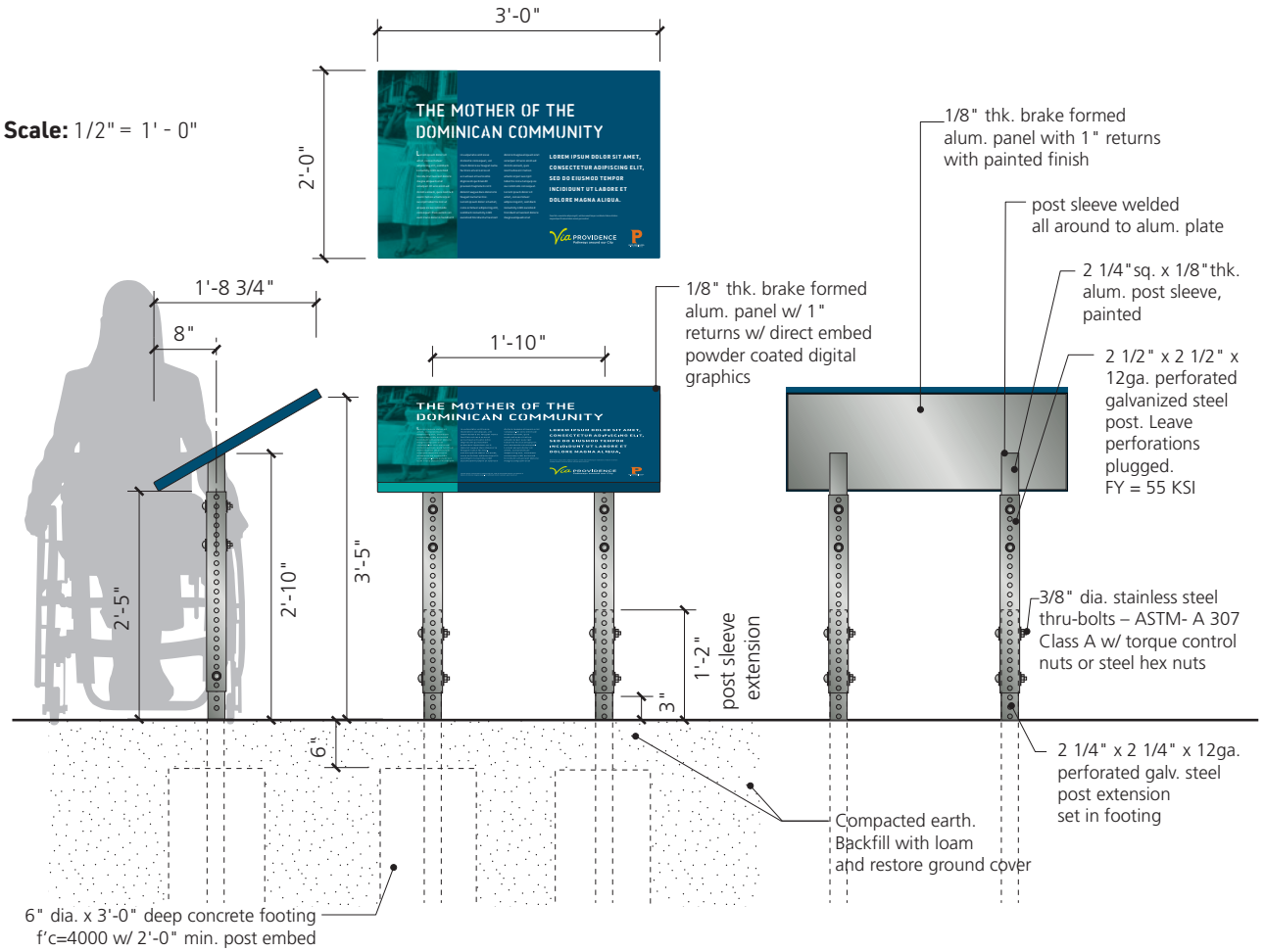
Criteria:
- Located on trail
- Located at the site of the story or...
- Located where story location is within view

Colors/Finishes:
Full Via Brand Color Palette

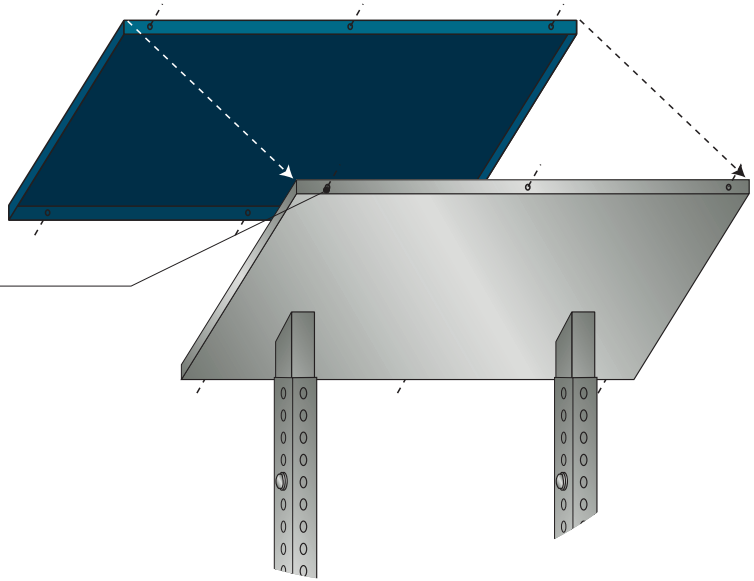
Installation Condition:
Concrete footings in sidewalk or planting bed locations

Note: Artwork provided by designer

Scale: 1/2" = 1' - 0"

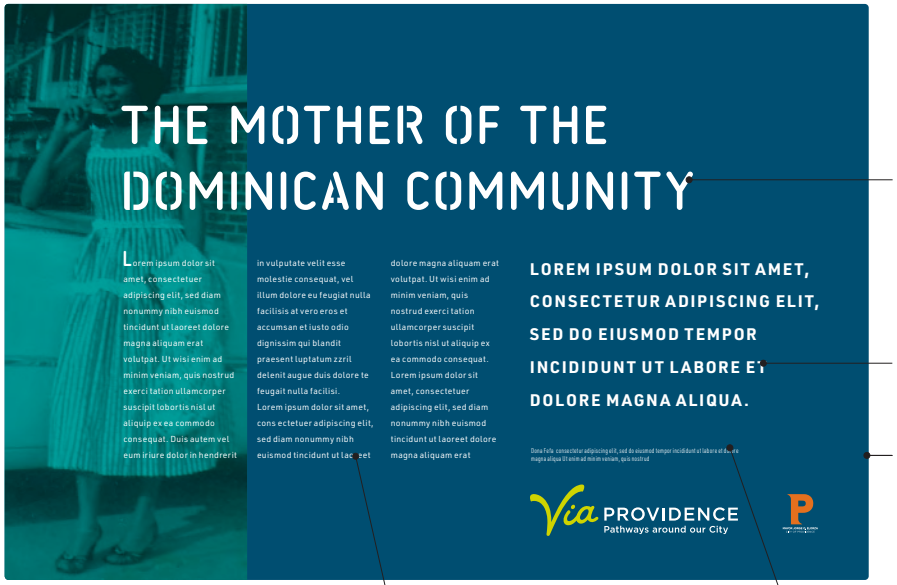


Sign Type 10:
Interpretive Wayside, Large



Graphic Panel fastened to backer panel thru top and bottom returns with counter sunk tamper proof fasteners

