The First and Last Mile: Making Door-to-Door Mean it

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Nearly every transit trip is also a ped/bike trip.
We need to care about our customer from door to door.
We need to think of ped/bike as part of the transit system.
We need to design for people, not cars.
We need to design for people, not buses and trains.
Los Angeles
Los Angeles
The feds understand.
We need to work together.
Design of On-street Transit Stops and Access from Surrounding Areas

Abstract: This Recommended Practice discusses ways to provide or improve connections to, from and at on-street transit stops, regardless of mode.

Keywords: accessibility, land use, on-street transit stops, street connectivity, street design, transit-oriented development (TOD), urban design

Summary: This Recommended Practice is intended to support transit agencies to actively pursue access improvements by describing the on-street stop design features and characteristics that improve or support access to transit.

Scope and purpose: An on-street is a stop that is located within the right-of-way of a public street. Off-street stops, which are located on separate parcels controlled by the transit agency, introduce additional design considerations, which will be covered in an additional standard. However, the guidelines for street connectivity, street design and surrounding land uses in this standard apply to off-street stops as well. Transit agencies can use this document to assess existing or new on-street transit stops and to provide input to local jurisdictions and developers to invest in pedestrian improvements. Local jurisdictions and the general public can use this document to facilitate discussions about planning, design and investment decisions made by public agencies and elected officials. Developers, planners and architects can use this document in making design decisions regarding the interface of private development and the public realm where transit is present or planned.

This Recommended Practice represents a common viewpoint of those parties concerned with its provisions, namely, transit operating agencies, manufacturers, consultants, engineers and general interest groups. The application of any standards, practices or guidelines contained herein is voluntary. In some cases, federal and/or state regulations govern portions of a transit system's operations. In those cases, the government regulations take precedence over this standard. APTA recognizes that for certain applications, the standards of practices, as implemented by individual transit agencies, may be either more or less restrictive than those given in this document.

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2.2.2 Pedestrian realm guidelines

Guidelines

<table>
<thead>
<tr>
<th>Guidelines</th>
<th>Examples</th>
</tr>
</thead>
<tbody>
<tr>
<td>The key measure of a sidewalk or pedestrian path is pedestrian clear zone:</td>
<td></td>
</tr>
<tr>
<td>a continuous paved zone with at least 7 ft of vertical clearance and no</td>
<td></td>
</tr>
<tr>
<td>surface obstructions of any sort.</td>
<td></td>
</tr>
<tr>
<td>The minimum width of the clear zone should be 5 ft. This will allow two</td>
<td></td>
</tr>
<tr>
<td>people to pass comfortably, or two people to walk comfortably alongside</td>
<td></td>
</tr>
<tr>
<td>each other. It is also the minimum width in which two wheelchairs can</td>
<td></td>
</tr>
<tr>
<td>pass.</td>
<td></td>
</tr>
<tr>
<td>While 5 ft is a minimum, a wider clear zone is better. A 6 ft clear zone</td>
<td></td>
</tr>
<tr>
<td>will be more enjoyable for two people to walk on than a 5 ft clear zone.</td>
<td></td>
</tr>
<tr>
<td>Clear zone width should respond to the expected or desired pedestrian</td>
<td></td>
</tr>
<tr>
<td>activity levels or the immediate context. Paths that will carry high</td>
<td></td>
</tr>
<tr>
<td>volumes of pedestrian activity need to be designed for that volume and</td>
<td></td>
</tr>
<tr>
<td>may need to be wider than minimum standards indicate. 10 or 15 ft wide</td>
<td></td>
</tr>
<tr>
<td>clear zones are common in high-pedestrian-activity areas like CBDs,</td>
<td></td>
</tr>
<tr>
<td>dense mixed-use areas or university campuses.</td>
<td></td>
</tr>
<tr>
<td>Off-street multi-use paths where bicyclists and pedestrians both use the</td>
<td></td>
</tr>
<tr>
<td>facility should have a minimum 12 ft clear zone.</td>
<td></td>
</tr>
</tbody>
</table>

References:
AASHTO recommends 4 to 8 ft sidewalks with a 2 ft buffer from the street.
The CSS Guidebook recommends a minimum clear pedestrian zone in constrained
areas of 5 ft in residential areas and 6 ft in commercial areas, with a preferred
dimension of 6 to 10 ft, with wider zones in very high-volume areas.
The Smart Transportation Guide recommends 8 to 10 ft clear zones for major
roadways in town center and urban core contexts and 5 to 6 ft in most context types.

