A SUPPLEMENT TO *WALK.BIKE.THRIVE!*

BIKE TO RIDE:

AN IDEA BOOK OF REGIONAL STRATEGIES FOR IMPROVING BICYCLING ACCESS TO TRANSIT

ARC
ATLANTA REGIONAL COMMISSION

PRODUCED BY:

alta PLANNING + DESIGN

WITH SUPPORT FROM:

URBANTRANS NORTH AMERICA

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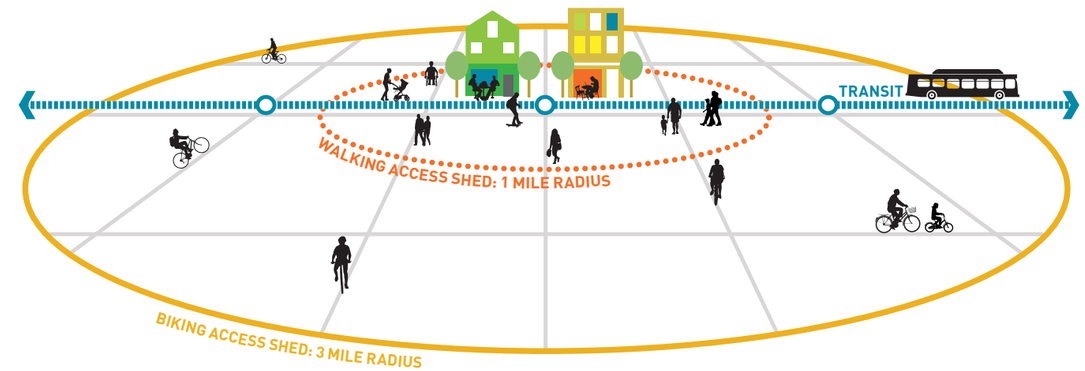
Metropolitan Atlanta Transit Authority North Ave Station, Atlanta, GA

INTRODUCTION

Making it easier for people to combine bicycling and transit can improve access to jobs, contribute to healthier lifestyles, reduce personal and household transportation costs, and increase transportation choice.

This document is a collection of bike-to-transit access and parking solutions that respond to common challenges experienced by transit providers and local jurisdictions in the Atlanta Region.

TRAVEL SHEDS:
AN ORGANIZING PRINCIPLE



Now and in the future, transit serves as the "spine" of the regional active transportation system for trips outside walking and biking access sheds.

INTRODUCTION

Bike to Ride: An idea book of regional strategies for improving bicycling access to transit advances one of 5 key strategies outlined in *Walk.Bike. Thrive!* to increase the share of trips made on foot or by bike:

"Work closely with transit providers to a) **improve access to transit stops** and b) improve the quality and quantity of transit service between mode shift opportunity zones **so walking and bicycling can be easily combined with transit for longer regional trips.**"

This document strives toward the following four goals as a means to advancing this vision:

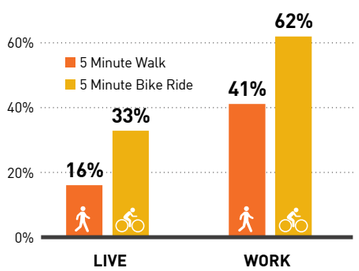
- **Improve roadways around transit** stops and stations
- **Improve access to transit** system at stops and stations
- **Mitigate transit and bikeway conflicts**
- **Improve bike parking at transit** stops and stations

In 2016, the Atlanta Regional Commission adopted a comprehensive regional vision for improving walking and bicycling titled *Walk. Bike. Thrive!* The plan envisions a future where the region is comprised of a series of walkable and bikeable neighborhoods connected by regional transit service.

The Conceptual Regional Walking and Biking System described in the plan acknowledges the critical role of transit in extending the range of bike trips and serving as the "spine" of the regional system for longer trips. The concept is rooted in an understanding of how people make mode choice decisions and observed trip distances for walking, bicycling, and transit trips in the region.

This study builds on *Walk.Bike. Thrive!*'s first organizing principle: a focus on short trips will allow the region to maximize the benefits associated with more walking and biking. At the regional scale, leveraging the benefits associated with higher walking and bicycling mode share means 1) prioritizing active transportation investments in parts of the region where land use and transportation networks naturally support options for short trips; and 2) ensuring that the regional system facilitates seamless transitions between active transportation and other modes, such as transit and driving, which are better suited to longer trips.

REGIONAL POPULATION AND EMPLOYMENT PROXIMITY TO TRANSIT



Source: 2010 US Census and ARC

CURRENTLY,

33%

OF THE REGION'S POPULATION LIVES WITHIN A 5 MINUTE BIKE RIDE OF A TRANSIT STOP

BUT ONLY

0.3%

OF PEOPLE ACCESS TRANSIT BY BIKE

REGIONAL ACCESS TO TRANSIT BY MODE

Mode of Access to Transit	To Transit	From Transit
Walked	72.4%	80.6%
Dropped off	14.0%	8.6%
Drove alone	10.6%	8.6%
Rode in vehicle then walked or biked	1.8%	1.1%
Carpool or vanpool	0.9%	0.9%
Bicycle	0.3%	0.3%

Source: Regional On-Board Transit Survey Final Report (2010)

PROBLEM STATEMENT

Walk.Bike.Thrive! documented that while a full third of Atlanta region residents live within a 5 minute bike ride of a transit stop, only 0.3% of people ride their bikes to or from transit stops. This finding highlights the fact that there are tremendous opportunities, as well as serious challenges, associated with increasing rates of bike-to-transit trips.

Rates of biking to and from transit stops are low in large part due to **challenging conditions for bicycling along many of the major corridors that connect to transit**, and a **lack of adequate bike parking at transit stops.** There are also a **psychological barriers:**

- MODE SWITCH LOGISTICS
  In a similar way that having to make a transfer may deter people from choosing transit for a given trip, having to switch from biking to a bus or train partway through a trip—including the mechanics associated with having to lock up one's bike and/or bring it with them on a transit vehicle — are likely to be unfamiliar and may feel overly complex.

- ANNOYANCE THRESHOLDS
  In addition to traffic stress tolerance, people also have a threshold for the cumulative amount of discomfort and inconvenience they encounter when attempting to combine a bike trip with a transit trip. This includes seemingly minor details such as a lack of shade trees on a hot summer day, short sections of a route where pavement quality is poor, vehicles parked in bike lanes, a lack of curb ramps leading up to a bus stop or rail station, or bike parking placement that makes locking up one's bike cumbersome.

- TRAVEL TIME BUDGETS
  Depending on the trip distance, trip type, and travel time relative to driving, combining a bike trip with a transit trip may exceed the amount of time they are willing to spend traveling to arrive at a given destination.

Encouraging multi-modal trip chaining, and in particular the combination of biking and transit, is challenging in light of these barriers. Moreover, it's unlikely that many people would consider combining a bike trip with a transit trip the "ideal" way to get anywhere.

Most people that are willing to consider riding a bike to the bus or a train likely fall into three categories:

1. People who would ideally prefer to make a short walking trip to transit, but their origin/destination is too far from the stop for this to be practical. A significant portion of these potential users are likely "Interested but Concerned" about biking and require a low stress bikeway to the transit stop – I.e. not just bike lanes on a busy street.

2. People who would ideally prefer to bike for the full duration of their trip, but their trip is too long, too hilly, or the weather isn't conducive to bicycling on that day. Many of these potential users may be enthusiastic and confident or interested but concerned bicyclists that demand secure long-term bike parking to protect their bike.

3. People who would ideally prefer to drive, but rely on transit to access the places they need to go on a daily basis. Neither transit nor bicycling may be this group's first choice, but they may ride a bike to a transit stop because walking distances are unreasonably long, because they are too young to drive, or because car ownership is not economically viable or efficient for them. The focus for these users should be on ensuring safe access with minimal delay.

WHO ARE WE PLANNING/DESIGNING FOR?

Potential user group	Barriers to selecting preferred mode	Priority Need
People who prefer transit	- Transit stop is not in walking distance	Low-stress bicycling facilities that connect to transit stop
People who prefer biking	- Desired trip is too long/hilly - Weather is not conducive to bicycling - A link in the trip exceeds user comfort level	Long-term, secure bicycle parking at transit stop and Low-stress bicycling facilities that connect to transit stop
People who prefer driving	- Under 16 years old - Driving is too expensive	Safe bicycling facilities that minimize delay to/from transit stop

PROPOSED SOLUTIONS

Making biking to transit an attractive alternative to driving requires overcoming a significant set of physical and psychological barriers. To make biking to transit a competitive option to driving, facilities that connect to transit and allow people to store their bicycles at transit stops must be held to a higher standard than is currently typical in the Atlanta region.

This means focusing on providing a truly world-class user experience, with **direct, low-stress bikeways** that minimize delay while meeting the needs of all ages and abilities. It also means providing **convenient, secure bike parking** at high-ridership bus stops, park and ride lots, and rail stations.

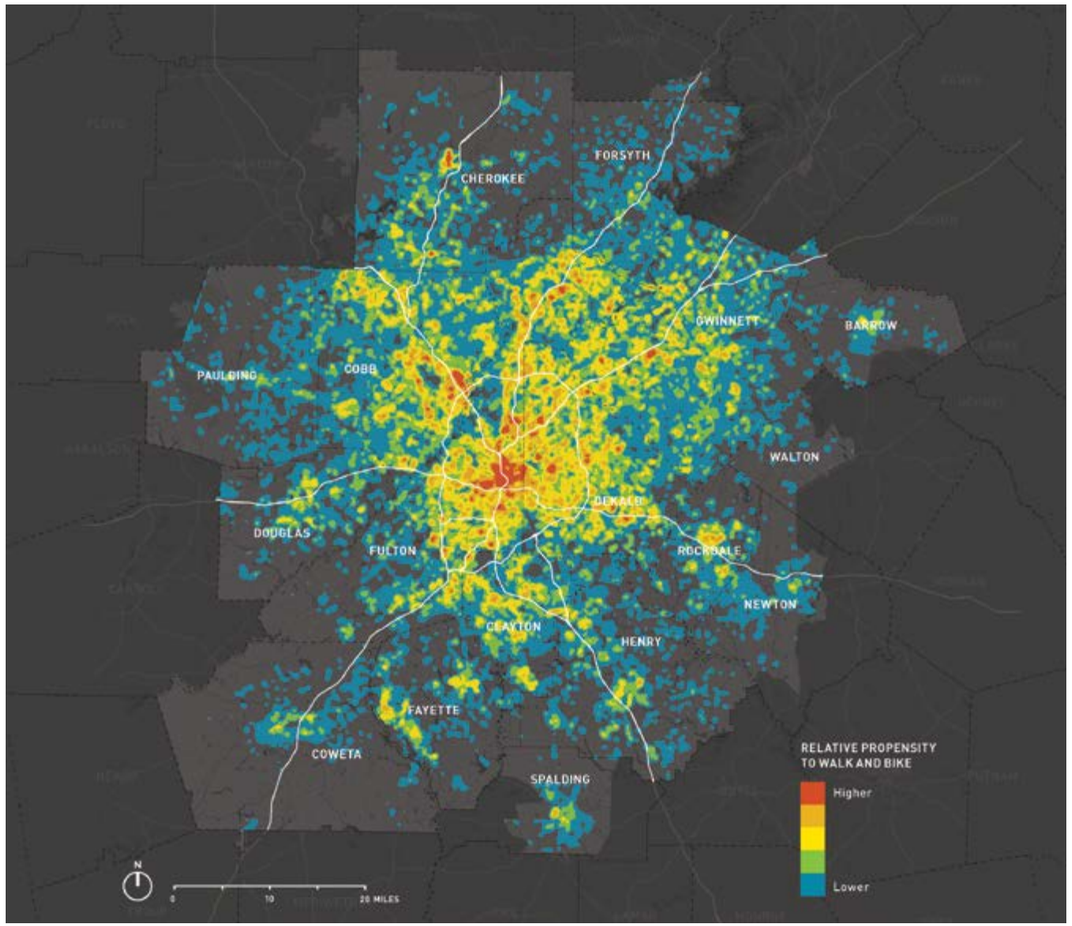
The guidance and solutions contained in this idea book, therefore, are intended to set a high standard for bike-to-transit access and bike parking solutions in the Atlanta region.

HOW TO USE THIS DOCUMENT: ACCESS TO TRANSIT

The application guidance associated with each bike access to transit idea is meant to inspire action, give general design and application guidance, and provide links to additional information from trusted sources. It is not intended to be a comprehensive facility design guide.

ROADWAY TYPE

The collection of roadways and multimodal facilities in a community creates a network that connects people bicycling to transit. There are varying levels of comfort associated with different roadway types, ranging from local, primarily residential streets to commercial arterial roadways. The quiet neighborhood streets are often most comfortable for people on bicycles. However, bus service, rail stations and park and ride lots are generally located on the major multi-lane collectors and arterials that are more challenging for bicyclists. Successful networks include bikeways that provide appropriate separation between bicyclists and vehicle traffic, with equitable access regardless of income level.



Walking and Biking Propensity (*Walk.Bike.Thrive!* Part 2 pg 24-25) is one of the factors to consider when selecting the appropriate bikeway type.

SPEED AND VOLUME

Motor vehicle operating speeds and the volumes on a roadway are key considerations in selecting the most appropriate bicycle and pedestrian facilities along a particular roadway. Generally speaking, the greater the speed and volume of motor vehicle traffic, the greater the amount of separation is desired for comfortable biking and walking facilities. Where streets have low volumes and low speeds, the need for separation is less critical, and mixing modes may be appropriate.

The speed and volume chart summarizes how speed and volume affect possible facility options.

- **Preferred Application Range:** identifies roadway conditions where a facility functions particularly well. This range is intended to set a high bar for facility application.
- **Potential Application Range:** refers to conditions where the facility type has also been shown to function and may be provide an appropriate context for using the facility.

WALKING & BIKING PROPENSITY

Walking and biking propensity describes the estimated relative demand for walking and biking, as documented in *Walk.Bike.Thrive!* (opposite page). This analysis was based on population density, employment density, trails, parks, transit service, schools, and retail. Generally speaking, the higher the demand for walking and biking, the more the area should invest in creating a great walking and biking network.

IMPLEMENTATION DIFFICULTY

Implementation costs considered include planning, design, construction, and maintenance.

ROADWAY TYPE
On which part of a roadway network is the facility type likely to be applicable?

SPEED AND VOLUME
Where is the facility type most appropriate, based on typical speed and volume of motor vehicles?

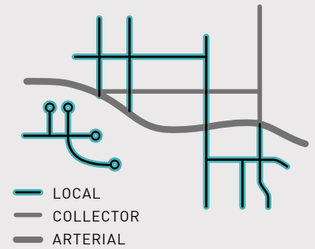
WALKING & BIKING PROPENSITY
At what level of demand for walking and biking infrastructure is this facility or concept applicable?

IMPLEMENTATION DIFFICULTY
How difficult is it to implement and maintain this type of facility or idea?

Example Application

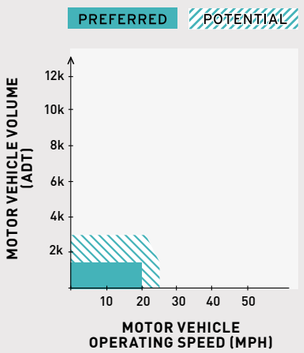
ROADWAY TYPE

Local residential streets that connect to transit stops. Not appropriate for high-frequency bus routes.



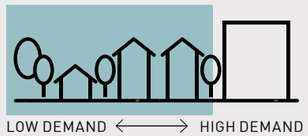
SPEED AND VOLUME

For use on roads with low vehicle speeds and volumes.



WALKING & BIKING PROPENSITY

For use in built-up parts of the region with at least some potential for bicycling. Not appropriate in rural or undeveloped contexts.



IMPLEMENTATION DIFFICULTY

Requires a small investment for planning, design, and construction.

HOW TO USE THIS DOCUMENT: BIKE PARKING AT TRANSIT

The application guidance associated with each bike parking at transit idea is meant to inspire action, give general design and application guidance, and provide links to additional information from trusted sources. It is not intended to be a comprehensive facility design guide.

TRANSIT SERVICE TYPE

Transit in the Atlanta region comes in several different forms. Characteristics of the transit service and its stops or stations correlate loosely with which type of bike parking is most appropriate. For example, local bus routes usually have stops that are relatively close together, so demand is more diffuse. Relative to MARTA rail service, overall demand for bike parking at bus stops is likely to be lower. Where stations or stops are further apart and there is more space for bike parking, like with MARTA rail and regional express commuter buses, there may be more concentrated demand or demand for more secure, long term options.

The transit service types highlighted in the application bar are for general guidance purposes only. In some cases there may be exceptions where special circumstances, like popular intersecting bus routes that merit installing bike parking that is more secure and suitable for longer-term storage.

SPACE REQUIREMENTS

Available space at a stop or station can dramatically impact the bike parking options. Many of the treatments in this document are modular and can come in a variety of sizes. For the purposes of understanding what is feasible, the application bar provides a "minimum" and a "potential" size.

- **Minimum Size Requirements:** identifies the minimum amount of space required to install a single unit of the treatment. For the secure, long-term parking options, a single unit generally includes one row of parking spaces with enough circulation space to get bikes in and out of the space. For short-term parking options, one unit would be a single inverted "U" rack, which holds two bicycles.
- **Potential Size Range:** refers to the space that could potentially be occupied by the bike parking treatment where there is unusually high demand. In theory, any bike parking could be as large as the demand dictates, but the "potential" sizes provided here reflect a reasonably high level of demand that may be found in the Atlanta region's transit stops and stations now or in the foreseeable future.

TIME

Short-term bike parking provides a convenient place to lock a bike with only basic protection from theft and limited to no protection from environmental elements beyond the owner's lock. Short term parking is appropriate where most users are not expected to leave their bikes for more than two hours or where spacial limitations make long term parking unfeasible.

Long-term bike parking, or Bike Secure Parking Areas (SPAs) provide additional security with an enclosed structure and managed access. It is a good option where users are expected to store their bikes for more than two hours, and especially for a full day or longer. Long-term parking is more expensive and requires more space, but it can offer a return on investment if the operator charges users a fee, as is customary with many secure bike parking systems.

In some cases, users may treat short-term parking like long-term parking if they do not desire the added security or if the membership/fee requirement is a barrier. While uncommon, users may also use long-term secure bike parking for shorter periods of time if they require the added security.

IMPLEMENTATION DIFFICULTY

Implementation costs considered include planning, design, construction, and maintenance. With many types of bike parking, there may be opportunities to partner with other organizations or adjacent property owners to share the responsibility of providing bike parking.

TRANSIT SERVICE TYPE
For which transit stop types is this parking type most appropriate?

SPACE REQUIREMENTS
What is the minimum amount of space required for this parking type? How much space could potentially be used for high demand locations?

TIME
Is this parking type most appropriate for short-term or long-term storage?

IMPLEMENTATION DIFFICULTY
How difficult is it to implement and maintain this type of facility or idea?

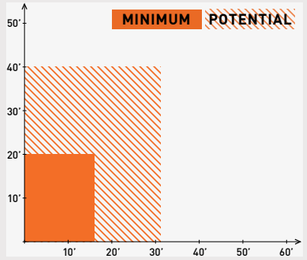
Example Application

TRANSIT SERVICE TYPE

Regional commuter express bus, and heavy rail rapid transit. Also useful at major transit centers regardless of transit vehicle type. Potentially suitable for local bus stops with high ridership

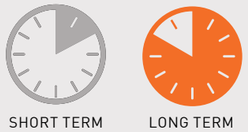
SPACE REQUIREMENTS

At least 16' x 20' to accommodate one row of inverted "U" or double-stacked racks, a 5' access aisle, and one row of vertical hanging racks. 31'x20' for freestanding indoor bike room with two rows of bikes and access hallway.



TIME

Most useful in locations where bikes are expected to be parked for two hours or longer.



IMPLEMENTATION DIFFICULTY

Moderate investment required for the purchase, site planning, and installation of pre-fabricated structures.

NETWORK PLANNING + PROJECT PRIORITIZATION

Identifying appropriate bike routes and bicycling treatments along roadways that connect to transit stops requires an understanding of existing conditions as well as a vision for how the transportation system will function in the future. Transit access should be a factor in prioritizing proposed bikeway projects.