Note: Artwork provided by designer



Headline Text
Stencil Allround

Callout/Subheads
URW DIN Bold

1" returns

Scale: 1 1/2" = 1' - 0"

Body Text
URW DIN Regular

Caption Text
URW DIN Condensed Demi

Sign Type 11:
Interpretive Wayside, Small

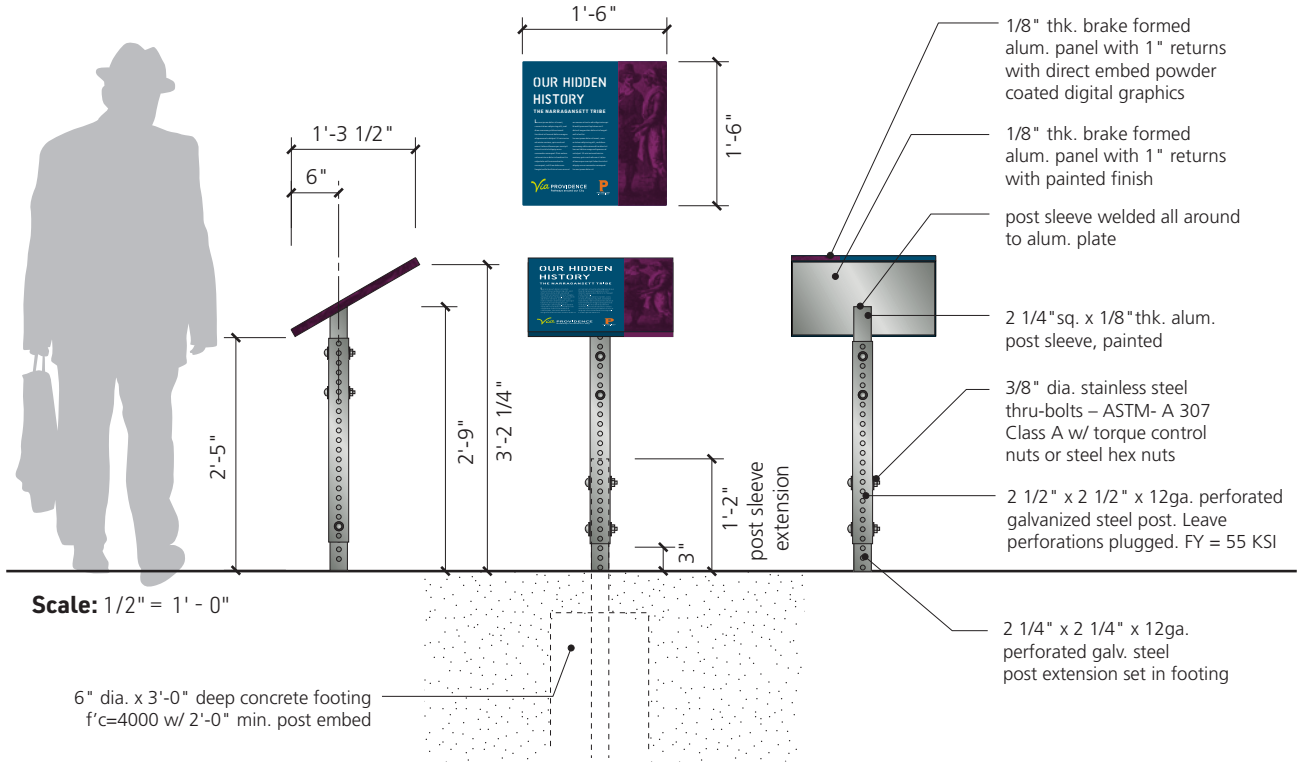
Description:
1'-6" x 1'-6", 1/8" thk. brake formed aluminum panel with direct embed powder coated digital graphics fastened to backer panel with aluminum plate and welded, perforated galvanized steel post.

Criteria:
- Located on trail
- Located at the site of the story or...
- Located where story location is within view

Note: Artwork provided by designer

Colors/Finishes:
Full Via Brand Color Palette

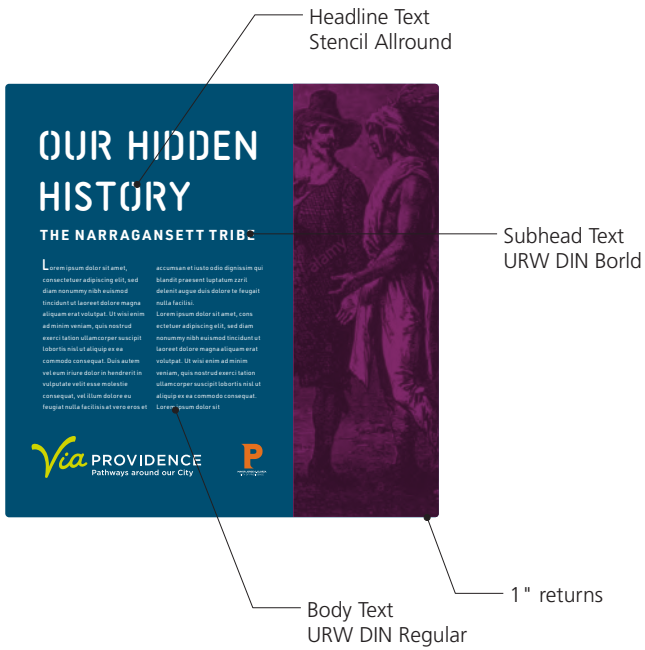
Installation Condition:
Concrete footings in sidewalk or planting bed locations

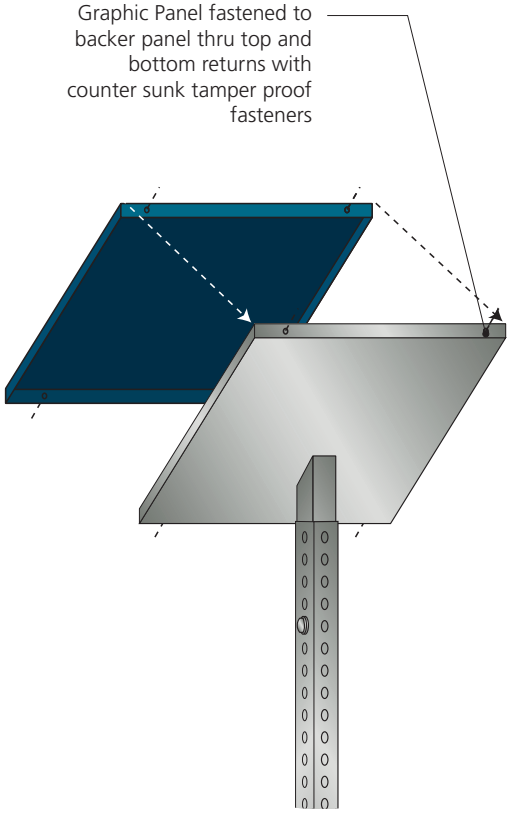


Scale: 1/2" = 1' - 0"

Sign Type 11:
Interpretive Wayside, Small

Note: Artwork provided by designer





Scale: 1 1/2" = 1' - 0"

Sign Type 12:
Interpretive Broadside, Building Mounted

Description:
Wall mounted 7' - 1" W x 3' - 10" H aluminum panel with brake formed 1" returns all around and exterior grade digital print on adhesive vinyl applied to panel and wrapped around sides, with low lustre laminate.

