Lessons from the Development of a Guidebook on Pedestrian and Bicycle Connections to Transit

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Pedestrian and Bicycle Connections to Transit

LESSONS FROM THE DEVELOPMENT OF A GUIDEBOOK ON PEDESTRIAN AND BICYCLE CONNECTIONS TO TRANSIT
Presentation Outline

Background on Guidebook
Access Sheds
Station Areas
Pedestrian Access
Bicycle Access
Planning and Implementation
Guidebook Goals

Making the case for walking and biking connections
Access for users of all ages and abilities
Tools, examples and best practices
Integrating bike share and transit
How to plan and implement
# Benefits of Ped/Bike Connections to Transit

<table>
<thead>
<tr>
<th>Provides Benefit to</th>
<th>Transit Agency</th>
<th>Riders</th>
<th>Everyone</th>
</tr>
</thead>
<tbody>
<tr>
<td>Transit depends on safe pedestrian access</td>
<td>✓</td>
<td>✓</td>
<td></td>
</tr>
<tr>
<td>More Equitable</td>
<td></td>
<td>✓</td>
<td></td>
</tr>
<tr>
<td>Extend the Reach of Transit</td>
<td>✓</td>
<td>✓</td>
<td></td>
</tr>
<tr>
<td>Gives Riders more Options</td>
<td></td>
<td>✓</td>
<td></td>
</tr>
<tr>
<td>Supports Multimodal trips</td>
<td></td>
<td>✓</td>
<td></td>
</tr>
<tr>
<td>Alleviates Crowding</td>
<td>✓</td>
<td>✓</td>
<td></td>
</tr>
<tr>
<td>Helps in cases of Transit Outages</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Improves Health</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Reduces Congestion</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
</tbody>
</table>
Key Resources
Around the Stop or Station
all pedestrian improvements located within one-half mile and all bicycle improvements located within three miles of a public transportation stop or station shall have a de facto physical and functional relationship to public transportation. Pedestrian and bicycle improvements beyond these distances may be eligible for FTA funding by demonstrating that the improvement is within the distance that people will travel by foot or by bicycle to use a particular stop or station.
Key Concept: Access Sheds

“as the crow flies” access sheds

Source: Atlanta Regional Commissions Walk. Bike. Thrive! plan
Access Sheds: Network Distances

Source: NCTCOG Active Transportation Routes to Rail study
# Making Network Connections

<table>
<thead>
<tr>
<th>Strategy / Approach</th>
<th>Benefits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sidewalks - adding, repairing, widening</td>
<td><img src="image" alt="Pedestrian Icon" /> <img src="image" alt="Bicycle Icon" /></td>
</tr>
<tr>
<td>Lighting, shade, trees/landscaping, seating</td>
<td><img src="image" alt="Pedestrian Icon" /> <img src="image" alt="Bicycle Icon" /></td>
</tr>
<tr>
<td>Shared lanes and roadways, bike routes</td>
<td><img src="image" alt="Bicycle Icon" /> <img src="image" alt="Pedestrian Icon" /></td>
</tr>
<tr>
<td>Bike Lanes, Buffered bike lanes</td>
<td><img src="image" alt="Bicycle Icon" /> <img src="image" alt="Pedestrian Icon" /></td>
</tr>
<tr>
<td>Bike Boulevards</td>
<td><img src="image" alt="Bicycle Icon" /> <img src="image" alt="Pedestrian Icon" /></td>
</tr>
<tr>
<td>Separated Bike Lanes</td>
<td><img src="image" alt="Bicycle Icon" /> <img src="image" alt="Pedestrian Icon" /></td>
</tr>
<tr>
<td>Trails and paths</td>
<td><img src="image" alt="Bicycle Icon" /> <img src="image" alt="Pedestrian Icon" /></td>
</tr>
<tr>
<td>Traffic calming – speed humps, traffic circles, road narrowing, diverters</td>
<td><img src="image" alt="Bicycle Icon" /> <img src="image" alt="Pedestrian Icon" /></td>
</tr>
<tr>
<td>Wayfinding</td>
<td><img src="image" alt="Bicycle Icon" /> <img src="image" alt="Pedestrian Icon" /></td>
</tr>
</tbody>
</table>
# Making Network Connections

