
RPTA Bus Stop Program and Standards

Bus Stop
Design Guidelines

Prepared for

**REGIONAL PUBLIC
TRANSPORTATION AUTHORITY**



Prepared by



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BUS STOP DESIGN GUIDELINES

The ideal bus stop design meets the transit users' needs for safe, efficient access to the transit system while acknowledging the context of the adjacent neighborhood. This set of guidelines provides standards for bus stop implementation throughout the Valley Metro network to encourage consistency in bus stop study, design, and implementation. The guidelines address site selection, accessibility requirements, bus stop amenities, information and signage, and other considerations that go into designing a bus stop. The guidelines were produced as part of RPTA's Bus Stop Program and Standards study, which concluded in November 2007. The guidelines were updated in August 2017 as a part of Valley Metro's Transit Stop Inventory and Accessibility Study.

To ensure that basic needs and requirements are met, while allowing individual communities to exercise judgment about what works best for a given location, these guidelines detail requirements under the Americans with Disabilities Act (ADA)¹ and the Proposed Guidelines for Pedestrian Facilities in the Public Right-of-Way (PROWAG) and/or suggest best practices gleaned from the experience of Valley cities. Best practices are not legal requirements; but, by adopting best practices, towns and cities may be able to avoid costly retrofits that result from pursuing only required minimums. In other words, the guidelines are designed to be flexible and should be tailored to the conditions at a particular stop, yet they detail the non-negotiable aspects of bus stop design and connectivity considerations. Appendix I is a simplified checklist of all minimum requirements associated with bus stop site selection and design.

The Bus Stop Design Guidelines may also be incorporated into Project Agreements between a lead agency and the RPTA for projects seeking Public Transportation Fund (PTF) funding. All plans submitted for review should show existing bus bays, bus stops, shelters, furniture, bicycle and pedestrian paths, easements, and facilities within 250 feet of the site, as well as adjacent property lines. They should also include a pedestrian and bicycle plan indicating proposed circulation within the site as well as access from the streets and neighborhoods abutting the site, which must also conform to ADA/PROWAG requirements.

1. Site Selection

A bus stop should be located to minimize walking distances to the activity center(s) that is (are) expected to generate the most ridership.

To provide the greatest convenience and safety for passengers, bus stops are generally located as close to intersections as possible. This minimizes walking distance for transferring passengers and encourages the use of sidewalks for bus stop access.

1.1 Best Practices

Transit stops are generally located 85 feet, plus or minus 25 feet, from the curb of an unsignalized intersection, measured from the tangent point of the intersection curve, and 120 feet, plus or minus 25 feet, from a signalized intersection. Exceptions may be made

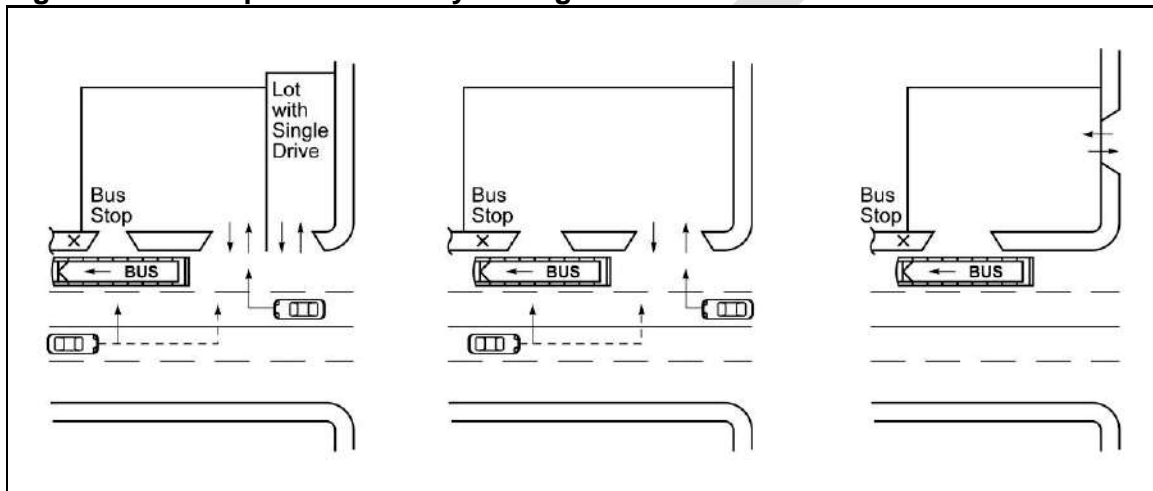
¹ Valley Metro and its member cities will be vigilant about monitoring rule changes that may affect the Bus Stop Program.