Bad: Example of inadequate pedestrian realm. (Houston)
Good: Wide clear zone. (Tempe, AZ)
Bad: Narrow sidewalk with even narrower clear zone. (Houston, TX)
A transit line is a zone of access.
What's in that zone?

6 new office towers in Downtown Houston since light rail construction began

140,000 Downtown employees
What is that zone like on the ground?
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Every Transit Rider is a Pedestrian – First and Last

Rail~Volution
October 17, 2012
What can be gained by walking?

Good Health

More $ for other things
How often do you spend part of your day walking?
Why don’t people walk more often?

It’s more convenient to drive…

It’s unpleasant to walk there…
Speed increases the chance of pedestrian deaths
## What Makes Transit Work?

<table>
<thead>
<tr>
<th></th>
<th>Works</th>
<th>Doesn’t Work</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Number of People and Jobs</strong></td>
<td>• Moderate to High</td>
<td>• Low</td>
</tr>
<tr>
<td><strong>Street Layout</strong></td>
<td>• Small blocks</td>
<td>• Long, winding streets</td>
</tr>
<tr>
<td></td>
<td>• Grid system</td>
<td>• Dead-end roads, cul de sacs</td>
</tr>
<tr>
<td><strong>Mix of Uses</strong></td>
<td>• Mix (commercial, residential, and office uses)</td>
<td>• Single use (e.g. all residential or all industrial)</td>
</tr>
<tr>
<td><strong>Pedestrian Environment</strong></td>
<td>• Wide sidewalks</td>
<td>• Narrow sidewalks</td>
</tr>
<tr>
<td></td>
<td>• Low volume streets, slow traffic speeds</td>
<td>• High volume streets, fast moving traffic</td>
</tr>
<tr>
<td></td>
<td>• Good lighting</td>
<td>• Poor lighting</td>
</tr>
<tr>
<td></td>
<td>• Street amenities (benches, tree canopy, etc.)</td>
<td>• No intersection markings and long pedestrian wait times</td>
</tr>
<tr>
<td></td>
<td>• Well-marked intersections with signalized crossings</td>
<td></td>
</tr>
<tr>
<td><strong>Site Design</strong></td>
<td>• Buildings front the street and entrances are near the sidewalk.</td>
<td>• Building setback from street and surrounded by surface parking</td>
</tr>
<tr>
<td><strong>Parking</strong></td>
<td>• Limited</td>
<td>• Abundant</td>
</tr>
<tr>
<td></td>
<td>• Fee-based parking</td>
<td>• Free</td>
</tr>
</tbody>
</table>
Where to Start?

6,500 + Transit Stops
## Pedestrian Network Analysis Project

### Transit Supportiveness of the Area

<table>
<thead>
<tr>
<th>Question</th>
<th>Opportunities</th>
</tr>
</thead>
<tbody>
<tr>
<td>How many people are living and/or working in the area?</td>
<td>Can we shift some LIFT customers to fixed route service?</td>
</tr>
<tr>
<td>What does the balance of Jobs to Housing look like?</td>
<td>Where are the people who are most in need of smooth pavement, curb cuts, wide sidewalks taking transit?</td>
</tr>
<tr>
<td>Are the streets well connected with small block sizes?</td>
<td>Where can we build off of past investments?</td>
</tr>
<tr>
<td></td>
<td>Where are there existing URA financing tools?</td>
</tr>
</tbody>
</table>

### Existing Situation of our Transit Stops

<table>
<thead>
<tr>
<th>How well used is the stop today?</th>
<th>Where are there clusters of:</th>
</tr>
</thead>
<tbody>
<tr>
<td>How many lines can a person transfer to?</td>
<td>- schools</td>
</tr>
<tr>
<td></td>
<td>- grocery stores</td>
</tr>
<tr>
<td></td>
<td>- universities/colleges</td>
</tr>
<tr>
<td></td>
<td>- hospitals</td>
</tr>
<tr>
<td></td>
<td>- shopping centers</td>
</tr>
<tr>
<td></td>
<td>- major employers</td>
</tr>
<tr>
<td></td>
<td>- parks</td>
</tr>
<tr>
<td></td>
<td>- social service sites</td>
</tr>
<tr>
<td></td>
<td>- child daycare centers</td>
</tr>
<tr>
<td></td>
<td>- senior housing</td>
</tr>
<tr>
<td></td>
<td>- airports/train stations</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Deficiencies</th>
</tr>
</thead>
<tbody>
<tr>
<td>Where are there sidewalks missing?</td>
</tr>
<tr>
<td>Where are there high traffic volumes?</td>
</tr>
<tr>
<td>Where are there high posted speed limits?</td>
</tr>
<tr>
<td>Where have there been pedestrian crashes?</td>
</tr>
</tbody>
</table>
## Pedestrian Network Analysis Project