Portland, OR

Network Planning + Project Prioritization

BIKE NETWORKS

Bikeways come in multiple forms, including on-street bike lanes and bicycle boulevards in addition to off-street facilities such as trails and greenways. Bikeways should form a logical hierarchy of facility types that serve different functions (i.e. higher speed commuter routes vs. low stress family-friendly routes) and appeal to the full range of users. Bikeways should be safe, connected, convenient, comfortable and inclusive.

KEY FACTORS TO CONSIDER DURING BIKE NETWORK PLANNING

- Biking propensity (see *Walk.Bike.Thrive!* Part 2 pg 24-25)
- Equitable Target Area designation (see *Walk.Bike.Thrive!* Part 2 pg 44 and 62-63)
- Bicycling Crash Risk (see *Walk.Bike.Thrive!* pg 26-27, 39, 43-44)
- Activity Center designation (see *Walk.Bike.Thrive!* Part 2 pg 66)
- Level of Traffic Stress for bicycling along corridor
- Opportunities and constraints for accommodating biking along corridor (right-of-way, existing and projected traffic volumes, posted speed limits, lane widths)
- Route directness and legibility
- Existing and planned bike share station locations
- Freight and emergency routes

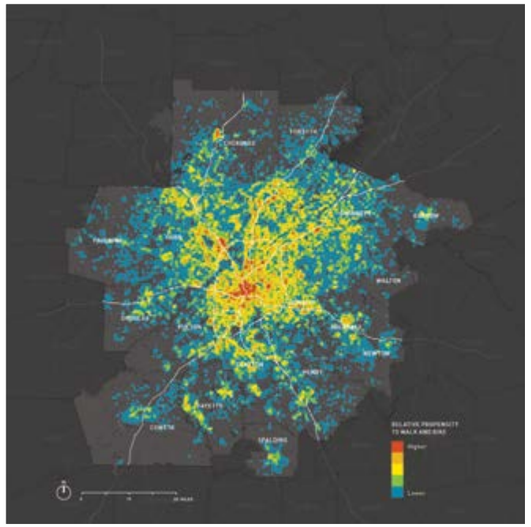
PRIORITIZING INVESTMENT

During the planning process for *Walk.Bike.Thrive!*, the Atlanta Regional Commission developed a location-based score card. This tool is now being used to prioritize investments in active transportation and align spending with ARC's stated policy goals. Projects focused on making biking to transit safe and convenient should consider the factors included in the score card during the scoping phase.

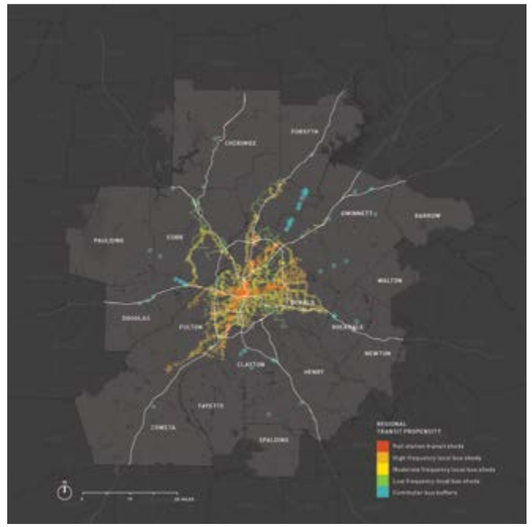
Regional Active Transportation Score Card

ARC utilizes **a location-based project scoring card for submitted active transportation projects** that includes the following factors:

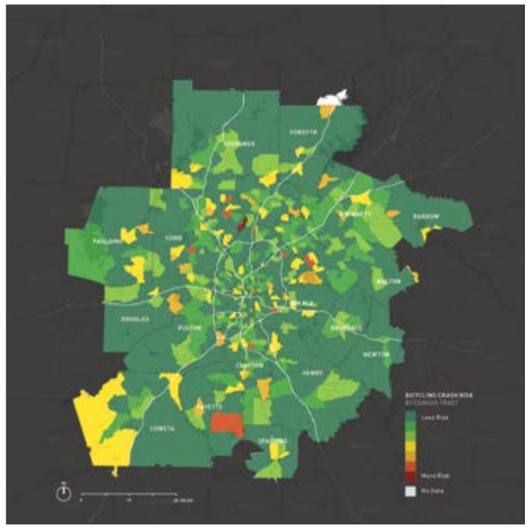
- ☑ Is the project located in an area where there is high demand and propensity for walking and bicycling?
- ☑ Is the project located in an equitable target area? And if so, does it serve the mobility needs of the populations that rely on walking, bicycling, and transit most?
- ☑ Is the project located in a designated Activity Center?
- ☑ Is the project located in an area with high propensity for transit use?
- ☑ Is the proposed project located in an established Walk Friendly Community or Bike Friendly Community with adopted local strategies for successful implementation?
- ☑ Is the project located in an area with historically high crash rates for people walking and biking? If so, does the project address an identified safety issue? These areas include "hot spot areas" with concentrated walking and biking safety issues as well as systemic safety issues, such as along major commercial corridors.



Walking and Biking Propensity
(*Walk.Bike.Thrive!* Part 2 pg 24-25)

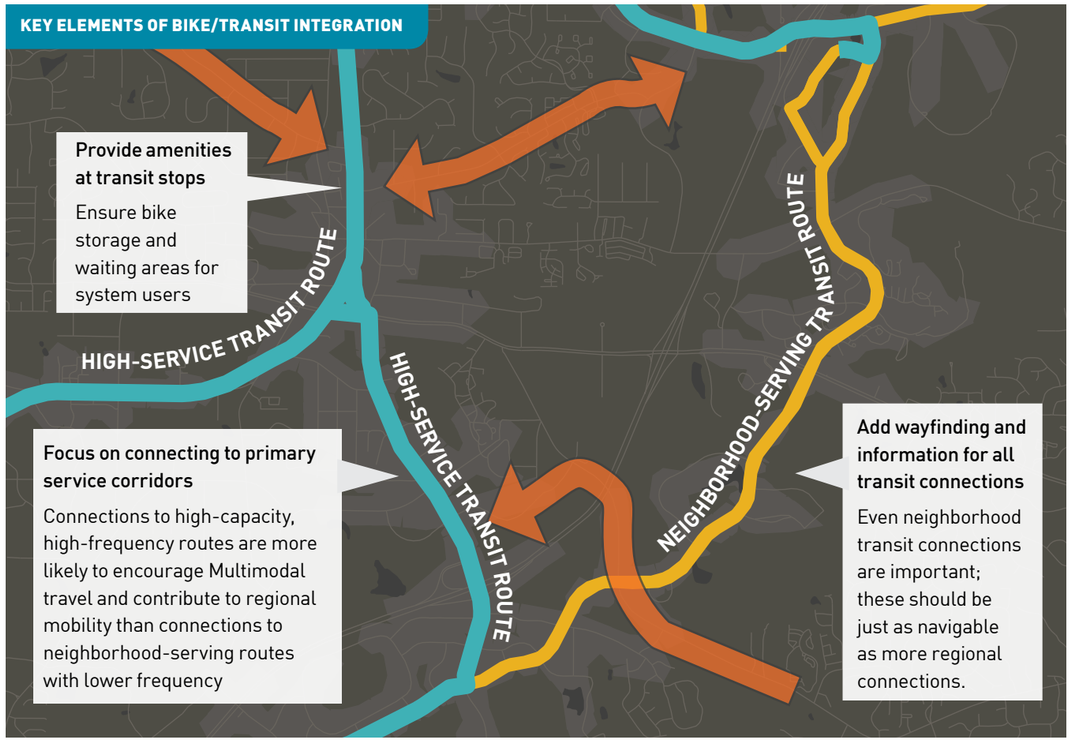


Transit Propensity
(*Walk.Bike.Thrive!* Part 2 pg 32-34)



Bicycling Crash Risk
(*Walk.Bike.Thrive!* Part 2 pg 39)

Trails and Equitable Target Areas
(*Walk.Bike.Thrive!* Part 2 pg 66)



INTEGRATING TRANSIT AND BIKE NETWORKS

Creating seamless transitions between bicycling and transit requires coordination between transit providers and the cities and counties that plan and construct local bikeway networks. Transit agencies can focus on factors like bicycle-friendly stop/station configuration, while cities and counties can focus on building bikeways that link to existing transit service.

BIKE-SPECIFIC FACTORS FOR TRANSIT PLANNING

- Transit has great potential to compliment regionwide bicycling by connecting otherwise disjointed nodes of bikability.
- For new or modified routes, place stops/stations at intersections with bike routes where possible.
- Longer distances between bus stops results in fewer bus-bike conflict points. This should not drive decision-making about stop spacing, but is one factor.
- Side boarding island stops are the preferred configuration for bus or streetcar stops alongside bike lanes (see NACTO Side Boarding Island Stop)

TRANSIT-SPECIFIC FACTORS FOR BIKE PLANNING

- Transit propensity (see *Walk.Bike. Thrive!* Part 2 pg 32-34)
- Transit service frequency and capacity: coordinate with transit provider
- Transit stop spacing: coordinate with transit provider
- Transit agency plans for service expansion, relocation, or elimination
- Potential for transit routes to connect equitable target areas to regional employment areas
- Current condition of transit stops and stations

STATION/STOP AREA CHECKLISTS

This checklist is designed to help evaluate whether or not a transit stop/station and the area immediately surrounding it are bike-friendly. It can be used during planning processes led by transit agencies or cities/counties that have an interest in facilitating more combined bike + transit trips.

OUTSIDE THE STOP OR STATION

- Is there a safe way to reach the stop or station by bike?
  - Do any of the streets near the stop or station have bikeways?
  - Do you feel safe crossing the streets immediately adjacent to the stop or station on a bike?
- Is there signage leading bicyclists to the stop or station?
- Do you have to cross the path of cars or buses to enter the station on a bike?
  - If Yes, are crosswalks, green conflict markings, and appropriate signs and signals provided?
- Is there room on the sidewalks and paths leading to the stop or station for you to walk with our bike?
- Is it easy to roll a bike from the street to the sidewalk and enter the station without lifting the bike?

INSIDE THE STATION / AT THE STOP

- If there are multiple station levels, is it easy to roll a bike between them?
  - Is there a ramp?
  - Is there a functioning elevator?
  - Is there a wheel channel on the staircase?
- Are there visible and clear signs leading to bike parking, elevators or ramps?
- Is it easy to roll a bike through the fare gate/turnstile (for rail stations)?
- Is there a clear and level waiting area?
- Are there objects like benches or trash cans obstructing movement on the waiting area?
- Is there space at the waiting area to lean a bike so the bicyclist doesn't have to hold it?
- Does the waiting area have information about where bikes go on the transit vehicle?

BIKE PARKING

- Is there bike parking?
  - Are there bikes locked up to objects that are not bike racks? How Many?
  - Is the parking immediately visible?
  - Is the rack designed to create at least two points of contact with a bicycle frame?
  - Is the parking one of the "good" styles shown at the bottom of this page?
  - Is the rack far enough away from walls, other bike racks, and other obstacles?
  - Is the parking protected from weather?
  - Is the parking area well lit?
  - Is bike parking offered both inside + outside the fare gate (for rail stations)?

Bike Parking Examples

Graphics courtesy Association of Pedestrian and Bicycle Professionals Essentials of Bike Parking Report (2015)

Boulder, CO has developed a program for counting bike trips, including displays that show live information with number of cyclists per year and per day.

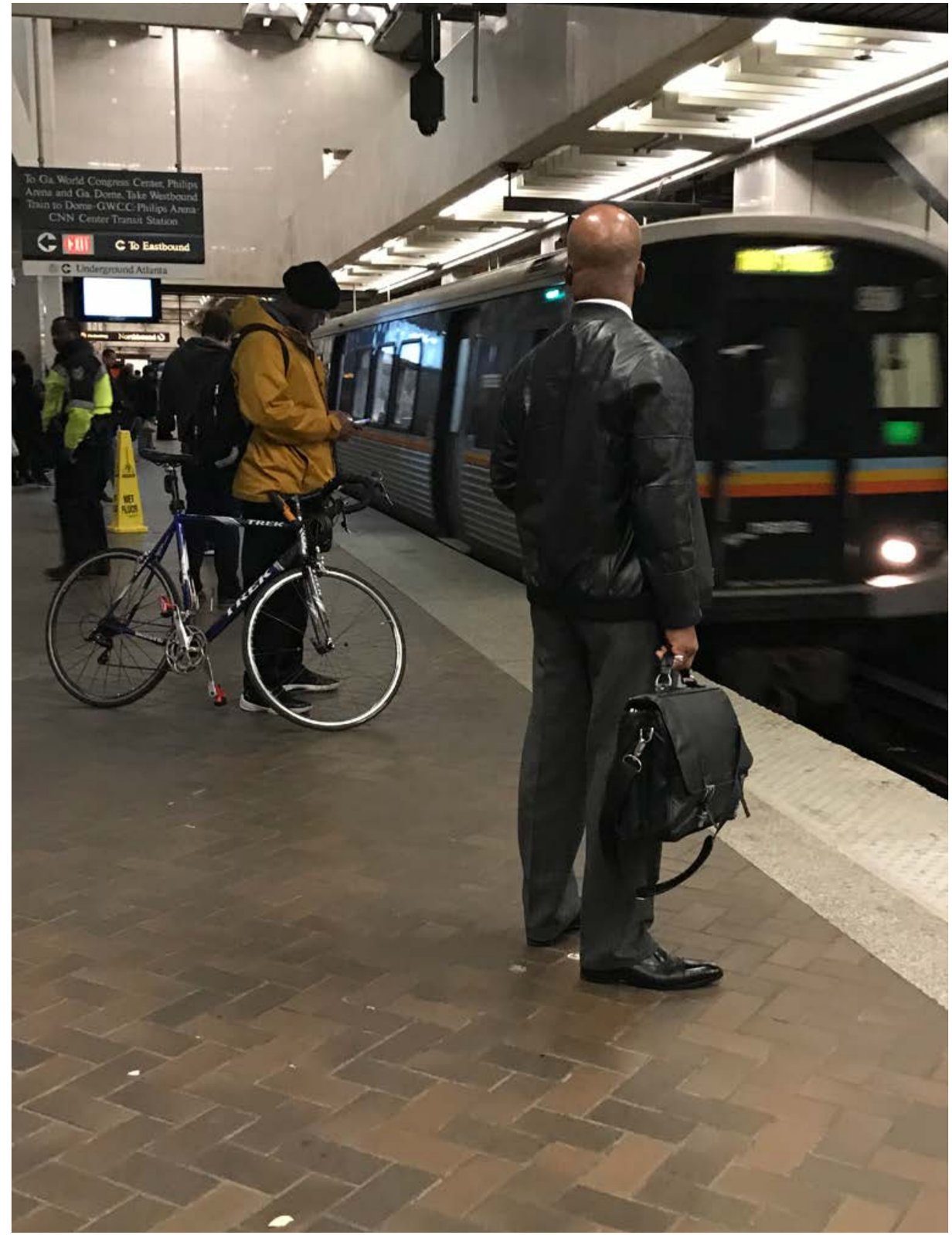
EVALUATION

Regional Bike to Transit Performance Measures

Performance measures are critical for evaluating the long-term progress of linking bike and transit trips. Some measures should be process oriented – such as the amount of effort going to development and building – and some should be outcome oriented – such as the number of people boarding and alighting transit with bikes. Long-term data can help regional and local decision-makers understand where improvements need to be made, where investments should be prioritized, and how bike to transit trips are positively contributing to the region.

ARC encourages use the following measures to evaluate progress on regional bike to transit activity:

- Bicycle counts in vicinity of transit stop or station (focus on key access routes)
- Stop/station-level boardings/alightings
- Stop/station-level bicycle boardings/alightings
- User patterns and perceptions (via surveys)
- Bike mode share in the census tract encompassing the stop/station
- Bike share usage in vicinity of a stop/station
- Bike parking utilization (at formal parking facilities)
- Degree of informal bike parking occurring.
- Number of new sign-ups and/or renewals for secure bike parking facilities (if/where some form of registration/reservation/request is required)
- Level of spending for active transportation infrastructure in vicinity of a stop or station
- Number of visits to pertinent agency websites related to bike/transit access
- Intersection density within stop/station area (3 mi radius)
- Proportion of the roadway network with bikeways (3 mi radius around stop/station)



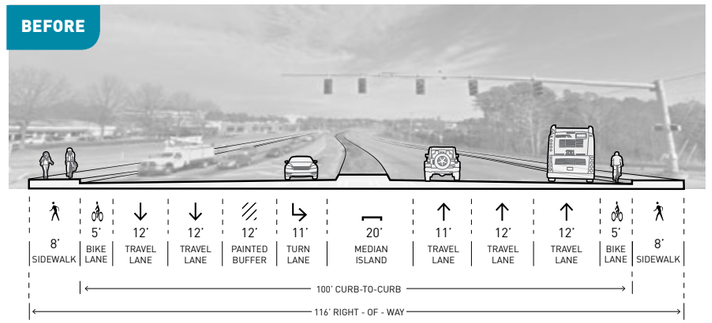
MITIGATING BIKE-BUS CONFLICTS

The main conflict between bus operations and bicyclists is that both modes of transportation often need to utilize the same part of the road at bus stops. Buses pull to the right of the road to pick up waiting passengers, forcing bicyclists to stop behind the bus or merge into adjacent travel lanes. When buses make in-lane stops on streets with bike lanes, it creates a conflict between people biking and people attempting to get on or off buses. Bus islands, also known as side-boarding island stops, eliminate these conflicts while facilitating accessible in-lane stops.

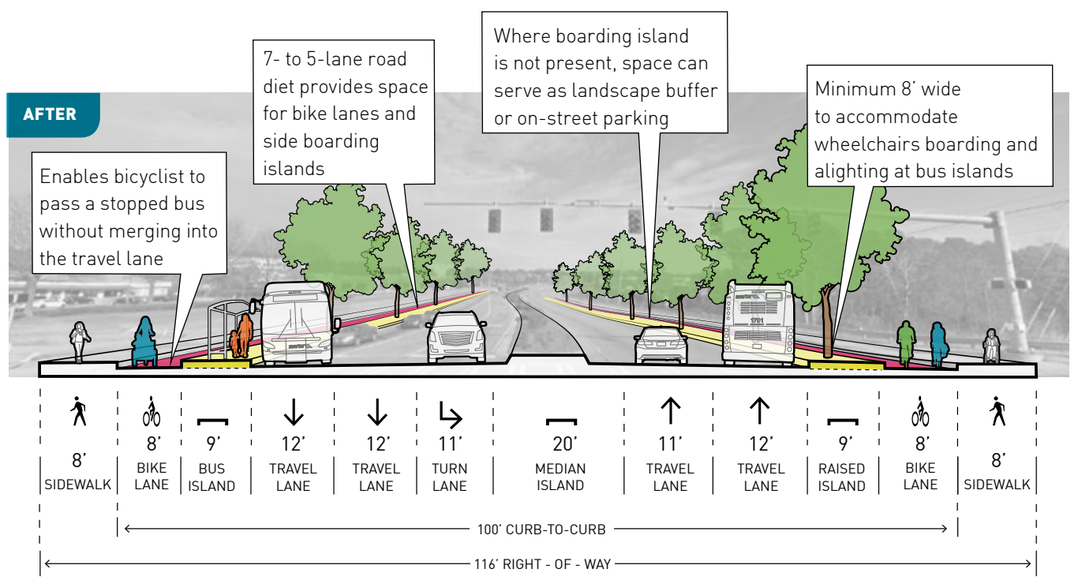
Dexter Ave Separated Bike Lanes with Side Boarding Islands, Seattle, WA

IDEA:

Separated Bike Lanes with Integrated Side Boarding Islands



Raised boarding islands, also known as side-boarding island stops, are dedicated waiting and boarding areas for transit passengers that eliminate conflicts between transit vehicles and people bicycling at bus stops. Raised boarding islands improve safety and comfort by preserving exclusive space for bicycling at bus and streetcar stops, and also improve the efficiency of transit operations by enabling accessible in-lane stops with level or near-level boarding. Boarding islands may be integrated with separated bike lane design as shown here or use a "floating" design as shown on pg 40.