<table>
<thead>
<tr>
<th>Strategy / Approach</th>
<th>Benefits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Crossings – grade separated, RRFB, marked crossings, raised crossings, in-street crossing signage, high visibility crossing signage, staggered crossings</td>
<td><img src="image1.png" alt="Pedestrian" /> <img src="image2.png" alt="Bicycle" /></td>
</tr>
<tr>
<td>Signalization - Signalized crossing, HAWK signal, bike signal, scramble signal, leading pedestrian interval</td>
<td><img src="image1.png" alt="Pedestrian" /> <img src="image2.png" alt="Bicycle" /></td>
</tr>
<tr>
<td>Intersection treatments – areas for turning and/or queueing, advance stop lines, reduce curb radii</td>
<td><img src="image1.png" alt="Pedestrian" /> <img src="image2.png" alt="Bicycle" /></td>
</tr>
<tr>
<td>Reducing crossing distances – median refuge, curb extension</td>
<td><img src="image1.png" alt="Pedestrian" /> <img src="image2.png" alt="Bicycle" /></td>
</tr>
<tr>
<td>Accessibility features – audible cues, detectable warning surfaces, curb ramps</td>
<td><img src="image1.png" alt="Pedestrian" /></td>
</tr>
</tbody>
</table>
Station area concepts for pedestrians and bicyclists
Safety and Security

Emergency Call box, Expo Line Trail, Santa Monica

Camera and lighting, Metro bus stop, St. Paul
Universal Design

A Line Rapid Bus stop, St. Paul
Wayfinding to the Stop or Station
Twin Cities – A Line stop features

What will stations look like after construction is complete?

- **A** Utility boxes near station areas house necessary communications and electrical equipment.
- **B** Pylon markers help riders identify stations from a distance.
- **C** Real-time NexTrip displays provide bus information, and on-demand annunciators speak this information for people with low vision.
- **D** Shelters provide weather protection and feature on-demand heaters and integrated lighting. Shelter sizes will vary based on customer demand (small shown here).
- **E** Ticket machines and fare card validators collect all payment before customers board the bus.
- **F** Emergency telephones provide a direct connection to Metro Transit security. Stations also feature security cameras.
- **G** All stations feature trash and recycling containers.
- **H** Platform edges are marked with a cast-iron textured warning strip to keep passengers safely away from the curb while the bus approaches. Many stations also feature raised curbs for easier boarding.
- **I** Platform areas are distinguished by a dark gray concrete pattern.
- **J** Some stations have sidewalk-level light fixtures to provide a safe, well-lit environment. Fixtures will match existing lights in the surrounding area.
- **K** Benches at stations provide a place to sit.
- **L** Every station has bike parking loops.

Source: metrotransit.org/a-line-faq
Pedestrian Access
Pedestrian Suitability

SIDEWALK SUITABILITY
- Sidewalk Width
- Lighting for Peds
- Speed Limit
- On-street Parking
- Along a Truck Route
- Parkways

PSI SUPPLY ANALYSIS

CROSSING SUITABILITY
- Stop Signs
- Crossing Push Button
- No Crossing Locations
- Marked Crosswalks
- Traffic Signals
- Raised Median/Refuge Island
- Speed Limit
- Curb Ramp
- Rapid Flashing Beacon

Santa Monica Draft Pedestrian Plan
Sidewalks
Sidewalks
Crossings

Full signal, Minneapolis
Case Study Lessons: Safety, Comfort, and Access to Bus Stops
Atlanta – Buford Highway
Atlanta – Buford Highway
Bicyclist Access
Wayfinding to Station or Stop

Near LA Metro Silver Line, Los Angeles

Near TriMet MAX Orange Line
Bikes on Transit
Bicycle Parking at Stations and Stops
Bicycle Parking at Stations and Stops