### Focus Areas

<table>
<thead>
<tr>
<th>Focus Area</th>
<th>Primary Jurisdiction</th>
</tr>
</thead>
<tbody>
<tr>
<td>SW Farmington Rd. &amp; SW Murray Blvd.</td>
<td>City of Beaverton</td>
</tr>
<tr>
<td>Clackamas Town Center Transit Center</td>
<td>Clackamas County</td>
</tr>
<tr>
<td>SE Division St. &amp; SE 182nd Ave.</td>
<td>City of Gresham</td>
</tr>
<tr>
<td>Tanasbourne Town Center</td>
<td>City of Hillsboro</td>
</tr>
<tr>
<td>Clackamas County Red Soils Campus</td>
<td>Oregon City</td>
</tr>
<tr>
<td>SE Division St. &amp; SE 122nd Ave.</td>
<td>City of Portland</td>
</tr>
<tr>
<td>SE Powell Blvd. &amp; SE 82nd Ave.</td>
<td>City of Portland</td>
</tr>
<tr>
<td>Hillsdale</td>
<td>City of Portland</td>
</tr>
<tr>
<td>Tigard Transit Center</td>
<td>City of Tigard</td>
</tr>
<tr>
<td>SW Beaverton-Hillsdale Hwy. &amp; SW Scholls Ferry Rd.</td>
<td>Washington County</td>
</tr>
</tbody>
</table>
Passenger Counts as Pedestrian Counts

82nd & Division
18,000 ons/offs a week

Capacity of Rose Garden Arena
20,630
Walking Audits

• Watch what people do
• Document conditions
How do you get to the bus stop?
Very close & fast traffic
3.5 Ft.
Obstacle Course?
Crosswalk?
How do you get to these buttons if you’re in a wheelchair?
Curb cut feeds people into right turn lane
Walkability
Sparks Reinvestment
Foster at 84th Ave

Existing Conditions
Public Improvements and Resulting Private Investment
Cornelius - Adair St. & 14th

Before

After
Cornelius - Adair St. & 17th

Before

After
What would the investments look like?

**FUNCTIONAL** vs. **HIGH QUALITY**
TRANSIT STOPS – HIGH QUALITY

functional
TRANSIT STOPS – FUNCTIONAL

not functional
SIDEWALK CORRIDORS – HIGH QUALITY

functional
STREET CORNERS – HIGH QUALITY

functional
STREET CORNERS – FUNCTIONAL

Not functional
STREET CROSSING/INTERSECTION – HIGH QUALITY

functional
STREET CROSSING/INTERSECTION – FUNCTIONAL

Not functional
WHAT NEXT?
Active Transportation Projects that Help People Get to Transit

Legend
- Proposed Concrete Pads
- MAX Station
- MAX Blue Line
- MAX Red Line
- Line 48-Cornell Rd.
- Line 47-Baseline/Evergreen

N

0 0.5 1

Bus Line
Beaverton
Hillsboro
Thank you

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Report and Fact Sheet

trimet.org/walk
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Railvolution 2012

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October 18th, 2012
Project Context

- 7 San Bernardino County Cities
- 10 stations (6 Metrolink and 4 sbX BRT Stations)
- Over 150 square miles of catchment areas
- Largely built-out auto environment
- Opportunity to implement regional bicycle network identified in regional non-motorized plan
- Develop/enhance station areas “inside-out”
Process

• Stakeholder Working Group and multi-agency distribution List
• Public outreach surveys, workshops, and project website
• Field review by project Team and City/SANBAG Staff
• Best practices review
• GIS suitability analysis
• Consultation with City Staffs
Existing Conditions:

Bicycling

- Conflicts with major arterials and freeways
- Wide disparity in networks, disconnected facilities
- Limited wayfinding elements
- Challenging funding situations
- Limited bike parking at stations
- Ample free auto parking
Existing Conditions:

Walking

- Inadequate sidewalks, lighting, crossings, or ADA elements
- “Good bones” adjacent to several stations
- Some stations lack a sense of place
- Safety and visibility of some stations could be improved
Project Outreach

- Staff Audits and four field review sessions with stakeholders
- Intercept surveys at stations
- Hired and Trained CSUSB students
- AM and PM Peak Commute Periods
Sample Recommendations