Precedents

Seattle, WA

Chicago, IL

Vancouver, BC

References

NACTO *Urban Bikeway Design Guide*: Cycle Tracks

NACTO *Transit Street Design Guide*: Side Boarding Island Stop

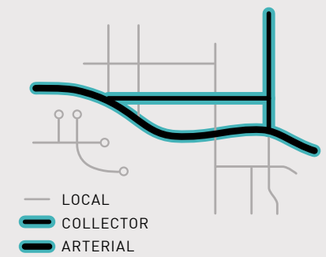
FHWA *Separated Bike Lane Planning and Design Guide*

MassDOT *Separated Bike Lane Planning & Design Guide*: Chapter 5: Curbside Activity Design

Application

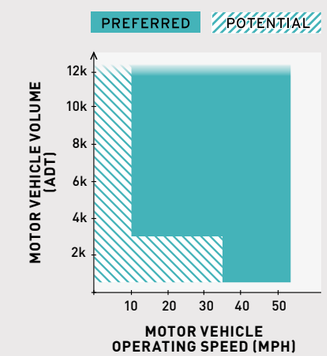
ROADWAY TYPE

Serves primary connections on high-frequency bus and streetcar routes.



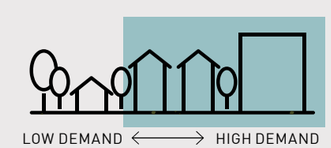
SPEED AND VOLUME

For use on roads with moderate to high vehicle speeds and volumes.



WALKING & BIKING PROPENSITY

For use in parts of the region with moderate to high walking, biking, and transit propensity.

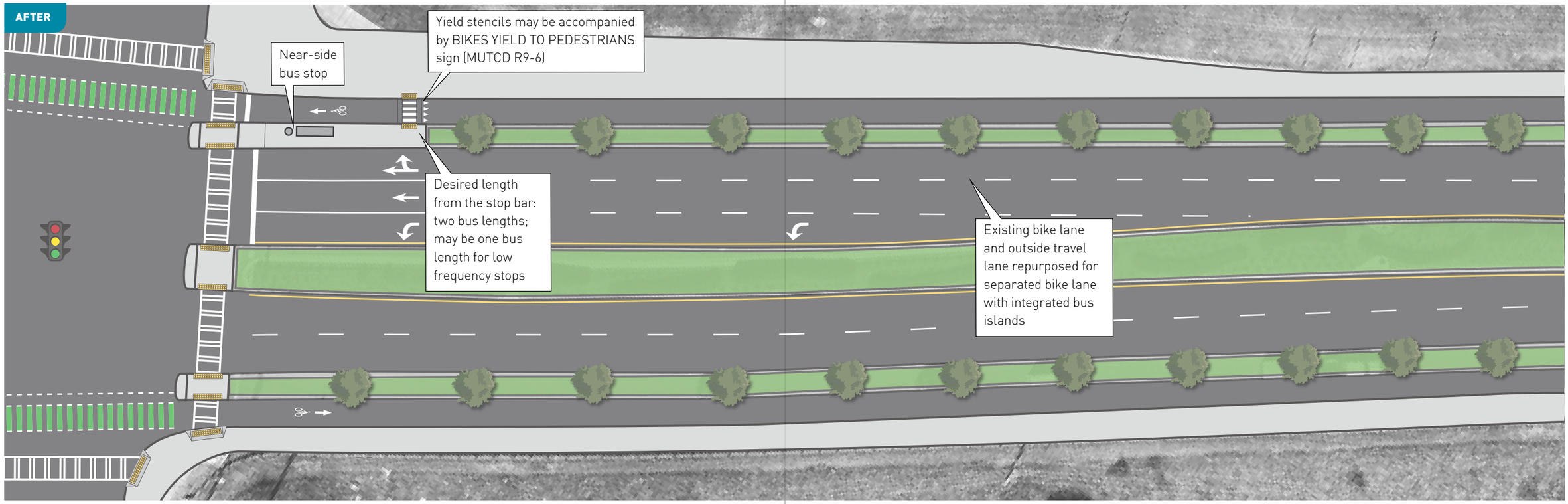


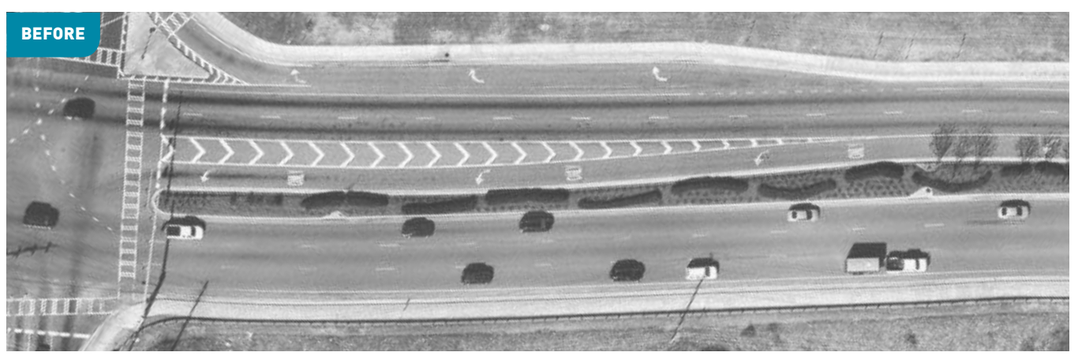
IMPLEMENTATION DIFFICULTY

Requires a significant investment for planning, design, and construction.

IDEA:

Separated Bike Lanes with Integrated Boarding Islands

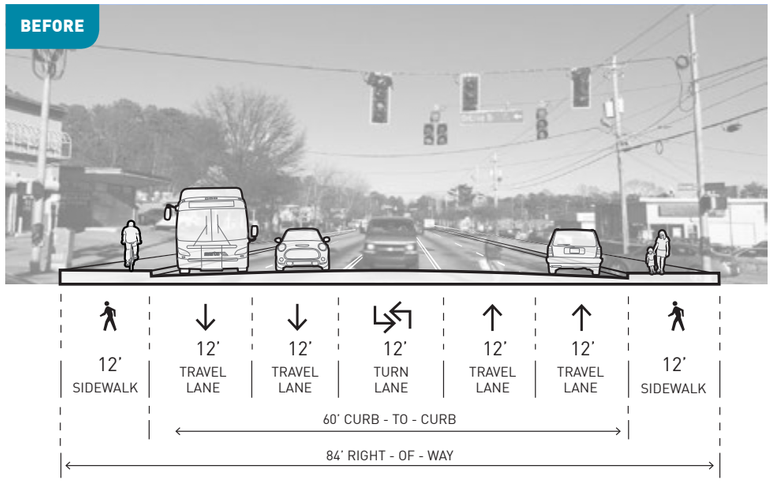


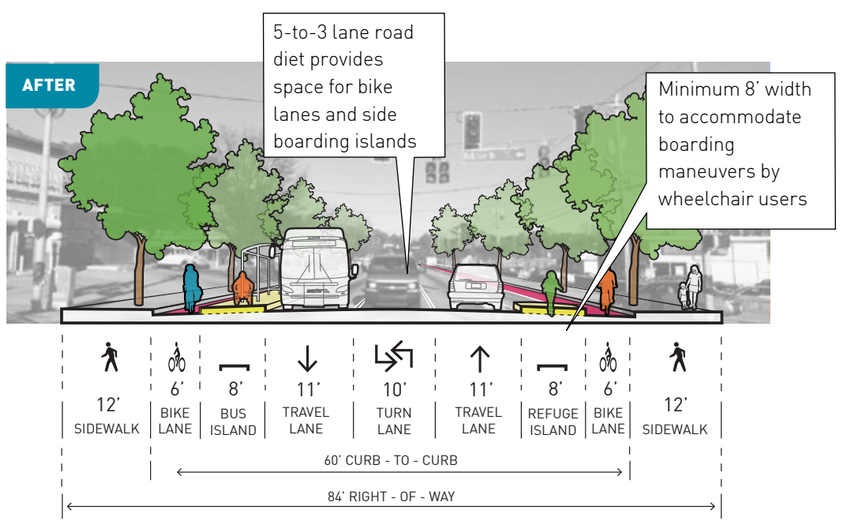


IDEA:

Buffered Bike Lanes with Floating Boarding Islands

Raised boarding islands are dedicated waiting and boarding areas for transit passengers that eliminate conflicts between transit vehicles and people bicycling at bus stops. Raised boarding islands improve safety and comfort by preserving exclusive space for bicycling at bus and streetcar stops, and also improve the efficiency of transit operations by enabling accessible in-lane stops with level or near-level boarding. Boarding islands may be "floating" as shown here or integrated with separated bike lane design as shown on pg 36.





Precedents

Seattle, WA

Los Angeles, CA

Austin, TX

References

NACTO *Urban Bikeway Design Guide*: Buffered Bike Lanes

NACTO *Transit Street Design Guide*: Side Boarding Island Stop

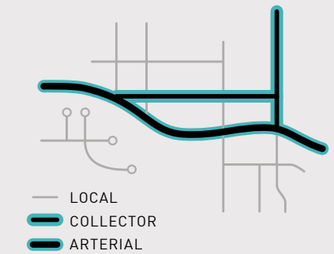
FHWA *Separated Bike Lane Planning and Design Guide*

MassDOT *Separated Bike Lane Planning & Design Guide*: Chapter 5: Curbside Activity Design

Application

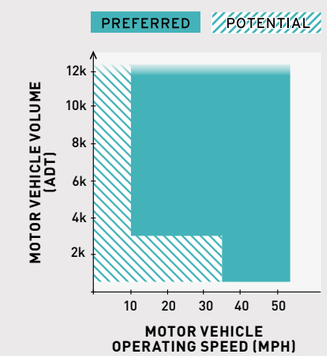
ROADWAY TYPE

Serves primary connections on high-frequency bus and streetcar routes.



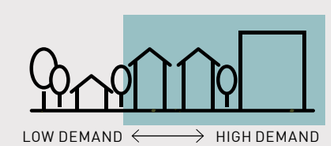
SPEED AND VOLUME

For use on roads with high motor vehicle volumes, and moderate to high speed motor vehicle traffic.



WALKING & BIKING PROPENSITY

For use in parts of the region with moderate to high walking, biking, and transit propensity.

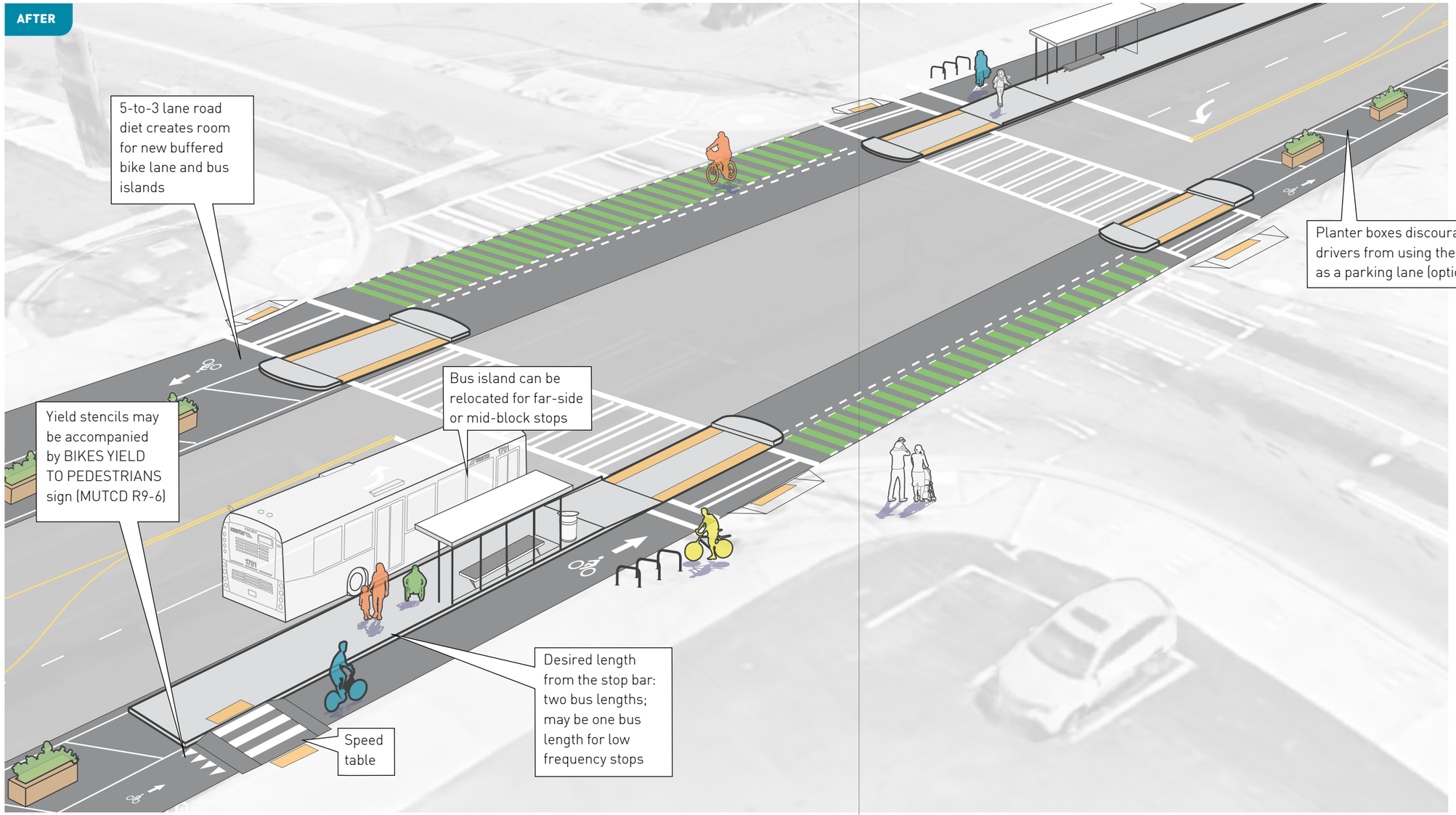


IMPLEMENTATION DIFFICULTY

Requires a significant investment for planning, design, and construction.

IDEA:

Buffered Bike Lanes with Floating Boarding Islands



BIKE-FRIENDLY PARK & RIDE LOTS

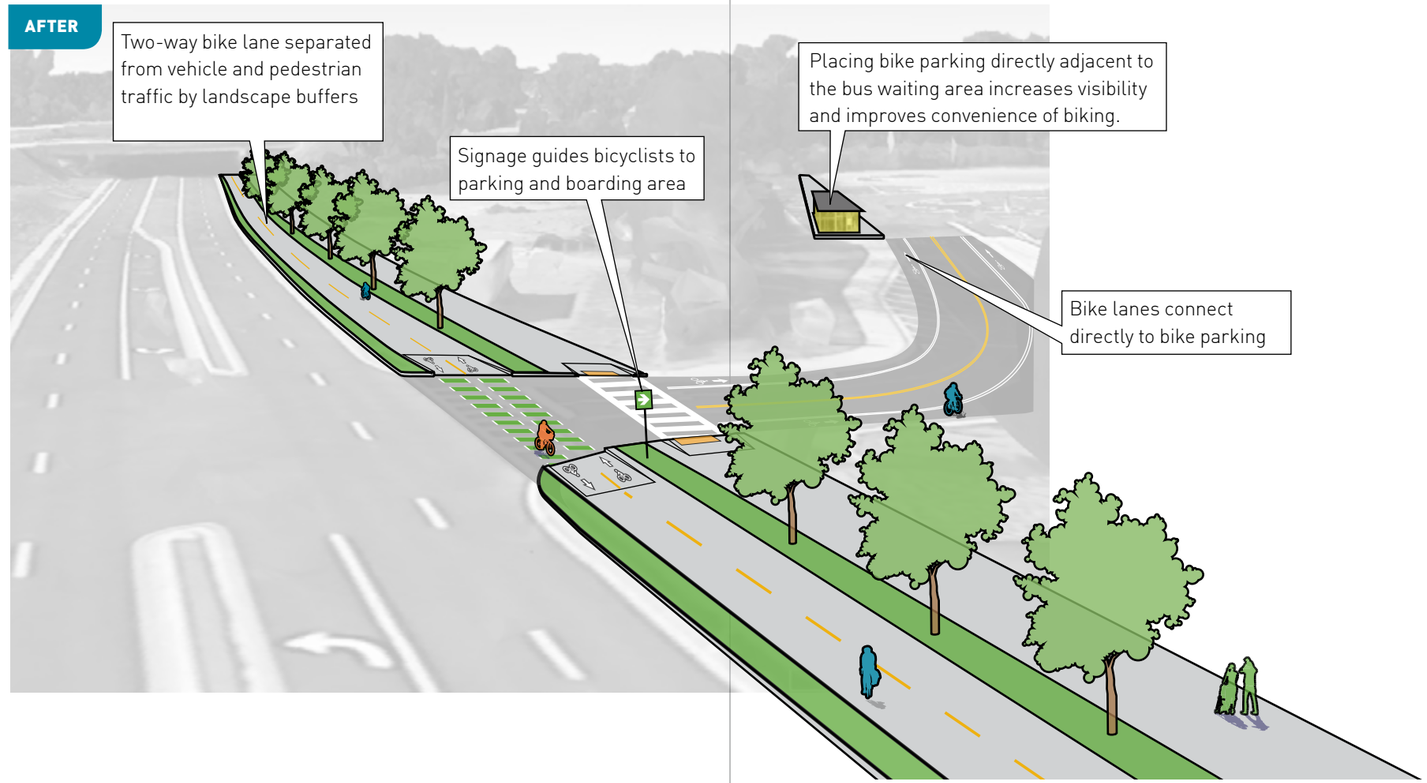
Park and ride lots expand the catchment area of transit service by providing a convenient way for users to drive to transit. However, their typically auto-oriented context can be a barrier to cyclists. Key elements like marked internal circulation and placement of entrances can help make biking more comfortable.

Bay Area Rapid Transit Park and Ride Facility, Freemont, CA

IDEA:

Bike-Friendly Park & Ride Lots

Bicycle access to park and ride lots should be considered at three scales. First, it should work at the neighborhood scale by connecting it to local bike routes. Second, park and ride lots are most often located off of major roads, so the bike infrastructure along such roads that provide access to park & ride lots should be robust enough to accommodate the widest possible range of potential users. Where the bikeway meets the entrance to the park & ride facility, signage and pavement markings should make the transition intuitive. Finally, internal bike circulation should minimize conflicts between modes, be clearly marked, and lead bicyclists directly to the bike parking and waiting area.



Precedents

Freemont, CA

Freemont, CA

Freemont, CA

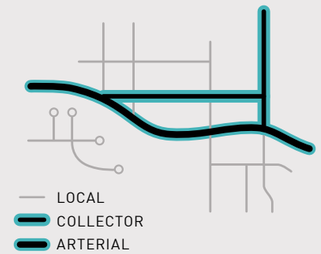
References

City of Los Angeles *Bikeable Design: A Toolkit for Bike-Friendly Development:* Wayfinding Signs (pg 17), Lighting (pg 18), Network Connections (pg 19)

Application

ROADWAY TYPE

Park and Ride lots are typically on major streets in a suburban context

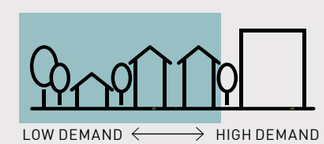


SPEED AND VOLUME

Park and Ride Lots are typically on roads with high speeds and volumes. The facility providing bike access to the lot should provide adequate separation from vehicle traffic.

WALKING & BIKING PROPENSITY

For use in parts of the region with low to moderate walking, biking, and transit propensity.