Note: Artwork provided by designer

Criteria:
- Located on trail
- Located at the site of the story or...
- Located where story location is within view

Colors/Finishes:
Full Via brand colors

Installation Condition:
Provide 3/4" exterior grade plywood backer panel secured to wall. Breakeformed aluminum panel mounted to plywood backer with with tamperproof SST fastener

Scale: 1/2" = 1' - 0"

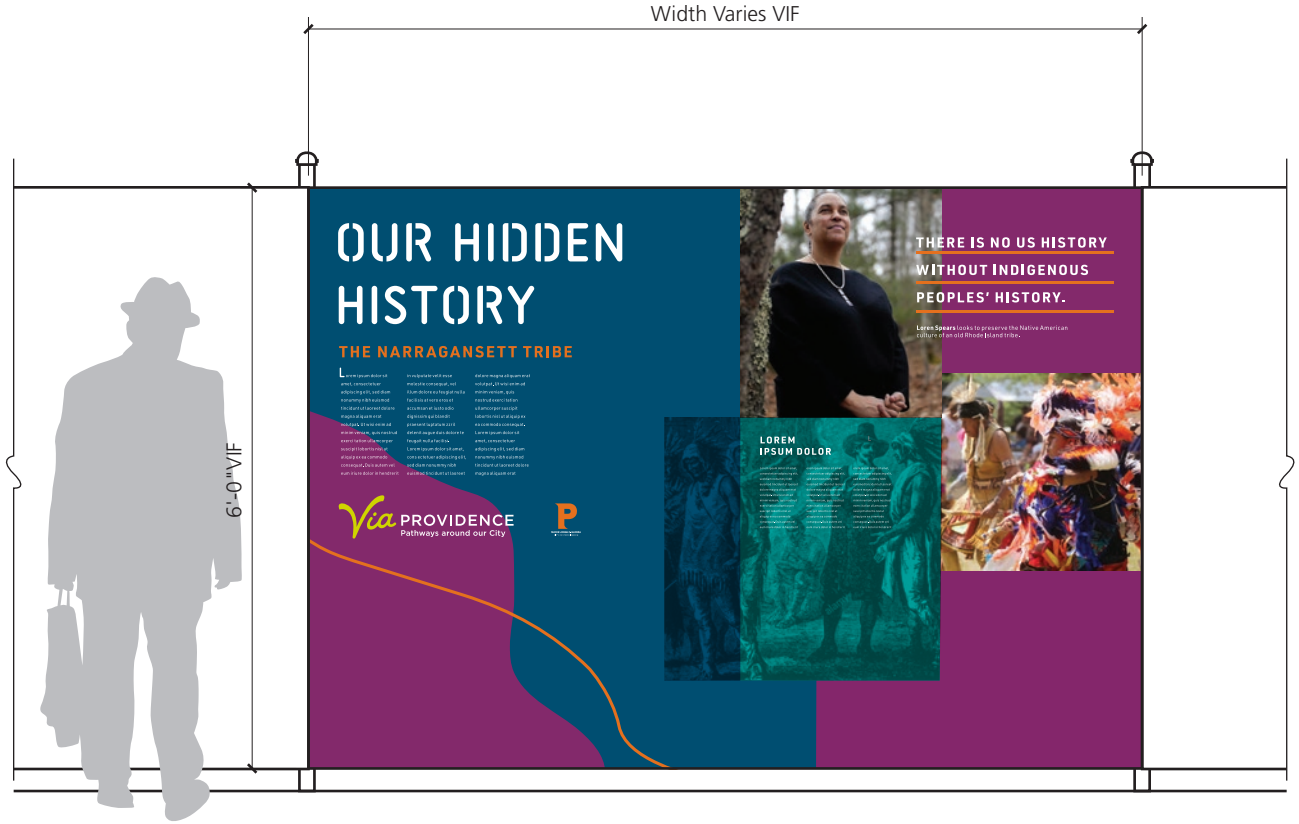
Sign Type 13:
Interpretive Broadside, Construction Scrim

Description:
Exterior grade print on perforated vinyl fabric applied to construction fencing with grommets and zip-ties as required.

Note: Artwork provided by designer

Criteria:
- Located on trail
- Located at the site of the story or...
- Located where story location is within view

Colors/Finishes:
Full Via brand colors



Scale: 1/2" = 1' - 0"

Sign Type 20:
Trail Stencil

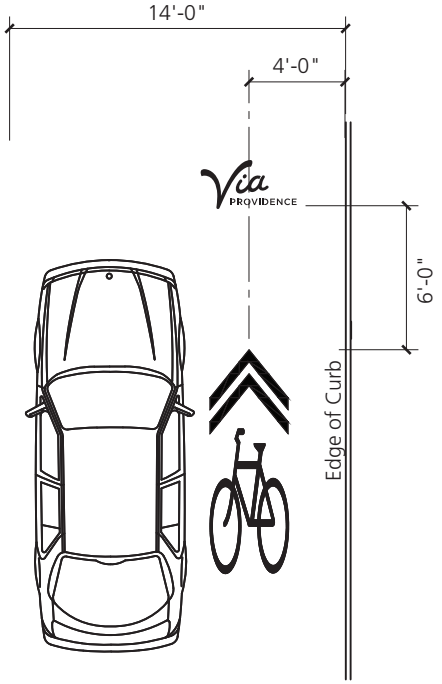
Description:
Pavement marking painted stencil application on shared and separated bike lanes.

Criteria:
- Branding
- Companion to regulatory lane markings
- Interstitial with Trailblazers, not in place of
- Every 1/4 mile

Colors/Finishes:
White

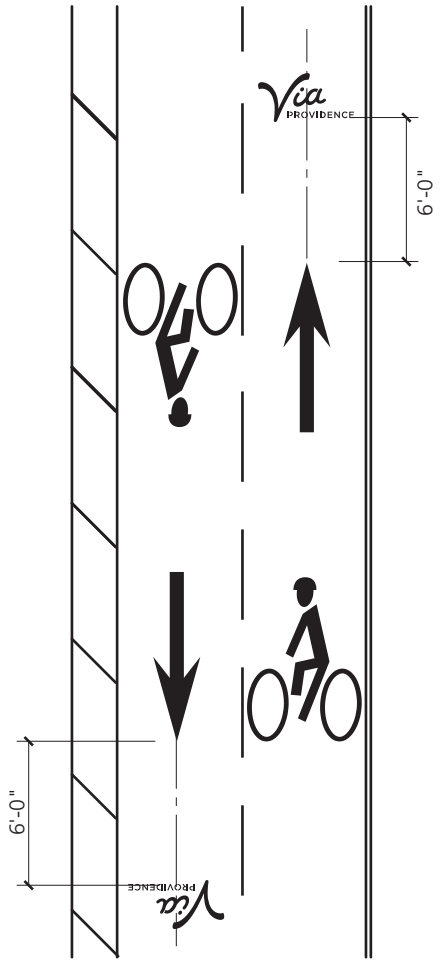
Typography:
N/A

Installation Condition:
Painted stencil application on bituminous lane surface



Shared Lane Condition
Scale: 1/8" = 1' - 0"

Scale: 1/2" = 1' - 0"



Two-way Bike Lane
Scale: 1/8" = 1' - 0"

Sign Type 21:
Pavement Zone Graphics

Description:
Pavement marking painted application in lane bumpout areas, as designated by the Engineer.