- Repair existing uneven pavement and breaks in the pavement to improve safety and mobility along the sidewalks.
- Activate the Depot with restaurants, public art, convenience services and amenities such as day care, shoe repair, dry cleaning, bike rental/repair and/or bike share facility. This would be consistent with the strategies listed in the Land Use Element’s Santa Fe Depot Strategic Area.
- Provide mid-block crosswalks to ensure safe pedestrian connection to the eastbound bus stop and to provide direct connection between the 3rd Street Shopping Center and the San Bernardino Depot.
- Use special reflective striping or pavement materials to make pedestrian crossings more visible.
- Coordinate with SANBAG’s Redlands Passenger Rail Project to ensure safe pedestrian movement across the intersection of 3rd Street and K Street.
- Provide wayfinding signage to direct people from boarding area to local bus stops located along 3rd Street.
- Provide high visibility crosswalks to improve the safety of pedestrians.
- Scored or stamped colored concrete surfaces could be used as they are generally more durable over the long term than unit pavers, with more uniform joints and less chance of displacement.
- Provide wayfinding signage/public art or smaller permanent installations to mark the entry to the station.
- On residential streets and Rialto Avenue repair existing uneven pavement and breaks in the pavement to improve mobility along these sidewalks. Also, improve sidewalks in locations where different materials have been used to patch the sidewalks to improve the aesthetic of the sidewalks.
- Establish “citizen cleanup day” programs.
- Residential streets could be converted into LOCAL BIKE BOULEVARDS to provide bike lanes within the existing pavement width or could be converted into a bicycle boulevard or a narrow to solve the first mile/last mile issue.
- LOCAL GREEN STREETS: Local Green Streets which accommodate on street parking as well as shade trees, landscaping and storm water infiltration helps with traffic calming by slowing down vehicles, provide pedestrians a shorter distance to cross a street, and provide small community social spaces for neighborhood blocks.
Sample Recommendations

**Project Description**
Residential streets between 2nd Street and Plaito Avenue (800 LF).
Phase 1 - Install parkways to provide shade and install bicycle symbols to convert street into a local bike boulevard to help solve first mile/last mile issue. Phase 2 - Install curb extensions for traffic calming and storm water infiltration.

**Cost Estimate**
- **Parkway and Bicycle Boulevard (Phase I)**
  - Concrete removal: 4,000' @ $3.80 SF
  - Trees: 20 @ $800 EA
  - Landscaping: 3,000' @ 25 SF
  - Thermoplastic bicycle symbol: 6 @ $100 EA
  - Total cost: $92,000

- **Curb Extensions (Phase II)**
  - Asphalt removal: 3,300' @ $3.50 SF
  - Curb installation: 470' @ 20 LF
  - Landscaping: 3,000' @ 25 SF
  - Total cost: $96,000

Shared lane marking symbols improve visibility of bicyclists and help them properly position themselves in the lane.

Landscaped curb extension with drought-tolerant landscaping, in a few locations edible landscaping could be provided.

5 ft Sidewalk
Street trees
5 ft Landscaped Parkway
On-Street Parking (Optional - Porous Paving)
Sample Recommendations
Sample Recommendations

4.6b San Bernadino Station: N Arrowhead Avenue from W 5th Street to E Mill Street

Project Description
This project would remove a travel lane from N Arrowhead Avenue in each direction to provide a buffered bike lane, a center turn lane median, and parking in both directions from W 5th Street to E Mill Street.

Striped buffered bike lane to separate bicyclists from auto traffic and to provide a more comfortable bicycling environment.

A. N Arrowhead Avenue and W 5th Street
62’ ROW, remove one travel lane in each direction and install buffered bike lanes

B. N Arrowhead Avenue and E Mill Street
64’ ROW, remove one travel lane in each direction and install buffered bike lanes

Proposed bike lane on W Ratio Ave (see project sheet 11)
Sample Recommendations

4.6b San Bernardino Station: N Arrowhead Avenue from W 5th Street to E Mill Street

Project Description
This project would remove a travel lane from N Arrowhead Avenue in each direction to provide a buffered bike lane, a center turn lane median, and parking in both directions from W 5th Street to E Mill Street.

Stripes buffered bike lane to separate bicyclists from autos bikes and to provide a more comfortable bicycling environment.