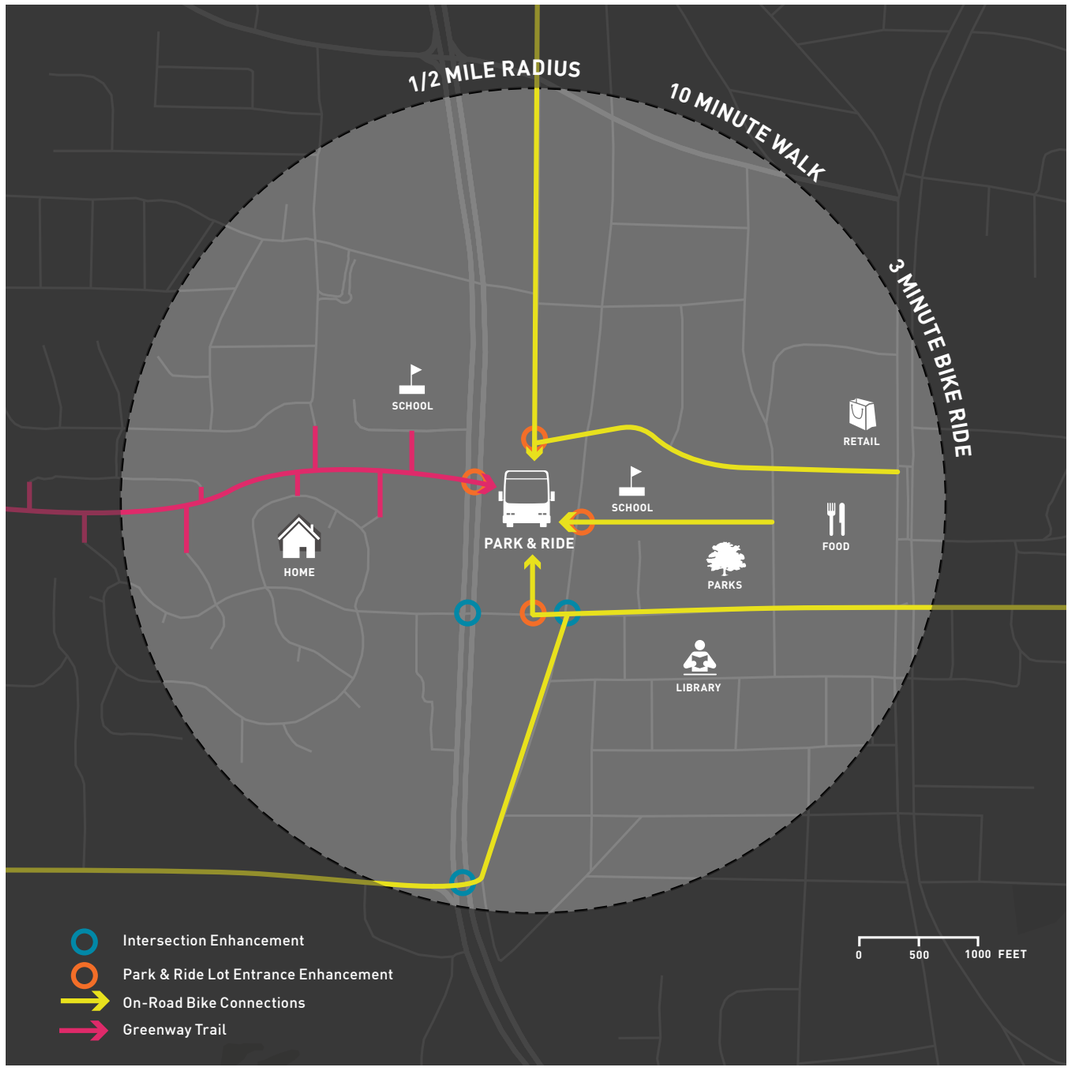


IMPLEMENTATION DIFFICULTY

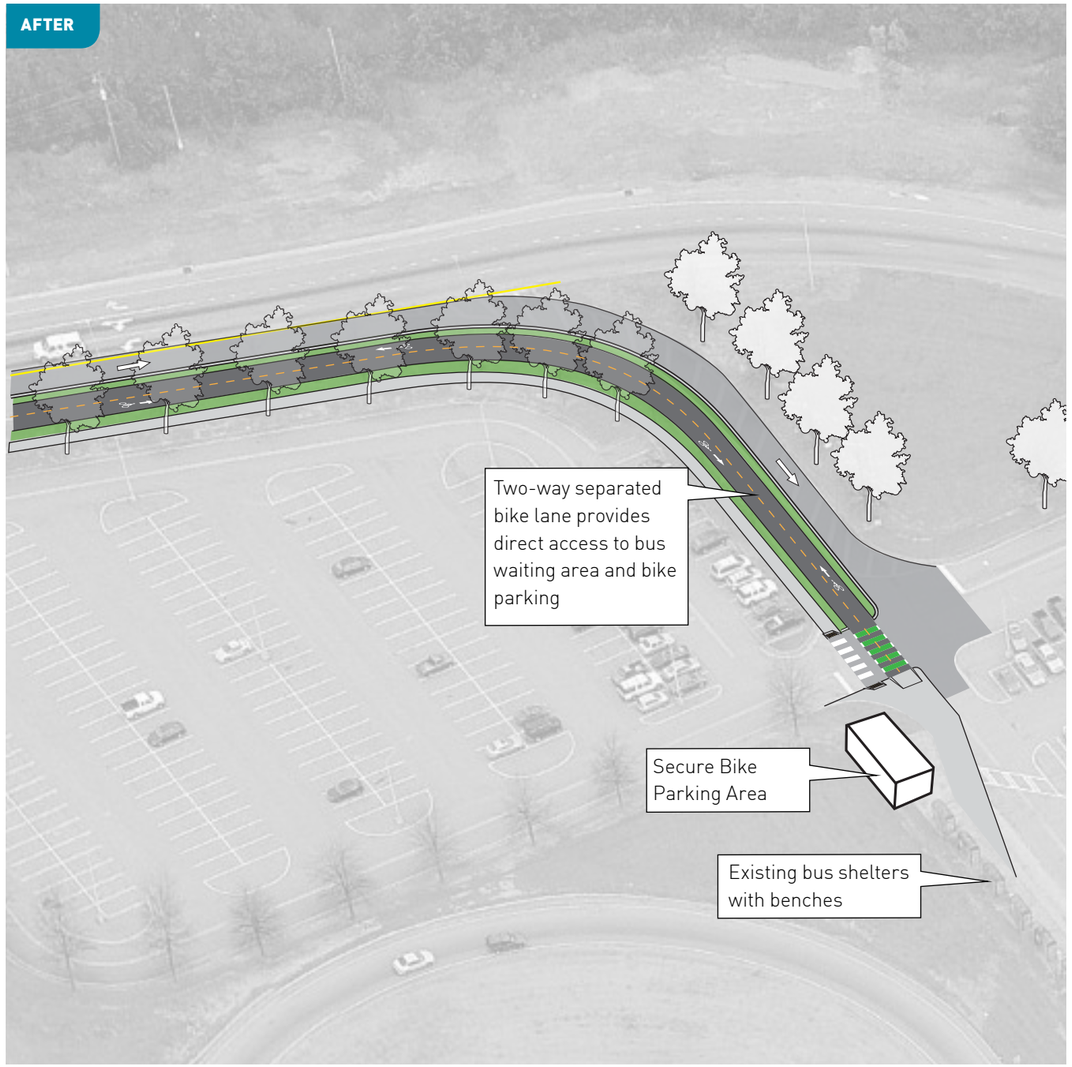
Requires a moderate to significant investment for planning, design, and construction.

Bike-Friendly Park & Ride Lots

NEIGHBORHOOD-SCALE ACCESS



INTERNAL CIRCULATION



RETROFITTING SUBURBAN NETWORK DESIGN

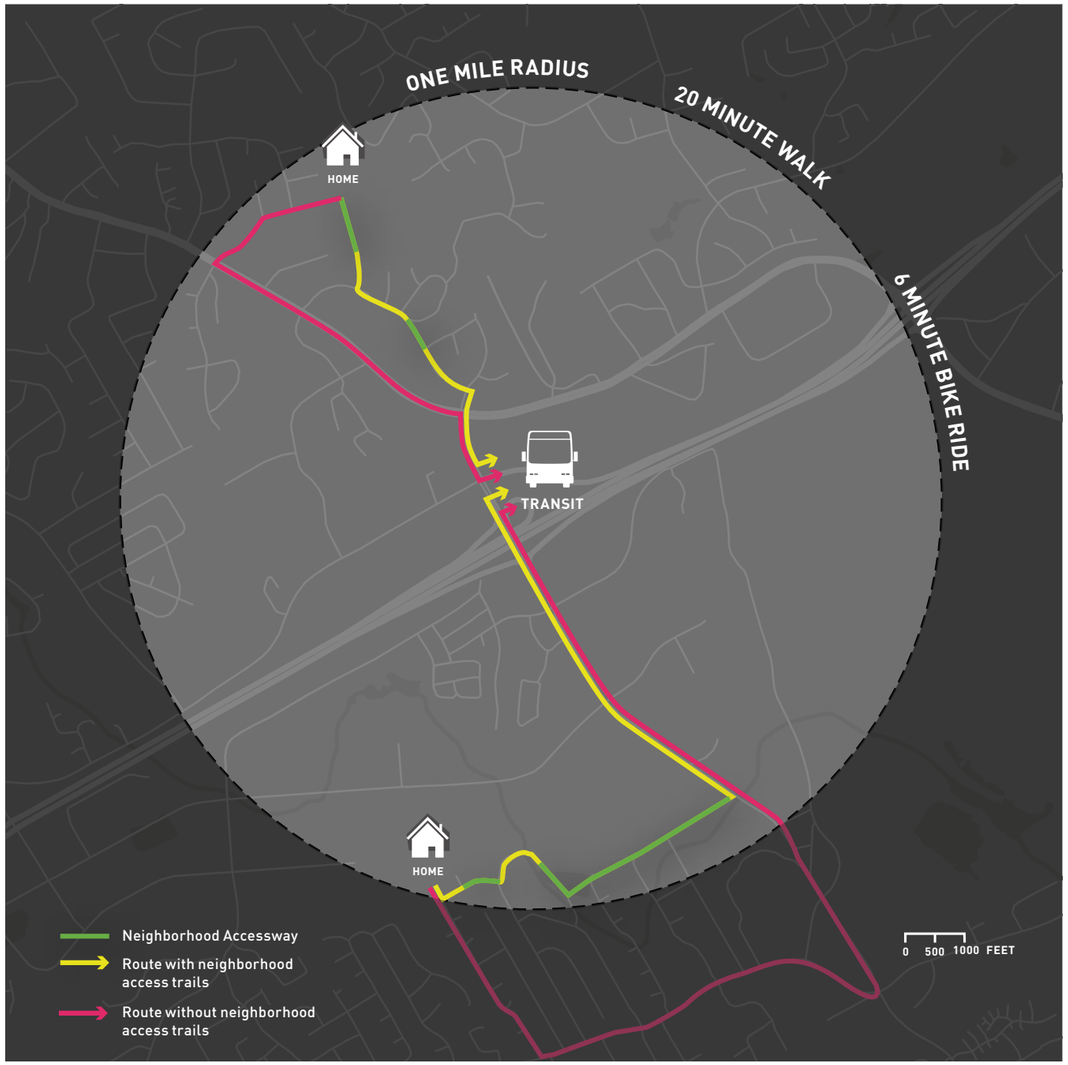
Many Atlanta area suburbs grew during an auto-oriented era and as a result the street grid can be indirect and circuitous for those using other modes. Where the lack of a connected street grid is the major barrier to bike access to transit, off-street connections to low-stress streets can limit out-of-direction travel and the amount of time bicyclists spend on high-stress roads. For retrofitting major roadways, see pages 26, 30 and 36.

Alpharetta Greenway, Alpharetta, GA

IDEA:

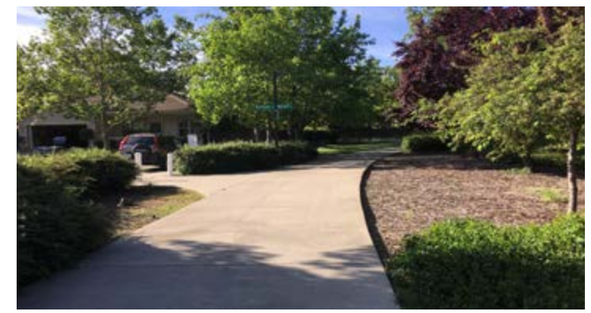
Neighborhood Accessways

Neighborhood Accessways are short trail segments between disconnected streets that enable more direct, lower-stress routes for people walking and bicycling. Neighborhood accessways can improve bicycling access to local destinations, including transit stops, by reducing trip distances and circumventing roadways that may be uncomfortable for bicycling.



Precedents

Cape Coral, FL



Davis, CA

Portland, OR

References

FHWA *Small Town and Rural Multimodal Networks*: Creating Networks. (Pg 1-12)

Atlanta Regional Commission *Walk.Bike.Thrive!*: Part 1 (Pg 45)

Application

ROADWAY TYPE

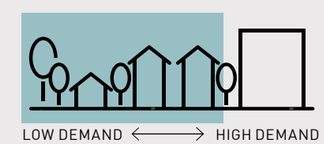
Serves connections independently of the street network. May function as a network alternative to streets.

SPEED AND VOLUME

Paths operating in independent corridors are fully separated from traffic. Facility provision is based on opportunity and connectivity rather than roadway context. In some cases an independent corridor may offer similar connectivity and access to destinations as a nearby roadway.

WALKING & BIKING PROPENSITY

Generally for use in parts of the region with low to moderate walking, biking, and transit propensity.



IMPLEMENTATION DIFFICULTY

Requires a moderate investment for planning, design, and construction.

IDEA:

Combining off-street & on-street bikeways

In many suburban contexts, there are cost-effective opportunities to create a continuous bike connection to transit by creating off-street bikeways and connecting them to retrofitted portions of major roads. That approach avoids modification of long stretches of difficult roadways. In the example below, a utility corridor, a creek, and a separated bike lane retrofit demonstrate this idea.

Precedents

Atlanta, GA

Atlanta, GA

Seattle, WA

References

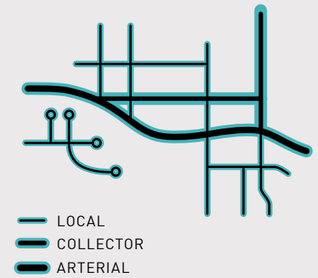
FHWA *Small Town and Rural Multimodal Networks*: Creating Networks. (Pg 1-11)

Atlanta Regional Commission *Walk.Bike.Thrive!*: Part 1 (Pg 45)

Application

ROADWAY TYPE

Off-street bikeways can be combined with on-street bikeways on any roadway type.

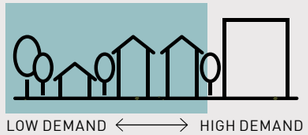


SPEED AND VOLUME

This idea could potentially be applied to any roadway, regardless of speed and volume combinations. The design for the on-street retrofit should consider speed and volume and provide adequate protection between bicyclists and vehicles.

WALKING & BIKING PROPENSITY

Generally for use in parts of the region with low to moderate walking, biking, and transit propensity.



IMPLEMENTATION DIFFICULTY

Requires a moderate investment for planning, design, and construction.

ACCOMMODATING BIKE + TRANSIT TRIPS FOR PEOPLE OF ALL AGES AND ABILITIES

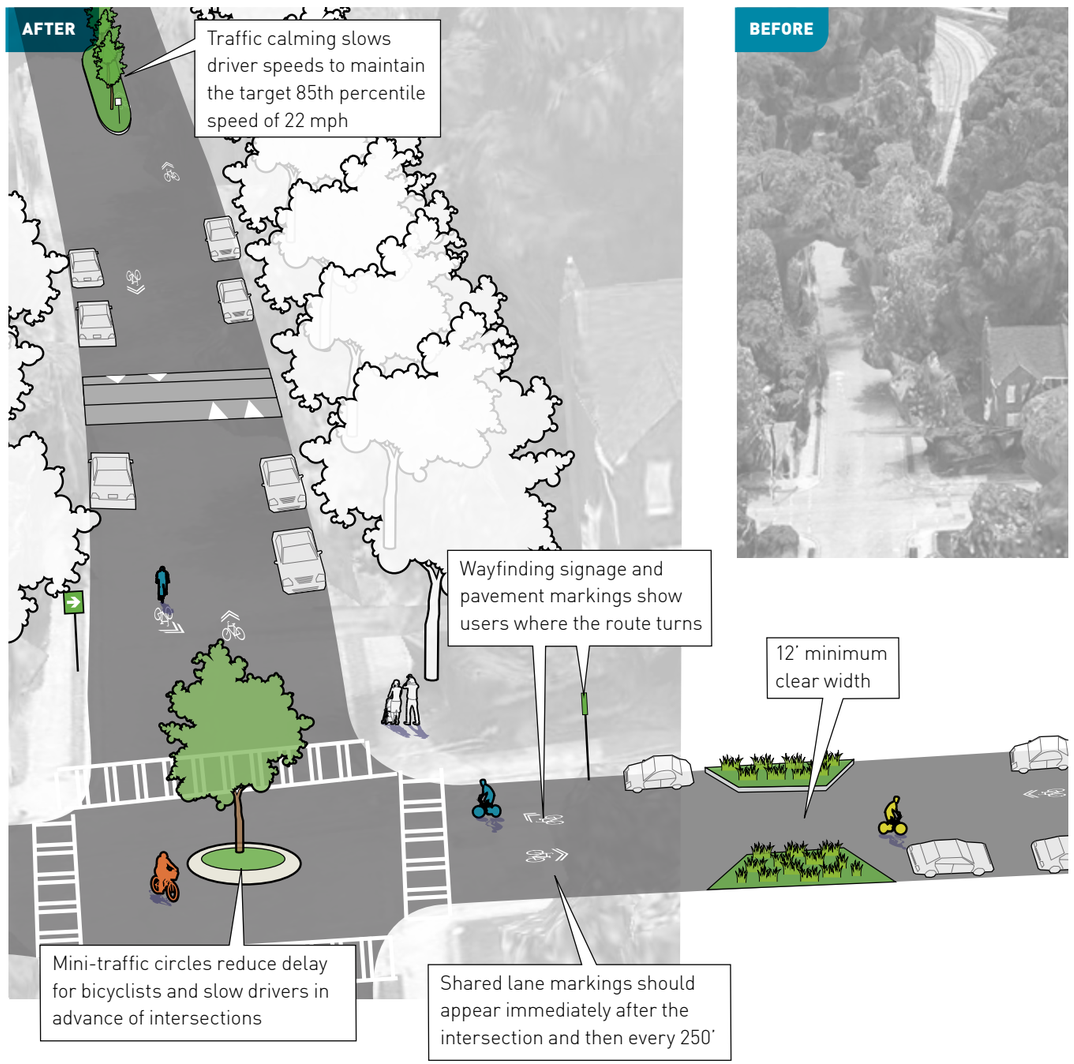
Bikeways that connect to transit stops should be designed to meet the needs of the widest possible range of potential bicyclists. Because most transit stops are on major roads with high vehicle speeds and volumes, bike facilities should provide appropriate separation between the bicycling area and traffic. Where this is not possible, prioritizing the safety and convenience of biking on neighborhood streets can broaden the appeal of combining biking and transit.

Neighborhood Greenway, Seattle, WA

IDEA:

Neighborhood Greenways

Neighborhood greenways, also known as "bicycle boulevards," are designated bicycle-priority routes along low-speed, low-traffic residential streets. They are designed to offer convenient, low-stress access to local destinations, including transit stops. Neighborhood greenways can be highly cost-effective, because they rely on relatively simple modifications to existing streets such as adding wayfinding signage, pavement markings, traffic calming devices, access management features, and crossing treatments to enhance the bicycling experience.



Precedents

Seattle, WA

Portland, OR

Portland, OR

References

NACTO *Urban Bikeway Design Guide*: Bicycle Boulevard Route Planning

Portland's Neighborhood Greenways page

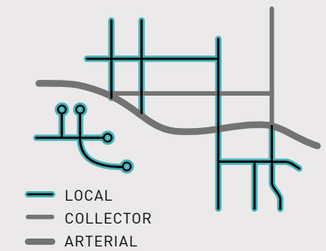
Portland's Neighborhood Greenway Assessment with recommended Performance Measures (pg 10-12)

FHWA *Manual for Uniform Traffic Control Devices:* Chapter 9B: Signs

Application

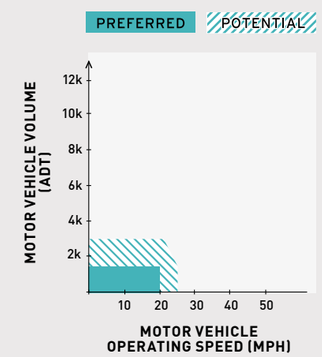
ROADWAY TYPE

Local residential streets that connect to transit stops. Not appropriate for high-frequency bus routes.



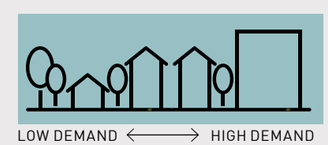
SPEED AND VOLUME

For use on roads with low vehicle speeds and volumes.



