A PT A R E C O M M E N D E D  P R A C T I C E S

This guide represents a common viewpoint of transit operating/plan-
ing agencies, rail transit systems, consultants, engineers and general
interest groups. The application of any recommended practices
contained herein is voluntary. In some cases, federal or state
regulations govern portions of a transit system’s operations. In
those cases, the government regulations take precedence over
this document. APTA recognizes that for certain applications, the
recommended practices, for individual transit systems may be
more or less restrictive than those

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HOW TO USE THIS GUIDE

This guide represents a series of recommended best practices and
solutions for facilitating bicycle integration with transit services, and is
informed by the experiences of a diverse variety of transit agencies
across North America. The purpose of this document is to provide
insights to transit agencies seeking to facilitate
active first/last mile connections to transit, reduce congestion
and promote positive community development. Optimal strategies for
integrating bicy-
cycles with transit are context-driven, based on an agency’s model,
transit, geography, regulatory environment and other place-based
factors. To address this variability, each section of this document
is organized with a common structure that includes a decision-making
framework to guide planners and policy makers through the process
of evaluating their specific conditions and tailoring strategies to
meet the needs of their specific environment. As such, each section of
this document is designed to address specific issues related to bike
and transit connectivity, and can be used independently to meet a
community’s dynamic needs.

In addition to raising awareness about the challenges of bike/transit
integration, this guide is intended as a tool to:

• Increase transit ridership
• Develop effective bicycle-related policies informed by transit agency best practices
• Identify barriers to bicycle/transit integration and strategies to
meet the needs of those communities
• Navigate the challenges of policymaking for multimodal transit connections
• Reduce congestion and promote positive community development
practices
• Spark internal inspiration and education about the benefits of facilitating bicycle connections to transit
• Catalyze innovation and discourse in bicycle and transit integration

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INTRODUCTION

The intent of this guide is to illustrate the various roles transit agencies play in advancing bicycle and transit integration in a variety of contexts including:

...AT transit
Providing a range of bike parking options at transit facilities reduces pressure for car parking spaces and onboard bike demand (see parking, page 23).

...TO transit
Partnering with municipalities and other right-of-way owners improves safe routes to transit, making first- and last-mile connections more attractive, reducing local traffic and demand for car parking (see page 87).

...ON transit
Carrying bikes on or in buses and railcars helps riders complete a trip where and when transit service is less available, allowing transit to focus on their most productive routes (see bikes onboard, page 39).

...WITH transit
Enabling public or private bike-share services on or near transit properties augments the transit system with efficient connections (see bike share, page 57).

THE BICYCLE AS A TOOL FOR TRANSIT

Agencies will need to remain nimble in their bike services, both responding to and influencing changes in demand, technology and new opportunities.
The core mission of a transit agency is to provide equitable mobility to transit customers and to facilitate community connectivity. In today’s changing transportation landscape, agencies need to look beyond conventional transit services and prioritize mobility from the customers’ perspective to remain competitive and responsive to demand. Integrating bicycles with transit and a growing industry dataset to describe this trend.

Despite a lack of abundant data on bicycle and transit integration specifically, agencies are few industry-wide numbers related to bicycle and transit integration, many agencies across the United States have noticed an increased demand for secure bike parking.

For example, traffic crash data, is a nonendemic transit injury. These same populations may also be underserved by transit, including active modes. While this naturally includes people who already bike, discussions on bicycling. These same populations may also be underserved by transit, including active modes. While this naturally includes people who already bike, making bicycles an ideal mechanism to add transit linkages without major capital investment. Similarly, the relatively low-impact nature of biking may make it an easier choice than walking for some transit riders. Communities with aging populations, for example, should consider bicycle accommodations for riders with disabilities or impaired mobility.

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Despite a lack of abundant data on bicycle and transit integration specifically, agencies are few industry-wide numbers related to bicycle and transit integration, many agencies across the United States have noticed an increased demand for secure bike parking. The combination helps form a connected network of transportation options that fosters affordable mobility, equity, health and sustainable communities. Integrating bikes with transit has become standard practice among large and small agencies throughout the U.S. and Canada, though the degree of integration varies. Agencies are most successful at integrating bikes with transit when they clearly and unequivocally articulate their policies about why and how bikes support their system and community objectives. This customer focus requires planning for the complete trip, including the first/last mile connection to transit. Bicycling is a tool that transit agencies can use to enhance mobility for customers and to augment the scope of conventional services like bus, rail and ferry services.

Bicycles are a useful mode of transportation for short trips (one to three miles) beyond walkable distance but accessible without an automobile. Municipalities across North America are developing strategies to facilitate biking as a mode of transportation with a place-based mix of on-street facilities and bike-friendly policies. As these same communities leverage public transit assets in planning for development, it is critical for public officials, planners and advocates to recognize opportunities for active transportation connections to facilitate enhanced transit customer mobility, public health and economic development. Prioritizing bike routes to transit stops and stations, reducing traffic, and improving bicycle and transit integration (bike parking, bikes-on-board capacity) is essential to getting transit customers out of their cars and on a bicycle for the first or last mile of travel. Bicycle and transit integration strategies are context-driven based on the dynamic needs of individual communities.

Data paints a compelling picture of a rise in complementary travel modes. While there are few industry-wide numbers related to bicycle and transit integration, many agencies across the United States have noticed an increased demand for secure bike parking.

Despite a lack of abundant data on bicycle and transit integration specifically, agencies should focus on peer efforts (the case studies contained herein) and recognize the inter- vested interest in linking bikes with transit and a growing industry dataset to describe this trend.

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Bicycle ridership is increasing nationwide. According to the League of American Bicyclists, the United States saw a 62 percent increase in bike commuting between 2000 and 2013. The same survey of the 70 largest cities in the country revealed a 105 percent increase in bicycle commuting in communities designated as “bicycle friendly” by the League. The increase in bicycle ridership corresponds to a decrease in vehicle miles traveled (VMT). In 2011, APTA reported a 1.2 percent decrease in nationwide VMT.

Relevant data helps transit agencies identify and respond to demand for bicycle integration. Despite a growing industry dataset on bicycle parking at transit facilities and linked bike-share trips (those that include a connection to transit), there are still significant gaps for the full scope of core issues related to bicycle and transit integration, particularly regarding bicycles onboard transit vehicles. Without focusing on a specific core issue, transit agencies should seek to understand the following factors:

- Frequency of bicycle ridership to transit
- Frequency and duration of usage of bicycle parking facilities
- Barriers that prevent people from biking
- Barriers to using long-term storage (cost, lack of amenities, safety concerns, etc.)
- Mode of arrival at transit

Methodologies for these and other challenges related to the core issues are addressed throughout this document. Although these strategies are not exhaustive, they present an opportunity for innovation. As bicycle and transit integration increases across North America, agencies can leverage data from peer agencies to inform their decision-making.

In the absence of endemic data (data specific to bikes and transit), agencies should consider working with municipal partners to explore nonendemic data to help inform decision-making. This could include traffic congestion, crash data, municipal bicycle counts and other potentially relevant information. Agencies should also consider the means of data acquisition to ensure that data is representative of all potential users.

Transit agencies with an established strategic plan for bicycles typically include specific methodologies for tracking bike ridership. These counts, surveys and other methods should be conducted at regular intervals and tailored to address specific operational concerns over time. The matrix in Appendix A provides examples of data collection methodologies, including the type and frequency of surveys.
There are many factors which may drive bicycle integration with transit in your community, including a desire to reduce vehicle miles traveled (VMT), lower carbon emissions, lessen demand for automobile parking and many others. When planning for bicycle integration, agencies must articulate the outcomes that will be achieved by prioritizing bicycling and how those outcomes will be measured. This guide outlines strategies, best practices and specific tactics that can help transit agencies proactively respond to increased demand for bicycling and increase their competitiveness in today’s ever-changing transportation market.

Responding to Demand for Bicycling

Cities across the country are experiencing a surge in bicycling: This presents an opportunity to develop more holistic and integrated mobility networks in conjunction with transit. Proactive planning for increases in bicycling and opportunities for integration can drive increased transit ridership while minimizing conflicts and providing more connections.

Increasing Competitiveness

Transit customers are faced with a dynamic variety of transportation options. Bicycling, car share, private automobiles, Transportation-Network Companies (TNCs) and other options offer a variety of alternatives for customers to consider as a supplement or replacement for conventional fixed-route transit.

KNOW YOUR CONTEXT

The best approach to bicycle and transit integration is context-driven and depends on the dynamic attributes of the community. This includes an examination of:

- Land-use patterns, density and growth
- Topography
- Connectedness of the bicycle network and its proximity to transit
- Population and employment distributions
- Demographics (including age, income, education, race and ethnicity, language, gender)
- Transit ridership trends
- Bike ridership trends
- How are customers currently getting to transit?
- Who are the key stakeholders advocating for bicycle inclusion on your transit system? What are they asking for?

This list of illustrative questions is not exhaustive but provides a basis to examine a transit agency’s service context.

Figure 1: Bike share

The Core Considerations

- Bicycle parking
- Bicycles onboard transit vehicles
- Safe routes to transit
- Bike share
- Data collection
- Demand management
- Establishing bicycling dialogue with external stakeholders and customers
- Historic and emerging internal agency culture and prevailing organizational attitudes toward bicycle integration with transit

Figure 2: Safe routes to transit

Figure 3: Bike share

Figure 4: Establishing bicycling dialogue with external stakeholders and customers

Figure 5: Historic and emerging internal agency culture and prevailing organizational attitudes toward bicycle integration with transit

Figure 6: Data collection

Figure 7: Demand management

Figure 8: Establishing bicycling dialogue with external stakeholders and customers

Figure 9: Historic and emerging internal agency culture and prevailing organizational attitudes toward bicycle integration with transit

Figure 10: Bicycle parking

Figure 11: Bicycles onboard transit vehicles
Tools for Integrating Bikes with Transit

A lack of safe routes to transit creates a potential barrier for customers considering bicycling. In the context of our Types of Cyclists, which typically use their for the first- and last-mile connections to transit, and policymakers at a transit agency’s jurisdiction, transit still has a role to play. Safe routes to transit are an important consideration for agencies to ensure that customers have easy access to transit. A transit agency’s control over these routes is typically limited due to jurisdictional boundaries, but there are a variety of opportunities for agencies to take a leadership role in supporting bicycle connections to transit. Agencies should focus on understanding customer needs and clearly communicating those needs to the municipal authority. In some cases, transit agencies can take the lead on grand application or provide resources and cooperation to help develop safe bicycle routes.

Bicycle Parking

Bicycle parking at agency-owned facilities is the most dynamic tool to facilitate bicycle connections, because of the transit agency’s ability to control capital investments within their own property. Bicycle parking is also the most flexible tool for capacity-building in response to increased demand, and it can offset demand for bicycles onboard transit vehicles.

Bike Sharing

Bike sharing is another important tool for integrating bikes without affecting transit vehicle passenger capacity, and provides a convenient option to white bicycle riders who do not own or do not wish to transport and store their bicycles. Transit agencies can leverage the use of their property to accommodate ferry-like service among modes and as a part of bike-share operations. In some cases, transit agencies may control bike-share operations, making it even easier to adjust bike share according to customer needs.

Customer Communication

With bike parking and bike-sharing availability as foundational resources, agencies should prioritize communications with customers to promote the concept of riding a bicycle to access transit and to ensure that information on how to store or bring their bike on transit is readily available. Agencies should use this communication to educate customers about the potential for how bicycles are used in relation to transit.

Transit agencies can make their own property to accommodate higher transfer volume among modes and to facilitate bicycle connections to transit. A transit agency’s control over these routes is typically limited due to jurisdictional boundaries, but there are a variety of opportunities for agencies to take a leadership role in supporting bicycle connections to transit. Agencies should focus on understanding customer needs and clearly communicating those needs to the municipal authority. In some cases, transit agencies can take the lead on grand application or provide resources and cooperation to help develop safe bicycle routes.

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Transit should endeavor to reach all potential customers who bike, considering this spectrum and understanding what types of behavior to expect from each group. For example, an “Interested but Concerned” rider may be more likely to ride a bike for the first and last mile with the provision of a full suite of amenities, including a safe, protected routes to transit, secure bike parking and shower facilities. In contrast, “Strong and Fearless” riders may find it more comfortable to integrate bicycle trips with transit. Transit agencies should consider the potential for how bicycles are used in relation to transit.

Key Questions to Consider

- How does your agency define customers who bike?
- This is an important distinction, as it sets the tone for creating a full suite of amenities, including a safe, protected routes to transit, secure bike parking and shower facilities. In contrast, “Strong and Fearless” riders may find it more comfortable to integrate bicycle trips with transit. Transit agencies should consider the potential for how bicycles are used in relation to transit.

- What are the ridership patterns?
- Are bicycle trips unidirectional, riding transit to work in the morning and using transit for a return trip in the evening? Or are they round trips, biking both to and from destination with a portion of the trip by transit?

- Are riders using their personal bikes, bike share or a combination for the first/last mile?

- Are customers biking to transit, bringing their bikes onboard and then booking to their final destinations, or are they biking to their final destinations?

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### AGENCY AND PARTNER ROLES

Transit agencies often have limited jurisdiction outside their immediate property and right-of-way. The inter-agency nature of bicycle integration with transit requires an understanding of core issues grounded in customer concerns, coupled with a roadmap of the dynamic, complementary roles and responsibilities that may involve numerous stakeholder groups. In addition to the transit agency, stakeholder groups involved in bicycle and transit integration projects may include the following:

#### Nontransit Public-Sector Partners

These partners may include metropolitan planning organizations (MPOs), municipal governments and local departments of transportation (DOT) or public works (DPW), county governments and state governments/DOTs. Transit projects often require collaboration with a municipal DOT for projects that fall outside of an agency’s property. Other agencies such as MPOs may propose inputs for broader transportation plans throughout an entire region. Additional partners may include schools and other higher-education institutions, the federal government, multijurisdictional authorities, park boards and airport commissions.

#### Bike/Transit Advisory Groups

Local bike coalitions, advocacy organizations and transit advisory groups can provide valuable insights into customer needs and can help gain access to populations at the grassroots level. Advocacy groups are an avenue for presenting bike/transit integration ideas directly to executives and management. This may also include transportation management areas (TMAs).

#### Private-Sector Partners

Private entities can include small businesses, developers and employers. These stakeholders can serve as valuable partners, providing funding, land access and other resources. In some cases, particularly with developers, bike integration can be leveraged as an abatement tool to facilitate projects that benefit the public.

### Customer Concerns

<table>
<thead>
<tr>
<th>Question</th>
<th>What stakeholders can do to address concerns</th>
</tr>
</thead>
<tbody>
<tr>
<td>How do I get to transit via bicycle?</td>
<td>Influencer role; communicate customer demand to municipal authority; act as funding partner, provide policy support where possible</td>
</tr>
<tr>
<td>How do I get to transit without using my own bike?</td>
<td>Varies; developers may fund bike paths as an abatement and/or amenity in conjunction with development projects</td>
</tr>
<tr>
<td>Is there a safe place to store my bicycle?</td>
<td>Support role; employers may provide incentives for biking to and from work and use existing educational materials to illustrate resources</td>
</tr>
<tr>
<td>Can I extend my transit ride with a bike?</td>
<td>Varies; some advocacy groups may be contracted for operations of bike parking; advocates should otherwise provide information for users</td>
</tr>
<tr>
<td>Can I get to my transit stops with a bike?</td>
<td>Influencer role; advocate for better bike facilities and connectivity throughout the bike network; help identify demand, balanced with other mode advocacy</td>
</tr>
</tbody>
</table>

### Technical Issue

| Customer communication and education                                    | Lead role; responsible for planning, implementation and maintenance of facilities; data sharing |
|_______________________________________________________________________|__________________________________________________________|
| Bike parking at or near transit facilities                              | Lead role; provide accessible information on using bike services with agency services, including waysfinding and route maps |
| Bikes onboard transit vehicles                                          | Lead role; responsible for design, implementation, maintenance and administration of transit stations |
| Bike-share connectivity                                                 | Lead role; responsible for operations, policy and administration |
| Are bike-share resources available to all customers?                    | Varies; municipalities overseeing planning for bike share should work proactively to ensure adequate capacity at transit stations |

### Partners and Roles

<table>
<thead>
<tr>
<th>TRANSIT AGENCY</th>
<th>PUBLIC SECTOR</th>
<th>PRIVATE SECTOR</th>
<th>ADVOCATES</th>
</tr>
</thead>
<tbody>
<tr>
<td>Influencer role; communicate customer demand to municipal authority; act as funding partner, provide policy support where possible</td>
<td>Lead role; responsible for planning, implementation and maintenance of facilities; data sharing</td>
<td>Varies; developers may fund bike paths as an abatement and/or amenity in conjunction with development projects</td>
<td>Influencer role; advocate for better bike facilities and connectivity throughout the bike network; help identify demand, balanced with other mode advocacy</td>
</tr>
<tr>
<td>Lead role; provide central customer service with clear information on using bikes with agency services, including waysfinding and route maps</td>
<td>Lead role; provide accessible information on the bicycle network as it relates to transit facilities; includes wayfinding and route maps</td>
<td>Varies; provide information and incentives for using bike parking; can build own bike parking facilities near rail transit</td>
<td>Support role; provide information on using bikes and encourage bicycle usage; prioritize bike share should work proactively to ensure adequate capacity at transit stations</td>
</tr>
<tr>
<td>Lead role; responsible for design, implementation, maintenance and administration of transit stations</td>
<td>Support role; should communicate customer demand to transit agencies; provide data about facility use</td>
<td>Support role; incentivize and encourage bicycle usage with transit; communicate customer demand to transit agencies</td>
<td>Support role; provide information to the community; communicate customer needs</td>
</tr>
<tr>
<td>Lead role; responsible for operations, policy and administration</td>
<td>Varies; where feasible, work with bike-share operators to ensure clear rules for dogs and bikes and efficient placement for stations</td>
<td>Varies; may fund bike-share programs through sponsorship and advertising; may provide incentives for using bike share</td>
<td>Influencer role; promote the use of bike share at the grassroots level and provide education on bike-share resources; work with providers on discounted use and access for underprivileged users</td>
</tr>
</tbody>
</table>

### Customer Needs

<table>
<thead>
<tr>
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<th>What stakeholders can do to address needs</th>
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<tbody>
<tr>
<td>Increasing public awareness of bike-share programs</td>
<td>Lead role; provide grassroots messaging to understand regional populations; incorporate transit resources into educational materials; provide translations; support events; provide amenities such as parking and showers</td>
</tr>
<tr>
<td>Improving bike-share facilities and connectivity</td>
<td>Lead role; responsible for planning, implementation and maintenance of facilities; data sharing</td>
</tr>
<tr>
<td>Enhancing bike-share operations</td>
<td>Lead role; responsible for operations, policy and administration</td>
</tr>
<tr>
<td>Ensuring adequate capacity at bike-share stations</td>
<td>Lead role; responsible for operations, policy and administration</td>
</tr>
<tr>
<td>Ensuring bike-share resources available to all customers</td>
<td>Varies; municipalities overseeing planning for bike share should work proactively to ensure adequate capacity at transit stations</td>
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<td>Providing incentives for biking to and from work and use existing educational materials to illustrate resources</td>
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INVENTORY AND LEVERAGE EXISTING RESOURCES

Transit agencies should develop and maintain a complete inventory of bicycle-related amenities, including types and quantity of bike parking at each station, as well as a prioritized replacement schedule. This may include:

- **Data**
  - Understand what data your agency collects about customers who bike.
  - Do existing data collection methodologies include bicycles?
  - What data can you leverage to help understand bicycle ridership and potential for growth (bike parking utilization, manual counts on board transit vehicles, surveys, etc.)?
  - Can data on customers who bike be extrapolated from other nonendemic sources, such as commute trip reduction (CTR) data or general customer satisfaction/ market surveys?
  - What customer service feedback exists related to bicycles?