[Map showing proposed changes along N Arrowhead Avenue and W 5th Street.]
Sample
Recommendations - Bikeshare

• Environmental Benefits
• Extends range of transit system, increases viability of other modes
• Benefits local businesses
• Addresses “last-mile” problem
  – Over 50 percent of Capital Bike Share survey respondents used bike share to access a metrorail station, and 20 percent to access a bus station
  – Used more frequently traveling FROM transit than TO transit
• Errands and lunch trips
• Provides a ride home if too late for transit
Lessons Learned

• “If everyone is moving forward together, then success takes care of itself”
• “Make no small plans”
• “We are the Champions!”
Thank You!

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Railvolution 2012

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• How the Safe Routes to Transit Program is funded

• How the Safe Routes to Transit Program came about

• How the Safe Routes to Transit Program is structured to facilitate innovation in addressing last mile issues
Safe Routes to Transit funds:

- Secure bicycle storage at transit stations or stops
- Safety enhancements for walking or cycling to transit stations and stops
- Removal of barriers to walk and cycle to transit stations
- System-wide transit enhancements to accommodate persons walking and cycling
• 4 grant cycles
• 40 projects
• 68 bike lockers
• 2 bike stations
• 54 rail cars reconfigured
• COUNTLESS:
  - marked crosswalks
  - marked bike routes
  - bulb outs
  - bike lanes
  - bike/ped trails
Addressing the last mile issue takes:

The basics (sidewalks, marked crosswalks, bike lanes, bulb outs, etc.)

+ Innovative solutions to age-old problems
• Is the project an innovative, non-standard design that could become a replicable model for the region?
➢ Longer grant timelines and additional flexibility for pilot projects
• Is the project an innovative, non-standard design that could become a replicable model for the region?

• Does the project deal with a difficult issue that has not been addressed before?
• Is the project an innovative, non-standard design that could become a replicable model for the region?

• Does the project deal with a difficult issues that has not been addressed before?

• Will this planning process lead to a comprehensive set of improvements that will make it easier, safer, and more convenient to bike and walk to transit?
BART Riders Now Have a Dignified Walkway at Balboa Park Station
by Aaron Bialick

A family connects to BART from the 49 bus using the inviting new walkway. Photo: Aaron Bialick
• Is the project an innovative, non-standard design that could become a replicable model for the region?

• Does the project deal with a difficult issue that has not been addressed before?

• Will this planning process lead to a comprehensive set of improvements that will make it easier, safer, and more convenient to bike and walk to transit?

• Is this a multi-jurisdictional project?
• Is the project an innovative, non-standard design that could become a replicable model for the region?

• Does the project deal with a difficult issues that has not been addressed before?

• Will this planning process lead to a comprehensive set of improvements that will make it easier, safer, and more convenient to bike and walk to transit?

• Is this a multi-jurisdictional project?

• Does this project address personal security from crime?
BIKE PARKING

Only pennies per hour!

What you get:
- Secure bike parking where and when you need it. Keep your bike and helmet dry.
- Bikelink™ card works at over 100 Bikelink™ locations.
- Stored value card, no monthly or annual fee. Card never expires.
- 24-hour user support.
- More parking hours, overnight, or for several days.
- Press button on locker for more details.

How it works:
1. Get a Bikelink™ card
   Order at bikelink.org or call 988-0411. Card will arrive by mail.

2. Insert card, start rental
   Press button to add time to rental. Each hour is $1.00.

3. Park your bike
   Close gate when you secure your bike. Return card, lock, and take bike.

4. End rental
   Return card, press button to accept rental time. Remove bike. Card stays in slot. Additional time is added. If the card is not returned, the bike is checked out.

photos: BART
• Is the project an innovative, non-standard design that could become a replicable model for the region?

• Does the project deal with a difficult issues that has not been addressed before?

• Will this planning process lead to a comprehensive set of improvements that will make it easier, safer, and more convenient to bike and walk to transit?

• Is this a multi-jurisdictional project?

• Does this project address personal security from crime?

• Will these improvements boost the real and perceived safety of people walking and cycling to transit?
• Is the project an innovative, non-standard design that could become a replicable model for the region?

• Does the project deal with a difficult issues that has not been addressed before?

• Will this planning process lead to a comprehensive set of improvements that will make it easier, safer, and more convenient to bike and walk to transit?

• Is this a multi-jurisdictional project?

• Does this project address personal security from crime?

• Will these improvements boost the real and perceived safety of people walking and cycling to transit?

• Will this project encourage people to consider walking and cycling to transit?
Consider if the real estate that your transit station area auto parking takes up is being used to its greatest potential in terms of accommodating riders.
For More Information:

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