WALKING & BIKING PROPENSITY

For use in built-up parts of the region with at least some potential for bicycling. Not appropriate in rural or undeveloped contexts.

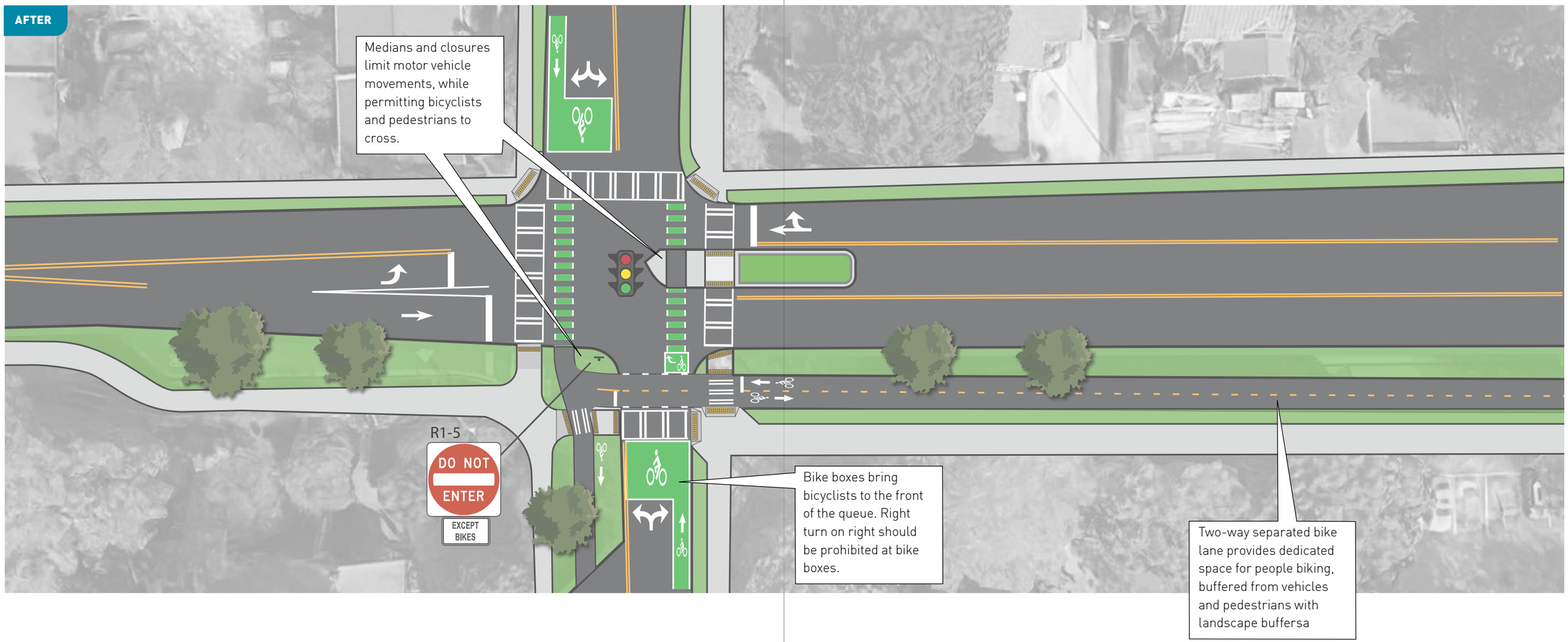


IMPLEMENTATION DIFFICULTY

Requires a small investment for planning, design, and construction.

IDEA:

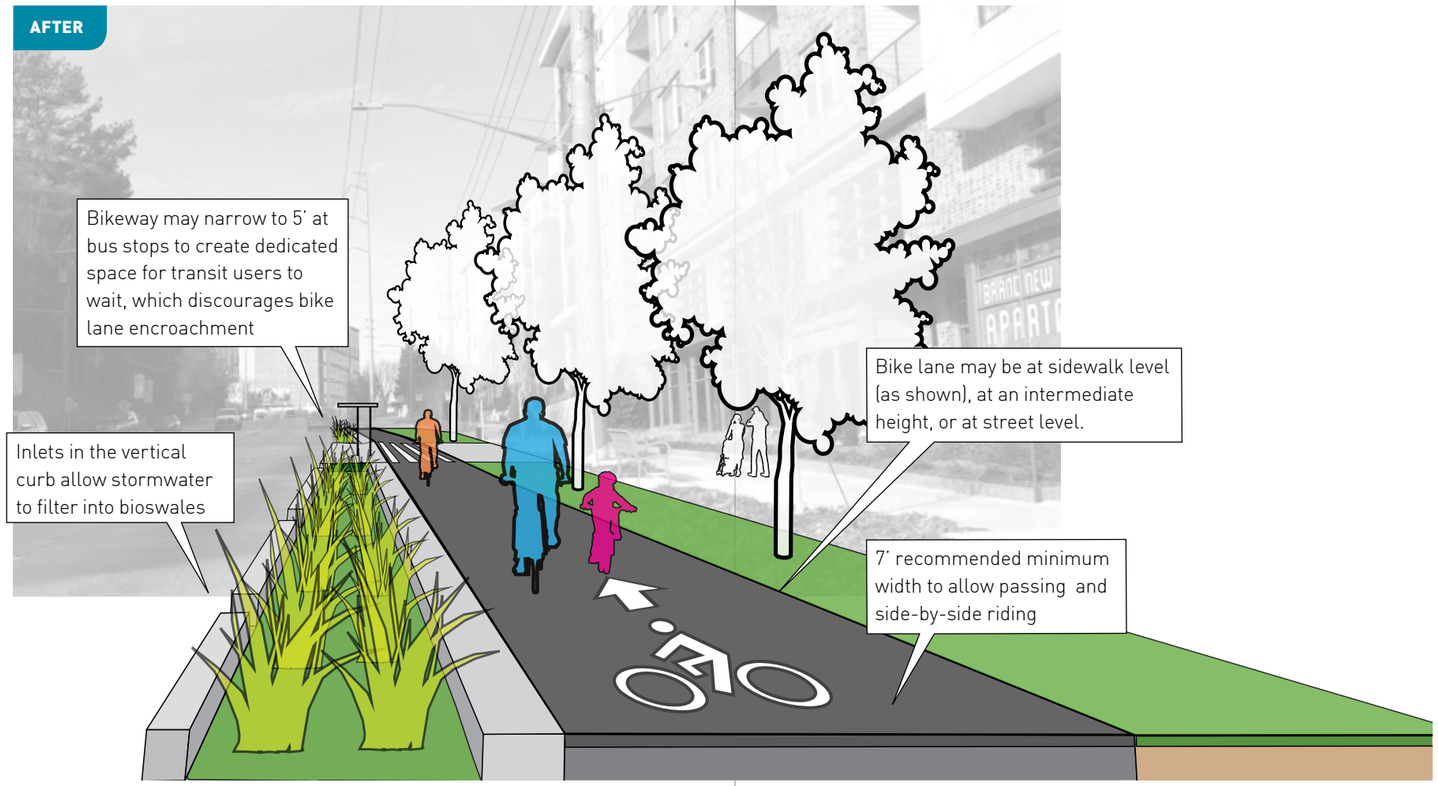
Neighborhood Greenways



IDEA:

Separated Bike Lanes with Integrated Green Infrastructure

Separated Bike Lanes, sometimes called "Cycle Tracks," are dedicated bikeways that use a vertical element to provide separation from motor vehicle traffic. The vertical separation discourages drivers from parking or idling in the bikeway. Including green infrastructure into the design of the buffer space can help manage stormwater, decrease urban heat island effect, and improve air quality. A planting strip between the walkway and bikeway can function as a detectable warning for people with vision impairments, help to minimize conflict between different users, and provide a place for shade trees.



Precedents

Lincoln, NE

Credit: Joe Linton/Streetsblog L.A.

Temple City, CA

Credit: Pedestrian and Bicycle Information Center

Indianapolis, IN

References

NACTO *Urban Bikeway Design Guide*: Cycle Tracks

FHWA *Separated Bike Lane Planning and Design Guide:* Chapter 5: Menu of Design Recommendations

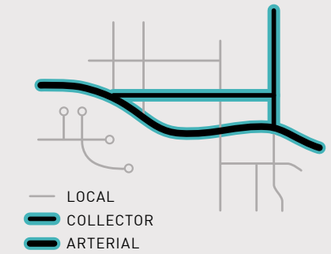
NACTO *Transit Street Design Guide:* Green Infrastructure

MassDOT Separated Bike Lane Planning & Design Guide: Chapter 3: General Design Considerations

Application

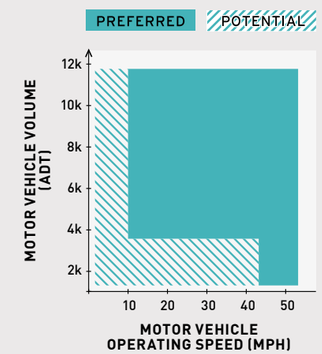
ROADWAY TYPE

Serves primary connections on major roads through and across communities.



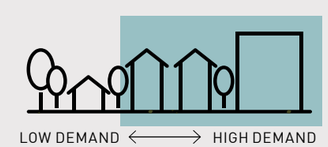
SPEED AND VOLUME

For use on roads with high motor vehicle volumes, and moderate to high speed motor vehicle traffic.



WALKING & BIKING PROPENSITY

For use in parts of the region with moderate to high walking, biking, and transit propensity.

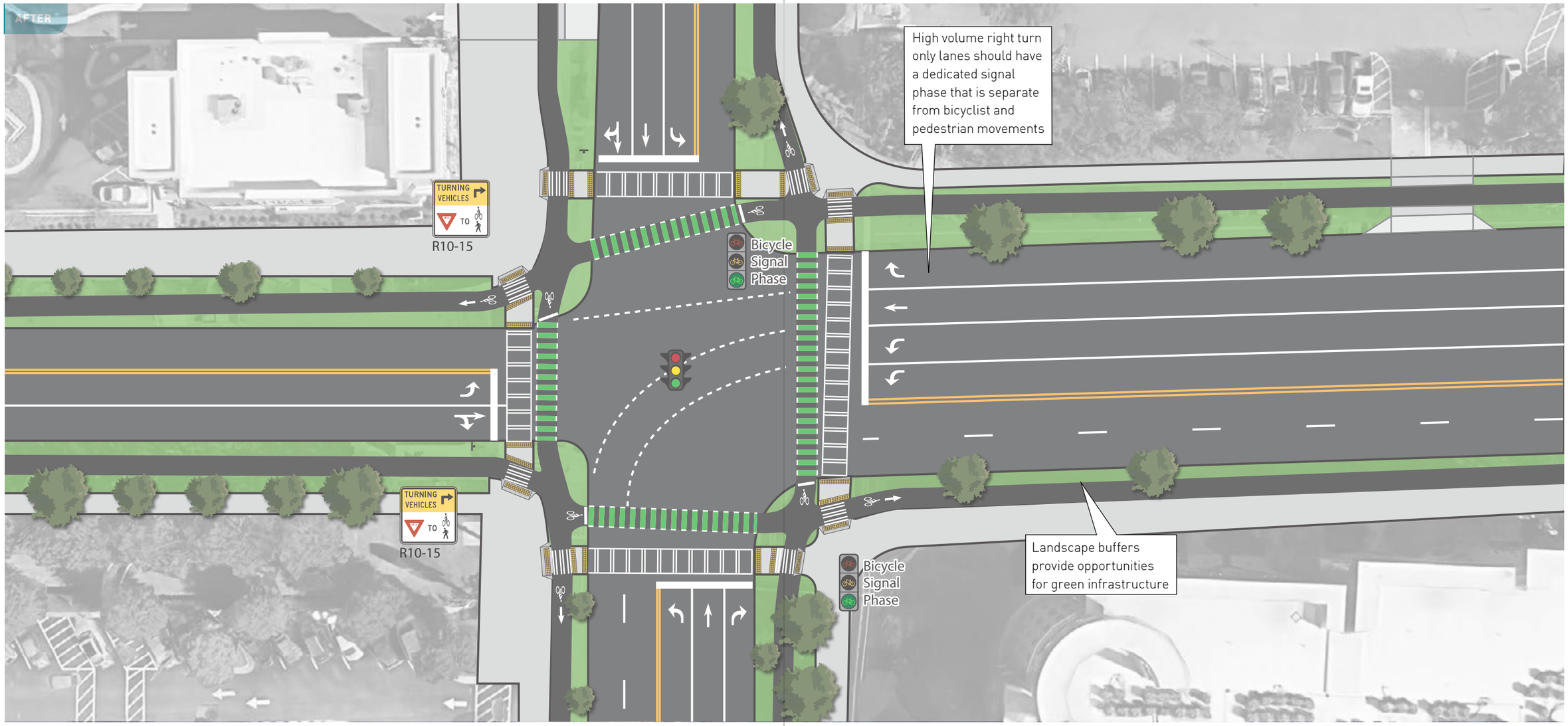


IMPLEMENTATION DIFFICULTY

Requires a significant investment for planning, design, and construction.

IDEA:

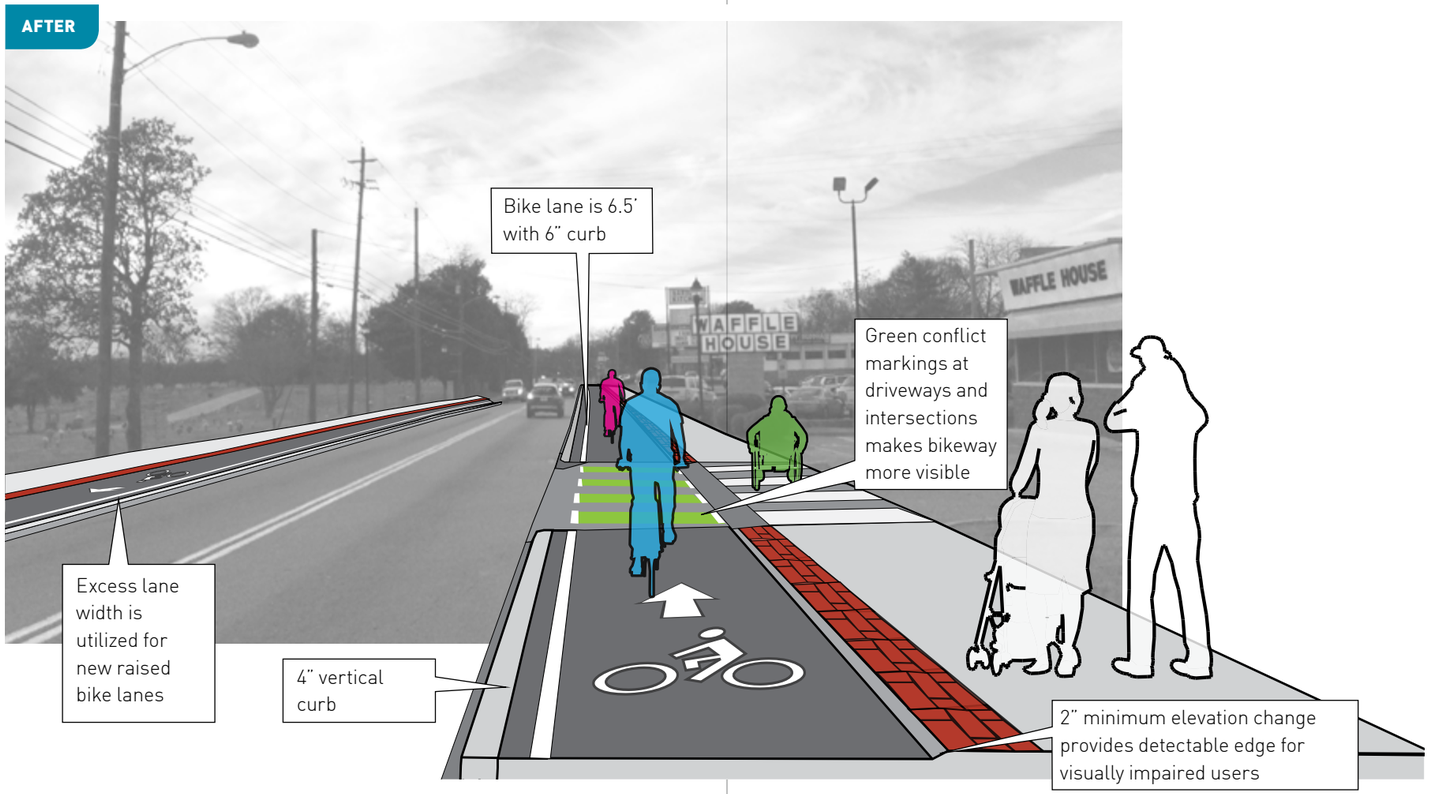
Separated Bike Lanes with Integrated Green Infrastructure



IDEA:

Raised One-Way Separated Bike Lanes

Raised Bike Lanes, also known as "raised cycle tracks," are a type of separated bike lane that use an elevated surface to provide vertical separation from the street. Raised bike lanes are designed to discourage encroachment by motor vehicles, particularly when they are configured with vertical curbs. Because of this they work well on roads with frequent bus service. Raised bike lanes are appropriate in constrained locations where horizontal space for a street buffer is limited. Elevating the bike lane also makes it easier to create raised bicycle crossings at driveways and cross streets.



Precedents

Cambridge, MA

Bend, OR

Cambridge, MA

References

NACTO *Urban Bikeway Design Guide*: Raised Cycle Tracks

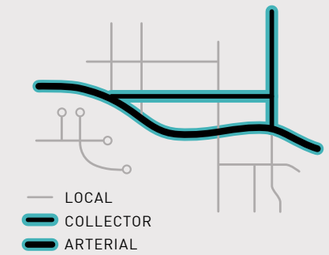
FHWA Separated Bike Lane Planning and Design Guide: Chapter 5: Menu of Design Recommendations

MassDOT Separated Bike Lane Planning & Design Guide: Chapter 3: General Design Considerations

Application

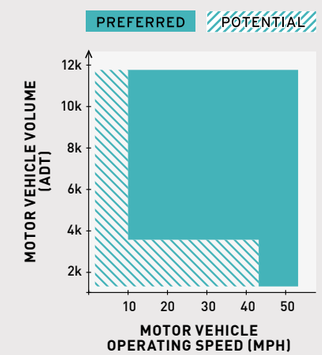
ROADWAY TYPE

Serves primary connections on major roads through and across communities.



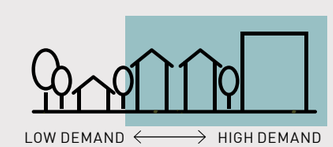
SPEED AND VOLUME

For use on roads with high motor vehicle volumes, and moderate to high speed motor vehicle traffic.



WALKING & BIKING PROPENSITY

For use in parts of the region with moderate to high walking, biking, and transit propensity.

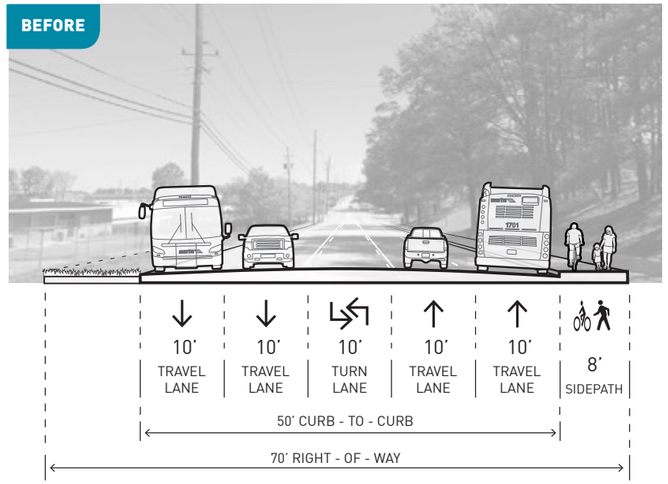


IMPLEMENTATION DIFFICULTY

Requires a significant investment for planning, design, and construction.