**Policy**

- How are bicycles regulated on and around transit? An agency’s policies and positioning of bikes can support or hamper the use of bikes with transit.
  - Are policies related to onboard vehicle storage working?
  - Are there frequent conflicts between other users and ADA requirements?
  - Are there existing programs and policies in place at the agency to facilitate bicycle trips?
  - Are there policies in conflict with one another regarding the integration of bikes with transit?

**Assets**

- What is the length of available bike paths?
  - Do vehicles have bicycle-storage capabilities?
  - Are there frequent conflicts between other users and ADA requirements?
  - What customer service feedback exists related to bicycles?

**Leadership**

- Agendas should take advantage of interdisciplinary, internal advocates within the organization to help inform conversations and provide feedback on service.
- Agencies should have a complete understanding of what assets are both formally and informally dedicated to bikes.
- Transit agencies should develop and maintain a complete inventory of bicycle-related amenities, including types and quantity of bike parking at each station, as well as a prioritized replacement schedule.

**CHECKLIST: SETTING GOALS AND DEFINING METRICS**

- Decision-makers and planners must clearly articulate agency reasons to facilitate bicycling and for building capacity for bikes and transit. Examples include:
  - Reduce automobile parking congestion.
  - Address high demand for existing bicycle parking facilities that are at or below capacity by accommodating bikes on transit vehicles.
  - Safety: policy demand for bicycle amenities on transit; meet the needs of customers.
  - Cultivate progressive optics for the agency.
  - Articulate why bike and transit integration fits into an agency’s mission, vision, and strategic priorities, including region and agency objectives for equity, sustainability, and health.
  - Facilitate connections between modes.
  - Bridge key gaps in the transit network.
  - Identify how funding priorities promote multimodal transportation.

- Planners must determine what data points are relevant to the agency’s position on and prioritization of integrating bikes and transit. This will include the following:
  - Bike-related frequency to stations.
  - Onboard demand for bicycle storage.
  - Bike-share transfer rate.
  - Incidence of bicycle collisions with transit vehicles.
  - Bike-queue duration.

- With data, programmatic and policy frameworks in place, the agency should query for facility upgrade
  - With data, programmatic and policy frameworks in place, the agency should query for facility upgrade
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**DRIVING INTERNAL DECISION-MAKING AND CULTURE**

Transit agencies should adopt an official policy for facilitating bicycle transportation within their region and for utilizing available transit services. The policy should:

- Clearly articulate that bicycle access to its facilities and services is encouraged and why.
- Set requirements for regular evaluation of bicycle use and demand (annually at a minimum).
- Develop mechanisms for periodic review of policies to ensure they meet the changing needs of transit customers who bike.
- State intentional to actively collaborate with external stakeholders interested in biking, understand what their priorities are and how they align. For example, design, fund and construct bicycle facilities. This includes cycle enthusiasts, bike-share operators, advocacy groups and developers.

Agencies committed to bicycle integration should establish an official program with a distinct charter. In outlining the goals and objectives of investments in bicycle integration, agencies can mitigate challenges resulting from any internal concerns related to bicycles. Once established, transit agencies should use the program to integrate bikes into existing agency documentation to ensure consistency. This includes:

- O&M manuals
- Design guidelines
- Construction documents
- Human resources health and wellness initiatives

Agencies should advocate for an agency-wide strategic plan that includes:

- **Definition of vision, purpose, and objectives**
  - Process for prioritizing bicycle infrastructure investments
  - Methodology for tracking bicycle transportation
  - Evaluation procedure for current and proposed infrastructure
  - Identification of funding sources
  - Design criteria and agency preferences

See Appendix D for a list of peer agency strategic plans and links for reference.
Transportation professionals are accustomed to having timely, accurate data to inform planning and decision-making. Data collection and analysis are built into transit systems to understand ridership, schedule reliability, customer comments and many other factors to measure performance and make appropriate adjustments. Decisions that are data-driven are considered objective, responsible and arguably unquestionable.

In contrast, data about bicycle use in relation to transit use has been difficult to collect and may suffer from significant gaps. Often the best available data is collected sporadically as a snapshot or is self-reported. The absence of definitive data analytics may raise questions and thwart progress toward making improvements in bike-transit integration.

This document offers ways to move forward while improving datasets.

**GETTING STARTED**

**MOVING FORWARD WITH DATA**

**SET THE FOUNDATION**

Establish bike-transit integration as an agency priority based on its benefits in meeting other agency and community objectives, such as market relevance for mobility, managing car parking impacts, managing on-board space, sustainability and equity. Share those benefits with key stakeholders in the agency.

- Include language specific to bikes and access to transit in any strategic or long-range plan strategies.

Reference the identified benefits and plans in each bike project and each effort to improve data collection and quality.

- Identify options to fund robust data collection methods, including test projects, as well as institutionalized procedures. Funding may come from internal sources, grants, partnerships or other external sources. Funding for test-based, trial improvements might also be folded into a related project.

**ESTABLISH A DATABANK**

Understand the purpose of data you may need. How will each metric be used to plan or make decisions? Gather and centralize available data from internal and external sources. Select formats and reporting functions that can be easily updated and provide sufficient compatibility to observe relationships among datasets.

- Use direct data when available. Identify inferences that might be drawn from indirect data.

- Identify gaps or limitations with internal data, and identify alternate methods to address those data points in the short term; develop an approach for capturing these data points in the long term.

- Partner with external sources to add or adjust survey questions, counts or methods to help fill data gaps. Considering working with other agencies, jurisdictions, advocacy groups, bike-share providers; offer to assist in collections or funding.

- Establish a schedule for recurring data collection for current bike services and facilities, such as bike parking and bikes on board. Use methods readily available and feasible, while establishing more robust data collection methods. Identify how data collection will be funded and who will collect data (e.g., interns, transit drivers en route, injured transit drivers who can be assigned other work, agency research staff, volunteers among staff or community groups, consultants, university collaboration, automated methods).

- Maintain updates to external source data, such as demographics, local bike network improvements, bike-commute survey data, bike-share use, participants in bike programs or trip-reduction projects who log bike trips.

- Share methods and outcomes among other agencies. Use agencies commonly identified as peer agencies, as well as other agencies doing innovative projects.

**PRO TIP**

Look for opportunities to combine bike data collection with other agency projects:

- **Shared-mobility/innovative mobility**: Include biking and bike share in agency efforts to integrate new mobility options as a complement to transit, such as ride-hailing and car-sharing. Gather metrics specific to biking as part of the evaluation plan.

- **Technology upgrades**: If your agency is updating technology to count passengers, parking occupancy or other recurring metrics, look for opportunities to add in bike-use technologies, mode of access data, etc.

- **Agency surveys**: Ask research and outreach staff to include mode of access to transit questions in all standard agency surveys and during community outreach for specific projects; provide ‘bicycle’ as an answer choice.

- **Car parking management**: In agency efforts to manage car parking demand at park-and-ride facilities or in neighborhoods, include a bike element as a first/last mile alternative to driving and parking a car.

**TRANSPORTATION PROFESSIONALS**

Transportation professionals are accustomed to having timely, accurate data to inform planning and decision-making. Data collection and analysis are built into transit systems to understand ridership, schedule reliability, customer comments and many other factors to measure performance and make appropriate adjustments. Decisions that are data-driven are considered objective, responsible and arguably unquestionable.

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**TRANSPORTATION PROFESSIONALS**
Meeting the needs of multimodal commuters does not begin or end with the installation of bike racks at transit facilities and onboard transit vehicles. Transit agencies should proactively facilitate and promote the use of bicycles for first-mile and last-mile travel in and from their facilities. Empowering transit customers to bike the first and last mile requires clear communications with riders to not only promote, but also educate and inspire. Internal and external communications on bicycling are critical to success, both to educate employees and to drive demand instead of playing catch-up to demographic trends. Both internal and external promotion are key.

**Internal Dialogue**

Internal organizational culture could potentially be a barrier to expedited strategies for facilitating cycling. Operational issues in particular may prompt opposition from some internal stakeholders. It is critical that agencies ensure that communication about bikes is disseminated at all levels of staff to articulate the context and justification for bike/transit integration.

**External Dialogue**

External marketing culture could potentially be a barrier to expedited strategies for facilitating cycling. Operational issues in particular may prompt opposition from some external stakeholders. It is critical that agencies ensure that communication about bikes is disseminated at all levels of staff to articulate the context and justification for bike/transit integration.

- Identify an internal executive-level champion to advocate for bicycle improvements.
- Develop an internal, cross-disciplinary bicycle advisory group that consults on all aspects of bicycle integration.
- Leverage other bicycling-focused agencies, including operators who bike, to spread the word about the benefits of bicycling for customers and for the agency. Deconstruct perceived barriers that commonly oppose these efforts.
- Data is critical, especially for mitigating operations and maintenance concerns.
- Present and peer agency experience, such as the case studies contained in this document, can be a valuable resource.
- Keep customer service informed on all bicycle improvement projects and concerns.
- Includes the following:
  - Modifications made at facilities for cyclists
  - Service impacts that will affect cyclists
  - Construction project staff must think proactively about how their work may affect all users, including bicyclists, and use the proper channels to communicate those efforts.
  - Communicate bicycling as part of the agency’s wellness program.
  - Provide secure bicycle parking, showers and lockers.

**Employee Engagement**

- For each year, Sound Transit Bicycle Program does the following:
  - Promotes an “Unofficial Bicycle Commuter Handbook” that’s updated each year and made available to staff. It provides advice on bicycles, clothing, weather, route finding and other useful information.
  - Promotes a “Bike Buddy” map on Google Maps and asks experienced cyclists to volunteer to help less experienced ones with route planning. Employees can look on the map, find a co-worker who lives near them, and seek their guidance or company during their first few rides to and from work.
  - Holds a “How to Look Professional After Cycling to Work” brown-bag lunch.
  - Promotes an “Unofficial Bicycle Commuter Handbook” that’s updated each year and made available to staff. It provides advice on bicycles, clothing, weather, route finding and other useful information.
  - Holds a lunchtime bike repair clinic to teach basic bicycle maintenance.

**Pilot Programs**

Small-scale pilot projects are a great way to test ideas and assess feasibility. Policy makers are likely to be supportive and less apprehensive about a pilot project versus a full-scale implementation because they provide a controlled environment in which to test new ideas. Documentation and evaluation are critical components of pilot projects, as data on these initiatives will serve as a key indicator of success. Data is necessary for the analysis and to build a foundation for expanding bicycle projects on a broader scale across the transit agency.

**TTC Bike Tree Deployment**

In 2015, the Toronto Transit Commission (TTC) installed bicycle repair stops (toolset, pump, and stand or wheel lock) at 10 stations across the city as a one-year pilot. A survey was distributed via the agency’s website and social media to gain customer feedback. The response was overwhelmingly positive. As a result, bicycle repair stops expanded to 30 stations with plans to add an additional 20 the following year, covering about 70 percent of the system.
CASE STUDY

NEW YORK CITY BIKES-ON-BUSES PILOT

New York City Transit does not currently have bicycle racks on buses system-wide.

Background

Advocacy groups have been strongly urging MTA Bridges & Tunnels to add a bike path to the Verrazano-Narrows Bridge. It is one of three bridges within New York City that cannot be biked; the others are the Throgs Neck Bridge and Whitestone Bridge. Although, adding a bike path to the Verrazano-Narrows Bridge is cost-prohibitive, adding bike racks to two local bus routes is a more cost-effective way to provide bike access.

Utilization Data

The agency tested multiple rack/mount configurations from two manufacturers, Sportworks and Byk-Rak. All the racks and mounts tested proved to be reliable and relatively simple to maintain. Based on feedback from the depot personnel, the Ten Second Bracket from Sportworks is the preferred mounting system, as it is more readily moved from one bus to another. As expected, rack usage is significantly higher during the summer months and minimal during January, February and March.

Next Steps

Bike racks are currently on 36 of the Orion 40-foot 2011 buses running on the S53 and S93 routes in Staten Island. Plans for expansion to two routes from Eastchester Depot in the Bronx are underway. The new routes are the Q50 and the Bx23. The Q50 runs over the Whitestone Bridge between the Bronx and Queens, and the Bx23 goes between Co-op City and Pelham Bay Park. These routes will be serviced by 24 Orion NG Hybrid 2009 buses.
BIKES AT TRANSIT

INTRODUCTION
Parking is a critical piece of a holistic bicycle integration strategy because it makes it easier to use bikes to access transit, and it instills confidence in the bikes’ security. Both secure and open bike parking are significantly less expensive than automobile parking and occupy much less space for each transit rider. Agency design standards should provide appropriate type(s) and sufficient space for bicycle parking to meet the current and future demand. Secure bicycle parking allows riders to feel safe in knowing that their bikes will remain protected from theft, the elements and other damage while in storage. Conversely, a lack of adequate bike parking facilities will discourage and preclude potential riders.

Without adequate parking, cyclists will naturally turn to informal parking solutions like signs, trees and street furniture. This creates an adverse effect on the streetscape, and potential conflicts with ADA access and pedestrian safety.

Bike parking serves an important operational function by decreasing demand for on-vehicle storage. Transit agencies should invest in secure bike facilities to minimize conflicts with transit riders onboard vehicles by reducing the number of bikes onboard, and increasing access to transit. This can be achieved by using quality data (if available) to determine the type of parking to provide and how much space to allocate for bikes. When direct data on bike parking is not available, agencies may refer to nonendemic datasets to inform decisions.

Agencies should strive for thoughtful design for bike parking rather than being subject to last-minute decisions to keep pace with demand. In addition to incorporating defined mandates for bike parking within established station design guidelines, agencies should consider the following hierarchy of questions when making plans to accommodate bicycles. This data-focused approach enables agencies to remain flexible and responsive to demands for added capacity and to enhanced technological solutions that may better suit the local market’s needs.

What is the context of this stop/station?
Where do transit agencies have leverage at this location?
What data is available?
How much space should be allocated for bike parking?
How will bike parking be administered?
What is the fare structure and usage policy?
• Are there weather considerations?
• Is bike parking integrated into operations plans?
• Will Operations and Maintenance (O&M) stakeholders be engaged when planning for installation?
• Will bike parking displace any current maintenance functions?

What is the fare structure and usage policy?

• Funding
• Real-estate interest
• High ridership volume
• Education on benefits of TOD for developers

How will bike parking be maintained?

• Will administration be managed in-house or via an external contractor?
• Will the facilities be interoperable throughout the transit system and beyond?
• What is the procedure for managing abandoned bikes?

What data is available?

• Transit ridership
• Bike ridership
• Rider surveys
• Existing bike parking audit
• Nearby bike/car crash data

How much space should be allocated for bike parking?

• What type of bike parking facilities meet operational and user needs today?
• How much capacity is there for abandoned bikes?
• Are there local code requirements?

How much space is available for bikes?

• Can different rack configurations be used to add capacity without adding space?
• Are there underused parking spaces in existing facilities that can be reclaimed and reused for bicycles?
• Does the station need to accommodate on-site bike share?

FORMAL TRANSIT-ORIENTED DEVELOPMENT (TOD)
• Rural/suburban
• Urban
• Event-driven demand
• Transit property or city Right-of-Way (ROW)
• Proximity to safe and connected bike network

Nearby bike/car crash data

• Are there weather considerations?
• Is bike parking integrated into operations plans?
• Will Operations and Maintenance (O&M) stakeholders be engaged when planning for installation?
• Will bike parking displace any current maintenance functions?

Where do transit agencies have leverage at this location?

• Funding
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What type of bike parking facilities meet operational and user needs today?
• How much capacity is there for abandoned bikes?
• Are there local code requirements?
BIKES AT TRANSIT

INTRODUCTION
Context, ridership and flexibility are core factors when considering the installation of bike parking at transit facilities. Agencies must consider what type of parking is required as well as its location and operational impacts. As it relates to capacity planning, agencies should think in terms of the amount of space to allocate to accommodate existing demand and anticipated growth. These decisions should be informed by consistent methodologies for regularly gathering data on bike ridership.

HOW MUCH SPACE TO ALLOCATE FOR BIKES
The capacity for bike storage at transit facilities is context-driven. Is the station in a new development or the center hub in a transit-oriented development? Is the station/stop located near a nonmotorized trail or bicycle corridor? These factors help determine the amount of space to allocate for bikes, and they provide insight into future demand for bike parking. In the absence of data specific to bicycle ridership, agencies can use a portion of transit ridership origin/destination data as a metric:
• Given the relative cost of bicycle parking compared with other amenities, transit agencies should provide as much bike parking as possible. Many transit agencies set a quantitative metric for bicycle parking based on peak transit ridership. These numbers typically include a factor for existing ridership and a percentage for anticipated growth. While this formula based on percent capacity plus percent for growth has been adopted across several North American transit agencies, the precise percentage of ridership should be tailored to match the station's context. If detailed data is available specifically for bicycling transit, that may be a better database to make decision-making:
  - All areas for bicycle parking should be noted in as-built station drawings.
  - Capacity should not be added at the expense of user access. At bike racks, regardless of their type or configuration, requires setbacks to mitigate overcrowding, facilitate efficient access and maximize capacity.
  - Parking facilities that are over capacity and congested can be a detriment to transit customers riding a bike for their first/last mile.
  - Agencies should proactively plan for growth and integrate bicycles into expansion plans.