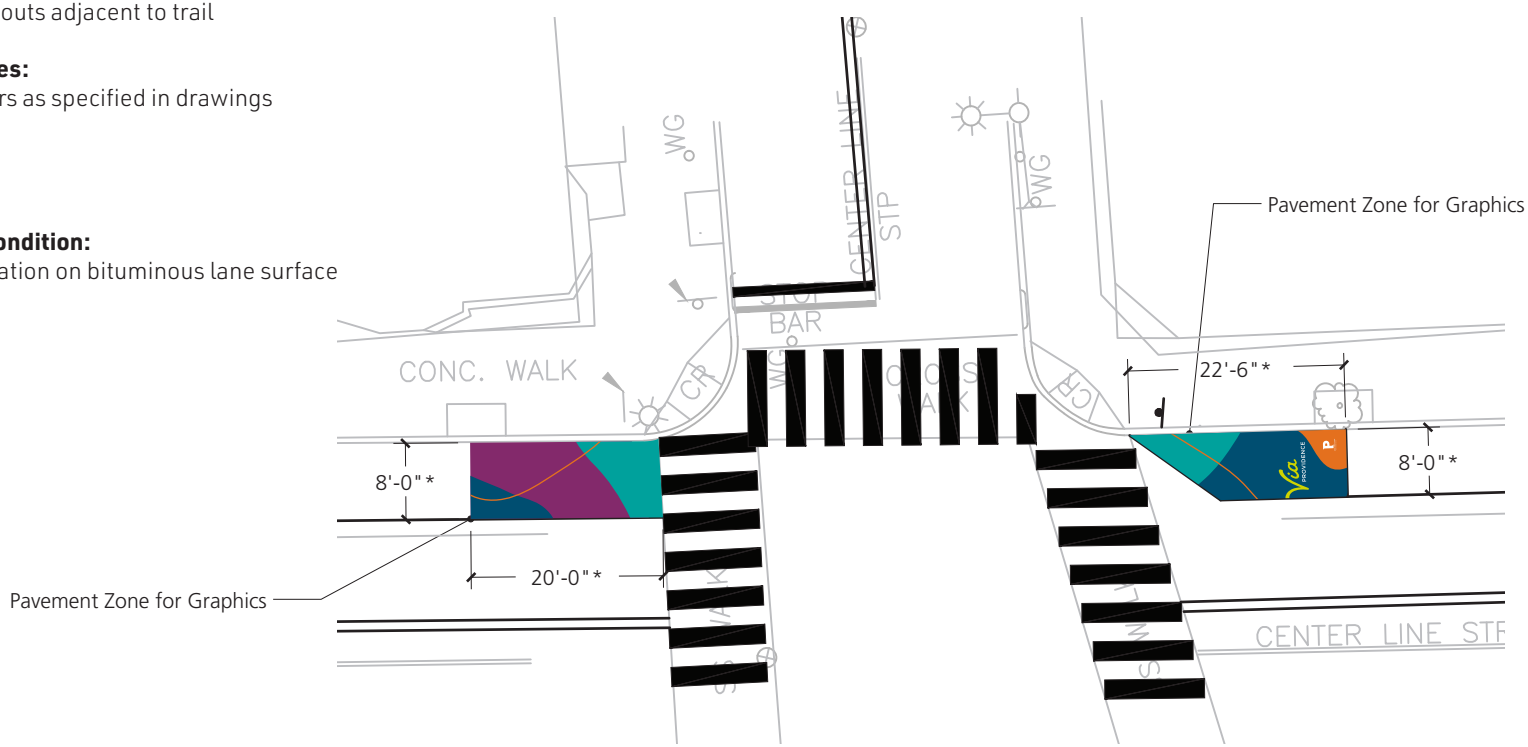
*Dimensions of graphic zones vary, to be determined by Engineer.

Criteria:
- Community engagement
- Branding
- At gathering areas such as bike share hubs or lane bumpouts adjacent to trail

Colors/Finishes:
Via Brand colors as specified in drawings

Typography:
N/A

Installation Condition:
Painted application on bituminous lane surface



Two-way Bike Lane
Scale: 1" = 20' - 0"

Sign Type 22:
Lane Graphics

Description:
Pavement marking painted stencil application on two-way and single bike lanes.

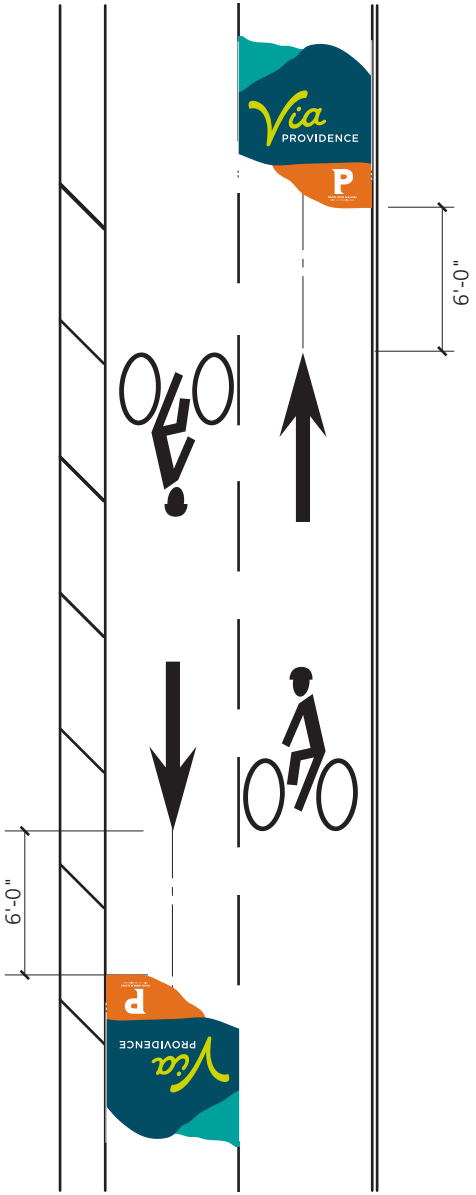
Criteria:
- Branding
- Companion to regulatory lane markings
- Interstitial with Trailblazers, not in place of
- Locations as directed by the Engineer

Colors/Finishes:
White

Typography:
N/A

Installation Condition:
Painted stencil application on bituminous lane surface

Scale: 1/2" = 1' - 0"



Two-way Bike Lane Condition
Scale: 1/8" = 1' - 0"