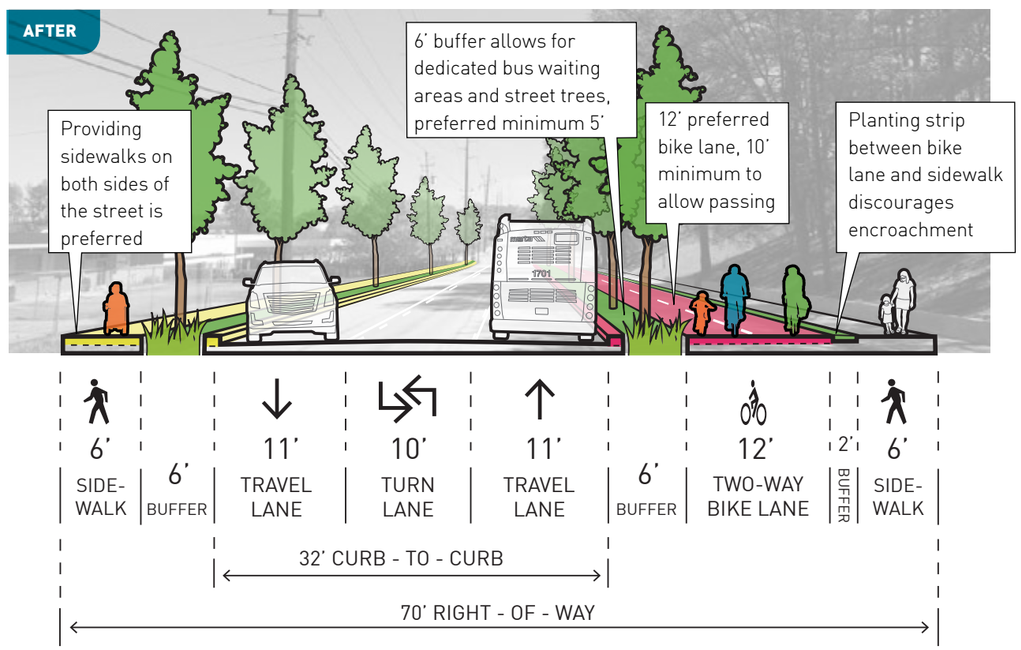
IDEA:

Separated Two-Way Bike Lane



Separated two-way bike lanes, when combined with landscape buffers and a sidewalk, are similar to conventional shared use sidepaths, but with exclusive space for each user type.

Separating bicyclists from pedestrians can increase comfort and safety for both user types since people biking tend to travel at higher speeds than people walking. Two sets of furnishing zones or landscape buffers create a high-quality user experience for people walking, biking, and waiting for transit. Driveways and intersections present unique challenges for two-way separated bike lane design. Please consult the references listed on the facing page for more information.



Precedents

Seattle, WA

Indianapolis, IN

Portland, OR

References

NACTO *Urban Bikeway Design Guide*: Raised Cycle Tracks

NACTO *Urban Bikeway Design Guide*: Two-Way Cycle Tracks

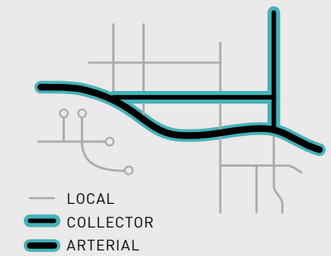
FHWA *Separated Bike Lane Planning and Design Guide*: Chapter 5: Menu of Design Recommendations

MassDOT *Separated Bike Lane Planning & Design Guide*: Chapter 5: Curbside Activity Design

Application

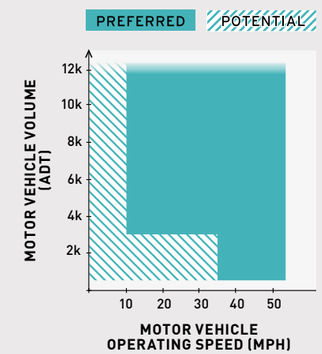
ROADWAY TYPE

Serves primary connections on major roads through and across communities.



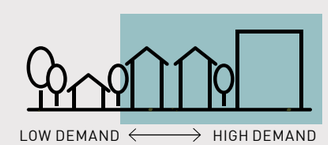
SPEED AND VOLUME

For use on roads with moderate to high vehicle speeds and volumes.



WALKING & BIKING PROPENSITY

For use in parts of the region with moderate to high walking, biking, and transit propensity.



IMPLEMENTATION DIFFICULTY

Requires a significant investment for planning, design, and construction.

IDEA:

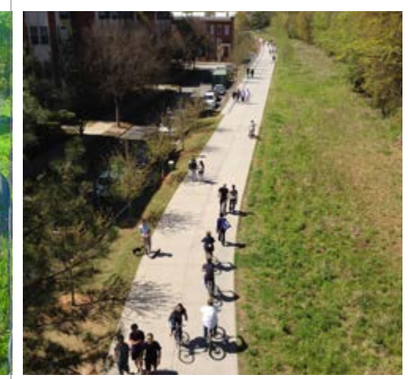
Greenway Trail

Riparian, utility, and former or active rail corridors can fill a gap in the bike network where it is not feasible to make a comfortable travel experience with the existing road network. Greenway trails can expect a wide variety of users, from bicyclists to skateboarders to pedestrians. Where trails intersect roads at-grade, appropriate pavement markings, signage, and traffic signals or beacons should be used so there is no interruption in the low-stress environment. Where possible, trail spurs should connect users directly to transit facilities.

Precedents


Alpharetta, GA


Minneapolis, MN


Atlanta, GA

References

AASHTO. *Guide for the Development of Bicycle Facilities.* Chapter 5: Design of Shared Use Paths. 2012.

Flink, C. *Greenways: A Guide To Planning Design And Development.* 1993.

Application

ROADWAY TYPE

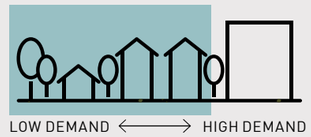
Serves connections independently of the street network. May function as a network alternative to streets.

SPEED AND VOLUME

Paths operating in independent corridors are fully separated from traffic. Facility provision is based on opportunity and connectivity rather than roadway context. In some cases an independent corridor may offer similar connectivity and access to destinations as a nearby roadway.

WALKING & BIKING PROPENSITY

Opportunities are most abundant in areas with low to moderate propensity, but urban greenway trails can provide great links to transit.



IMPLEMENTATION DIFFICULTY

Requires a significant investment for planning, design, and construction.

LOW COST, HIGH IMPACT SOLUTIONS FOR IMPROVING CONNECTIVITY TO TRANSIT

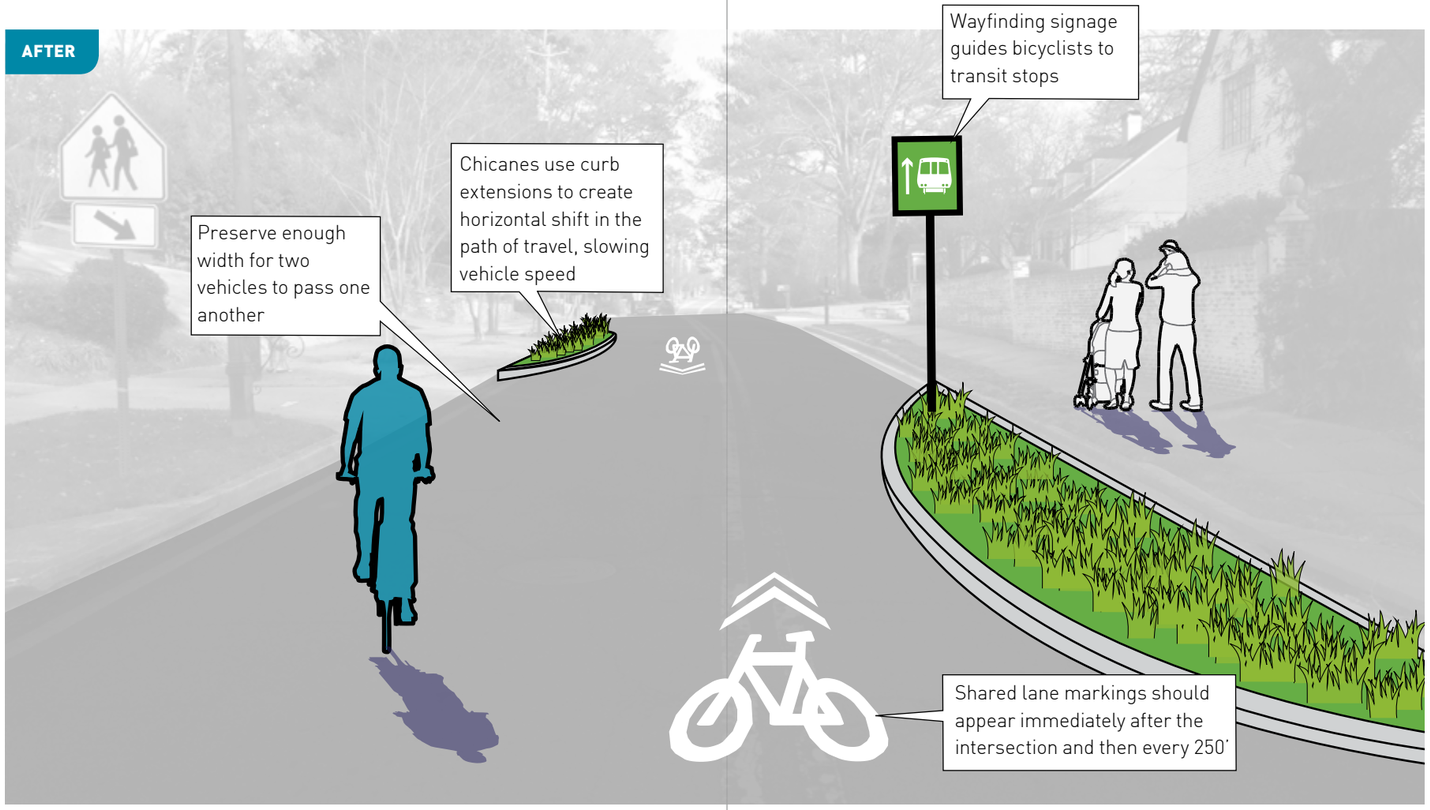
In some cases, there are opportunities to create high quality bike routes to transit without having to make a large investment like reconstructing a road. Where there is an alternative route or excess street capacity, installing a bikeway can make a big impact in improving connectivity to transit stops.

Vancouver Ave Bike Lanes, Portland, OR

IDEA:

Enhanced Shared Roadway

In some highly developed contexts, there may not be an opportunity to create a dedicated bikeway or off-street path and traffic conditions may not allow for a neighborhood greenway. In those cases, a traditional marked shared roadway can be enhanced with bicycle-oriented wayfinding and select traffic calming devices. These facilities are appropriate where there are no viable alternative routes and it is not feasible to reduce traffic volumes and/or speeds along the identified street to neighborhood greenway levels.



Precedents

Boise, ID

Seattle, WA

Milwaukee, OR

References

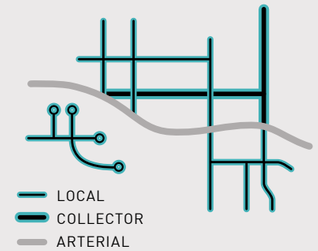
NACTO *Urban Bikeway Design Guide*: Bicycle Boulevards

FHWA *Manual for Uniform Traffic Control Devices:* Chapter 9B: Signs

Application

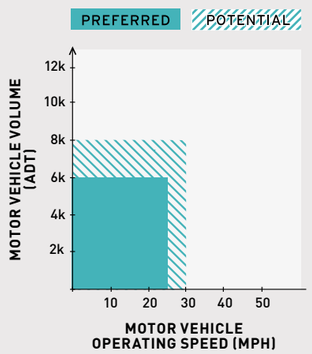
ROADWAY TYPE

Local residential streets that connect to transit stops. Not appropriate for high-frequency transit routes.



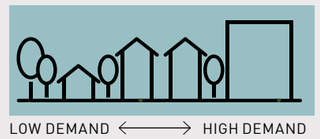
SPEED AND VOLUME

For use on roads with low vehicle speeds and volumes.



WALKING & BIKING PROPENSITY

For use in built-up parts of the region with at least some potential for bicycling. Not appropriate in rural or undeveloped contexts.



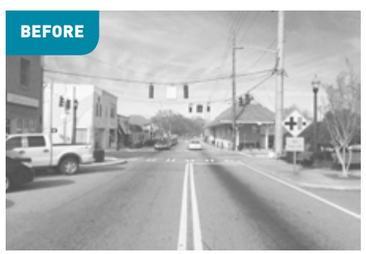
IMPLEMENTATION DIFFICULTY

Requires a small investment for planning, design, and construction.

IDEA:

Commercial Greenway

The Atlanta region contains several examples of a major transit station next to a walkable main street, with commercial activity and roads designed to promote access over throughput. These historic downtown streets with limited capacity for dedicated bikeways are ideal candidates for Commercial Greenways. This treatment is similar to Neighborhood Greenways, but with higher vehicle volumes and more diverse activity. Green-backed shared lane markings, signage, and pavement markings reinforce the street as a shared space. Strips of cobblestones underneath car tire paths can slow traffic without affecting bicyclists.



Precedents

Spokane, WA

Decatur, GA

Portland, OR

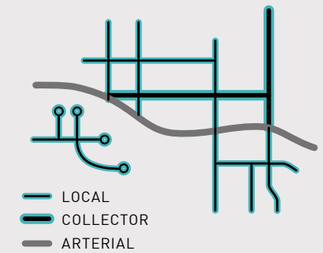
References

NACTO *Urban Bikeway Design Guide*: Commercial Shared Street

Application

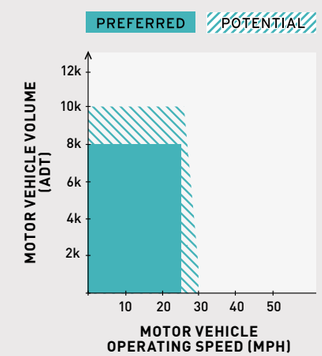
ROADWAY TYPE

Neighborhood commercial streets and town center main streets. Compatible with bus service.



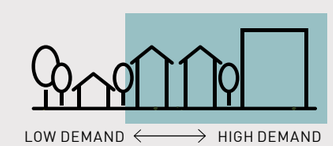
SPEED AND VOLUME

For use on roads with low vehicle speeds and volumes.



WALKING & BIKING PROPENSITY

For use in parts of the region with moderate to high walking, biking, and transit propensity.

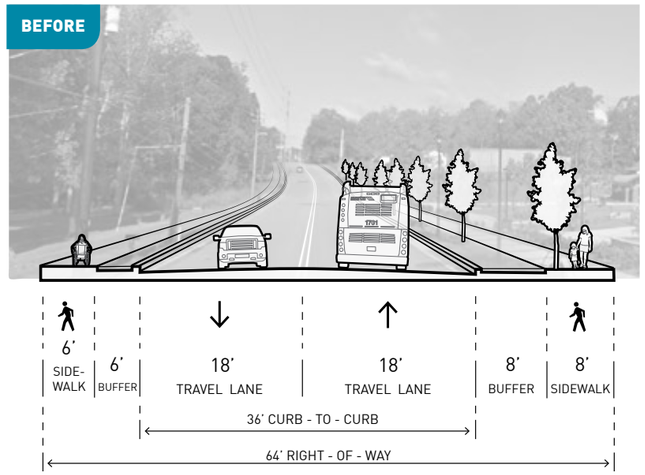


IMPLEMENTATION DIFFICULTY

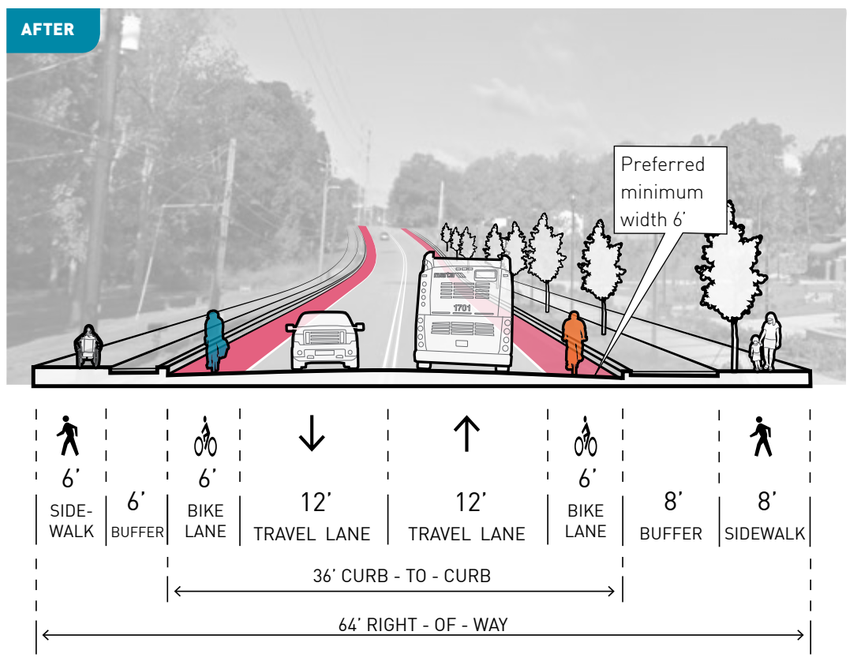
Requires a moderate investment for planning, design, and construction.

IDEA:

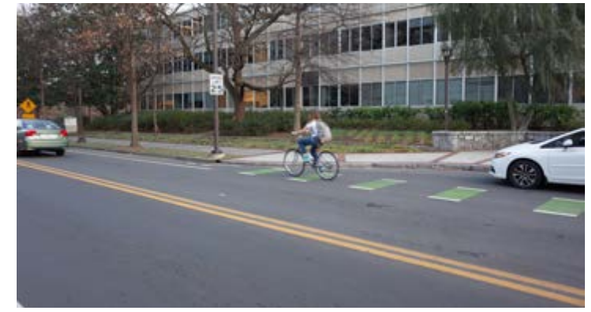
Conventional Bike Lanes



Bike lanes designate an exclusive space for bicyclists through the use of pavement markings and signage. Bike lanes make bicycling a more visible and comfortable option for people who usually would drive or walk to a transit stop. Conventional bike lanes work well on collector streets with 3,000 to 9,000 cars per day and where there is potential for a road diet or a reduction in lane width. High frequency bus stops may pose unique challenges with added bus-bike conflicts.



Precedents



Atlanta, GA

Boston, MA

New York, NY

References

NACTO *Urban Bikeway Design Guide*: Conventional Bike Lanes

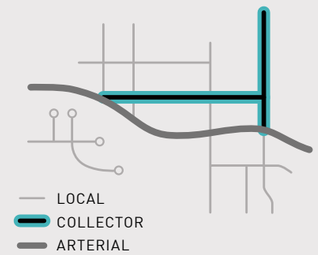
AASHTO *Guide for the Development of Bicycle Facilities:* Chapter 4 (Pg 4-11)

FHWA *Manual on Uniform Traffic Control Devices:* Part 9: Traffic Control for Bicycle Facilities

Application

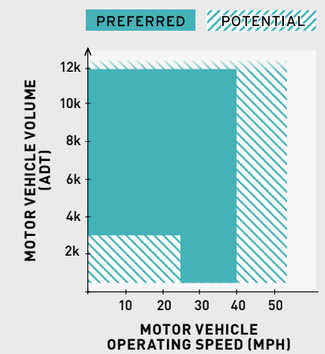
ROADWAY TYPE

Serves primary connections on high-frequency bus and streetcar routes.



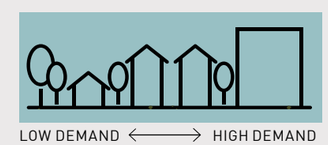
SPEED AND VOLUME

For use on roads with high motor vehicle volumes, and moderate to high speed motor vehicle traffic.