Agencies with high demand for bike parking but limited space can combine different types of parking with different rack solutions (see Appendix B). For example, double-tiered racks can double capacity with vertical integration, and wall-mounted hanging racks can be used to add capacity in undersized locations without space for an in-ground U-rack or hoop rack. These solutions can be used in conjunction with sufficient ground-level spaces for customers who would have trouble lifting a bike.

CONFIGURING SPACE FOR BIKES
Many options are available to transit agencies and municipalities when selecting the type(s) of bicycle parking that best suit the community's needs. Each type has significantly different implications on capacity (how many bikes can be accommodated in a given space), budget, operations, customer service and security.

Agencies must consider risk tolerance for some of the more advanced technological parking solutions, such as smart racks versus a proven technology. This table in Appendix B lists general types of bicycle parking in use at transit stations across North America. Agencies should provide a range of options, including free and fee-for-service bike parking.

Bike racks may be supplemented with additional features, including canopies for weather protection, enclosed cages and valet service. Transit agencies should create messaging with reminders about safe locking strategies, even for bicycles in cages. Cage walls should be transparent and secure, such as aluminum mesh, but must deter vandalism. The cages should also be equipped with at least two doors for emergency exits. In addition to security-related design attributes, agencies should provide customer-facing messaging that educates and reinforces proper operations to maximize both security and safety.

The case studies in this section illustrate real-world applications of different rack types with additional services and amenities.

DATA COLLECTION
Regular data collection at bicycle parking facilities is critical for planning and ongoing service. Many agencies conduct a frequent and regular inventory of bicycle parking spaces to provide a snapshot of demand for each type of bike parking at each station. That allows agency staff to assess the condition of bike parking facilities on a regular basis and to determine priorities for investment in expansion and/or upkeep. Agencies should not be paralyzed by gaps or ambiguities in the data, and instead look for opportunities to estimate the appropriate amount of parking for customers at a given facility. This can be accomplished using nonmetric data (not specific to bicycle parking utilization) or with anecdotal information from facility operations and customers.

CASE STUDY
BART STAFF CONDUCT AN ANNUAL INVENTORY OF EVERY TYPE OF BIKE PARKING SPACE IN THE SYSTEM. TO OBTAIN A SNAPSHOT OF DEMAND FOR EACH TYPE OF BIKE PARKING AT EACH STATION AND TO CONFIRM THE ACCURACY OF BART’S RECORDS ON THE AMOUNT OF BIKE PARKING AVAILABLE AT EACH STATION. THESE INVENTORIES USE A STANDARDIZED METHODOLOGY TO ENSURE ACCURACY AND CONSISTENCY OF RECORDS. IN ADDITION TO A STANDARD SURVEY TOOL, STAFF FOLLOW A STANDARD PROCEDURE:

1. Survey on one day per station between 10 a.m. and 3 p.m. on Tuesdays, Wednesdays and Thursdays in late September. A bike expected to reflect peak demand for the system because it is during normal school and work hours, on BART’s busiest days, and when Bay Area weather is typically still dry.

2. Compare the results at each station to the previous year's results. Where there are larger-than-expected changes, perform a second count to determine if the discrepancy reflects an actual fluctuation or a surveying error.

3. Interview the surveyors to find out what tools would help them do the most accurate job possible.

Bike parking in this NJ Transit parking garage is over capacity, with more than two bikes in a single hoop rack. This is unsafe and may deter new riders from using the facility.

RACK PLACEMENT AND DESIGN GUIDANCE

Agency strategic plans and station designs should prioritize bicycle amenities to facilitate first/last-mile connections (see Appendix B).

Bicycle rack manufacturers have design specifications for their products, which agencies should use as a baseline. However, this should be adaptable to meet customer needs.

Bike parking should not impede pedestrian flow or ADA access in and out of station facilities and/or transit vehicles.

Bikes should be located in high-visibility areas to enable both active (direct line of sight with station personnel) and passive (community visibility) security.

Racks should be designed and/or oriented to allow for parallel parking.

Multiple points of contact should be provided between the bike frame and the rack to enable riders to lock individual components.

Agencies must consider station access as cyclists are navigating to parking facilities:

- Is there a safe route to navigate through station property that minimizes conflicts with cars, transit vehicles and pedestrians?
- Does the wayfinding system adequately facilitate wayfinding to bike parking?

Different rack sizes and shapes can add additional capacity to open racks or enclosed parking solutions (such as bike cages).

Mixing vertical racks with double-stackers or open U-racks is a simple way for agencies to maximize limited space.

Bicycle program and/or other knowledgeable staff should inspect bicycle facilities before they are permanently installed to ensure adherence to design guidelines and that facilities meet customer needs.

ACCOMMODATING DIFFERENT BICYCLE TYPES AND CUSTOMERS

Transit facilities serving high volumes of aging and/or disabled populations may consider placing a limited number of priority spots located at strategic areas within or immediately around the entrance to a transit station. Racks should be specially painted and marked to indicate restricted use.

Agencies should proactively provide bicycle commuters with information on proper locking strategies to reduce the risk of theft and to instill rider confidence in transit parking facilities. Communities with high numbers of alternative types of bicycles such as adaptive bikes (such as those designed for people with disabilities), cargo and/or fat bikes may require wider spacing.

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SECURITY FOR BICYCLE PARKING

Monitoring
If available, CCTV should be directed at all bicycle parking areas to deter vandalism and theft and to increase chances of recovery. CCTV can be provided to cyclists if damage or theft occurs. This provision may present operational challenges, such as data storage space for video and staff time.

Threat and Liability
Agencies should consult their legal counsel for guidance on liability related to bicycles that are lost, vandalized or stolen. This will serve as the framework for an official policy articulating the agency’s responsibilities, as well as a clear procedure outlining steps that users and agency personnel must take in the event of a bicycle theft.

Rack Design
Rack designs should enable customers who bike to independently lock any easily removable parts, such as wheels, seat posts or anything attached with a quick-release mechanism. Rack designs should also allow customers to independently remove/install to increase chances of recovery. CCTV footage can be provided to cyclists if damage or theft occurs. This provision may present operational challenges, such as data storage space for video and staff time.

Lighting
"Transit agencies should empower customers to maximize the security of their bicycles by following safe practices. These include the specific rules associated with proper operation of secured bike parking facilities as well as optimal locking strategies to maximize security, such as locking the frame and wheels independently."

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Maintenance Externalities

Some underused spaces that might otherwise make good locations for bike parking could serve important operations and maintenance functions. For example, snow removal may require a designated space for dumping plowed snow. Similarly, emergency vehicles may require certain areas remain available for their use. It is important to collaborate with maintenance and emergency personnel to identify these critical uses and devise solutions that avoid conflicts.

FEE STRUCTURE

Fees are typically nominal or nonexistent for bike parking, but they can serve a variety of important administrative functions. Hourly rates are a way to mitigate clutter from long-term bike storage. Bike parking fees are typically nominal and should remain low.

- Fees should not be considered a source of revenue.
- As the cost of bicycle parking increases, its usage is likely to plateau or decline.

Bike parking policies should align with an agency's modal priorities (e.g., if an agency wishes to prioritize biking, the fees should be low in comparison with car parking).

Agencies should always provide free bicycle parking options to accommodate visitors and spontaneous users.

PROS AND CONS

**Pros**

- Reduces clutter of little-used or abandoned bikes.
- Discourages bike owners from storing their bike at the transit facility permanently instead of at home.

**Cons**

- Payment system must be operated and maintained, using agency resources.
- A requirement for payment may discourage use and drive down occupancy rates.
- Potential equity issue if bicyclists are charged, but drivers are not charged at auto park-and-ride facilities.

CASE STUDY

**ABANDONED BIKE POLICY**

Bicycles left on TriMet property for more than 72 hours may be impounded. Bicycles that are parked illegally or found to obstruct, interfere with or impede the use of the transit system can be removed immediately.

Impounded bicycles must be stored for at least 30 days while the agency makes reasonable attempts to notify the owner of the impoundment and provides a description of how and by what date the bicycle must be claimed.

TECHNICAL BIKE PARKING RESOURCES

*“Bicycle Parking Guidelines, 2nd Edition: A set of recommendations from the Association of Pedestrian and Bicycle Professionals” is a tool for sustainable transportation.*

Bike parking is a critical strategy for promoting cycling for transportation and recreation. Convenient, easy to use and secure, bicycle parking encourages people to replace some of their car trips with bicycle trips and helps to legitimize cycling as a transportation mode by providing parking opportunities equal to motorized modes. APBP encourages communities and professionals to use this document to make informed decisions about planning excellent spaces and facilities for people to park bicycles.

CASE STUDY

**BIKEEKP SMART RACKS**

Bikeep locks the bike from the frame and from the wheel. Each station is equipped with sensors, loudspeaker alarm, distress signal forwarning and surveillance camera. Bikeep can interface with any system (mobile app, building access cards, transportation cards, bar codes etc.) that agencies have in place to make bike parking easy. These bike racks can be set up with restricted access by an app or an access card, so that only specific people can use it.

CYCLESAFE APP

CycleSafe is a bicycle rack and locker manufacturer. The CycleSafe bike locker management app allows users to find, reserve, rent and pay for bike locker usage on demand. With the mobile app, anyone with a smartphone is able to use the system.

BIKES AT TRANSIT INNOVATIONS & RESOURCES

BART MODULAR BIKE PARKING FACILITY

BART has been developing a fully engineered, custom but modular Bike Station design. It can be constructed in multiple configurations to meet site and capacity requirements, and has flexibility to serve as a parking-only facility or have a module that is set up for an attached retail/maintenance facility—with significant time savings, design savings and potentially construction savings.
In May 2016, NJ Transit opened Wesmont Station, a new commuter rail station in Wood-Ridge, New Jersey, situated on its Bergen County Line. The new station is located adjacent to a significant, residential development built on an environmentally remediated 70-acre former industrial site.

Prior to the station’s opening, NJ Transit’s Capital Planning Department was asked to evaluate and select the most appropriate location at the station to install bicycle racks to accommodate anticipated demand while the adjacent commuter parking lot was under construction and to serve future needs. Capital Planning fulfilled this request by conducting a site visit to evaluate the site and perform a conditions assessment. The proposed rack locations were identified based on proximity to platform access points, pedestrian pathways and other considerations, including weather protection, lighting and security. After Capital Planning determined the preferred location for the bike racks, a sketch was prepared showing the racks’ layout. Spacing recommendations were included to facilitate full usage of all racks.

One year later, the site selection appeared to have been successful, as the racks are being used nearly to capacity. The photo below was taken in August 2017. As of that date, the parking lot had been completed and made available to customers, and the bike parking in this location continued to be heavily used.

Metro Bike Hub is the name of LA Metro’s program offering high-capacity bike parking in a controlled access, secure facility to support bike trips to and from key transit stations. Metro also manages over 80 bike lockers throughout the system. Where bike locker demand is high, the Metro Bike Hub technology and functions including access control, registration, user monitoring and interoperability will accommodate for retrofit to self-serve shelf designs.

Metro opened its first location in 2015 at the El Monte Transit station, which provides the flexibility to operate as self-serve bike parking and offer staffed services. Staffed hours are limited to test the business potential of bike commuter retail services. The Hollywood/Vine Bike Hub opened in the spring of 2017 with similar operations.

LA METRO BIKE HUB

Metro selected a vendor that provides access control, secure bike parking management and retail services for the El Monte, Hollywood/Vine and Culver City locations. The same access control and secure parking management is used at Union Station to allow interoperability. However, the bike retail and repair shops at Union Station are negotiated through a lease with a separate company. As Metro tests these operating models, it will allow for flexibility to support ongoing operations and provide staffed/controlled services as staff and infrastructure plans and opened. Metro Bike Hubs will offer more than just secure bike parking; they will also act as venues for access to mobility resources.

Customer registration for secure parking involves a carefully reviewed application process that includes photos of the applicant/user, state-issued license/ID card and bicycle(s). Memberships can be purchased annually ($60), monthly ($12) and weekly ($5), with discounts available for qualified individuals (seniors, students, Medicare recipients, etc.). Membership provides access to and use of all Metro Bike Hub locations. Free bike clinics are also offered to the public to educate the community about bike commuting, riding skills and repair tips.

These initial locations include staffed services as a strategy to offer face-to-face support and to educate transit patrons about bicycling. The locations evolved through leveraging various opportunities associated with financial support from station improvements. Metro joint-development property and grant programs emphasize active transportation to help address needs at stations with high demand. The Metro Bike Hubs will offer more than just secure bike parking; they will also act as venues for access to mobility resources.
CASE STUDY
REGIONAL TRANSPORTATION DISTRICT (DENVER)

The Bike-n-Ride shelter project was initiated with the award of Denver Regional Council of Governments (DRCOG) grant funds in 2015. Bike-n-Ride shelters provide long-term, secure and weather-protected bicycle storage for commuters making connections to and from transit at RTD stations. Commuters can combine a bus trip and bike ride by keeping their bike in the shelter overnight or during the day and biking the first or final mile to or from a transit stop. Currently operated by Boulder County, Bike-n-Ride shelters are available at the following locations:

- Downtown Boulder Station (14th and Walnut)
- U.S. 36 and Table Mesa Station
- North Boulder (28th and Iris)
- Eighth and Coffman Park-n-Ride
- Superior (Eastbound McCaslin)
- Hover Street & Highway 119/Diagonal in Longmont

**Bike-n-Ride Shelter Project Background and Timeline**

June 2015: Two applications for Bike-n-Ride shelter projects at RTD stations were submitted for consideration in the federal Congestion Mitigation & Air Quality (CMAQ) grant program. RTD provided letters of support for these projects. The grant applications were submitted by:

- 36 Commuting Solutions (36CS) for two shelters along U.S. 36 at U.S. 36/Broomfield and U.S. 36/Sheridan Stations
- Northeast Transportation Connections (NETC) and the city of Aurora for three shelters at Central Park, Peoria and Iliff stations on the University of Colorado A Line and R Line

September 2015: DRCOG awarded capital grants to both the Bike-n-Ride shelter projects. As is typical with capital grants, no funding was provided for the ongoing operations or maintenance costs associated with the shelters. The grants included funding for:

- Construction of the shelters
- Marketing-related activities to promote usage of the new facilities

May 2016: DRCOG informed RTD and the grant recipients that TMOs are ineligible grant recipients for capital infrastructure projects. RTD agreed to accept the grants on behalf of the TMOs with the following agreement on responsibilities:

- RTD will provide administrative support, staff time and electrical power to the shelter.
- Staff time will provide construction management of the project due to the federal requirements.
- RTD will not contribute any funding to the project; the total local match contributions will be made by the stakeholders (36CS, NETC, Aurora).
- RTD will own the shelters, in accordance with grant requirements.

January 2017: Planning staff began the process to formalize IGAs with the local governments as the first step to move forward with construction. As part of the IGAs, the stakeholders would be required to take on financial responsibility for all operations and maintenance costs associated with the shelters. RTD requested further information, including a detailed cost estimate, before the IGAs could be completed.

**Capital Budget and Estimated Construction Costs**

A detailed internal cost estimate was developed for each shelter, including site prep, structure materials, installation and a contingency, resulting in an average cost per shelter of approximately $109,176. The table below provides a breakdown of the grant construction costs and remaining available funds.

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The table above compares how the capital and O&M costs associated with the Bike-n-Ride shelters compare to both auto parking and bicycle lockers. The capital and O&M are in line with costs per space for other types of parking.

For RTD, the cost per vehicle to accommodate auto parking is roughly ten times more than the cost per bicycle.

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BIKES ON TRANSIT

INTRODUCTION

Bicycle transport onboard transit vehicles is a vital component of a holistic bicycle access strategy and can be provided on the interior and exterior of transit vehicles. In some cases, the ability to bring bikes onboard may extend the first/last mile beyond the standard 1-3 mile station area, allowing transit users to consider longer trips, as well as previously inaccessible routes, like bridges with bike paths and steep hills. Many transit systems allow access to bikes onboard transit vehicles to facilitate transit linkages. This both extends the reach of transit for commuters with longer first/last mile connections and facilitates regional bike tourism. Spatial constraints and competing uses like ADA access may hinder efforts to facilitate bicycling. Careful planning is necessary to both mitigate concerns and empower change.

In addition to expanding the reach of transit and potentially increasing regional ridership, successful onboard accommodations for bicycles can open new opportunities for regional tourism and provide commuters more flexibility by allowing more linked trips. Allowing transit customers to bring bikes onboard also provides a valuable safety net in the case of inclement weather or unexpected mechanical issues like flat tires. For transit operators, onboard bicycle storage can also serve to supplement fixed bike parking at stops and stations.

Onboard bicycle storage can be a divisive issue between agencies and bicycle activists, so it is important to understand the benefits and limitations of bicycle storage onboard transit vehicles from both the transit operator and user perspectives. The general areas include:

• Station accessibility and boarding
• Policies, procedures and regulations
• General design best practices
• Accommodations for alternative bicycle types
• Bikes on buses
• Bikes on rail
• Bikes on ferries and other transit

Bicycle design is a factor to consider when addressing integration onboard transit vehicles. The following recommended practices pertain to standard adult-sized bikes.

BOARDING AREA ACCESS

Rail and bus stations present an additional challenge for riders intending to bring their bicycles onboard transit. How are people getting to the transit vehicle? Transit agencies should consider the best route for customers with bikes to travel through stations and provide clear signage for bicycle entry and exit in order to minimize potential conflicts with pedestrian traffic.

Stairways and Escalators

Agencies generally prohibit bicycles on escalators for customer safety and to minimize potential conflicts with pedestrians. Stairways designated for bicycle usage can be enhanced by installing bike channels or runnels to make it easier for customers with bikes to get their bikes up and down stairways. They allow riders to roll bicycles up and down a smooth ramp instead of carrying them. Bike channels should be designed to avoid interference with the use of railings, and they should be mounted at an angle conducive to easy movement up and down the stairs.

RUNNELS 101

A bicycle stair channel, also called a rail, or a running ramp, or a bike gullet, is a channel that runs alongside a pedestrian stairway. It is intended for pushing a bicycle up or down as one walks along the stairway. Stair channels are designed wide enough to generally prevent the feet from getting caught in vertical rails, have a scratch-resistant finish, be free from gaps and include a ledge on both ends and require little or no maintenance.

RUNNELS

The elements of a good bicycle rack for public transit vehicles apply to vehicle exterior and interior bicycle racks, except as noted.