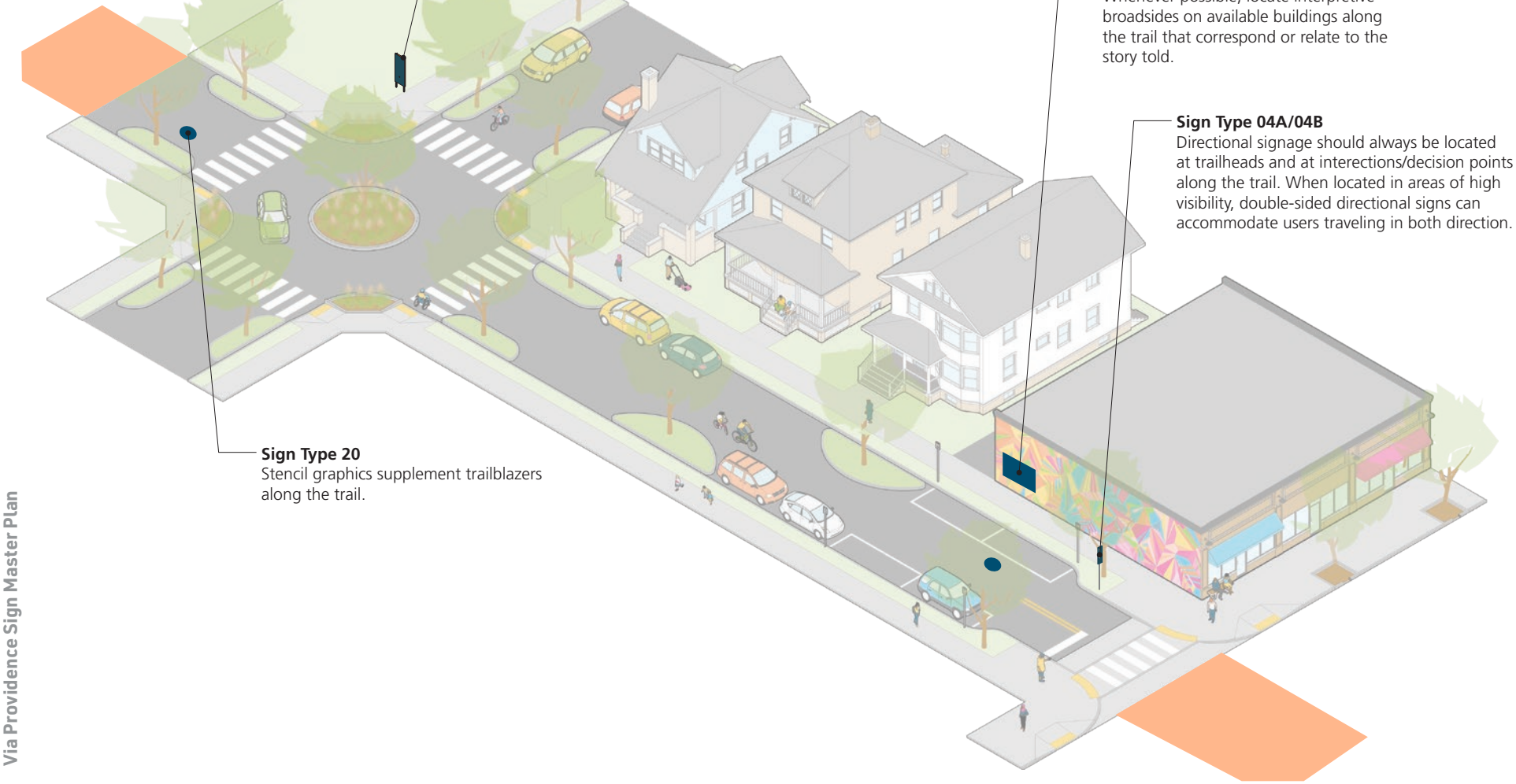
04
Streetscape Criteria

Neighborhood Street

Sign Type 05
Whenever possible, locate freestanding orientation maps in parks/green spaces where there is ample space for trail users to circulate the signage. Locating orientation maps in close proximity to crosswalks also allows for safe access on either side of the street.

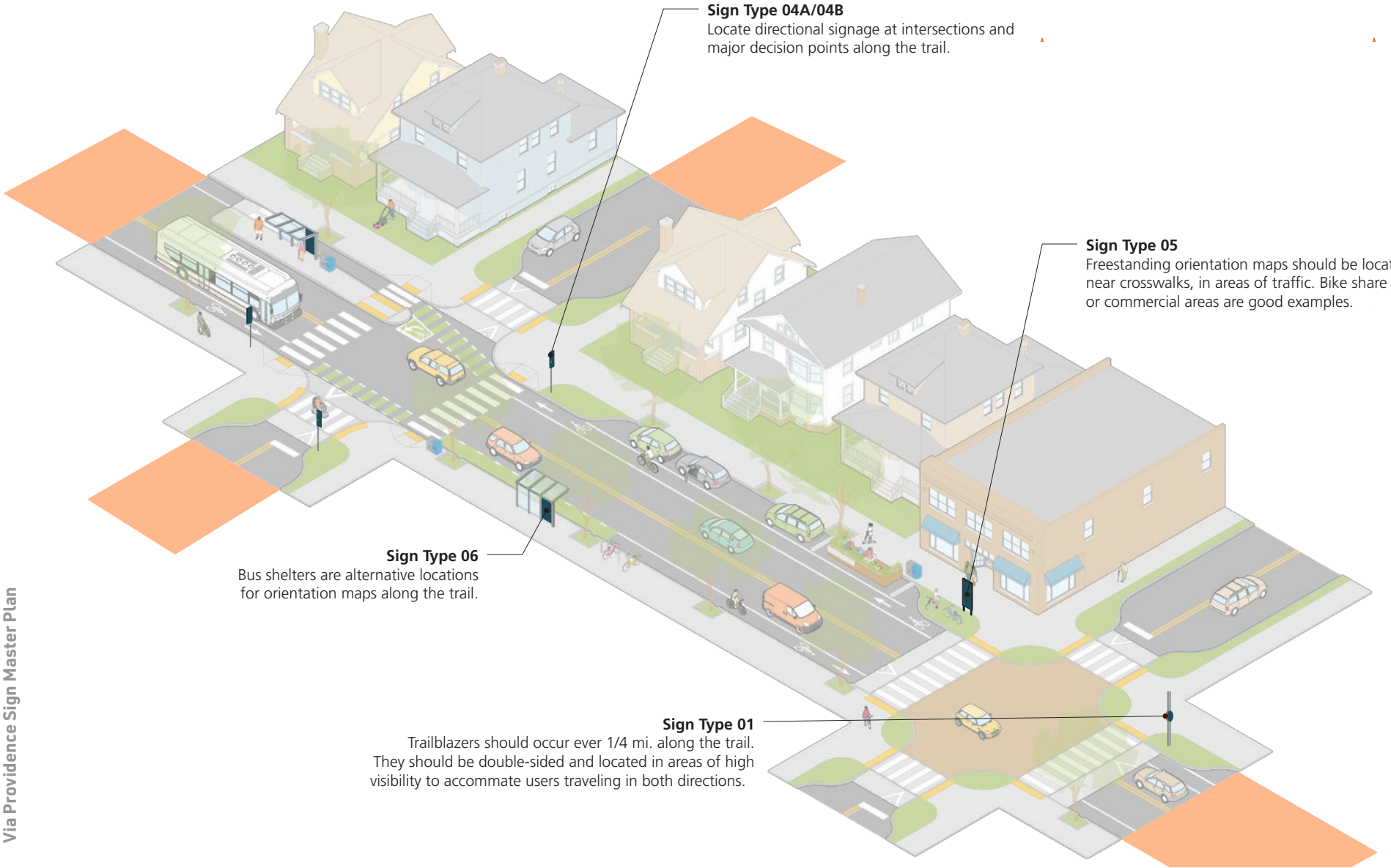
Sign Type 10
Whenever possible, locate interpretive broadsides on available buildings along the trail that correspond or relate to the story told.

Sign Type 04A/04B
Directional signage should always be located at trailheads and at interections/decision points along the trail. When located in areas of high visibility, double-sided directional signs can accommodate users traveling in both direction.



Sign Type 20
Stencil graphics supplement trailblazers along the trail.