for a given location based on right-of-way availability and traffic conditions. The paved passenger loading area should be clear of any obstructions.

Bus stops should be located such that:

- The bus driver can clearly see passengers waiting at the stop.
- Waiting passengers have a clear view of the oncoming bus.
- Driveways are located away from a transit pad. Figure 1 shows examples of acceptable driveway arrangements.

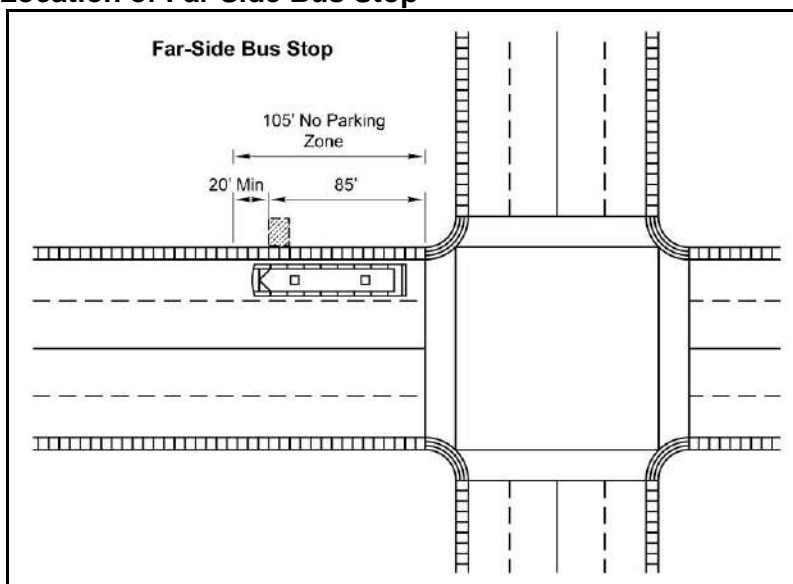
Figure 1: Acceptable Driveway Arrangements