• Fast and intuitive to load and unload:
  First-time users should be able to use the rack without instruction. Loading and unloading need to be accomplished quickly to minimize time at transit stops. Straps and buckles usually do not meet this standard.

• Independent load and unload:
  Each bike position can be accessed while the rack is unoccupied. Bikes should not become entangled. Pedals should not interfere with one another.

• Fits a wide variety of bikes:
  Bike variables include wheelbase, handlebar style and width, wheel diameter, tire width, and frame geometry. Rack should fit bikes with a crossbar, tandems, and aero bikes, as well as electric, bikes cargo bikes and tandems generally cannot be accommodated.

• Complies with ADA requirements:
  The bike rack areas should be separate from designated ADA waiting and boarding locations.

• Does not place transit users in conflict:
  Space for bicycles onboard transit vehicles should be as separate as possible from ADA and passenger usage.

• Maximizes bike density:
  Holds as many bicycles as possible while leaving enough passenger space to avoid conflict.

• Not prone to misuse:
  Bicycle racks are designed and do not rely on straps or other means of holding. Bicycle racks may be secured but should not become entangled. Pedals should not interfere with one another.

• Holds bike securely:
  Bicycles are retained and do not swing or sway excessively during normal vehicle operation or in severe to moderate crashes. The rack should not rock or damage the bikes.

• Safes:
  There are no pinch points between moving parts, no sharp corners or edges, no protrusions that may be at eye level either for children or adults, and no tripping hazards. Vehicles interior rack users are not vulnerable if the vehicle starts in motion during the rack loading process, especially for any rack that requires the bike to be tilted or extended vertically.

• Transport and loading to and from rail:
  First-time users should be able to use the rack without instruction. Loading and unloading need to be accomplished quickly to minimize time at transit stops. Straps and buckles usually do not meet this standard.

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Durable:
  The rack should require no routine maintenance. The rack should be corrosion-resistant and long lasting for the environment.

Deprive to misuse:
  Misuse includes both accidental misuse as in loading a bike improperly and intentional misuse such as vandalism.

Summary

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Summary

The bike rack areas should be separate from designated ADA waiting and boarding locations.
ACCOMODATING ALTERNATIVE BICYCLE TYPES

As bicycle ownership increases, manufacturers are responsive to changing needs and are developing a more diverse product line to accommodate different types of ridership. This presents a challenge to transit agencies, as bicycles may diverge from standard dimensions and weights. While transit agencies should make every effort to accommodate bicycles, limited space onboard makes decisions regarding balance between passenger safety, customer satisfaction, and operational efficiency critical. Agencies must weigh the benefits of providing accessible bike-share programs against transit operations and circulation needs.

For external bike racks on buses, agencies must adopt and adhere to established policies and guidelines. The agency’s official policy guidelines should specify that transit vehicles will be designed to encourage and accommodate small-sized/bikes. Bikes with wheelbases 24 in. and above can be treated as standard bikes and placed on vehicle racks.

CUSTOMERS SHOULD BE DISCOURAGED FROM BRINGING BIKESHARE BIKE SHARING UNIVERSITY

Customers should be discouraged from bringing bike-share bikes onboard transit vehicles. Frame design on bike-share bicycles may prevent proper securing on the exterior of the vehicle to indicate where bikes should load. Racks should be located near vehicle doors, with markings on the exterior of the vehicle to indicate where bikes should load. Racks should be installed low enough so bicycles do not obstruct bus washing equipment.

Children’s bikes may present challenges because they vary in size. The wheelbase is a critical factor in determining where a bike can be accommodated onboard transit vehicles. Many transit agencies that initially implemented highly restrictive policies for onboard bicycle access note an easing of limitations over time. Ride restrictions tend to self-regulate with good passenger behavior. Policies need to be flexible for exceptions based on community needs. Cap Metro, for example, does not allow bicycles inside the bus unless it is the final run of the night, in which case operators may use their discretion.

Many transit agencies that initially implemented highly restrictive policies for onboard bike access note an easing of limitations over time. Rides tend to self-regulate with good passenger behavior. Policies need to be flexible for exceptions based on community needs. Cap Metro, for example, does not allow bicycles inside the bus unless it is the final run of the night, in which case operators may use their discretion.
Excluding demand-response transit, conventional bus and bus rapid transit (BRT) compose the majority of public transit systems in the United States. Absent other transit options, bicycle transportation is an efficient means to extend the bus commute, and onboard storage gives users the ability to fill in gaps, an important amenity for commuters requiring a bicycle for both the first and last mile. The use of bus transit provides a significant opportunity to enhance bicycle accessibility and augment transit service by bridging the gap in the first and last mile for transit customers. Buses, while providing more flexibility than modes with dedicated ROW (BRT, light rail and commuter rail) are still subject to first-last mile gaps for commuters, thus making active connections important for all types of transit. Despite increased flexibility, buses suffer from significant spatial limitations due to capacity constraints. Planners should consider stop-spacing, dwell times and passenger loads when deciding how to accommodate bikes onboard buses. BRT systems may provide opportunities to test interior racks, depending on the system’s features.

What data is available related to bikes onboard vehicles?

- Anecdotal information from bus operators
- Informal observation
- Passenger Surveys
- Automated counters
- Customer service information
- Pass-up data (passengers with bikes left behind because rack is full)

What exceptions does the agency wish to make to onboard policies?

- Operators’ discretion
- Simple push-button manual counters
- Periodic observation counts at screen-lines
- Cameras
- GPS
- Customer surveys
- Customer communication

How can agencies minimize burden on operators?

- Automatic counters
- On-time performance data
- Customer satisfaction surveys
- Rack space availability
- Automatic counter usage

How are customers educated on policies?

- Collaborate with local advocacy groups; incorporate transit policies with their educational materials
- Provide training racks for customers to demonstrate operation at local events
- Produce simple infographics in stations and at transit stops
- Online training videos

How can agencies be evaluated?

- On-time performance data
- Customer satisfaction surveys
- Rack space availability
- Manual counter usage

How can demand be managed?

- Self-policing
- Capacity-driven policies
- Rear door loading for articulated buses
- Permitting folding bikes onboard in the folded position

How are onboard racks deployed on vehicles?

- How does the procurement process engage the public?
- Pilot program on select buses
- Capital investment across fleet
- Phased implementation for all new vehicles
- Retrofit existing fleet

How are external stakeholders represented in the planning process?

- Focus group of bus operators
- Union leadership
- Staff who ride bicycles
- Contract bus operators
- Do other departments need to be engaged (O&M, safety and risk staff, operators, etc.)?

How are corridor mode-share and potential ridership evaluated?

- What data is available on corridor mode-share and potential ridership?
- How are onboard racks deployed on vehicles?
- How are internal stakeholders represented in the planning process?
- What exceptions does the agency wish to make to onboard policies?
- How can agencies minimize burden on operators?
- How are customers educated on policies?
- How can agencies be evaluated?

What is the nature of bus service?

- Bus rapid transit
- Local bus service
- Intercity bus
- Express bus service

What data is available on bus service characteristics?

- Municipal traffic and crash data
- Passenger survey data
- Messaging from advocacy groups

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Physical capacity limitations are a factor for bikes on buses. Bikes are difficult to store internally on intercity buses due to crowding and physical capacity constraints, making it difficult to program space for interior bike racks. In addition, bikes are difficult to stabilize without a rack because of the vehicle’s frequent starting and stopping. Exterior racks are an alternative and are available in configurations for single or two or three bicycles.

LOADING AND UNLOADING

The loading process for bikes typically takes less than 30 seconds. Loading/unloading is undertaken by able-bodied adults who are relatively familiar with bike rack operation. Lack of knowledge can be a significant barrier to entry for some users fearing delay and anxiety and any subsequent externalities (such as service delays or lack of trips). Translating agencies should educate users about racks on buses before boarding. This includes:

- Collaborating with local advocacy groups to ensure instructions are included in educational materials they produce for bicycle commuters.
- Providing “practice racks” at key station facilities and public events. Some rack vendors have installation kits for medium- and light-duty vehicles for under $1,000.

Bus operators face challenges related to bike rack loading at major stops because of the vehicle’s frequent starting and stopping. The vehicle may be difficult to stabilize without a rack because of the vehicle’s frequent starting and stopping. Exterior racks are an alternative and are available in configurations for single or two or three bicycles.

Bicyclists may face difficulty loading bikes on bike racks if the outermost rack is occupied, forcing the rider to negotiate the space between other bikes and the front of the bus. Education can help mitigate this problem, by getting users to load from the innermost rack first. Ultimately, this conflict is unavoidable in dense areas, as customers who will disembark the bus in different locations. Staggered racks may present a partial solution by leaving lateral space between the bikes. Agencies have varying approaches to this issue; it is essentially to clearly define standard operating procedures for addressing rack loading to minimize confusion and enhance the customer experience. The following links provide examples from King County Metro in Seattle on teaching customers how to properly load bikes on bus racks and how the bikes should be positioned.

CASE STUDY – CAP METRO MOBILE BUS TRAINING RACK

Demand on Bus Operators

Consistent pressure to maintain on-time performance, minimize dwell times and super-vise fare collection—all while ensuring vehicular safety on street—places a significant responsibility on bus operators during daily operations. Loading procedures (particularly in agencies requiring operators to assist customers with loading upon request) and data collection should be structured in a way to minimize demands on bus operators. Additional demands placed on operators (such as loading outside of fundamental roles and responsibilities) may create challenges with labor relations. Plans and policies developed to accommodate bicycles on buses must be developed with input from bus operators to take advantage of their firsthand knowledge.

Bus Maintenance

Routine bike rack inspections should be conducted as part of bus maintenance and operator pre-trip procedures. Rack testing and lubrication must be checked during bus maintenance procedures. Vehicle storage is a common point of opposition from some transit operations and maintenance (O&M) staff resulting from the additional length of a bike rack in front of the bus. When in the folded position, however, bikes on racks produce a marginal increase in a bus’s footprint and should not adversely affect bus vehicle storage.

Bikes on Transit: Core Bus Considerations

LOADING AND UNLOADING

CAPACITY

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- Providing “practice racks” at key station facilities and public events. Some rack vendors have installation kits for medium- and light-duty vehicles for under $1,000.

Bus operators face challenges related to bike rack loading at major stops because of the vehicle’s frequent starting and stopping. The vehicle may be difficult to stabilize without a rack because of the vehicle’s frequent starting and stopping. Exterior racks are an alternative and are available in configurations for single or two or three bicycles.

Bicyclists may face difficulty loading bikes on bike racks if the outermost rack is occupied, forcing the rider to negotiate the space between other bikes and the front of the bus. Education can help mitigate this problem, by getting users to load from the innermost rack first. Ultimately, this conflict is unavoidable in dense areas, as customers who will disembark the bus in different locations. Staggered racks may present a partial solution by leaving lateral space between the bikes. Agencies have varying approaches to this issue; it is essentially to clearly define standard operating procedures for addressing rack loading to minimize confusion and enhance the customer experience. The following links provide examples from King County Metro in Seattle on teaching customers how to properly load bikes on bus racks and how the bikes should be positioned.

CASE STUDY – CAP METRO MOBILE BUS TRAINING RACK

Demand on Bus Operators

Consistent pressure to maintain on-time performance, minimize dwell times and supervise fare collection—all while ensuring vehicular safety on street—places a significant responsibility on bus operators during daily operations. Loading procedures (particularly in agencies requiring operators to assist customers with loading upon request) and data collection should be structured in a way to minimize demands on bus operators. Additional demands placed on operators (such as loading outside of fundamental roles and responsibilities) may create challenges with labor relations. Plans and policies developed to accommodate bicycles on buses must be developed with input from bus operators to take advantage of their firsthand knowledge.

Bus Maintenance

Routine bike rack inspections should be conducted as part of bus maintenance and operator pre-trip procedures. Rack testing and lubrication must be checked during bus maintenance procedures. Vehicle storage is a common point of opposition from some transit operations and maintenance (O&M) staff resulting from the additional length of a bike rack in front of the bus. When in the folded position, however, bikes on racks produce a marginal increase in a bus’s footprint and should not adversely affect bus vehicle storage.
VEHICLE OPERATION

Federal standards for bus operators relevant to bicycle interaction include knowledge of stopping distances for large vehicles, as well as visibility limitations for commercial vehicles. Some states mandate a 3 ft minimum passing distance for bicycles. Transit agencies must take a leadership role in mandating consistent and safe vehicle operating requirements for bus operators. Buses are large vehicles and carry with them a variety of challenges for safe operation, including:

- Visibility challenges (blind spots) that affect operator views of the street including other motorists and cyclists trying to maneuver around buses; Larger blind spots for the driver, especially toward the rear of the vehicle
- Potential wind blast effect when passing cyclists in close proximity
- Longer acceleration and deceleration times
- Frequent stops and turning maneuvers toward the curb
- Wide turns at intersections, which may be difficult for cyclists, motorists and pedestrians to accurately anticipate
- More time required to pass

Bike racks for buses are designed to meet standard turning radii with (above) and without (below) bikes on deployed bike racks. Detailed drawings provided by Sportworks.

The addition of bicycle integration with buses may appear to present additional challenges for bus operators including reduced visibility, wider turn radii and managing on-time performance with customers loading and unloading bikes. While there may be instances where these challenges ring true, in general, front-end bus bike racks are designed to reduce blind spots and turning radii (as illustrated below at left). As new operators are shown passing and unloading produces minimal impacts on on-time performance for both low- and high-demand routes.

Understanding these challenges and their true impacts can help offset concerns among bus operators and union leadership. Education and training are therefore crucial to addressing these challenges and optimizing safety.

GUIDELINES FOR EFFECTIVE OPERATOR TRAINING

Integrate bicycle-specific information into agency training materials for bus operators, including:

- Mandate a 3 ft passing rule for bus operators when passing bicyclists.
- Provide illustrative examples of different types of street treatments and how buses, bikes and other users interact.
- Outline standard operating procedure (SOP) for bike rack operation and for interaction with customers who bike.
- Include information on the “door zone” (the space an open door on a parked car can extend into the street—typically 1 to 4 ft—posing a risk of unexpected collision with bicyclists) and how this can impact a bicyclist’s movement on the road.
- Require practical, on-road training for bicycle-specific scenarios.
- Integrate SOP for bicycle interactions into operator recertification programs.
- Work with operators to understand, address and mitigate their concerns related to bicycle interactions with buses.
- Training programs should acknowledge a degree of unpredictability with bicycles and stress the need to slow down and/or stop in such situations.
- Training programs should provide an analysis of typical bicycle behavior and how this may affect a bicyclist’s decision-making.

CASE STUDY

METRO TRANSIT BUS OPERATOR TRAINING

In Minneapolis, Metro Transit trains bus operators to prepare for a variety of situations involving customers with bicycles, as well as bicycles in traffic. Trainers show new operators a video the day before they begin their field training. It begins with two operators, each of whom have at least 30 years of safe operating experience at the agency and describes their approach to safe driving. It then reviews agency guidelines and local laws governing bicycle operation. It describes the different experience levels of bicyclists in traffic and the different behaviors exhibited by each group, with tips for safe bus operation in their presence. It includes a video taken from an instance in which an operator did not follow the guidelines and was subsequently involved in a frightening crash. The final third of the video is dedicated to pedestrian safety.

Metro Transit’s Safety Department conducts an annual safety campaign focused on bicyclists. The LOOK + SEE campaign reminds drivers to keep a 4 ft distance between the bus and bicyclists at all times; this goes beyond the state law, which requires at least a 3 ft distance. Aside from training and bulletins, a white bike (an old bike painted white to denote a cyclist killed in a crash) is placed near the entrance of each bus garage with a LOOK + SEE sign. Safety also organizes the annual bus Roadeo, a competition among operators. A challenge featuring a person loading a bike at one stop and unloading it at the next rotates in and out of the competition.

Always maintain 4 feet between your bus and a bicyclist.
BIKES ON TRANSIT
BIKES ON RAIL: APPROACH TO DECISION-MAKING

The fixed nature of rail systems emphasizes the need for radial connections on alternate modes for the first and last mile of travel. Absent other transit options, bicycle transportation is an efficient means to extend the rail commute, and onboard storage gives users the ability to fill in gaps, an important amenity for commuters requiring a bicycle for both the first and last mile.

Rail vehicles may have higher capacity for onboard bicycle storage due to the size and number of cars in a trainset.

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BIKES ON TRANSIT
CORE RAIL CONSIDERATIONS

OPERATIONS AND CAPACITY
Rail systems that run multiple cars with large interiors mean the system has a higher capacity for bicycle storage onboard. With added capacity comes competing uses, such as passenger luggage. ADA compliance and general passenger volume. There are a few ways to manage onboard bicycle volume:

1. Provide a designated “bike car” with additional capacity
2. Provide bicycle racks in designated locations of each car
3. Allow customers to stand with their bikes

TIME BETWEEN STOPS
• Short run times between stops creates more pedestrian movement around bicycles

DWELL TIME
• Short dwell times make it difficult to accommodate high volumes of bike demand

CAR MAINTENANCE
• Trains tend to be rearranged depending on maintenance cycles and daily operational factors

INTERIOR DESIGN
• Bikes should be staged in areas with easy access to exits without impeding customers moving throughout the train.
• Bicycle storage placement will differ for railcars with high versus level interiors.

RAILCAR DESIGN PRO TIP
Rail lines with shorter dwell times and spacing between stops should avoid vertical racks to minimize hazards as a result of starting and stopping while handling a bicycle on one wheel. Consider an open layout where bikes can be secured parallel to a bar or other fixed vertical or horizontal attachment secured to the outer walls of the vehicle.

LOADING AND UNLOADING
Railyard operations generally make it difficult to ensure that bike-specific railcars are always located in the same location on every train. There are a variety of formal and informal methods for handling this issue, including:

• Platform announcements can help to direct customers with bikes to the correct boarding location.
• Education before riders board the train is critical to ensure that customers self-manage their activities appropriately, to the greatest extent possible.
• Decals on the exterior of designated bike cars can be helpful if a significant volume of rolling stock is capable of accommodating bicyclists. Railcars should be consistently spaced in the train so customers can predict where to board, when possible.

Customer satisfaction studies may prove useful to transit agencies in communicating adequate data to customers.

CASE STUDY
BIKE SMART ON BART

In the San Francisco Bay Area, BART combines clear text and infographics onboard and at stations to provide customers with rules for bringing bicycles onboard trains. These include:

1. Bikes should avoid crowded cars.
2. Bikes are not allowed in the first car of the train at any time.
3. Bikes are not allowed in the first three cars during commute hours.
4. Bikes should not block aisles, doorways, or seats.