Neighborhood Connector Street



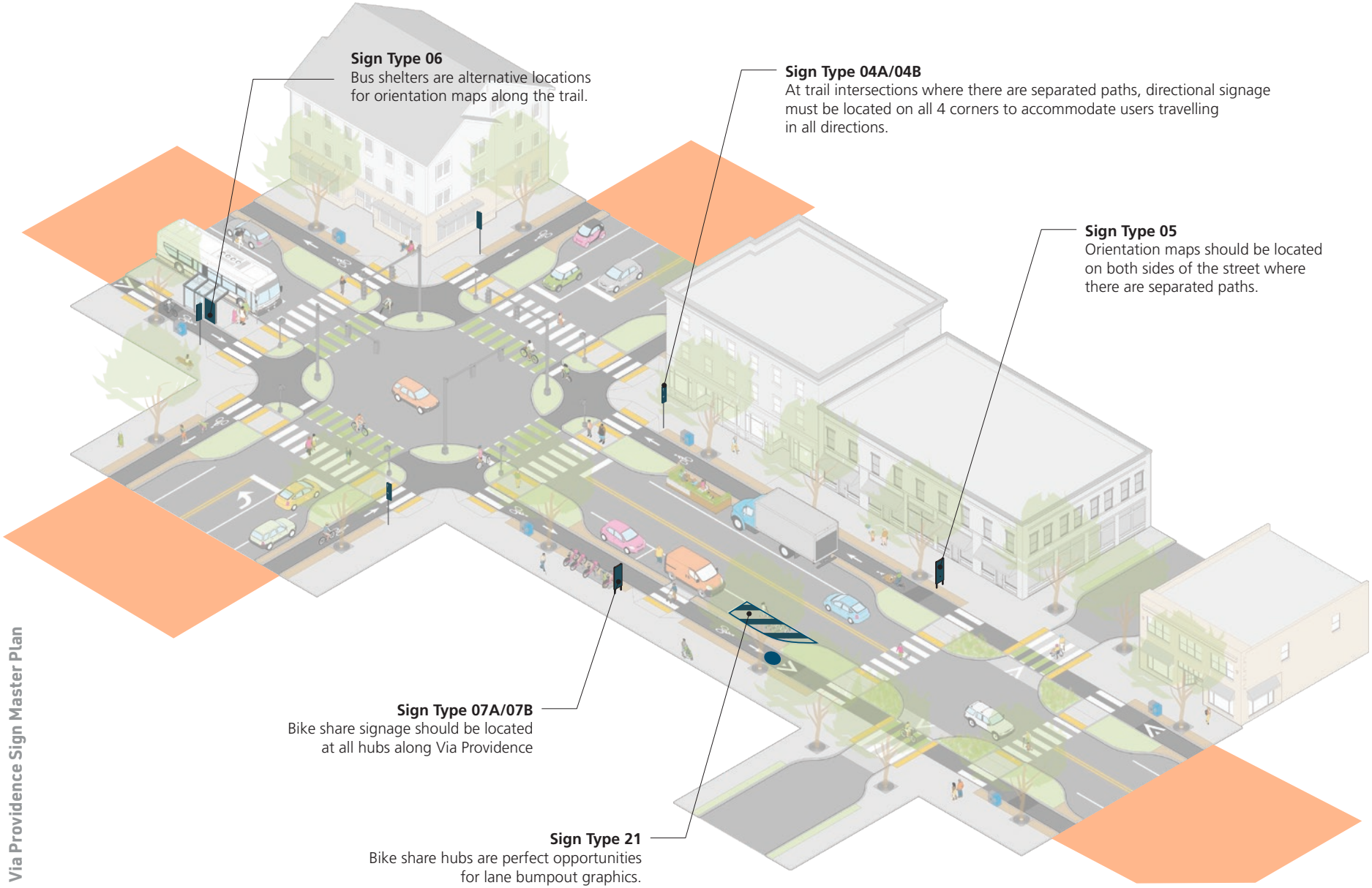
Sign Type 04A/04B
Locate directional signage at intersections and major decision points along the trail.

Sign Type 05
Freestanding orientation maps should be located near crosswalks, in areas of traffic. Bike share hubs or commercial areas are good examples.

Sign Type 06
Bus shelters are alternative locations for orientation maps along the trail.

Sign Type 01
Trailblazers should occur ever 1/4 mi. along the trail. They should be double-sided and located in areas of high visibility to accommate users traveling in both directions.

Neighborhood Main Street



Sign Type 06
Bus shelters are alternative locations for orientation maps along the trail.

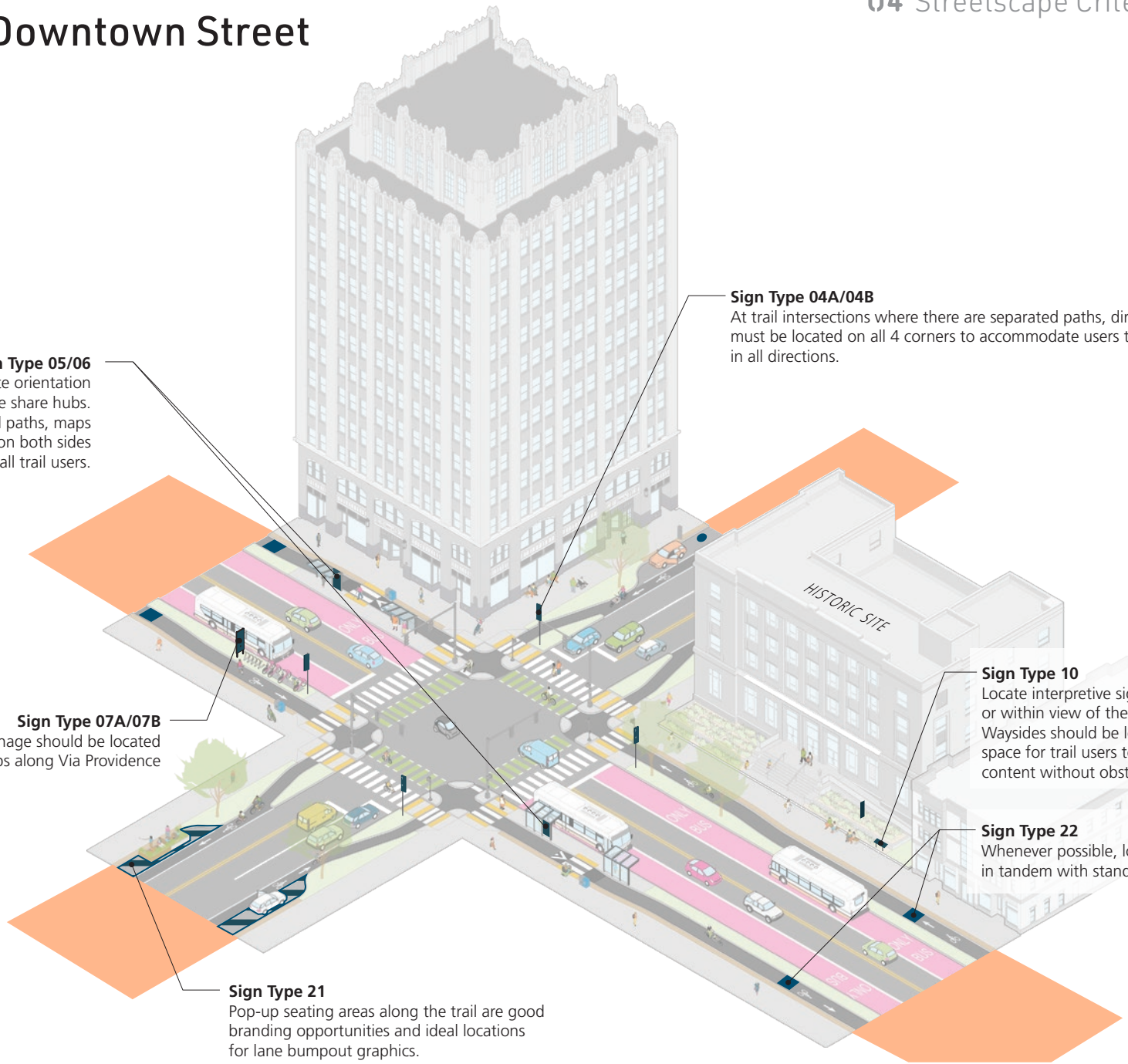
Sign Type 04A/04B
At trail intersections where there are separated paths, directional signage must be located on all 4 corners to accommodate users travelling in all directions.