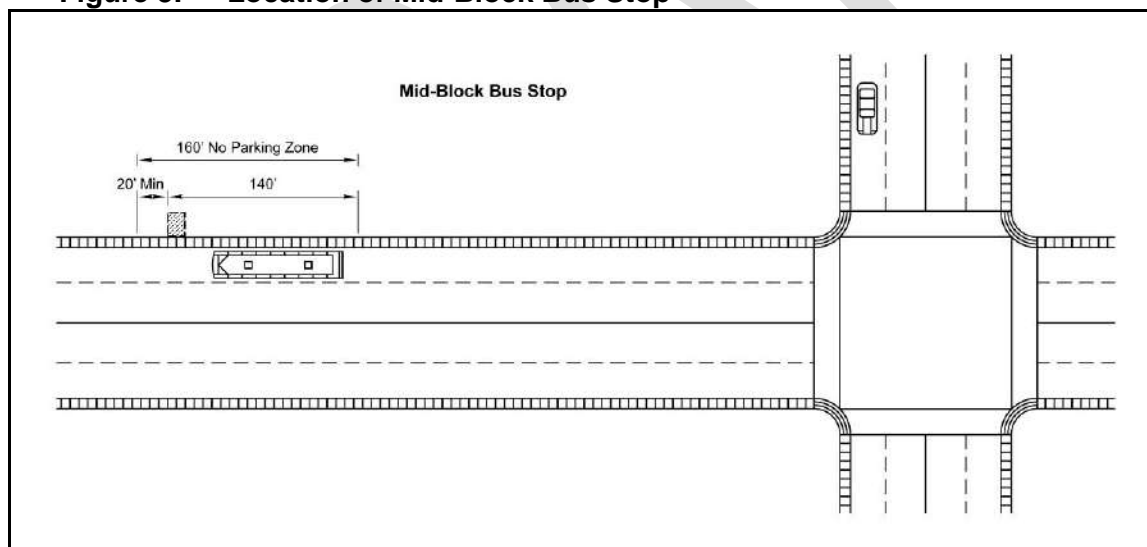
1.2 Additional Considerations

Where possible, transit stops should be located on the far side of a signalized intersection, as shown in Figure 2 (on the next page). Benefits to a far-side stop include:

- A stopped bus does not conflict with vehicles turning right from the direction of the bus route.
- The stopped bus does not obscure sight distance to the left for vehicles entering or crossing from the side street.
- At signalized intersections, buses can easily re-enter traffic.
- The stopped bus does not obscure traffic control devices or pedestrian movements at the intersection.
- Pedestrians cross behind the bus, which is safer than crossing in front of the bus.
- Buses can use the intersection for approach, allowing for slightly shorter bus stops.

Figure 2: Location of Far Side Bus Stop

While far-side stops are the preferred location for transit stops, mid-block stops, located as shown in Figure 3, may be used as necessary to accommodate high demand locations.

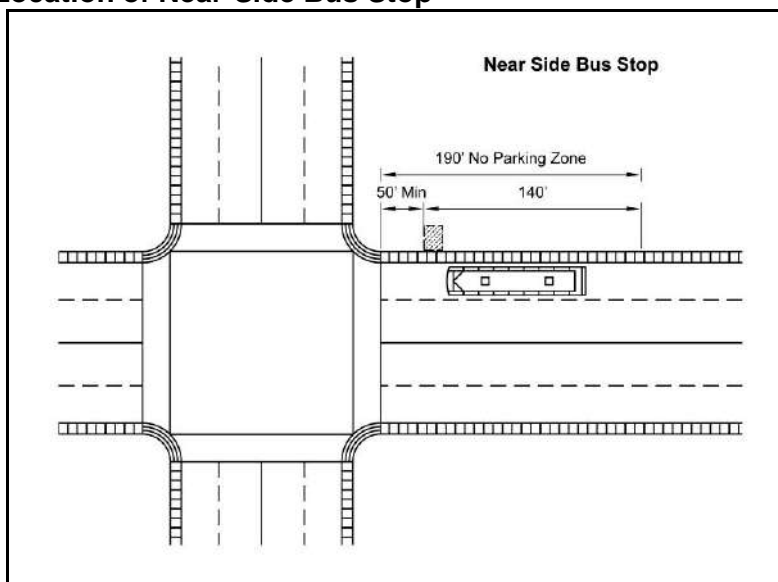
Figure 3: Location of Mid-Block Bus Stop

At intersections where far-side stops are not ideal, near-side stops (Figure 4) may be considered if site conditions indicate it to be the preferable option. Near-side stops for alighting only (no seating or shade) should be considered at transfer locations.

Frequency of bus stops is dictated by the distance bus patrons are willing to walk to board a bus, which can vary based on local conditions and land uses. The standard for bus stop locations is at quarter-mile intervals for residential areas and one-eighth-mile intervals for major activity centers. More frequent stops can be located as needed.

Bus stops with heavy transfer activity between routes should be located to minimize the need for passengers to cross a street to transfer to another route. Where this is not possible, the lead agency should work with public works officials on associated pedestrian improvements that will increase accessibility and safety for transit riders transferring from one route to another.

Figure 4: Location of Near-Side Bus Stop



2. Accessibility

All transit facilities constructed after June 1992 must comply with the applicable ADA/PROWAG provisions. Improvements to existing bus stops are not required to meet ADA/PROWAG standards, but are recommended by RPTA.

Fully ADA/PROWAG-compliant stops meet the minimum requirements detailed in these guidelines. Non-accessible stops are those that breach major components of the accessibility criteria, especially with regard to the roadside condition or the waiting pad. A city may place a basic sign/post until ADA/PROWAG requirements can be met.