These rules are designed to encourage self-regulation among users through common sense behaviors.

POLICY AND REGULATION
Customers should be encouraged to stay with their bicycles onboard rail transit vehicles, even when a rack is present. This mitigates bicycle theft, and enables operational flexibility throughout the route. It also helps encourage bicycle/rail users to police their own actions and gauge whether a car has capacity to board. Bicyclists who do not wish to be crowded should look for adjacent seating. Bikers may not wish to bring their bike onboard if there is no adjacent seating.

DATA COLLECTION METHODOLOGIES AND STRATEGIES FOR BIKES ON RAIL VEHICLES
Tracking demand and utilization of bicycle integration with rail transit is a challenge due to differences in passenger volume, capacity, potential for congestion and staff bandwidth. Most data collected on rail-bike integration comes from passenger surveys. Additional data collection strategies include the following:

• Video analytics at stations and onboard transit vehicles
• Conductor training for manual bicycle counting (in designated areas at predetermined intervals)
• Bicycle-demand-focused questions included in regular passenger surveys

PLATFORM BOARDING INDICATOR PILOT
In Minneapolis, Metro Transit has installed bicycle boarding indicators on the Blue Line’s 33rd Street and 46th Street station platforms. These temporary markers indicate which train doors are closest to designated bike racks, making it easier to board the train with a bike. This pilot project was promoted on Facebook and garnered a total of 38,000 likes, comments, clicks and shares, a higher than usual response for Metro Transit’s social media interactions. The generally positive feedback and the level of engagement is a clear indicator of this pilot’s success.
In 2012, the Capital Corridor Joint Powers Authority (CCJPA) in California was considering station-based solutions for bicycles (eLockers, folding bicycle rentals, and bike-sharing support) and onboard solutions (more space, upgraded racks and loading/unloading procedures) for integration in the agency's bicycle access plan. To inform decision-making on these topics, CCJPA conducted a three-month “mode of access” survey of customers, with targeted questions for customers indicating cycling as an access mode. The survey was based entirely online; customers were handed a postcard with the survey link and encouraged to use the train’s onboard Wi-Fi. CCJPA provided several incentives to encourage customer participation:

- A Brompton M3L folding bicycle as a grand prize
- A monthly pass
- A 10-ride pass
- A round-trip pass

Bicycle-focused questions included the following:

- Reasons customers choose biking (convenience, cost, exercise, schedule flexibility, environmental consciousness, necessity at destination, non-car owner, no car parking, speed/efficiency)
- Reasons for bringing bikes on train
- Percentage of racks open at home station on arrival
- Percentage of racks open at home station upon return
- Security rating for bike parking at home station
- Level of ease in locating bicycle parking at station

There were 950 survey responses, providing an excellent baseline for validating recommendations for bike upgrades for both access and onboard storage, as well as insights into parking and other modal interactions.

CASE STUDY

CAPITAL CORRIDOR ONBOARD BICYCLE SURVEY

CASE STUDY

FERRIES

Port cities and other municipalities intersecting with bodies of water can leverage ferry networks to provide enhanced bicycle access throughout the region. Ferries may also bridge geographical barriers where tunnels and bridges do not allow bicycles.

GETTING ON THE FERRY

- Designate boarding areas for bikes to reduce conflicts with pedestrian traffic and allow for additional security measures if needed.

CAR MAINTENANCE

- Bike parking should be easily accessible by rolling on and off the vessel and should be located where bikes will be protected from weather (or salt spray).

- Multi-level ferries should have bike parking on the primary deck to facilitate roll on/off service.

- Roll on/off service may not apply where there are points of access on multiple levels. For example, a dock-level deck for cars and an overhead pathway from a terminal that could have roll-on bike access with pedestrians or where bikes roll on at the car level but then are directed to an upper ramp where there’s more bike parking.

- Rack or tie-downs should hold bicycles securely in rough tides with minimal swinging.

- Racks should be designed to fit numerous types of bikes and accessories (fenders, racks, panniers, e-assist bikes, cargo bikes, different shapes/sizes of handle bars, etc.).

CASE STUDY

KING COUNTY WATER TAXI

King County Water Taxi, operated by the Marine Division of the King County (Washington) Department of Transportation, provides passenger-only service on two short routes: between downtown Seattle and West Seattle (a peninsula neighborhood within the city of Seattle); and between downtown Seattle and Vashon Island. Each vessel holds 26 bikes of any type in racks located at the stern. There is no charge for bikes. During peak travel times, passengers with bikes use separate ramps from walk-on passengers.

GETTING TO THE FERRY

- Waterfront bike paths make ideal linkages for ferry transit
- Path wayfinding should indicate ferry transit facilities
- Provide clear bicycle wayfinding signage at the facility (which door do customers with bikes enter, where is the waiting area for bikes within the facility, etc.).
Washington State Ferries (WSF), a division of the Washington State Department of Transportation (WSDOT), is the largest ferry system in the United States. WSF operates 22 vessels carrying vehicles and passengers year-round on 10 routes across Puget Sound and adjoining waterways, including into British Columbia. WSF provides commuter service, as well as tourist service. Bikes are common on every sailing, from several bikes to several thousand bikes during major bike events. Passengers roll their bikes on and off the car decks as instructed by crew members. Bikes of any design tie up to rails along the sides of the vessels with ropes which are provided. Bikes park under the cover of an upper level of the vessel, protecting them from weather. After parking, bicyclists proceed to passenger areas while sailing, away from motor vehicles. Bicycles transit is free with passenger fare when paid with the region’s ORCA fare card. Without an ORCA card, there is a small surcharge for bikes.

CASE STUDY
PRIVATE SHUTTLES
University campuses and private office parks may provide internal transit systems as a service to facilitate mobility. This could include full-scale bus systems and/or shuttle services. Shuttles may also be used to bridge arterial gaps for bicycle and pedestrian transit customers. For example, bridges without biking and walking paths may have a circulator service that allows customers to load bicycles on the vehicle, ride across the bridge or tunnel, and resume their bicycle trip on the other side.

As younger demographics gravitate to cycling as a mainstream mode of transportation, college campuses with transit systems can augment service by providing seamless linkages with internal transit amenities including racks on buses and vans.

CASE STUDY
PUGET SOUND REGION
In the Puget Sound region (Seattle area), several employers and institutions augment public transit service for their commuters during peak times and to transport employees between multiple worksites or campuses. With bike racks on transit long established in this region, private services provide racks on their vehicles. These employers have comprehensive trip-reduction programs that includes strong support for bike commuting. Examples include the University of Washington Health Science Express; Children’s Hospital and the Microsoft Connector. One type of van used by the Microsoft Connector hauls a trailer that can carry up to 12 bikes to cross a bridge that has had no bike access.
As bike-share systems continue to grow in use, it is important for transit agencies to facilitate connections to bike share and interoperability as feasible. The bike-share market is evolving rapidly, with new technologies and operational models. Transit agencies should follow market trends to adapt to changing conditions and innovations.

Bike share is relatively new to the transportation world and presents significant opportunities for first and last mile connections to transit. Many agencies have woven bike share into their transit networks, adding convenient connections and customer services. The flexibility and responsiveness of bike share represents a useful tool to fill gaps in a service area. The USDOT’s Bureau of Transportation Statistics reports that roughly 86 percent of bike-share stations in the United States are located close to some mode of scheduled transit service; three-quarters of these locations are located within a block of a bus stop.

Bike share is a rapidly emerging industry. With new technologies, operating structures and competition, the bike-share market is changing so fast that current assumptions and lessons may be too limited to anticipate exactly how transit agencies can and should plan to integrate bike share in the future. However, this section is designed to provide agencies with a basic understanding of the concepts which define bike-share systems, technical resources for implementation and strategies for transit to leverage bike share as a tool to augment mobility for their customers.

As bike-share systems continue to grow in use, it is important for transit agencies to facilitate connections to bike share and interoperability as feasible. The bike-share market is evolving rapidly, with new technologies and operational models. Transit agencies should follow market trends to adapt to changing conditions and innovations.

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INTRODUCTION TO BIKE SHARE

Bike share is a transportation-oriented service where bicycles are available for short-term rental allowing users to borrow a bike from one location and return it to another. Customers can use an app or website to locate a bike wherever it’s parked. Bike stations are an asset to people and the environment, providing an alternative to driving while improving mobility.

Dock: A fixed location with locking mechanisms for customers to obtain and return bicycles in a “station-based” bike-share system. The bike can be parked at any docking station.

Kiosk: An electronic interface attached to a dock. It allows customers to pay, request more time and to perform other functions related to using bike share.

Rebalancing: Redistribution of bicycles within a bike-share network to respond to demand and usage patterns.

Dockless Bike Share: A type of bike share that does not require fixed docks or kiosks. The system is managed using a combination of GPS and bike locks built into the bike frames with payment typically managed via a smartphone application.

SMART DOCKS VS SMART BIKES & OWNERSHIP STRUCTURES

Most established bike-share systems in North America and Europe operate under all or mostly public ownership, funding and control, with a single system in place for a defined geographic area. Customers go to designated docks to find and return bikes available from a fleet. Bike shops are allowed at “smart docks” where customers unlock the bike after paying with a credit card or a smartphone. Access may be integrated with a transit-fare card. Given the usual single system under public oversight, transit settings are typical locations for bike-share stations. Public entities work together to support the placement and infrastructure (see page XX). Depending on local experience and perception, the public may or may not support the use of public funds or public space for bike share. Two newer elements are redefining the original bike-share model, posing new opportunities and challenges for use with transit.

1. Dockless bike-share programs use “smart bikes” that are self-locking; substantial infrastructure for an electronic station is not required. They are GPS-enabled so customers can use an app or website to locate a bike wherever it’s parked. Bike stations in Portland, Oregon has a single public system with designated labeled bike racks where bikes are can be parked, but permits parking anywhere in the service area or elsewhere. The pricing structure offers incentives to park in the designated locations.

2. Private companies have surged into the market, offering to provide bike-share equipment and services at no public cost. In this model, multiple companies can operate simultaneously in a competitive environment, much like bike share and ride-hailing companies. The companies set their pricing, type of bike, distribution, and marketing. Cities, campuses and property owners establish the regulations, if required. They develop permit conditions to regulate safety, insurance, indemnification, maximum number of bikes, parking locations, data-sharing, expectations for responsiveness to problems, fees, and other matters considered in the public interest. Seattle is testing dockless bike share through a permit system after terminating a public station-based system. Other cities have added bike share through a simple business license. Several cities, including Washington DC, are supplementing a single station-based system with dockless bike share in order to extend the areas served.

TERMS TO KNOW

Bike share: A transportation-oriented service where bicycles are available for short-term rental allowing users to borrow a bike from one location and return it to another.

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US Bike Share Growth [2010-2016]

<table>
<thead>
<tr>
<th>Year</th>
<th>Total Bike Share Trips</th>
</tr>
</thead>
<tbody>
<tr>
<td>2010</td>
<td>88 million</td>
</tr>
<tr>
<td>2016</td>
<td>38 million</td>
</tr>
</tbody>
</table>

Graph: King County Metro

As bike-share systems continue to grow in use, it is important for transit agencies to facilitate connections to bike share and interoperability as feasible. The bike-share market is evolving rapidly, with new technologies and operational models. Transit agencies should follow market trends to adapt to changing conditions and innovations.
BIKES WITH TRANSIT
APPROACH TO DECISION-MAKING

This approach to agency decision-making presents questions and considerations for agencies to address when planning for bike share.

What is the bike-share operational model?
- Single contracted operator
- Multiple private, competitive companies
- Public funding
- Sponsorship funding
- In-house operation (by transit agency)

What type of bike-share system is present?
- Station-Based Bike-Share System* (Docked)
- Dockless Bike-Share System*

What agency/organization is managing the bike-share system?
- To what extent does the transit agency have oversight?
- What is the process for siting station locations or designated areas; who will manage that process?
- What bike-share data can be made available to transit agencies from internal sources and from bike-share operators?

What are the physical requirements for bike-share stations?
- Concrete slab or sidewalk installation
- Electrical or hardwire network hookups
- Dimensions of the bike-share kiosks/docks located at or near transit facilities
- Will bike-share stations accommodate a variety of bike types (electric, cargo, etc.)?

What are the functional impacts of a dockless system?
- Where are bikes permitted to be parked?
- How are impromptu bike parking locations policed?
- Is there additional space for designated bike-share parking?
- Will valet service be provided?
- Is there enough bike parking capacity at transit stations to accommodate personal and bike-share bikes?
- How will bike share be managed on transit property?

What are the physical requirements for bike-share stations?
- Will the bike(s)/station(s) impede pedestrian flow?
- Are there property or security concerns in certain areas of the station property?
- Where would bike share optimize the rate of transfer volume at peak times?
- What are the impacts on transit facility operations and maintenance?

What are the operational needs may affect transit operations or assets?
- Dedicated parking spaces for bike-share operations vehicles
- Interior storage space for bike-share storage and maintenance
- Space for valet service during peak hours or events?
- Does the private operator have permission to enter the property for rebalancing?
- What instruction is needed for transit operators and other operations staff; How will that be conveyed?

What are the impacts on transit facility operations and maintenance?
- Does design of bike share prevent proper boarding or exceed design limits for racks?
- Does bike share take space away from personal bikes?
- Does a city bike-share permit or business license apply to transit property, or is a special use permit required?
- Are bike-share bikes permitted aboard buses and trains? Is this a matter of policy, capacity, risk, customer priority?
- Do some bike styles exceed the rack weight limit or prevent a bike from being loaded safely?

Where will bikes and stations be located on transit property?
- Dedicated parking spaces for bike-share operations vehicles
- Interior storage space for bike-share storage and maintenance
- Space for valet service during peak hours or events?
- Does the private operator have permission to enter the property for rebalancing?
- What instruction is needed for transit operators and other operations staff; How will that be conveyed?

What are transit agency policies about bike share?
- Opportunities to cross-promote bike share and transit?
- Interoperability with fare payment system?
- Inclusion in marketing materials and campaigns?
- Discounts on bike-share membership with transit pass?
- Are there special instructions that need to be added to the agency’s bike pages specific to bike share?

*Emerging models include hybrids of docked and dockless bikes (see BIKE TOWN - Portland, OR)
# Bike Share Systems

Bike-share systems can be found in various places, such as universities, properties, or public spaces. They are designed to accommodate different types of transport needs, such as connecting modes to transit. Here are some key points about bike-share systems:

- **Dock-based Systems:** These systems involve bike stations that are fixed in place and require users to return bikes to these stations. This can help with traffic calming and place-making opportunities around transit agencies.

- **Dockless Systems:** These systems involve stations that can be relocated as needed, allowing for more flexibility in station placement. This can be a benefit in areas with high bike usage and low demand.

- **Bike-share Integration:** Bike-share systems can be integrated with transit to create a seamless transportation experience. This can help reduce traffic congestion and improve air quality.

- **Challenges:** While bike-share systems can provide numerous benefits, they also pose challenges, such as ensuring station placement and avoiding blockage of pedestrian pathways.

- **Implementation:** To successfully implement bike-share systems, it is important to consider the physical requirements of the area and work with transit agencies to ensure a seamless rider experience.

- **Operation:** Bike-share operators need to ensure that stations are placed in the best locations to capture transfer volumes. This can be achieved by working with transit agencies and aligning bike-share stations with transit facilities.

- **Benefits:** Bike-share systems can also help reduce traffic congestion and improve air quality by encouraging the use of alternative transportation modes.

# Bike Share Operators

Bike-share operators play a crucial role in the success of bike-share systems. They are responsible for managing stations, ensuring proper place-making opportunities, and collaborating with transit agencies to ensure a seamless rider experience.

# Bike Share Growth & Considerations

Bike-share growth is crucial for the success of bike-share systems. As bike-share systems continue to flourish, transit agencies and bike-share operators need to work together to ensure a seamless rider experience and improve the overall transportation experience for riders.
CASE STUDY

SEATTLE DOCKLESS BIKE-SHARE PILOT

In summer 2017 Seattle began testing dockless bike share through a pilot permit system after terminating a public station-based system. The former system operated for 2.5 years (until spring 2017) with 54 stations and 500 bikes in several dense but somewhat disconnected locations. The transit agencies were closely involved in setting up the system, with stations located near transit. Under the new permits, the entire city is the service area, with parking limited to the city’s right-of-way (ROW). Three companies have been operating bike share services with more than 6000 bikes on the streets today. One company added e-bikes to its inventory in February 2018. With no designated stations, bikes are parked wherever customers leave them, which makes them widely available and sometimes located well outside the city or in odd places. Using experience and data from the pilot period, the city plans to create a permanent permit later in 2018. The revised permit is likely to designate some preferred parking places in busy areas to reduce clutter and address potential safety issues, including at transit, while allowing free-float sharing without stations. The program focused on having systems in each city’s downtown and at sufficient density so customers felt comfortable riding from one location to another without concern of getting stranded.

CASE STUDY

CDPHP CYCLE INTEGRATION WITH CDTA

In July 2017, the Capital District Transportation Authority (CDTA) rolled out a bike-share system with 40 station locations and 160 bicycles across New York’s Capital Region, focused in Albany, Saratoga Springs, Troy, and Schenectady. The system is operated by Social Bicycles with local staff focusing on bicycle redistribution, maintenance, and safety. The program was dubbed CDPHP Cycle! in partnership with a local health care provider and is a success. More than 2,500 people signed up for the program resulting in more than 11,000 trips in just four months, in 2018, the system will double in size with 80 stations and 320 bicycles available for rent, covering much more of the bikeable area and adding to the region’s environmental sustainability efforts. CDTA focused on creating a system that would complement the region’s existing transit network, including emphasis on locating bike racks near the largest transit service areas as well as gaps in service, particularly cross-town trips. The existing transit network was utilized as a baseline for travel to desired destinations and ideas for bike-share system expansion. Thanks to a partnership with Albany Public Library, CDPHP Cycle! was able to create a community-based location for bike-share operations separate from the CDTA bus garage, allowing more flexibility and reach, and strengthening ties with a great community partner. This integration is the beginning of larger cooperation between the transit network and CDPHP Cycle! CDTA is working on an integration to allow bike riders to rent bicycles with the regional transit smart card, Navigator, along with transit/cycling safety programs and loyalty opportunities. In reviewing the first year of CDPHP Cycle!, data showed high usage on weekends and evenings, pointing to customers utilizing the bicycles for leisure trips. A group of commuters began to emerge, allowing the program to begin redistributing bicycles insuring people choosing to ride them to or from work had a bicycle available for their return trip. The CDPHP Cycle! system is the only one in the country comprised of four smaller systems, making bicycle distribution and system management more challenging. The program focused on having systems in each city’s downtown and at sufficient density so customers felt comfortable riding from one location to another without concern of getting stranded.