Sign Type 05
Orientation maps should be located on both sides of the street where there are separated paths.

Sign Type 07A/07B
Bike share signage should be located at all hubs along Via Providence

Sign Type 21
Bike share hubs are perfect opportunities for lane bumpout graphics.

Major Downtown Street



Sign Type 05/06
Whenever possible, locate orientation maps near bus stops or bike share hubs. When there are separated paths, maps should always be located on both sides of the street to accommodate all trail users.

Sign Type 04A/04B
At trail intersections where there are separated paths, directional signage must be located on all 4 corners to accommodate users travelling in all directions.

Sign Type 07A/07B
Bike share signage should be located at all hubs along Via Providence

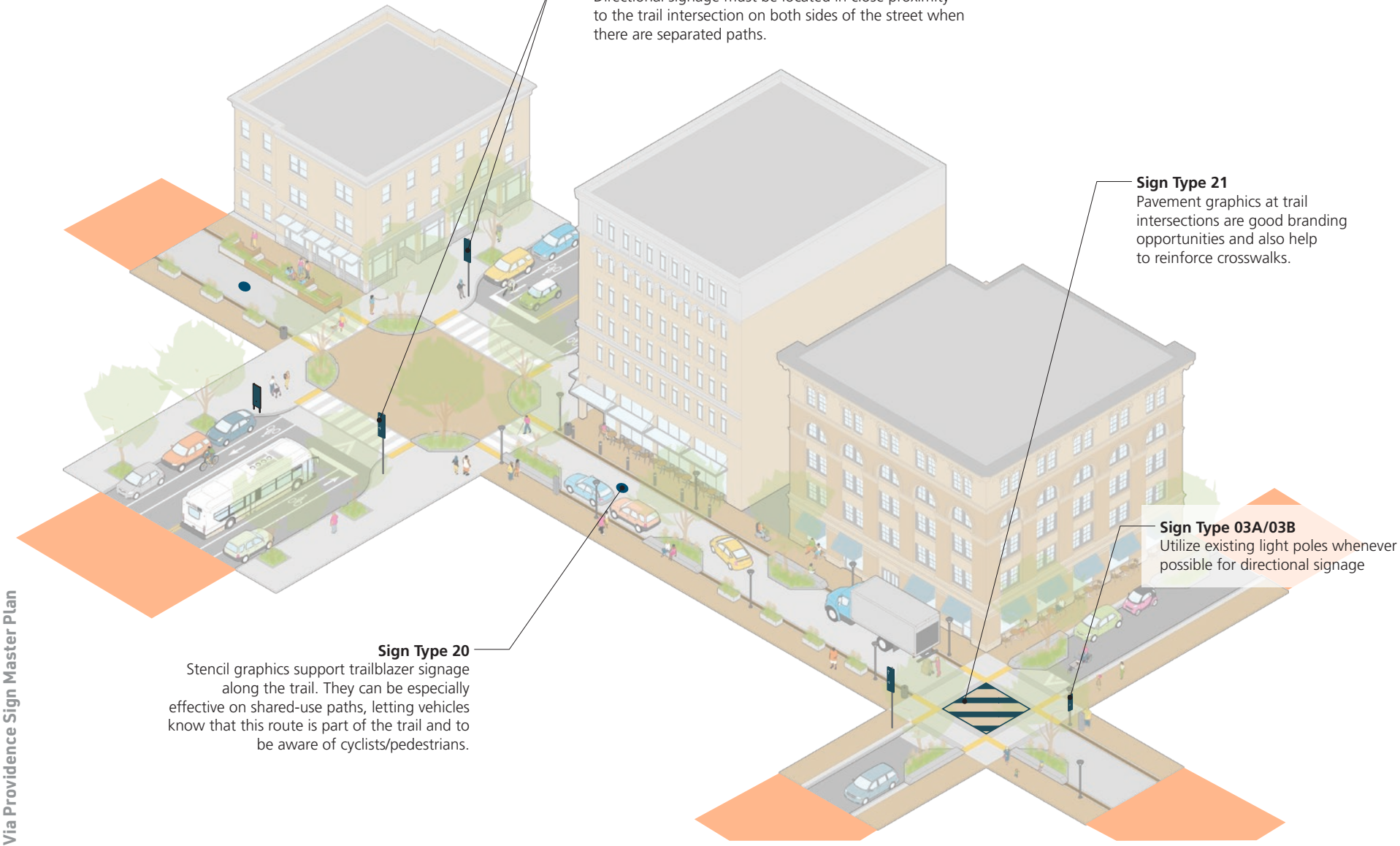
Sign Type 10
Locate interpretive signage at the site or within view of the site of the story told. Waysides should be located in areas that offer space for trail users to pause and read the content without obstructing the trail.

Sign Type 22
Whenever possible, locate lane graphics in tandem with standard regulatory markings.

Sign Type 21
Pop-up seating areas along the trail are good branding opportunities and ideal locations for lane bumpout graphics.

Minor Downtown Street

Sign Type 04A/04B
Directional signage must be located in close proximity to the trail intersection on both sides of the street when there are separated paths.