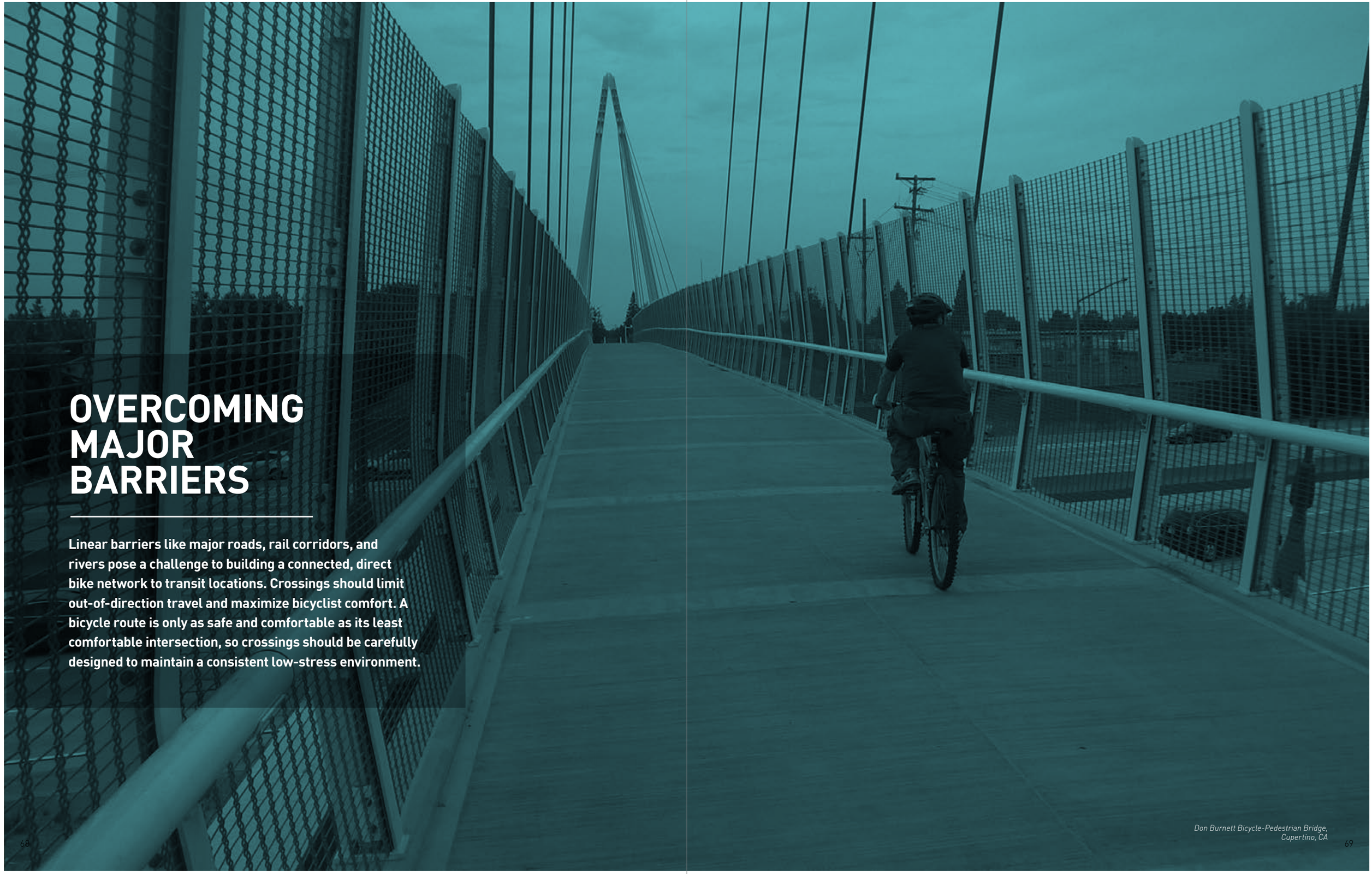
WALKING & BIKING PROPENSITY

For use in parts of the region with moderate to high walking, biking, and transit propensity.



IMPLEMENTATION DIFFICULTY

Requires a small investment for planning, design, and construction.



OVERCOMING MAJOR BARRIERS

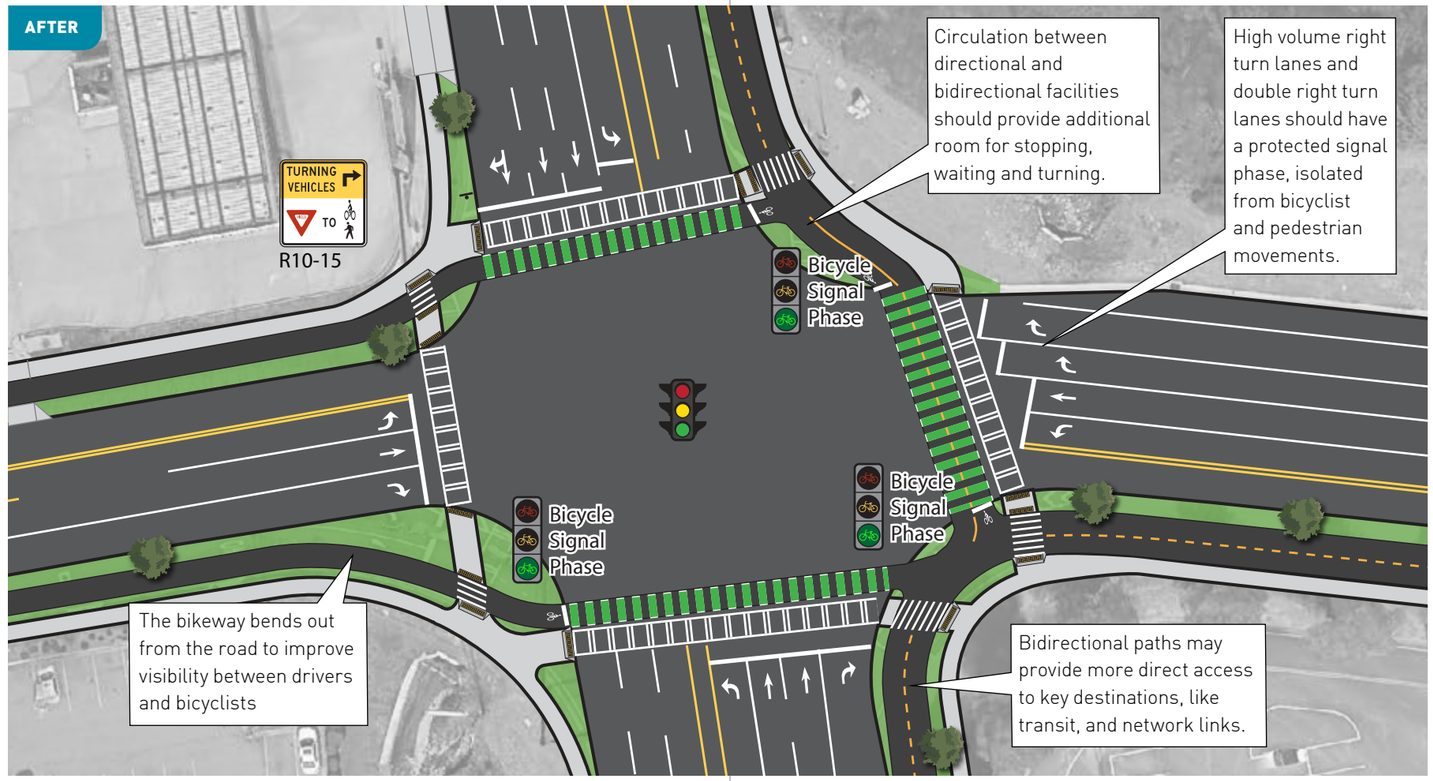
Linear barriers like major roads, rail corridors, and rivers pose a challenge to building a connected, direct bike network to transit locations. Crossings should limit out-of-direction travel and maximize bicyclist comfort. A bicycle route is only as safe and comfortable as its least comfortable intersection, so crossings should be carefully designed to maintain a consistent low-stress environment.

Don Burnett Bicycle-Pedestrian Bridge, Cupertino, CA

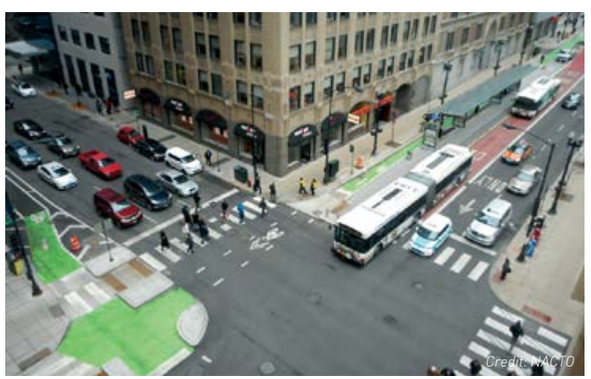
IDEA:

All Ages and Abilities Bikeway Crossings of a Major Arterial

An intersection with a multi-lane arterial can make an otherwise low-stress bikeway feel uncomfortable and discourage bicyclists from using it. In many suburban contexts within the Atlanta region, these major arterial roads provide access to popular destinations, so bikeway intersections should be thoughtfully designed to preserve the separation that makes the bikeway comfortable. Signalization should give bicyclists a dedicated phase when there is a high volume of turning vehicles, and signage and pavement markings can make it more intuitive for bicyclists to proceed through the intersection. Raised buffers that set bikeways back at the corners also improve visibility and add a level of comfort for bicyclists.



Precedents



Chicago, IL

Salt Lake City, UT

San Jose, CA

References

Alta Planning and Design. *Evolution of the Protected Intersection.*

FHWA *Manual on Uniform Traffic Control Devices:* Interim Approval for Optional Use of Green Colored Pavement for Bike Lanes (IA-14).

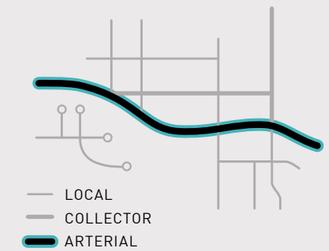
FHWA. *Manual on Uniform Traffic Control Devices:* Interim Approval for Optional Use of a Bicycle Signal Face (IA-16).

NACTO. *Urban Bikeway Design Guide:* Bicycle Signal Heads.

Application

ROADWAY TYPE

Where bikeways cross major arterial roadways.

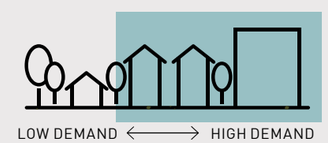


SPEED AND VOLUME

The intersection where this treatment would be appropriate generally involve at least one road with heavy volumes and high speeds, but there is not a specified range of volumes and speeds for which this is appropriate.

WALKING & BIKING PROPENSITY

For use in parts of the region with moderate to high walking, biking, and transit propensity.



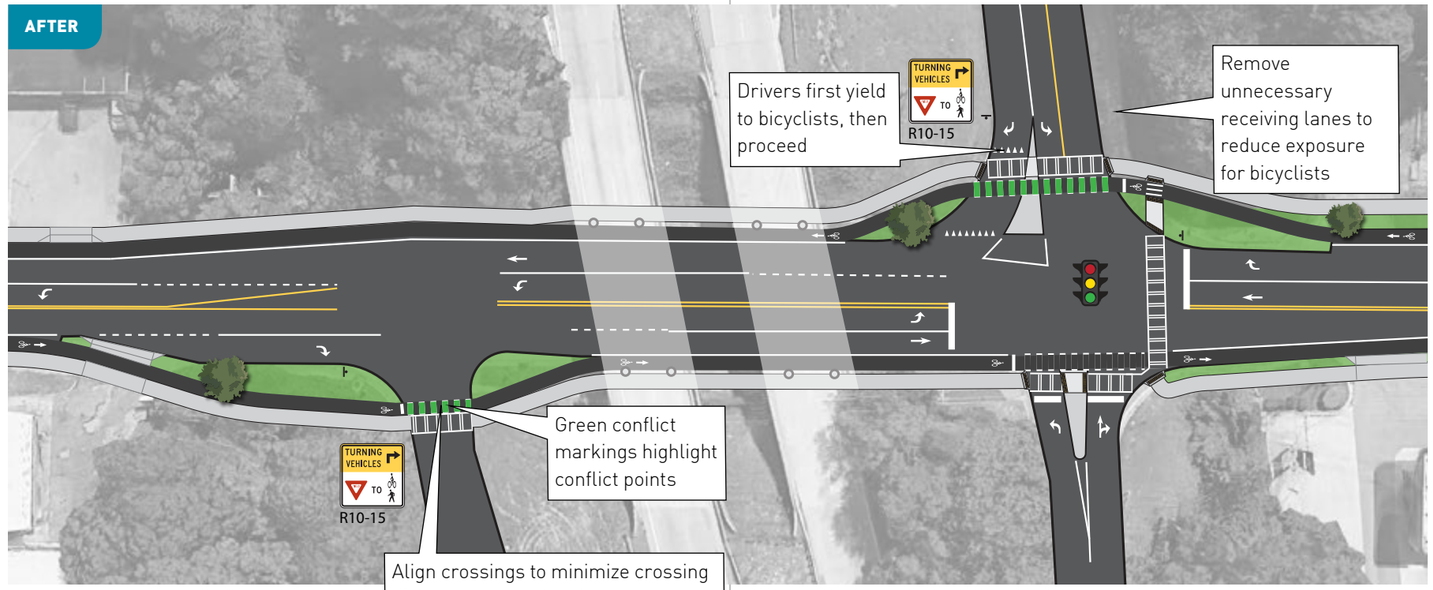
IMPLEMENTATION DIFFICULTY

Requires a significant investment for planning, design, and construction.

IDEA:

Lower Stress Bikeway Crossings at Freeway On-Ramps

Bikeways at freeway crossings are problematic because on- and off-ramps often have wide turn radii that encourage drivers to make the turn without slowing or checking for bicyclists to their right. This creates right-hook conflicts for bicyclists. To mitigate this conflict, the bikeway should bend out from the road so drivers have completed more of the turn before they intersect the bikeway, thus making it easier for them to turn and see the cyclists. Signage can remind drivers that they should yield to bicyclists and pedestrians, and reduced turn radii forces drivers to make the turn more slowly, giving them more time to react.



Precedents

Davis, CA

New Orleans, LA

Salt Lake City, UT

References

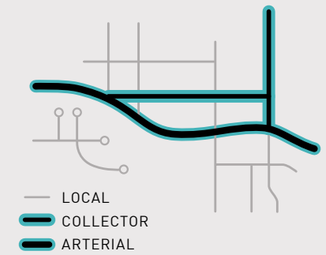
AASHTO *Guide for the Development of Bicycle Facilities*: Bicycle Travel Through Interchange Areas (pg 4-57)

FHWA *Manual on Uniform Traffic Control Devices:* Interim Approval for Optional Use of Green Colored Pavement for Bike Lanes (IA-14).

Application

ROADWAY TYPE

Locations where vehicles enter and exit freeways. Typically along arterial and collector roads.

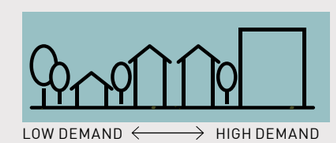


SPEED AND VOLUME

Freeway on- and off- ramps are generally located on roads with higher speeds and volumes, but does not have a specified speed and volume criteria.

WALKING & BIKING PROPENSITY

For use in parts of the region with low to high walking, biking, and transit propensity.



IMPLEMENTATION DIFFICULTY

Requires a moderate investment for planning, design, and construction.

IDEA:

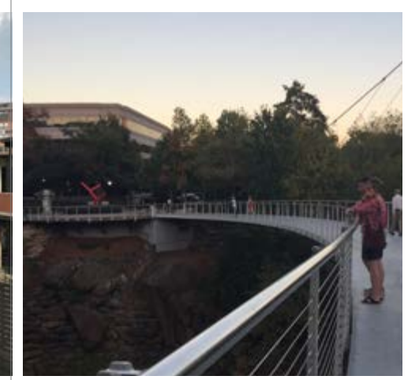
Bicycle and Pedestrian Bridges

Bicycle and pedestrian overcrossings provide non-motorized system links by connecting two sides of otherwise impassible barriers such as waterways or freeways. Bicycle and pedestrian bridges may also be considered over high-speed multi-lane arterials where at-grade crossings cannot be sufficiently improved and the overcrossing provides a direct high-comfort connection to a transit stop or park and ride lot from a major bikeway. Bridges and overcrossings are a significant investment and should be considered carefully within the context of the larger multi-modal transportation system.

Precedents

Berkeley, CA

Atlanta, GA



Greenville, SC

References

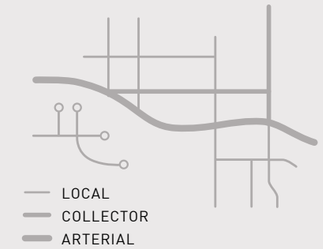
FHWA *Guide for the Development of Bicycle Facilities:* 5.2.10 Bridges and Underpasses

US Department of Justice *2010 ADA Standards for Accessible Design:* 2010 Standards for State and Local Government Facilities: Title II

Application

ROADWAY TYPE

Bicycle and pedestrian bridges can connect to any roadway that facilitates connections to transit.

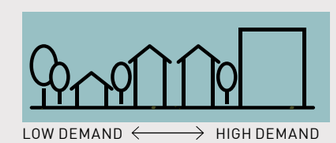


SPEED AND VOLUME

Bicycle and pedestrian bridges can cross many types of barriers such as waterways, freeways, and railways. Bicycle and pedestrian overcrossings may also be considered over high-speed multi-lane arterials where at-grade crossings cannot be sufficiently improved and the overcrossing provides a direct high-comfort connection to a transit stop or park and ride lot from a major bikeway.

WALKING & BIKING PROPENSITY

For use in parts of the region with low to high walking, biking, and transit propensity.



IMPLEMENTATION DIFFICULTY

Requires a significant investment for planning, design, and construction.

Bikestation Washington DC, Washington, DC

BIKE PARKING IDEAS

Bike parking extends the transit access shed beyond the distance people are willing to walk, expanding healthy transportation options while supporting growth in transit ridership. Convenient and secure bicycle parking can take many forms depending on available space and transit service type. Short-term and long-term bicycle parking options are presented here, with specific ideas that vary from simple inverted "U" racks for individual bikes to secure parking structures that can accommodate large numbers of bicyclists. Currently, many transit stations are located in areas where the land use favors automobile access. However, as communities across the Atlanta region transition to becoming more bike-friendly, these areas present an opportunity for re-envisioning underutilized land as vibrant mixed-use multimodal hubs.

IDEA:

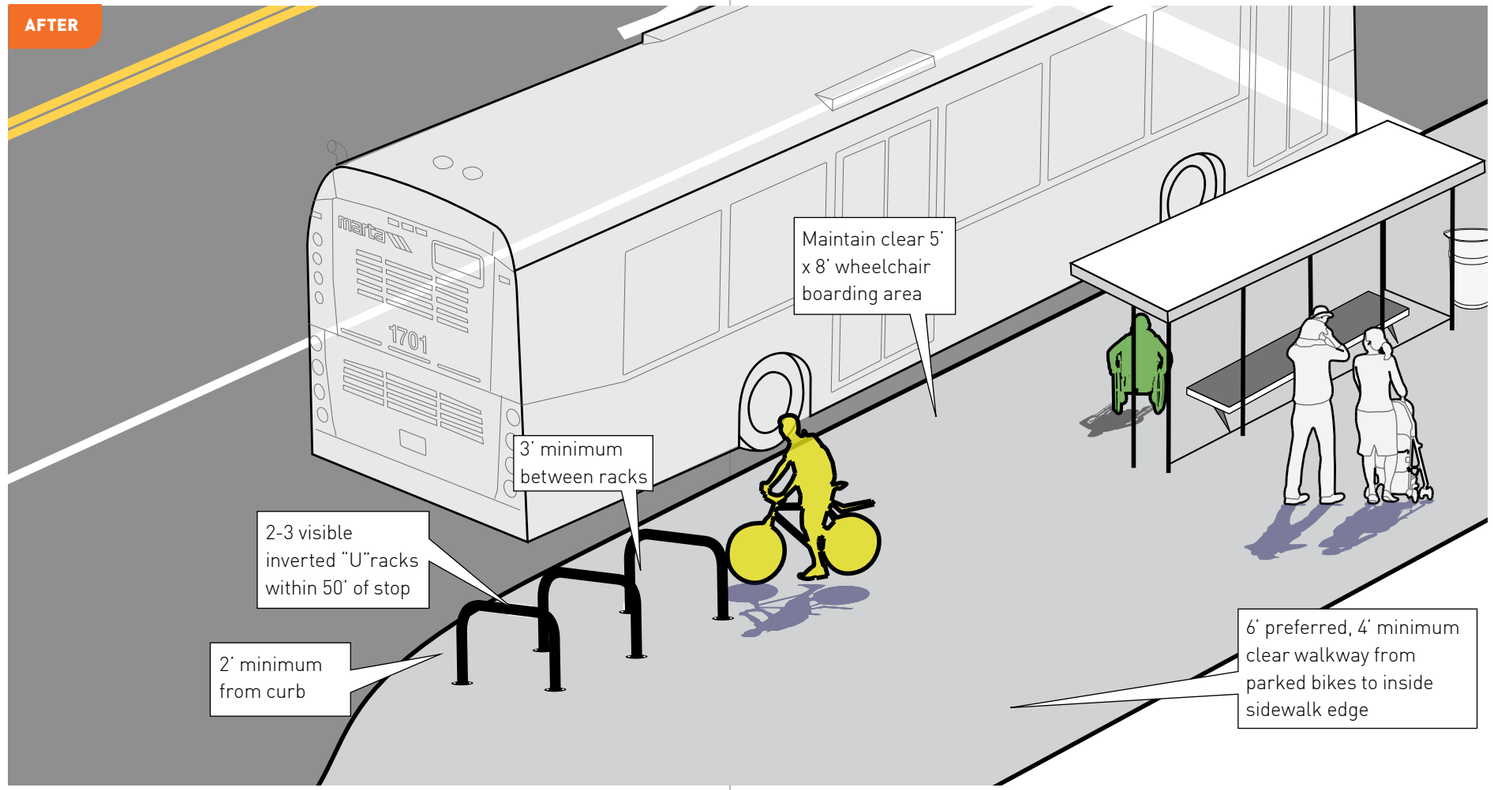
Informal, Free Bike Parking

Providing short-term bicycle parking is affordable, easy to implement, and does not require very much space.