Those attributes combined with a short first season of only four months has CDTA and the region excited for the future of bike share in Upstate New York.

DEVELOPING A LEGAL FRAMEWORK

Bike-share station placement on private property requires a placement license agreement between the bike-share operator and the property owner. Dockless bike-share systems may also require licensing to maintain designated areas for bike-share parking. This agreement should include deadlines for placement and relocation approval by the land owner, as well as:

- Access rights to the station
- Electrical specifications, if any exist
- Authorization for bike-share staff to enter the property for the purposes of rebalancing, maintenance or any other system-specific requirements
- Agreement term (in perpetuity or fixed renewable term); automatic term renewal for these agreements helps eliminate negotiations and hassle each year
- An adequate window of time for station removal, if there are any relocation deadlines
- Definition of parties
- A license to install or remove a bike-share kiosk; maintain, repair and replace a kiosk, bikes or related signage; add bikes to a kiosk or remove bikes from a kiosk; and perform other activities directly related to the operation of a public bike-share kiosk
- Placement approval process (by land owner) as well as the procedure for movement of kiosk for convenience or maintenance purposes. This should include a process for notice by the land owner to the bike-share operator and a designated window of time to grant the request
- Indemnity
- Insurance requirements
- FTA approval at federally funded facilities

In July 2017, the Capital District Transportation Authority (CDTA) rolled out a bike-share system with 40 station locations and 160 bicycles across New York’s Capital Region, focused in Albany, Saratoga Springs, Troy, and Schenectady. The system is operated by Social Bicycles with local staff focusing on bicycle redistribution, maintenance, and safety. The program was dubbed CDPHP Cycle! in partnership with a local health care provider and is a success. More than 2,500 people signed up for the program resulting in more than 11,000 trips in just four months, in 2018, the system will double in size with 80 stations and 320 bicycles available for rent, covering much more of the bikeable area and adding to the region’s environmental sustainability efforts. CDTA focused on creating a system that would complement the region’s existing transit network, including emphasis on locating bike racks near the largest transit service areas as well as gaps in service, particularly cross-town trips. The existing transit network was utilized as a baseline for travel to desired destinations and ideas for bike-share system expansion. Thanks to a partnership with Albany Public Library, CDPHP Cycle! was able to create a community-based location for bike-share operations separate from the CDTA bus garage, allowing more flexibility and reach, and strengthening ties with a great community partner. This integration is the beginning of larger cooperation between the transit network and CDPHP Cycle! CDTA is working on an integration to allow bike riders to rent bicycles with the regional transit smart card, Navigator, along with transit/cycling safety programs and loyalty opportunities. In reviewing the first year of CDPHP Cycle!, data showed high usage on weekends and evenings, pointing to customers utilizing the bicycles for leisure trips. A group of commuters began to emerge, allowing the program to begin redistributing bicycles insuring people choosing to ride them to or from work had a bicycle available for their return trip. The CDPHP Cycle! system is the only one in the country comprised of four smaller systems, making bicycle distribution and system management more challenging. The program focused on having systems in each city’s downtown and at sufficient density so customers felt comfortable riding from one location to another without concern of getting stranded.
Procedures for different scenarios.

The following example from King County

Metro illustrates a model for communication with bus operators, providing an overview

of the landscape, descriptive definitions, linkages to existing agency documentation and

procedures for different scenarios.

Procedures If Bike-Share Bikes Block Zones

Seattle’s private dockless bike-share services (the green, yellow, and orange bikes that are

now commonly seen on sidewalks in Seattle) are still in their pilot phase, and there is a

learning curve for all of us—users, bike-share companies, public agencies, and the general public. Bike share can help people get to transit easily and affordably without relying on a car, and bikes can supplement

transport where it’s more difficult to provide service. Bike sharing is

expected ways riders will reach transit in the future.

Bike sharing is

The city’s permit issued to the 3 private bike-share companies does not allow parking in “transit zones, including bus stops, shelters, passenger waiting areas and bus layover and staging zones, except at existing bicycle racks…” The permit also requires the companies to educate their customers about parking

conditions to set in its permanent bike-share permit, expected later in 2018. The city is also looking at ways to reduce blocking. Other cities may start similar permits next year, including Bellevue. Experience during Seattle’s pilot will help shape these policies. Thanks for your patience as this experiment continues to unfold. Metro’s Bikes & Transit page can be found at kingcounty.gov/metro/bike.

BIKE SHARING IN THE UNITED STATES: STATE OF THE PRACTICE AND GUIDE TO IMPLEMENTATION

The guide presents a snapshot of current municipal bike-share systems where local jurisdictions (including cities, counties, etc.) are engaged in the funding, managing, administering, and/or permitting of bike-share-implementing practices. The objectives of this guide are to define bike share and provide an overview of the context, to describe the steps a jurisdiction should take to plan, implement, and sustain a bike-share program, to document existing models of provision, infrastructure considerations and funding options for successfully implementing a bike-sharing program; to describe metrics for monitoring and evaluating program success; and to provide a baseline document of existing bike-share programs in the United States as of 2017.

NACTO BIKE SHARE SITING GUIDE

The NACTO Bike Share Siting Guide provides high-level guidance on municipal bike-share station siting types and principles. Selecting good individual station locations can minimize negative impacts between stations throughout the system can maximize ridership and increase profitability. The NACTO Bike Share Siting Guide is a collection of resources created in collaboration with the Better Bike Share Partnership (www.betterbikeshare.org), it is made possible with a grant from The JPB Foundation to further the conversation around equity in bike share.

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SAFE ROUTES TO TRANSIT
SAFE ROUTES TO TRANSIT

INTRODUCTION

For many commuters to consider biking to transit facilities, they must have a network of safe, accessible bike paths and a clear navigation system. Achieving this requires varying degrees of interagency coordination and cooperation, as well as an understanding of transit’s role in complete streets and Vision Zero guidelines.

Optimizing bicycle connections begins with providing safe routes and streamlined navigation systems for commuters to access transit facilities. Prioritizing bicycle routes to transit stops and stations is essential for identifying potential transit riders out of their cars and onto a bicycle for their first/last mile of travel. Navigation is another key element of a robust bike network, with clear and consistent wayfinding signage strategically placed at key decision points along major routes. The complexities of route planning and transit connectivity require interagency coordination among relevant stakeholders to ensure a consistent approach.

TERMS

Bicycle facility: Infrastructure intended for the purpose of bicycling including bike lanes, protected routes, off street paths and racks for bicycle parking.

Bike lane: A portion of roadway delineated with painted lines and symbols intended for the use of bicycle transportation.

Protected bike lane/route: A bicycle facility with a physical separation from vehicular traffic and other street uses.

Right-of-way (ROW): A type of easement reserved over land for transportation purposes.

Greenway: A long, narrow ROW dedicated to shared use among bicycles, pedestrians and other nonmotorized uses.

Travel lane: A linear, delineated section of roadway intended for the movement of vehicular traffic.

Wayfinding: Signage, maps and other publicly available tools used for orientation and navigation.

Business access and transit (BAT) lanes: On-street vehicle lanes that provide access to and other selected vehicles more efficiently through traffic.

Vision Zero: A traffic safety project aimed to achieve a road system with no fatalities or serious injuries involving street traffic.

What is the condition of the bicycle network in relation to the station facility?

• Are there bike lanes, trails, protected paths or shared routes proximate to the station facility?
• Do any of them directly intersect with transit property (e.g., ROW crossings)?
• Is there a wayfinding system to accompany bike routes?
• Are transit facilities included in the wayfinding system?

What is the condition of the bicycle network in relation to the station facility?

• Are there multiple entities (municipalities within a county, agencies, etc.)?
• How is it possible to establish mutual buy-in among different stakeholders?
• Does the entity have a bicycle master plan?
• Are there connectivity gaps or safety deficiencies around transit facilities?
• Are there opportunities to leverage transit property to enhance an existing bicycle plan?
• Are there joint funding opportunities?
• Which entity will ultimately be responsible for implementation and maintenance?
• How will funding be allocated?

What entity holds jurisdiction for on-street infrastructure?

• Can the on-street design specifications be replicated on transit property?
• Can parking be reconfigured to facilitate a safer route from the edge of transit property to the station?

Is there a seamless transition between on-street bike infrastructure and transit property?

• Can the on-street design specifications be replicated on transit property?
• Can parking be reconfigured to facilitate a safer route from the edge of transit property to the station?

This approach to decision-making outlines key questions and considerations for agencies considering safe routes to transit.
Bicycling networks, wayfinding and related facilities typically fall outside the jurisdiction of transit agencies. Transit agencies should work with public-sector community partners, including municipal Departments of Transportation (DOTs), local elected officials, metropolitan planning organizations (MPOs) and transportation management areas (TMAs)- responsible for on-street infrastructure as well as pedestrian ROWs, to make recommendations for safe routes for their facilities. In addition, agencies should clearly communicate operational concerns affecting bicycle movement so municipalities can provide more effective planning solutions (e.g., routing cyclists through one station to a particular entrance without impeding bus movement from a terminus). The national nature of most transit systems necessitates cross-jurisdictional coordination with numerous municipalities to ensure a consistent approach to multimodal transit access.

**PLANNING FOR NON-AGENCY-OWNED FACILITIES**

Bike routes within the immediate vicinity of transit stops and stations are key influences on a transit customer’s willingness to connect via bicycle. Extending beyond transit projects, these facilities typically fall outside a transit agency’s jurisdiction. In addition to bike routes, additional amenities should be considered, such as lighting, wayfinding and security. Agencies and prospective partners should establish a working relationship to ensure that customer needs are prioritized regardless of jurisdiction. In addition to public-sector entities, transit agencies should consider strategies for incentivizing private-sector stakeholders that may have a vested interest in transit connectivity, such as developers and property owners. Agreements between parties should align as simply as possible to implement joint projects. This includes clear scopes of work and funding commitments. Transit agencies and municipal partners would benefit from a master cooperation agreement which states a general intent to work together. Shorter, project-specific agreements can be issued on a case-by-case basis. Agencies should be willing to take the lead in applications for funding if an opportunity presents itself. In considering implementation, transit agencies must evaluate internal expertise to assess the capacity for design and construction. Agencies should consider funding mechanisms for transit agencies to take on funding responsibility in conjunction with private-sector partners in some states.

**CASE STUDY**

**LA METRO MEASURE M**  
In 2016, 71 percent of voting Los Angeles County residents approved Metro’s Ballot Measure M. Officially titled the “Los Angeles County Traffic Improvement Plan,” Measure M represents a half-cent sales tax increase and a contentious of the existing half-cent traffic relief tax to improve freeway traffic flow; expand the rail and rapid transit system; improve local streets; improve safety across both the transit and highway system; make public transit more accessible and convenient; and subsidize public infrastructure projects. Transit agencies should work with public-sector community partners to ensure funding for bike-related projects. This includes clear scopes of work and funding commitments. The resulting funding allocates $2.4 billion for bicycle and pedestrian connections to transit.

**METRO CONNECTS**  
King County Metro’s (Seattle) “Metro Connects” plan lays out a commitment to advancing projects that give customers better, safer access to Metro service, including “new and improved sidewalks, trails and lanes for biking and walking; carousel and drop-off spaces; and parking for cars and bikes.” This plan prioritizes multimodal connections.

**OVERCOMING DATA GAPS**

The institutional agency culture may present obstacles to integrating bicycles with transit, with opposition and concerns often stemming from operations or maintenance. Despite an ultimate goal of increasing mobility for cyclists, this creates challenges for planners to advance new initiatives, especially without specific data to support them. Municipal partners are likely to have data that is not endemic to transit ridership such as vehicle crash data, bicycle ridership and mode share within its jurisdiction. In the absence of internal data on bicycle ridership, transit agencies can leverage nonendemic data from municipal partners to drive decision-making. Likewise, data endemic to transit ridership, parking utilization, ticket sales, etc. may help municipalities justify infrastructure improvements around transit that support cycling.

**BICYCLE NETWORK INFRASTRUCTURE**

Bikeways are key to bicycle network development. Commuters will be more inclined to use bicycles as a mode of transportation if they have a safe and accessible route to the transit stop or station. Bicycles on highways and major roadways can be hazardous due to heavier traffic and oncoming cyclists. At-grade rail crossings also tend to be pedestrian-focused and need to be designed parallel to rails. Any bicycle facilities intersecting with a rail crossing should be designed to provide cyclists with a physically separated bicycle ROW adjacent to an island platform. This design provides a physically separated bicycle ROW adjacent to an island bus stop and marked pedestrian crossing (Cleveland, Ohio).

**INFRASTRUCTURE CONNECTIVITY PRO TIPS**

- Ensure continuity between the on-street bicycle network and station access to bike parking on property where possible.
- Make sure municipal partners understand the need for bike stops and create infrastructure that supports it.
WAYFINDING

The complexity of navigation to a transit stop or other transit facility is a key factor in the decision to choose an active commute for the first/last mile. A properly signed route can alleviate anxiety and frustration before—and minimize anxiety during—the commute. Robust wayfinding will instill confidence in would-be cyclists, especially those who typically drive, and existing active commuters by providing a sense of seamless navigability and directing bikers to safer routes. When addressing wayfinding, agencies should consider the following guidelines for planning and design.

WAYFINDING GUIDELINES

PRIORITIZED PLANNING

- Collect data using in-person surveys to understand how cyclists are currently navigating to transit facilities. This will identify challenges from existing riders and provide insight into high-traffic routes.
- Survey riders to understand what routes they are choosing and why.
- Ensure that wayfinding complements on-street bicycle facilities and lowerright-of-way in the initial corridor plan.

DIRECTIONALITY THROUGH DESIGN

- Use a unified and consistent design throughout the network so signs are easily recognizable. Transit agencies should integrate into existing municipal wayfinding systems (if present) rather than developing separate systems.
- Integrate bicycle symbols on wayfinding signs to ensure easy route identification for cyclists.
- Prioritize major transit facilities with dedicated directional signs from thoroughfares.
- Use a unified and consistent design throughout the network so signs are easily recognizable. Transit agencies should integrate into existing municipal wayfinding systems (if present) rather than developing separate systems.

CASE STUDY

SOUND TRANSIT WAYFINDING MAPS

Sound Transit (Seattle) received an FTA grant for Bicycle Enhancements At Sound Transit (BEAST). This grant was used to install secure bicycle parking at numerous locations. The grant included $100,000 for bicycle education, which was used to develop and install bicycle wayfinding signs at light-rail stations.

Initially, signs were deployed exclu- sively at bicycle parking facilities. Over time, the program advanced to the platform level in conjunction with existing customer information signage.

RTA CATEGORIZATION

- On-street ROW for transit buses. These dedicated bus lanes are intended to bypass automobile traffic and allow transit vehicles to run faster and maintain schedules during peak travel periods.
- Off-street ROW - such as on-street bicycle facilities around each station. Bike maps need to be updated frequently, because jurisdictions make frequent changes.

RAIL RIGHT-OF-WAY

Private freight operators own extensive active and inactive rail property in different parts of the country, which can be acquired and transformed for active transportation uses. Adapting unused rail right-of-way is a property question, making it a potentially divisive issue among owner, community and agency stakeholders.

While typically popular with community groups, property owners, especially freight railroads, tend to avoid conversion projects, as they often preclude future rail usage once the conversion occurs. New rail lines should endeavor to include dedicated space within the right-of-way (ROW) in the initial corridor plan.

- Survey riders to understand what routes they are choosing and why.
- Ensure that wayfinding complements on-street bicycle facilities and lowerright-of-way in the initial corridor plan.

BUS RIGHT-OF-WAY

Bus ROWs have different challenges. Business access and transit (BAT) lanes function as on-street ROW for transit buses. These dedicated bus lanes are intended to bypass automobile traffic and allow transit vehicles to run faster and maintain schedules during peak travel periods.

On high traffic streets without bike lanes, cyclists may gravitate to BAT lanes for relative safety. While these lower traffic volume lanes (compared with open traffic lanes) may be attractive for cyclists, the presence of bicycles may interfere with on-time performance and bus operations. On street separation of bicycles from BAT lanes is generally recom- mended, but sharing BAT lanes may be appropriate in some instances, such as short connections with other bike routes, low-traffic routes or other unique instances.

What is the ROW profile?

Who are stakeholders, and what are their interests/needs?

What is the legal framework?

How will the project be implemented?

Bus ROWs have different challenges. Business access and transit (BAT) lanes function as on-street ROW for transit buses. These dedicated bus lanes are intended to bypass automobile traffic and allow transit vehicles to run faster and maintain schedules during peak travel periods.

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What is the ROW profile?

Who are stakeholders, and what are their interests/needs?

What is the legal framework?

How will the project be implemented?

- Is there a vested interest in future transit/freight usage?
- Are there private interests (real estate, industrial, etc.)?
- Are there security concerns?
- Should there be a preservation clause for future use?
- Who is opposed, and are they the majority?

- Who will operate and maintain the path/way?
- Do we have the expertise in house to design and build a path?
- Are there external design criteria that will guide the path implementation?

- Are there opportunities to leverage private development to fund improvements?
- Can the municipality use easements to fund?

- Hands-on: Are there opportunities to leverage private development to fund improvements?
- Can the municipality use easements to fund?

- Hands-off: Do we have the expertise in house to design and build a path?
- Are there external design criteria that will guide the path implementation?

SOUND TRANSIT WAYFINDING MAPS

Sound Transit (Seattle) received an FTA grant for Bicycle Enhancements At Sound Transit (BEAST). This grant was used to install secure bicycle parking at numerous locations. The grant included $100,000 for bicycle education, which was used to develop and install bicycle wayfinding signs at light-rail stations.

Initially, signs were deployed exclu- sively at bicycle parking facilities. Over time, the program advanced to the platform level in conjunction with existing customer information signage.

- Use a unified and consistent design throughout the network so signs are easily recognizable. Transit agencies should integrate into existing municipal wayfinding systems (if present) rather than developing separate systems.

BUS ROWS

Bus ROWs have different challenges. Business access and transit (BAT) lanes function as on-street ROW for transit buses. These dedicated bus lanes are intended to bypass automobile traffic and allow transit vehicles to run faster and maintain schedules during peak travel periods.