MARTA Station in Atlanta

Metro Transit Station in Minneapolis
Bicycle Parking at Stations and Stops

SE Tacoma Avenue Station, MAX Orange Line
Bicycle Parking at Stations and Stops: Alternatives

SE Park Avenue Station, MAX Orange Line
Bikehub at El Monte Station, Los Angeles
Case Study Lessons: Bike Share and Transit
Bike Share and Transit
Bike Share and Transit: Coordination

• Coordinating public information
• Coordinating fare systems (Goal)
NiceRide Bikeshare at a Metro Transit Green Line Station in Downtown St. Paul, Minnesota
LA Metro Bikeshare

Breeze Bikeshare in Santa Monica at an Expo Line Station
Planning for Pedestrian and Bicycle Connections to Transit
Key Plan Elements

Common Plan Elements
Existing conditions, including opportunities and constraints
Toolkit of treatments or strategies
Recommended improvements

Other recommended plan elements
Incorporating accessibility
Community engagement strategy
Implementation plan
## Facility Prioritization

### BUS STOP RANKING SYSTEM

<table>
<thead>
<tr>
<th>Variable</th>
<th>Type</th>
<th>Max. Score</th>
</tr>
</thead>
<tbody>
<tr>
<td>ADA Accessible</td>
<td>Legal Access†</td>
<td>3 points</td>
</tr>
<tr>
<td>ADA Pad for Wheelchair</td>
<td>Legal Access†</td>
<td>4 points</td>
</tr>
<tr>
<td>Crash History - Bicycle</td>
<td>Safety</td>
<td>3 points</td>
</tr>
<tr>
<td>Crash History - Pedestrian</td>
<td>Safety</td>
<td>3 points</td>
</tr>
<tr>
<td>Safety Crosswalk Access†</td>
<td>Safety</td>
<td>3 points</td>
</tr>
<tr>
<td>Lighting††</td>
<td>Safety</td>
<td>3 points</td>
</tr>
<tr>
<td>Level of Service</td>
<td>Safety</td>
<td>2 points</td>
</tr>
<tr>
<td>Sidewalk Access</td>
<td>Safety</td>
<td>2 points</td>
</tr>
</tbody>
</table>

### BUS STOP RANKING SYSTEM cont.

<table>
<thead>
<tr>
<th>Variable</th>
<th>Type</th>
<th>Max. Score</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bike Lane Access</td>
<td>Safety</td>
<td>2 points</td>
</tr>
<tr>
<td>Right-of-Way Buffer</td>
<td>Safety</td>
<td>2 points</td>
</tr>
<tr>
<td>Shelter</td>
<td>Facilities</td>
<td>1 point</td>
</tr>
<tr>
<td>Bench</td>
<td>Facilities</td>
<td>1 point</td>
</tr>
<tr>
<td>Bus Schedule</td>
<td>Facilities</td>
<td>1 point</td>
</tr>
<tr>
<td>Trash</td>
<td>Facilities</td>
<td>1 point</td>
</tr>
<tr>
<td>Bike Locker</td>
<td>Facilities</td>
<td>1 point</td>
</tr>
</tbody>
</table>
## Facility Prioritization