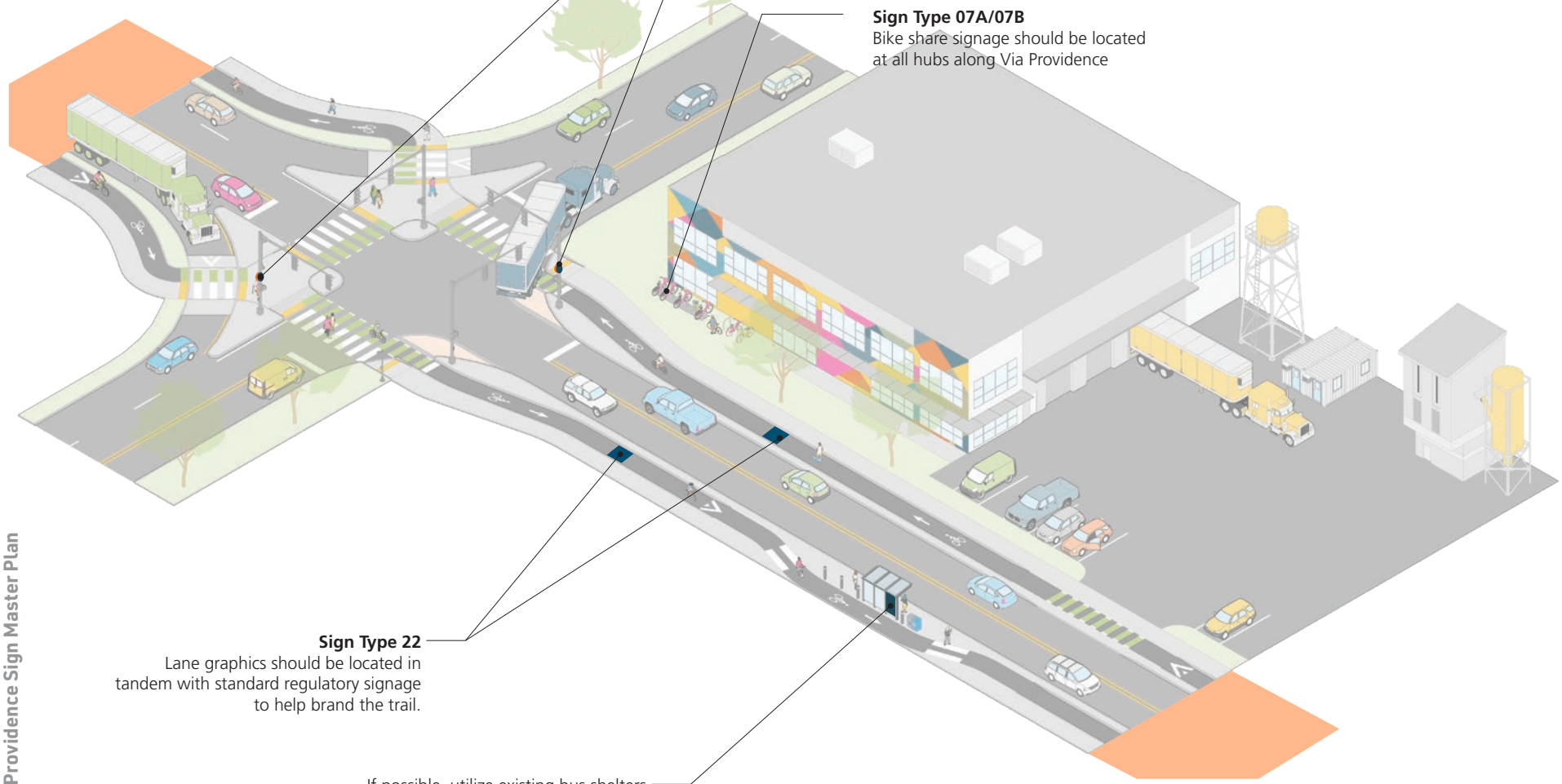


Sign Type 21
Pavement graphics at trail intersections are good branding opportunities and also help to reinforce crosswalks.

Sign Type 03A/03B
Utilize existing light poles whenever possible for directional signage

Sign Type 20
Stencil graphics support trailblazer signage along the trail. They can be especially effective on shared-use paths, letting vehicles know that this route is part of the trail and to be aware of cyclists/pedestrians.

Industrial Street



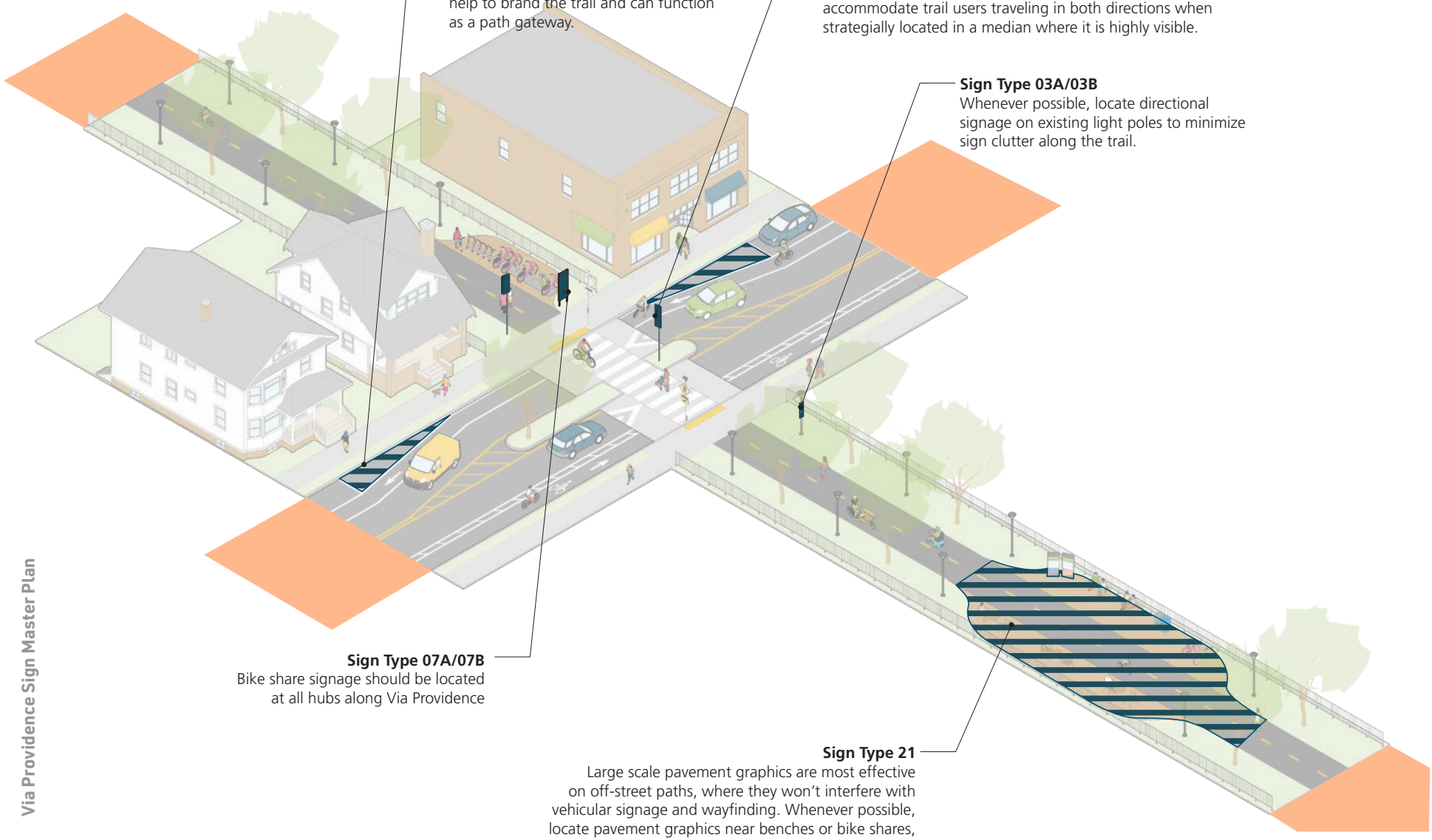
Sign Type 01
Locate trailblazers at jogs in the trail to provide reassurance to users. Signage should always be located on existing lightpoles, where they can be most visible.

Sign Type 07A/07B
Bike share signage should be located at all hubs along Via Providence

Sign Type 22
Lane graphics should be located in tandem with standard regulatory signage to help brand the trail.

If possible, utilize existing bus shelters when locating orientation maps to minimize sign clutter.

Off-Street Path



Sign Type 21
Lane graphics located at trail intersections help to brand the trail and can function as a path gateway.

Sign Type 04A/04B
A single double-sided freestanding directional sign can accommodate trail users traveling in both directions when strategially located in a median where it is highly visible.

Sign Type 03A/03B
Whenever possible, locate directional signage on existing light poles to minimize sign clutter along the trail.

Sign Type 07A/07B
Bike share signage should be located at all hubs along Via Providence

Sign Type 21
Large scale pavement graphics are most effective on off-street paths, where they won't interfere with vehicular signage and wayfinding. Whenever possible, locate pavement graphics near benches or bike shares, to establish a gathering place and help brand the trail.