Bike racks that adhere to best practice guidelines:

- are well-secured to the pavement
- provide at least two points of contact for the frame
- are well-lit and in full view of sidewalks and pedestrian paths
- do not impede on access points to bus stops or along walking routes

While basic inverted "U" racks placed adjacent to stops or outside stations are not intended to function as long-term parking, bicyclists who do not want extra security or to pay an additional fee for membership-based secure bike parking access may store bikes for longer periods of time. Transit agencies should plan for this, and install at least 2 inverted "U" racks at all transit stops regardless of service type. Covered bike parking can be a nice amenity for high-use locations.



Precedents

Atlanta, GA

Athens, GA

Jacksonville, FL

References

APBP *Essentials of Bike Parking:* Short Term Parking (pg 2)

APBP *Bicycle Parking Guidelines:* Chapter 2: Facilities (pg 2-1)

NACTO *Transit Street Design Guide:* Bike Parking

Transportation Research Board (TRB) *Integration of Bicycles and Transit*: Integration of Bicycle Parking and Transit (pg 34)

AASHTO *Guide for the Development of Bicycle Facilities:* Short-term bicycle parking facilities (pg 6-2)

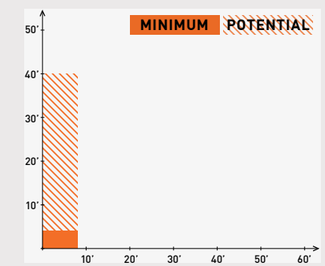
Application

TRANSIT SERVICE TYPE

High-demand local bus routes and heavy rail rapid transit.

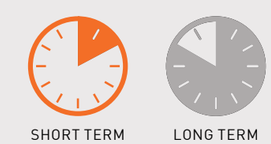
SPACE REQUIREMENTS

A 4'x8' space is required for one inverted "U" rack, three inverted "U" racks will require 8'x10', and a bike corral with twelve inverted "U" racks will require 8'x40'.



TIME

Most useful in locations where bikes are expected to be parked for two or fewer hours.



IMPLEMENTATION DIFFICULTY

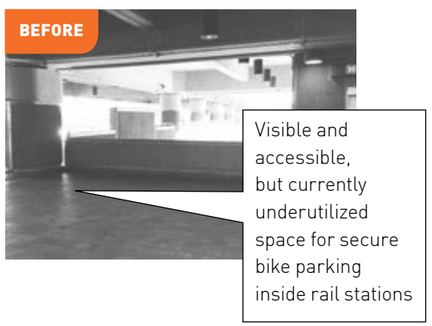
Low investment required for the purchase and installation of short-term bicycle racks.

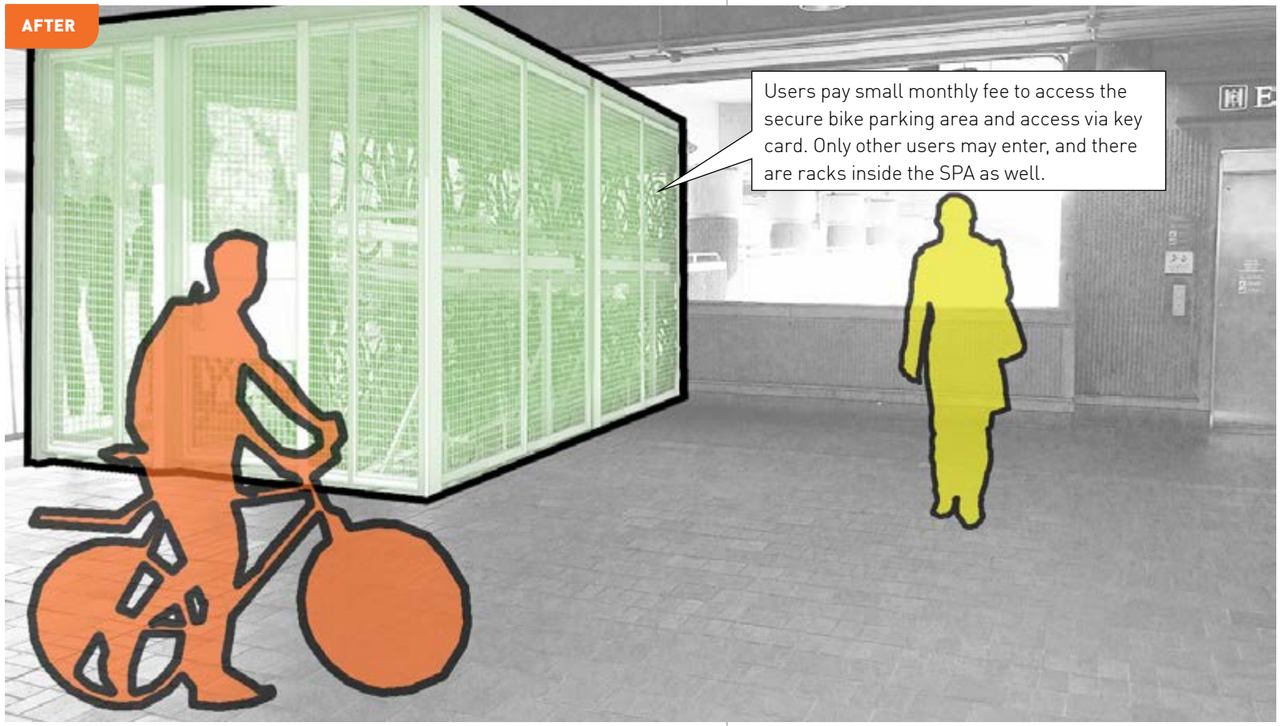
IDEA:

Secure Parking Inside Fare Gates

Recently, MARTA has installed wave racks inside fare gates at selected rail stations. These racks are well-used and provide better security than bike parking outside the station, but lack the added security of a Secure Parking Area (SPA) like a secure room or cage that is accessible only to people who sign up and pay a small monthly fee.

Secure parking inside fare gates may also take the form of attended bike parking or bike valet. Parking areas may be added in existing underutilized areas of the station that are visible to transit users.





Precedents

San Francisco, CA

Berkeley, CA

Malmo, Sweden

References

APBP *Essentials of Bike Parking:* Long Term Parking (pg 3)

APBP *Bicycle Parking Guidelines:* Chapter 2: Facilities (pg 2-1)

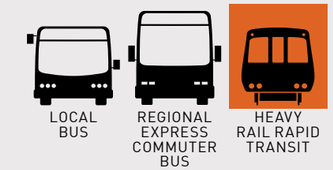
Transportation Research Board (TRB) *Integration of Bicycles and Transit*: Integration of Bicycle Parking and Transit (pg 34)

AASHTO *Guide for the Development of Bicycle Facilities:* Long-term bicycle parking facilities (pg 6-4)

Application

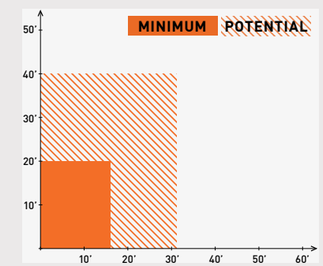
TRANSIT SERVICE TYPE

Heavy rail rapid transit.



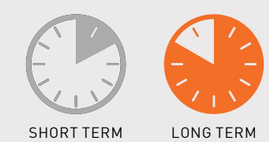
SPACE REQUIREMENTS

At least 16' x 20' to accommodate one row of inverted "U" or double-stacked racks, a 5' access aisle, and one row of vertical hanging racks. 31'x40' for freestanding indoor bike room with four rows of bikes and access hallway. Allocated space should align with demand.



TIME

Most useful where bikes are expected to be parked for more than 2 hours.



IMPLEMENTATION DIFFICULTY

Moderate investment required for the purchase, site planning, and installation of pre-fabricated structures.

IDEA:

Freestanding Secure Bike Parking Area

Freestanding Secure Bike Parking Areas (or SPAs) provide a modular form of long-term bike parking at relatively low cost. Bike SPAs are designed to accommodate at least one row of inverted "U" racks, and one row of vertical hanging racks. Traditional inverted "U" racks serve bikes that are too heavy to lift are too large to fit in a standard rack, such as heavy e-bikes, bikes with trailers, and cargo bikes.

Access to bike SPAs should be 24/7 and can be integrated with transit cards or passes. Self repair stands and vending machines for accessories and parts can add convenience for commuters.

Precedents

Seattle, WA

Boulder, CO

Portland, OR

References

APBP *Essentials of Bike Parking:* Long Term Parking (pg 3)

APBP *Bicycle Parking Guidelines:* Chapter 2: Facilities (pg 2-1)

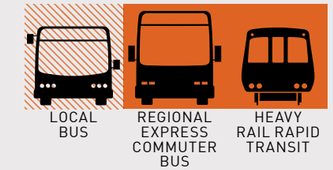
Transportation Research Board (TRB) *Integration of Bicycles and Transit*: Integration of Bicycle Parking and Transit (pg 34)

AASHTO *Guide for the Development of Bicycle Facilities:* Long-term bicycle parking facilities (pg 6-4)

Application

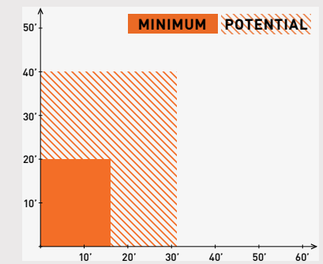
TRANSIT SERVICE TYPE

Regional commuter bus and heavy rail transit. Potentially suitable for local bus stops with high ridership.



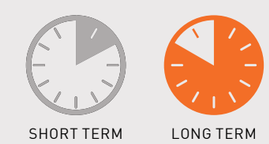
SPACE REQUIREMENTS

At least 16' x 20' to accommodate one row of inverted "U" or double-stacked racks, a 5' access aisle, and one row of vertical hanging racks. 31'x20' for freestanding indoor bike room with two rows of bikes and access hallway.



TIME

Most useful in locations where bikes are expected to be parked for two hours or longer.



IMPLEMENTATION DIFFICULTY

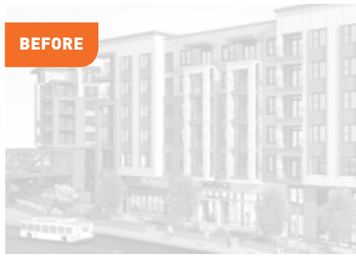
Moderate investment required for the purchase, site planning, and installation of pre-fabricated structures.

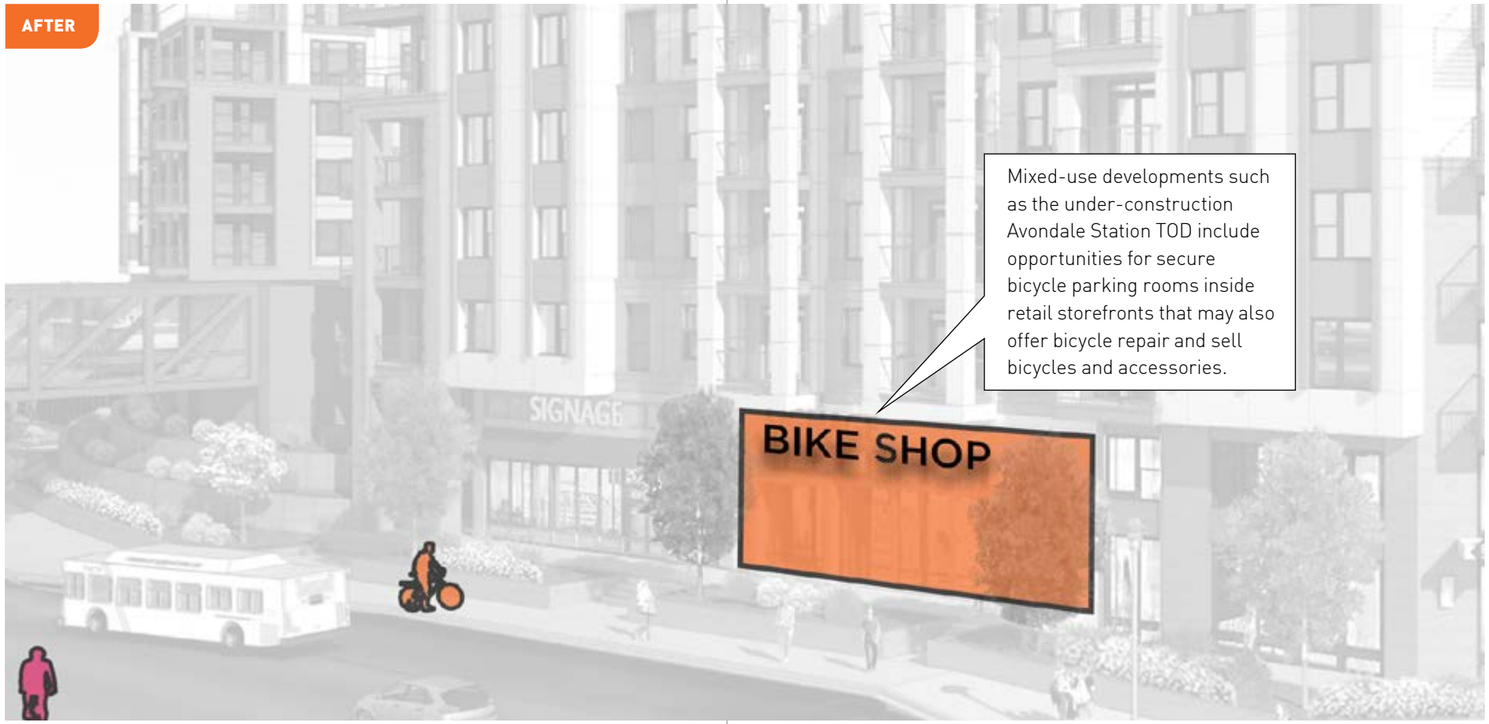
IDEA:

Integrated Indoor Bike Storage

Transit-oriented developments (TOD) such as the mixed-use development across the street from Avondale Station are adding residences, offices, and retail in close proximity to MARTA stations for easy live/work/play/transit access.

Additionally, many station areas such as Lindbergh have existing TOD and nearby retail establishments. This presents an opportunity to open a bike shop or other bicycle-oriented retail with the ability to integrate indoor bike storage and other amenities such as showers, lockers, and self-serve repair facilities.





Mixed-use developments such as the under-construction Avondale Station TOD include opportunities for secure bicycle parking rooms inside retail storefrontsthat may also offer bicycle repair and sell bicycles and accessories.

Precedents

Chicago, IL

Credit: American Assets Trust and Quintessential Photography

Portland, OR

Credit: Inhabitat.com

Erfurt, Germany

References

APBP *Essentials of Bike Parking:* Long Term Parking (pg 3)

APBP *Bicycle Parking Guidelines:* Chapter 2: Facilities (pg 2-1)

Transportation Research Board (TRB) *Integration of Bicycles and Transit*: Integration of Bicycle Parking and Transit (pg 34)

AASHTO *Guide for the Development of Bicycle Facilities:* Long-term bicycle parking facilities (pg 6-4)

Lloyd Cycle Station

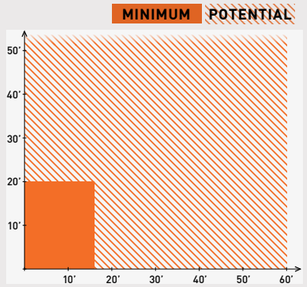
Application

TRANSIT SERVICE TYPE

High-demand local bus routes, regional commuter express bus, and heavy rail rapid transit.

SPACE REQUIREMENTS

At least 16' x 20' to accommodate one row of inverted "U" or double-stacked racks, a 5' access aisle, and one row of vertical hanging racks. 31'x20' for freestanding indoor bike room with two rows of bikes and access hallway. Allocated space should reflect user demand.



TIME

May be used for both short-term and long-term trips.

IMPLEMENTATION DIFFICULTY

Moderate investment required; operations or ownership may be outsourced to building owner or other interested party

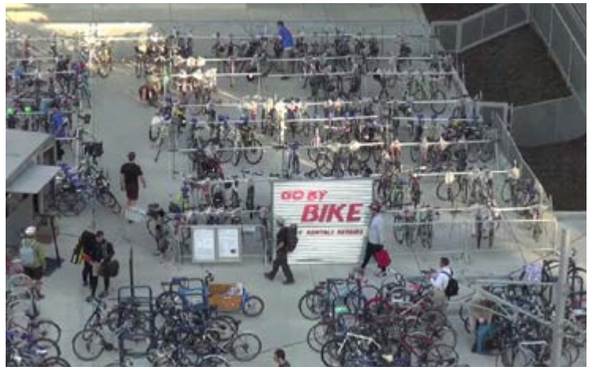
IDEA:

Station Bike Valet

Bike valet allows for efficient and personable bike parking. Popular for large gatherings such as sporting events or festivals, bike valet can also be used at transit stops and can provide short or long-term bike parking in a highly flexible, low-impact fashion. Bike valet does not require bicyclists to bring locks or carry helmets, as the bicycles are kept safe by a valet attendant who can also serve as a "bikes + transit ambassador."

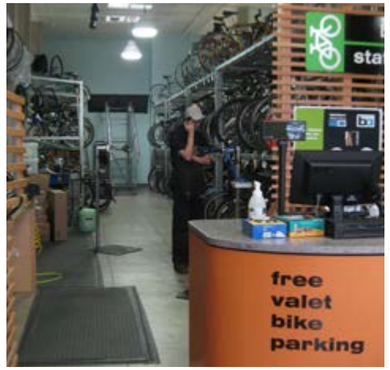
Bike valet is especially useful where space is abundant, and where existing bike parking can not accommodate large demand.

Precedents



Portland, OR

Long Beach, CA



Berkeley, CA

References

APBP *Essentials of Bike Parking:* Long Term Parking (pg 3)

APBP *Bicycle Parking Guidelines:* Chapter 2: Facilities (pg 2-1)

Transportation Research Board (TRB) *Integration of Bicycles and Transit*: Integration of Bicycle Parking and Transit (pg 34)

AASHTO *Guide for the Development of Bicycle Facilities:* Long-term bicycle parking facilities (pg 6-4)

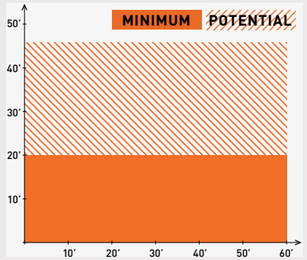
Application

TRANSIT SERVICE TYPE

Heavy rail rapid transit and local bus stops with high ridership.

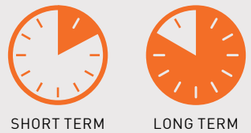
SPACE REQUIREMENTS

Varies to fit space available. Ideally at least 20' wide. For 100 bikes the footprint would require approximately 60' x 30'.



TIME

Open access parking inside fare gates may be used for both short-term and long-term trips.



IMPLEMENTATION DIFFICULTY

Moderate investment required; operations or ownership may be outsourced to building owner or other interested party

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