### Bicycle Improvement Prioritization factors for new LRT Station

<table>
<thead>
<tr>
<th>Criteria</th>
<th>Notes</th>
<th>Value</th>
<th>Weighting</th>
</tr>
</thead>
<tbody>
<tr>
<td>Is the project located close to an LRT station?</td>
<td>Proximity to LRT station point in GIS</td>
<td>Projects ranked in comparison to each other on a scale of 0 to 10</td>
<td>30%</td>
</tr>
<tr>
<td>Does the project create a direct connection to an LRT station?</td>
<td>Connection to an LRT station</td>
<td>Yes = 15, No = 0</td>
<td>15%</td>
</tr>
<tr>
<td>Does the project address a known safety concern?</td>
<td>Bicycles crashes per mile</td>
<td>Projects ranked in comparison to each other on a scale of 0 to 10</td>
<td>15%</td>
</tr>
<tr>
<td>How many zero car households does the project serve?</td>
<td>Assigned zero car households to each project based on adjacent blocks</td>
<td>Projects ranked in comparison to each other on a scale of 0 to 10</td>
<td>15%</td>
</tr>
<tr>
<td>How many employees and residents does the project serve?</td>
<td>Assigned jobs to each project based on LEHD data points; assigned population to each project based on adjacent blocks</td>
<td>Projects ranked on a scale of 0 to 10 based on employment and residential density (jobs + population per mile)</td>
<td>15%</td>
</tr>
<tr>
<td>Does the project directly serve schools and libraries?</td>
<td>Known schools and libraries per mile</td>
<td>Projects ranked in comparison to each other on a scale of 0 to 10</td>
<td>5%</td>
</tr>
<tr>
<td>Does the project improve connections to the regional trail network and the Metropolitan Council’s regional bicycle transportation network?</td>
<td>Proximity to trail or bicycle transportation network segment in GIS</td>
<td>Projects ranked in comparison to each other on a scale of 0 to 10</td>
<td>5%</td>
</tr>
</tbody>
</table>

Twin Cities, Hennepin County Bottineau LRT Bicycle Study, 2016
Pedestrian access plans

- Sidewalks
- Crossings
- Stop/stations access points/locations
- Seating, shelter, and lighting

TriMet conducted a Pedestrian Network Analysis to develop “an objective, data-driven system for prioritizing places around the region where pedestrian infrastructure investments will provide safer and more comfortable access to transit”.
Bicycle access plans

- Bicycle network connections
- Parking at stop locations
- Onboard accommodations for bicycles

BART sought to “retool its stations and approach to access planning to attract thousands more bikes than cars to the system each day” which reduces the need to build costly auto parking, bolsters ridership, and encourages public and environmental health.
First Mile Last Mile Plans

Improving conditions for pedestrians and cyclists in the areas around the origin and destination stops

LA Metro’s plan introduces “The Pathway,” a “transit access network designed to reduce the distance and time it takes people to travel from their origins to stations and from stations to destinations, while simultaneously improving the user experience”
Implementation
## Interagency Collaboration

<table>
<thead>
<tr>
<th>Agency / Organization</th>
<th>Roles</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>MPOs</strong></td>
<td>Convening; Agenda Setting; Capacity Building; Long Range Planning; Regional Planning;</td>
</tr>
<tr>
<td><strong>Transit Agency</strong></td>
<td>Convening; Agenda Setting; Service Integration; Facilities Planning; Station Access Planning</td>
</tr>
<tr>
<td><strong>Cities, Counties</strong></td>
<td>Bike/Ped Route Planning and Implementation</td>
</tr>
<tr>
<td><strong>BIDs, Foundations, Partners</strong></td>
<td>Marketing; Fundraising; Corridor Planning and Programming</td>
</tr>
</tbody>
</table>
Bicycle and Pedestrian Program

Pedestrian and Bicycle Funding Opportunities
U.S. Department of Transportation Transit, Highway, and Safety Funds
Revised August 12, 2016

The table indicates potential eligibility for pedestrian and bicycle projects under U.S. Department of Transportation surface transportation funding programs. Additional restrictions may apply. You can access program requirements longer, and new program questions and updates are available.

http://www.fhwa.dot.gov/environment/bicycle_pedestrian/funding/funding_opportunities.cfm

http://www.advocacyadvance.org/docs/FirstMileLastMile_August2014_web.pdf
Prioritize walking and bicycling for transit access
Clarify agency policies and staffing
Leading by example
Case Study Lessons: Culture Shift - Show, Don’t Tell

PORTLAND STATE UNIVERSITY PROJECT TEAM:
  JENNIFER DILL
  LYNN WEIGAND
  NATHAN MCNEIL
  DREW DEVITIS
  RUSSELL DOUBLEDAY
  ALLISON DUNCAN

Questions?