On high traffic streets without bike lanes, cyclists may gravitate to BAT lanes for relative safety. While these lower traffic volume lanes (compared with open traffic lanes) may be attractive for cyclists, the presence of bicycles may interfere with on-time performance and bus operations. On street separation of bicycles from BAT lanes is generally recom- mended, but sharing BAT lanes may be appropriate in some instances, such as short connections with other bike routes, low-traffic routes or other unique instances.

- Survey riders to understand what routes they are choosing and why.
- Ensure that wayfinding complements on-street bicycle facilities and lowerright-of-way in the initial corridor plan.

- Use a unified and consistent design throughout the network so signs are easily recognizable. Transit agencies should integrate into existing municipal wayfinding systems (if present) rather than developing separate systems.

- Integrate bicycle symbols on wayfinding signs to ensure easy route identification for cyclists.

- Minimize competition with other street signage to allow wayfinding to stand out.

- Survey riders to understand what routes they are choosing and why.

- Consider where cyclists should dismount and how to communicate that information.

- Who are the stakeholders, and what are their interests/needs?

- What is the legal framework?

- How will the project be implemented?

- Is there a vested interest in future transit/freight usage?
- Are there private interests (real estate, industrial, etc.)?
- Are there security concerns?
- Should there be a preservation clause for future use?

- Who is opposed, and are they the majority?

- Who will operate and maintain the path/way?
- Do we have the expertise in house to design and build a path?
- Are there external design criteria that will guide the path implementation?

- Are there opportunities to leverage private development to fund improvements?
- Can the municipality use easements to fund?
SAFE ROUTES TO TRANSIT
ADDITIONAL RESOURCES

NACTO URBAN BIKEWAY DESIGN GUIDE
The purpose of the NACTO Urban Bikeway Design Guide (part of the Cities for Cycling initiative) is to provide cities with state-of-the-practice solutions that can help improve the safety of both cyclists and motorists and respond for bicyclists. The NACTO Urban Bikeway Design Guide is based on the experience of the best cycling cities in the world. The designs in the document were developed by cities for cities, since unique urban streets require innovative solutions.

AASHTO GUIDE FOR THE DEVELOPMENT OF BICYCLE FACILITIES
This guide provides information on how to accommodate bicycle travel and operations in most riding environments. It presents sound guidelines to develop facilities that meet the needs of bicyclists and other road users. Sufficient flexibility is permitted to encourage designs that are sensitive to local context and incorporate the needs of bicyclists, pedestrians, and motorists. Some sections of this guide provide suggested minimum dimensions. These are recommended only where further deviation from desirable values could affect safety.

TRIMET GRESHAM MAX PATH
The Trail
In 2015 the City of Gresham (Oregon) opened a direct, 2-mile paved trail through the heart of the city. In addition to connecting the Ruby Junction MAX station in Rockwood with the Blue Line’s eastern terminus in downtown Gresham, the MAX Path also provides access to Gresham parks, and direct connections to the Springwater Corridor Trail and the Gresham-Fairview Trail. Features include 37 hi-gate LED lights and signalized pedestrian crossings. The path features more than 200 native trees and shrubs. Today this path provides improved local mobility and regional connections.

Funding and Collaboration
The majority of the trail was paid for with an $890,000 Regional Flexible Funds allocation from Metro. The trail was designed within the existing light-rail right-of-way (ROW).

CASE STUDY
TRIMET GREShAM MAX PATH

Key Takeaways
• Comfort is a key consideration for bikers, pedestrians and transit customers.
• Benefits to community and station access outweighed initial agency concerns with sharing ROW.

This design concept is based on guidance provided in the National Association of City Transportation Officials (NACTO) Transit Street Design Guide (2016). The Transit Street Design Guide discusses a “Shared Cycle Track Stop,” which in essence is a curb extension that allows a cyclist to pass up and over the bus stop at sidewalk grade via a dedicated bike lane and provides transit access via an in-lane stop. The design provides transit access on streets where protected bike lanes are present.
TORONTO TRANSIT COMMISSION FINCH COMMUTER LOT MULTIPURPOSE PATH CONNECTION

The Background

The Finch Corridor Trail, a popular 3-kilometer (1.8-mile) multiuse path (MUP) that crosses Toronto’s north, is separated into two sections by the commuter parking lots for the Toronto Transit Commission’s (TTC) Finch Station—a major municipal and regional transit hub. This created a two-block gap between Willowdale Avenue and Talbot Road that disrupts cycling journeys and disconnects the western section of the trail from the city’s trail network, mainly the north/south Upper and Lower Don trails.

Initial plans to connect the trails by expanding the sidewalk of Bishop Avenue, or reducing traffic to a single lane, were met with a number of concerns:

1. Bus operations: The bus terminal is operating at capacity during peak periods. Each hour during the morning peak, approximately 72 buses, carrying 4,200 customers, enter Finch Station through Bishop Avenue. Removing one traffic lane would significantly impact this already-congested road.

2. Elimination of green space: The current sidewalk is lined with trees; widening the sidewalk would require their removal.

3. Residential area: The TTC commuter parking lot is separated from the residential area by a large fence. Building the MUP on the street side of the fence would generate unwanted traffic for the residents living along Bishop Avenue.

4. Congestion: The intersection of Yonge Street and Bishop Avenue is highly congested with buses, personal vehicles and a taxi stand. Adding a MUP would increase this traffic.

An alternate plan to move the trail connection inside the commuter lot by removing about 200 parking stalls was not implemented due to the negative impact on parking capacity and TTC revenue. A solution that worked for all stakeholders involved was required.

Solution

The competing priorities of the various stakeholders briefly brought connection plans to a standstill, as none of the unilateral plans were acceptable to other parties (e.g., losing parking space or a street lane was denied by transit agencies). Through collaboration and by bringing all stakeholders to the same planning meetings, a better solution was developed. Thinking about the issue from all perspectives allowed stakeholders to see others’ points of view, which in turn led to an acceptable solution for everyone.

By redesigning the parking lot curb and parking stall spacing, the TTC’s engineering department was able to include the MUP within its boundaries while simultaneously minimizing impact on parking spaces, with a loss of only seven parking spaces. The city’s Transportation Services group showed flexibility in its ask for trail width, reducing it from 12 ft to 9 ft in certain areas along the MUP connection to allow the TTC to retain parking spaces, while Forestry Operations supported the project by relocating some trees. The regional agencies worked together to ensure that the MUP crosses their terminal from behind the lot line, maintaining continuity of the connection to the Yonge/Bishop intersection without removing the lot line.

Positive Impact

Stakeholder collaboration and proactive planning transformed a delayed project with polarized points of view into a highly successful project that was completed a year ahead of schedule and at a fraction of the cost.

**CASE STUDY**

**Stakeholder Priorities**

<table>
<thead>
<tr>
<th>Stakeholder</th>
<th>Main priorities for this project</th>
</tr>
</thead>
</table>
| **Toronto Transit Commission (TTC), GO Transit and other regional transit agencies** | • Ensure efficient and safe bus operations  
• Avoid parking revenue loss  
• Keep taxi stand at intersection of Yonge/Bishop |
| **City of Toronto Transportation Services** | • Connect east and west trails  
• Minimize impact on residents |
| **City of Toronto Urban Forestry Operations** | • Minimize impact on green space |
| **Area residents** | • Ensure safety of residents  
• Minimize traffic and congestion  
• Maintain landscapes and green space |

**Stakeholder Compromises**

<table>
<thead>
<tr>
<th>Stakeholder</th>
<th>Compromises for this project</th>
</tr>
</thead>
</table>
| **Toronto Transit Commission (TTC), GO Transit and other regional transit agencies** | • Designed MUP on city’s behalf  
• Lost a few parking spots  
• Accepted additional traffic and potential disruptions to operations |
| **City of Toronto Transportation Services** | • Accepted TTC designs, with reduced MUP width at some locations  
• Facilitated collaboration between City Council and TTC |
| **City of Toronto Urban Forestry Operations** | • Relocated trees and greenery where necessary |
| **Area residents** | • n/a |
Development Drivers
Planning for the Twin Cities’ first light-rail project, the Hiawatha line, began in the 1990s. The Metropolitan Council (the regional MPO that operates Metro Transit) had to acquire land for tracks and related support services. Various neighborhood groups, including local politicians, lobbied Metro Transit to dedicate some of the space not dedicated to train track or related uses to a multi-use path. Metro Transit had not, up to that point, provided dedicated bicycling facilities and was leery to include anything that didn’t directly serve transit. However, the advocates ultimately persuaded the agency to build and maintain the 4.7-mile path. (It serves only a portion of the rail line, roughly between 46th Street Station and 11th Avenue South, just past Cedar-Riverside Station. The City of Minneapolis later lengthened the path past 11th, but Metro Transit was not involved in that project.)

Metro Transit had no experience in path engineering, there were problems with the original design, including asphalt that was too thin, resulting in plants growing through the surface. Over the ensuing years, the surface was replaced, signage was added and improved, and Metro Transit contracted with the City of Minneapolis to clear snow in the winter. The path opened at the same time as rail service: June 26, 2004. The Hiawatha Line was later renamed the Blue Line, but the Hiawatha LRT Path name remains.

Public Engagement
As the path represented a new type of facility for the agency, many aspects of managing the trail were not planned for, including adequate maintenance and signage. Over the course of several years, sections were repaved and improved, signs were added, and maintenance was scheduled. Usage grew with increased attention to the trail among both cyclists and pedestrians.

CASE STUDY
METRO TRANSIT & HIAWATHA PATH

Public	Engagement
As the path represented a new type of facility for the agency, many aspects of managing the trail were not planned for, including adequate maintenance and signage. Over the course of several years, sections were repaved and improved, signs were added, and maintenance was scheduled. Usage grew with increased attention to the trail among both cyclists and pedestrians.

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INTRODUCTION
Bicycling presents a series of logistical and practical challenges for transit commuters considering the best modes for their first and last mile. Many of these issues are addressed throughout this guide, including secure bicycle storage, alternatives to personal bicycle usage and safe access to transit facilities. While infrastructure may present solutions to many of these challenges, customers must feel safe and confident in their ability to ride bicycles to transit facilities. Transit agencies should actively work with local organizations to provide consistent messaging on transit resources for cyclists and actively engage in education programs.

COMMUNICATING WITH CUSTOMERS
Transit agencies must develop strategies to incentivize, educate and promote the use of bicycles to connect to transit service. At a minimum, this includes a central online repository for information related to bicycle and transit integration across the agency’s services, including:

- **Bicycle parking resources**
  - Locations, costs and rules for secured bicycle parking facilities
  - Instructions for using secured bike parking
  - Stations with free bicycle parking

- **Rules and regulations for bicycles onboard transit vehicles**
  - Instructions for bringing bikes on buses (how to use the racks)
  - Instructions for bringing bikes onboard trains

- **Links to bike-share resources and accessibility**
  - Local advocacy group websites
  - Local and regional bike maps
  - Local and regional bicycle events and training courses

Transit agencies should provide on-site information, including brochures, pamphlets and instructional posters. These materials and related activities should be included in the annual budget. See Appendix E for a list of available transit agency web pages for bikes.

CASE STUDY
**LA METRO EDUCATION PARTNERSHIP**

Metro works with local non-profit bike organizations to offer free bike safety classes, community bike rides and other events such as Open Streets and Bike Month, with the goal of improving bicycling safety and encouraging mode shift. These efforts are designed to introduce the public to bicycling as a transportation mode by giving participants the tools to ride comfortably in an urban environment. The classes educate participants on bicycle safety on roadways, in and around Metro rail and bus facilities, and how to incorporate Metro Bike Share and transit in their daily travels, through viable multi-modal transportation options. Community rides and other bike events offer participants opportunities to experience bicycling in group ride and car-free settings, helping to make bicycling part of their travel routines.

**Metro works with local non-profit bike organizations to offer free bike safety classes, community bike rides and other events such as Open Streets and Bike Month, with the goal of improving bicycling safety and encouraging mode shift.**

**WHAT CAN TRANSIT AGENCIES DO?**

- **Identify local bicycle advocacy organizations and program offerings.**
- **Provide materials that explain transit support and services for bicyclists, including secured bike parking and parking, and specific guidance on bringing bikes on-board transit.**
- **Work collaboratively with local bike clubs and advocacy organizations to develop incentivized opportunities to link bikes with transit (e.g., bike class attendees get one month of free secure bike parking at their preferred transit facility).**
- **Consider opportunities to sponsor bicycle events, such as bike rides and open street days.**
- **Leverage institutional knowledge and grassroots contacts to collect additional information on the rules of the road and safe cycling tips.**

**EDUCATION AS A PLANNING TOOL**

Transportation planners and policy makers tend to focus on bicycle infrastructure as the primary strategy for facilitating bicycle integration and increasing on-street safety. While this approach has increased bicycling in communities throughout the United States, relative mode share still remains low. Achieving greater mode shift requires a series of integrated strategies in addition to infrastructure, such as prioritizing training programs programming for kids and adults as well as a fail-safe enforcement framework that includes education for police and other traffic safety professionals. Transit connectivity is a central element in a holistic bicycle strategy, both modes provide complementary transportation options that mutually serve to extend mobility. Despite this congruity, many transit customers may not consider the bicycle as a connecting mode. Transit agencies should proactively work to improve this perception, by empowering customers to bike their first and last mile.

In addition to information on bicycle services at transit facilities and transit agency policies should provide information on safe cycling practices and specific rules for their communities. This helps encourage transit customers to bike by equipping them with additional information on the rules of the road and safe cycling tips.

Education is more than just about providing information to customers. Agency staff should leverage relationships with advocacy organizations to gain insight on grassroots perspectives on cycling and understanding on the community cycling needs.
The New Jersey Bike Walk Coalition has installed Bike Depots that are safe, secure, bullet and shatter-proof, weather and theft-proof parking for bikes with camera surveillance. Members sign up online and pay a monthly or annual fee for card-key access to the Bike Depots. They are currently located at New Jersey Transit train stations in Montclair, Bloomfield and Elizabeth train station. The Bike Depot Program was created by the NJ Bike & Walk Coalition. It is an earned income strategy that supports the Coalition’s advocacy work around the state. NJBWC is responsible for design, development, installation and operation of Bike Depots. Grant funds provide the capital for purchase and installation. NJBWC has leases with the municipalities of Montclair, Bloomfield and Elizabeth for space in their parking decks. Future Bike Depots will be installed in Summit and Morristown. NJBWC has received grants to fund the program from Sustainable Jersey (through Montclair Township), the Partners For Health Foundation, and People For Bikes. The Depots, built by Duo-Gard in Canton, Michigan, complement existing bike parking at transit centers. They serve customers who are looking for secure bike parking, rather than traditional bike racks. Surveys of Bike Depot users indicate that they were not previously commuting by bike to reach transit.

**CASE STUDY**

**Collaborate with Advocacy Groups**

Transit agency planners should actively pursue partnerships with bicycle advocacy and education organizations. These groups have the ability to lobby for change and influence public opinion. Their objectivity and engagement with diverse, underserved populations, allow them to focus on equity and mobility, instead of operational barriers. Pending the launch of a bike program, external partners can provide cost savings through joint marketing. They can also provide venues for education on bicycle and transit connectivity and instructions on how to combine bicycling with transit. Advocates can also play an important role in operations and implementation of bicycle facilities.

**BART Bike Theft Prevention Outreach Program**

BART’s Bike Theft Prevention Outreach program in the San Francisco Bay Area provides targeted outreach and information to customers via:

1. On-going theft prevention tabling at targeted stations
2. Surge Outreach coordinated with the opening of new secure parking facilities
3. Bike-share outreach coordinated with the deployment of new services/facilities

BART partnered with Bike East Bay and provided funding for a coordinator to conduct outreach activities at stations in each Fall and Spring at stations. Outreach is prioritized by high levels of theft, on-board incidence and capacity of secure parking. Coordinators educate cyclists on secure bicycle locking techniques, operation of BikeLink (including registration assistance and smart card distribution), Bikes and Bike Share guidance on purchasing U-Locks. The program is designed to mitigate high rates of bicycles onboard trains, developed in response to a survey of BART customers who bike. The results showed that about 25% of cyclists who take their bike on the train do so because they are not confident their bike is safe when parked at their home station(s).

**Use Strong Visuals with Impact**

For all transit sites, use images of bikes on buses and people riding bikes near transit. Show bikes as part of the normal scene to reinforce that people use bikes all the time. Use images that show bike riding time to major destinations including transit stations.

**Promote Bicycles as a Service**

Maintain a web and print presence that fits with the agency brand and shows biking as an integrated part of the agency’s suite of services. Post bike web pages prominently on the agency site. Show the public services for combining bicycling with transit, choosing essential information like how to load a bicycle on a bus and where to park a bicycle at transit facilities.

**Promote Local Bike Events**

Promote challenges and events sponsored by the transit agency, partners and advocacy groups. Support Bike Month on social media, link back to the transit agency’s bike page. Bring a demo bus bike rack to events.

**Messaging**

Biking does not have to be all or nothing. Partway or one-way, frequently or occasionally, any trip that incorporates bicycling and transit is valuable. Speak to all kinds of people and a variety of motivations. Incorporate a wide age range, abilities, cultural backgrounds, women and men, health and environmental benefits into messaging.

**Information Strategies**

Transit agencies should incorporate biking into imaging and messaging to reinforce how bikes and transit go together.

**New Jersey Bike Depots**

The New Jersey Bike Walk Coalition has installed Bike Depots that are safe, secure, bullet and shatter-proof, weather and theft-proof parking for bikes with camera surveillance. Members sign up online and pay a monthly or annual fee for card-key access to the Bike Depots. They are currently located at New Jersey Transit train stations in Montclair, Bloomfield and Elizabeth train station. The Bike Depot Program was created by the NJ Bike & Walk Coalition. It is an earned income strategy that supports the Coalition’s advocacy work around the state. NJBWC is responsible for design, development, installation and operation of Bike Depots. Grant funds provide the capital for purchase and installation. NJBWC has leases with the municipalities of Montclair, Bloomfield and Elizabeth for space in their parking decks. Future Bike Depots will be installed in Summit and Morristown. NJBWC has received grants to fund the program from Sustainable Jersey (through Montclair Township), the Partners For Health Foundation, and People For Bikes. The Depots, built by Duo-Gard in Canton, Michigan, complement existing bike parking at transit centers. They serve customers who are looking for secure bike parking, rather than traditional bike racks. Surveys of Bike Depot users indicate that they were not previously commuting by bike to reach transit.
reduce local congestion and/or build ridership on new or revised transit service. Like community-based social marketing when working with neighborhoods to commute programs. Transit agencies can include bike support with TDM tools in transportation management areas (TMAs) and institutions to make biking with transit part of their decision-making among an ever-growing variety of transportation choices. Agencies must consider factors that drive customer travel choices and establish a framework to prioritize and incentivize strategies for facilitating bikes on transit. For transit agencies, TDM programs should provide tools and resources for local partners to implement programs tailored to meet specific community needs. Bicycling is a demand-management tool for advancing customer travel decisions on transit and it is a common element in most transit TDM programs. TDM strategies can typically align well with agency efforts to integrate bikes with transit. TDM programs are designed to make efficient use of transportation systems, managing demand for those systems by influencing mode choice and time of travel. TDM programs typically promote all alternatives to driving alone by providing information, education, incentives, adding trip-logging to establish new habits. WORKPLACE TDM PROGRAMS
The most common TDM programs leverage employee incentives to drive travel and provide single-occupant commuters alternatives. Transit agencies may create standard packages which could include:
- Transit passes (unlimited or as determined by system fare collection)
- Access to secure bike storage facilities managed by transit agencies
- Bike-share memberships (if applicable)

CASE STUDY
KING COUNTY EMPLOYER TDM
King County Metro and its partners in Seattle, WA work with employers and major institutions (hospitals, universities) to develop and implement commuter programs aimed at reducing drive-alone trips through using transit, vans, carpools, biking, walking and teleworking. These programs are working! Many programs are outcomes from the Washington State Commute Trip Reduction (CTR) law, passed in 1991, which requires large employers to offer information and incentives to encourage employees to reduce drive-alone trips to work. Metro offers employers a comprehensive commute package for all benefits-eligible employees covering unlimited transit use for all services in the Puget Sound region through the ORCA smart card, vanpool fares, and the guaranteed ride home program. Employers add bike and walk rewards to complete the benefit. Programs provide tips on installing on-site bike parking, showers, other amenities and in-house network of bike commuters. Many employers actively participate in Bike Month. These benefits have become standard for many employers.

RESIDENTIAL TDM PROGRAMS
Residential TDM initiatives leverage community-based social marketing to inform and engage residents about their transportation options. Target areas are usually selected where transit service is changing, where there is new construction or to introduce a new market to their travel options. Strategies may include:
- Informative mailings to households in the coverage area with a map showing bike and walk distances from local destinations and transit stops.
- Information in a variety of languages applicable to the area.
- Inclusion to receive specific information on transit cards and rewards/benefit programs.
- Frequent reinforcement and norming through social media.
- Partnerships with community groups including local bike advisory organizations who teach bike skills and hold bike events.

Policies & Partnerships
Does the agency have an access-to transit program to influence how customers decide to ride? Does the program align well into the agency’s long-range plan and funded through its budget?
Are there policies that restrict peak-period use of bikes on transit? Although such policies may be intended to manage on-board passenger space, they can result in limiting opportunities for customers to reach an employment or education destination that is beyond convenient walking distance to transit.
Is the agency involved with external organizations? Does it meet with active transportation professionals and advocates to position bikes with transit as part of affordable mobility and equity?
Does the agency support regional, local and state policies and plans to manage travel demand?
Does the agency support commuter programs aimed at reducing drive-alone trips through using transit, vanpools and carpools, biking, walking and teleworking?

Agency Engagement
Transit agencies should work actively with employers, cities, Transportation management areas (TMAs) and institutions to make biking with transit part of their long-range plan and funded through its budget.

Introduction
Transportation demand management (TDM) is a strategy for guiding decision-making among an ever-growing variety of transportation choices. Agencies must consider factors that drive customer travel choices and establish a framework to prioritize and incentivize strategies for facilitating bikes on transit. For transit agencies, TDM programs should provide tools and resources for local partners to implement programs tailored to meet specific community needs. Bicycling is a demand-management tool for advancing customer travel decisions on transit and it is a common element in most transit TDM programs. TDM strategies can typically align well with agency efforts to integrate bikes with transit. TDM programs are designed to make efficient use of transportation systems, managing demand for those systems by influencing mode choice and time of travel. TDM programs typically promote all alternatives to driving alone by providing information, education, incentives, adding trip-logging to establish new habits.
CASE STUDY

IN MOTION TOOLKIT

In Seattle, WA, King County Metro developed the In Motion program to help communities and individuals make the most of various options within their transportation network. The program encourages people to think about the trips they make and pledge to make changes to reduce their drive-alone car trips. In Motion encourages the use of alternative transportation providing information and incentives for using transit, biking, carpooling, vanpooling, walking, and car sharing to reduce auto travel.

WHAT ARE THE DRIVERS FOR TDM IN COMMUNITIES?

• Automobile trip reduction
• Air quality
• Public health
• Congestion mitigation

HOW DOES BICYCLING TO TRANSIT CONTRIBUTE TO THESE DRIVERS?

• Having more bicycle connections to transit facilities reduces automobile congestion and vehicle miles traveled
• Replacing car trips with bicycle trips reduces carbon emissions from vehicles
• More active transportation options support healthy community initiatives

WHAT COMMUNITY RESOURCES ARE IN PLACE TO SUPPORT BICYCLE AND TRANSIT INTEGRATION?

• Partners (bike shops, employers, developers, businesses, advocacy groups)
• Infrastructure (bicycle trails, on-street bicycle facilities, bike parking)
• Champions (local leader, public officials, advocates, major employers)

WHAT RESOURCES CAN TRANSIT PROVIDE TO FACILITATE TDM EFFORTS?

• Promotional materials highlighting benefits and agency assets

QUESTIONS TO CONSIDER FOR TDM IMPLEMENTATION

THIS PAGE IS INTENTIONALLY BLANK
<table>
<thead>
<tr>
<th>Agency</th>
<th>Survey Type/Name</th>
<th>Frequency</th>
<th>Quantity</th>
<th>Spatial</th>
<th>Temporal</th>
<th>Annual</th>
<th>Biennial</th>
<th>Triennial</th>
<th>5 Year</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>SoundTransit</td>
<td>Bike parking occupancy inventory</td>
<td>Monthly</td>
<td>X</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Count of occupancy of bike parking conducted at peak bike parking times.</td>
</tr>
<tr>
<td></td>
<td>Customer satisfaction survey</td>
<td>X</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Onboard, system-wide survey (approximately 6,000 users) used to determine access mode and onboard vs. parked bikes.</td>
</tr>
<tr>
<td>SoundTransit</td>
<td>Station profile survey</td>
<td>X</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Station level survey (sample 80,000) used to determine access mode at station level (44 stations).</td>
</tr>
<tr>
<td>RTD</td>
<td>Screen line bicycle survey</td>
<td>X</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Counts of bikes on board all mode, and parked at facilities recorded in the fall each year.</td>
</tr>
<tr>
<td>Metro Transit</td>
<td>Customer satisfaction survey</td>
<td>X</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>n/a</td>
</tr>
<tr>
<td>RTD</td>
<td>Bikes on buses counts</td>
<td>X</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Triennial count of bikes transported on board all buses in the region.</td>
</tr>
<tr>
<td></td>
<td>Bike locker lease rates</td>
<td>X</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>n/a</td>
</tr>
<tr>
<td>Metro Transit</td>
<td>Bike locker audit</td>
<td>X</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Onsite survey of all bike lockers: check and lubricate locks, assess condition, inspect interior and surroundings. Will become annual program.</td>
</tr>
<tr>
<td></td>
<td>Bike locker renter winter survey</td>
<td>X</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Brief survey to determine out which bike locker renters intend to use throughout the winter; those sites are prioritized for snow removal.</td>
</tr>
<tr>
<td></td>
<td>State of the commute survey</td>
<td>X</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Agency-wide survey on rider habits and satisfaction. Contains questions on modal access to transit, including bikes.</td>
</tr>
<tr>
<td>Metro</td>
<td>Manual bike counts (bus)</td>
<td>X</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Bus operators manually count bike rack use; conducted monthly. Bike on bus counting was initiated in 2013, but adoption by operators takes time to develop due to other bus operation demands and responsibilities, so undercounting may be an issue.</td>
</tr>
<tr>
<td></td>
<td>LA Metro bike locker Inspections and counts</td>
<td>X</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Inspections and manual count for all Metro properties and record number of bikes parked in bike lockers at the time of inspection. Difficult to establish routine counting time periods, as it is labor-intensive. However, it allows the team to document the percentage of use relative to the number of occupied bike lockers, providing overall system data by transit route and by specific station.</td>
</tr>
<tr>
<td></td>
<td>LA Metro short-term bicycle parking usage</td>
<td>X</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Inspections and manual count of bicycles parked on racks at all Metro stations to record bike parking usage based on the number of occupied bike lockers. Provides data for the overall system, by each transit line, and by specific station.</td>
</tr>
<tr>
<td></td>
<td>Quality of life report</td>
<td>X</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Analysis of agency performance for current year compared to previous years; Includes observations about bicycle access and bike parking facilities. Including riders who bike to transit, number of bikeways, use of bike parking, etc. (<a href="https://media.metro.net/docs/Metro-Quality-of-Life-Report_2016.pdf">https://media.metro.net/docs/Metro-Quality-of-Life-Report_2016.pdf</a>)</td>
</tr>
<tr>
<td></td>
<td>Customer satisfaction survey (<a href="https://www.metro.net/news/research">https://www.metro.net/news/research</a>)</td>
<td>X</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>General questionnaire for transit riders with three questions on bike ridership. Provides assessment of attitudes from nonriders and riders with responses on whether they used a bike to get to their station or stop.</td>
</tr>
</tbody>
</table>
## APPENDIX B

## TYPES OF BICYCLE RACKS/STORAGE

<table>
<thead>
<tr>
<th>Open U-Racks</th>
<th>Vertical Racks</th>
<th>Stackable Racks</th>
<th>Keyed Lockers</th>
<th>Smart Racks</th>
<th>On-Demand Lockers</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Customer perspective</strong></td>
<td><strong>Easy access</strong></td>
<td><strong>Low or no cost</strong></td>
<td><strong>Best for short-term parking</strong></td>
<td><strong>Immediately discernible and familiar to users</strong></td>
<td><strong>High security</strong></td>
</tr>
<tr>
<td><strong>Transit agency perspective</strong></td>
<td><strong>Easy to purchase and install</strong></td>
<td><strong>Inexpensive</strong></td>
<td><strong>Easily configured to space</strong></td>
<td><strong>Can be covered for weather protection</strong></td>
<td><strong>Allows agencies to provide more parking with less space</strong></td>
</tr>
<tr>
<td><strong>Capital costs</strong></td>
<td>$150–$200 per rack**</td>
<td><strong>$150–$200 per rack</strong></td>
<td><strong>$300–$500 per space</strong></td>
<td><strong>$1,200–$2,500 per space</strong></td>
<td><strong>$1,000–$1,500 per space</strong></td>
</tr>
<tr>
<td><strong>Power/network connection</strong></td>
<td>No</td>
<td>No</td>
<td>No</td>
<td>No</td>
<td>Yes</td>
</tr>
<tr>
<td><strong>Requires preregistration</strong></td>
<td>No</td>
<td>No</td>
<td>No</td>
<td>No</td>
<td>Yes</td>
</tr>
<tr>
<td><strong>Encourages user turnover</strong></td>
<td>No</td>
<td>No</td>
<td>No</td>
<td>No</td>
<td>Yes</td>
</tr>
<tr>
<td><strong>Ongoing vendor involvement</strong></td>
<td>No</td>
<td>No</td>
<td>No</td>
<td>No</td>
<td>Yes</td>
</tr>
<tr>
<td><strong>Requirements</strong></td>
<td><strong>Sufficient space to be properly positioned to maximize capacity and security</strong></td>
<td><strong>Racks mounted to a solid metal or concrete surface</strong></td>
<td><strong>Secure design that allows parallel orientation to the bicycle</strong></td>
<td><strong>Sufficient level surface for lockers, lock mechanism, management of keys, customer service, maintenance</strong></td>
<td><strong>Process to register users and issue key</strong></td>
</tr>
</tbody>
</table>

* Capital costs are approximate and subject to local labor and material costs. ** This assumes a fleet of 100 racks.
<table>
<thead>
<tr>
<th>Open U-Racks</th>
<th>Vertical Racks</th>
<th>Stackable Racks</th>
<th>Keyed Lockers</th>
<th>Smart Racks</th>
<th>On-Demand Lockers</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Sufficient space to be properly positioned to maximize capacity and security.</td>
<td>• Sufficient space to be properly positioned to maximize capacity and security.</td>
<td>• Sufficient space to be properly positioned to maximize capacity and security.</td>
<td>• Sufficient level surface for lockers, lock mechanism, management of keys, customer service, maintenance.</td>
<td>• Sufficient level surface for lockers, lock mechanism, management of keys, customer service, maintenance.</td>
<td>• Sufficient level surface for lockers, lock mechanism, management of keys, customer service, maintenance.</td>
</tr>
<tr>
<td>• Racks mounted to a solid metal or concrete surface.</td>
<td>• Racks mounted to a solid metal or concrete surface.</td>
<td>• Racks mounted to a solid metal or concrete surface.</td>
<td>• Process to register users and issue key.</td>
<td>• Power and data conduit, or sufficient sunlight for solar and wireless.</td>
<td>• Power and data conduit, or sufficient sunlight for solar and wireless.</td>
</tr>
<tr>
<td>• Secure design that allows parallel orientation to the bicycle.</td>
<td>• Secure design that allows parallel orientation to the bicycle.</td>
<td>• Secure design that allows parallel orientation to the bicycle.</td>
<td>• Snow and ice removal to ensure access during foul weather.</td>
<td>• May require breaking concrete to hardwire, if installed at an existing facility.</td>
<td>• May require breaking concrete to hardwire, if installed at an existing facility.</td>
</tr>
</tbody>
</table>

**Requirements**

- **Weather protection**
  - No***
  - No***
  - No***
  - Yes
  - No***
  - Yes

- **Operational considerations**
  - Least secure when installed in open area.
  - Poor positioning or rack type may render racks inaccessible and potentially useless.
  - May be located inside station fare gates for improved security.
  - Best when located near high-traffic pedestrian areas for easy user access and added security.

- **Operational considerations**
  - Must determine whether vendor services or in-house management.
  - Snow and ice maintenance requirements.
  - May require significant utility infrastructure and annual maintenance fees.
  - Use limited to one key-holder, with no turnover.
  - May require special approvals in landmark/design districts or crime deterrence considerations.
  - Must determine whether in-house or contracted management.
  - Snow and ice present challenges.
  - Takes up a lot of real estate.
  - Stainless steel have longest life.
  - Visually unappealing.

- **Operational considerations**
  - Must determine whether vendor services or in-house management.
  - Snow and ice maintenance requirements.
  - May require significant utility infrastructure and annual maintenance fees.

---

* Estimate includes equipment capital cost based on a wide sample of transit agency experience. Costs can vary significantly depending on additional accessories (canopies, repair stands, etc.) and engineering (in-ground mounting vs. bolts). Does not include annual cost for ongoing operations and maintenance.

** Number of spaces varies depending on rack shape and/or positioning.

*** Racks can be weather protected with a canopy, or with placement inside a station facility.
### Metro Transit Bike Lockers

#### Winter Use Survey

Over the past few years, winter bike use has increased significantly in the Twin Cities area. This year we are working closely with our maintenance staff to clear snow and ice from bike lockers more quickly and reliably than we have in the past. Please fill out this short survey below to help us prioritize snow removal efforts for those who use their lockers throughout the winter.

**Q1** Your Name

**Q2** Your Email Address

**Q3** Your Locker Location and Number

**Q4** How often do you use your locker during the riding season(s)?
- [ ] Daily
- [ ] Several times a week
- [ ] Weekly
- [ ] A few times a month
- [ ] Less than a few times a month

**Q5** Do you plan to ride during the snowy season this winter?
- [ ] Yes
- [ ] No

Thank you for completing this survey. Expect a follow-up email in mid-November with more information on our plans for winter maintenance. In the meantime, you may contact us with questions or concerns at 612-377-2200, option 5, or commuterprograms@metrotransit.org.

Please complete this survey by November 1.
APPENDIX E
EXAMPLES OF TRANSIT AGENCY BIKE WEB PAGES

SFMTA: https://www.sfmta.com/getting-around/bicycling

King County Metro: http://kingcounty.gov/metro/bike

Metro Transit: https://www.metrotransit.org/bike

RTD: http://www.rtd-denver.com/Bike_n_Ride.shtml

Sound Transit: https://www.soundtransit.org/bicycles

Metro: https://www.metro.net/riding/bikes/


TriMet: https://trimet.org/bikes

TTC: https://www.ttc.ca/Riding_the_TTC/Bikes/index.jsp

APPENDIX F
FEDERAL FUNDING RESOURCES

<table>
<thead>
<tr>
<th>Program Title</th>
<th>Eligible Bicycle Activities</th>
<th>Link</th>
</tr>
</thead>
<tbody>
<tr>
<td>Urbanized Area Formula Program</td>
<td>Bicycle routes to transit, bike racks, shelters and equipment for public transportation vehicles</td>
<td><a href="https://www.transit.dot.gov/funding/grants/urbanized-area-formula-grants-5307">https://www.transit.dot.gov/funding/grants/urbanized-area-formula-grants-5307</a></td>
</tr>
<tr>
<td>Urbanized Area Formula Program</td>
<td>Bicycle routes to transit, bike racks, shelters and equipment for public transportation vehicles</td>
<td><a href="https://www.transit.dot.gov/funding/grants/urbanized-area-formula-grants-5307">https://www.transit.dot.gov/funding/grants/urbanized-area-formula-grants-5307</a></td>
</tr>
<tr>
<td>Enhanced Mobility of Seniors and Individuals with Disabilities</td>
<td>Bicycle improvements that provide access to an eligible public transportation facility and meet the needs of the elderly and individuals with disabilities</td>
<td><a href="https://www.transit.dot.gov/funding/grants/enhanced-mobility-seniors-individuals-disabilities-section-5310">https://www.transit.dot.gov/funding/grants/enhanced-mobility-seniors-individuals-disabilities-section-5310</a></td>
</tr>
<tr>
<td>TOD Planning Pilot Grants</td>
<td>Projects that facilitate multimodal connectivity and accessibility or increase access to transit hubs for pedestrian and bicycle traffic</td>
<td><a href="https://www.transit.dot.gov/TODPilot">https://www.transit.dot.gov/TODPilot</a></td>
</tr>
</tbody>
</table>

Additional information on FTA grants for bicycle and pedestrian projects can be found at: https://www.transit.dot.gov/regulations-and-guidance/environmental-programs/livable-sustainable-communities/fta-program-bicycle
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