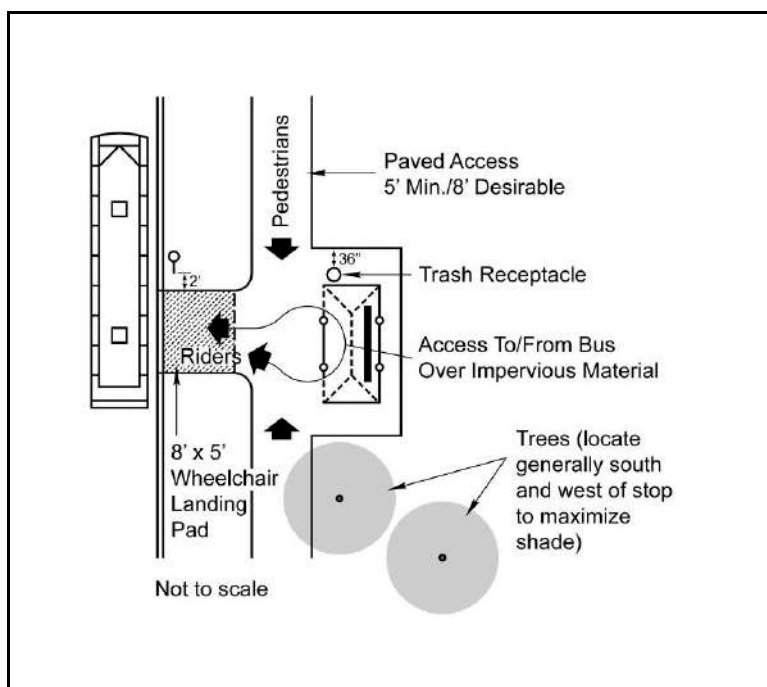
In addition to meeting ADA/PROWAG requirements, good accessibility includes consideration of connectivity between adjacent neighborhoods and the transit stop. Pedestrian access paths should link developments directly to the bus stop. Walled developments should provide convenient and direct pedestrian access to adjacent bus stops.

2.1 Minimum Requirements

PROWAG requirements dictate a minimum sidewalk width of four (4) feet for any location. A minimum horizontal clearance of 48 inches is to be maintained between bus stop components to allow wheelchairs to maneuver. A minimum clear length of 96 inches (measured perpendicular to the roadway) shall be provided at transit locations where a lift or ramp is to be deployed.

Figure 5 shows these minimum requirements and the circulation within the stop.

Figure 5: Minimum Requirements at Transit Stop



2.2 Best Practices and Additional Considerations

Although PROWAG requirements dictate a minimum sidewalk width of 4-feet, an 8-ft wide sidewalk is desirable. Bus stops should ideally be located near existing crosswalks to encourage safe pedestrian crossings and also located so that a stopped bus will neither block a crosswalk nor obstruct pedestrian visibility of oncoming traffic and vice-versa.

3. Bus Stop Pad

Transit passengers should have a continuous, unobstructed area contiguous to the curb for boarding and alighting from a bus. This area is called the "landing area" or "pad." The dimensions of a bus stop pad are critical in providing proper ADA/PROWAG accessibility.

3.1 Minimum Requirements

The minimum clear area per ADA/PROWAG requirements is eight feet (measured from the curb) by five feet (measured parallel to the curb).

Abrupt changes in grade should be avoided. Any drop greater than 1/2 inch or surface grade steeper than 1:20 requires an ADA/PROWAG compliant ramp.

3.2 Best Practices and Additional Considerations

While ADA/PROWAG requirements stipulate an eight-foot by five-foot pad, RPTA recommends that the pad be eight-by-eight to allow a bus operator to more easily position a wheelchair ramp. It is recommended, although not required, that bus stops in areas with sidewalks less than eight feet wide or with sidewalks separated from the curb be upgraded to meet the minimum clear area per city standard where possible.

Since different bus designs have doors that open to different places on the pad, the size of the pad can vary depending on the type of bus that serves the stop. Vehicle size and configuration of both existing buses in fleet as well as accommodations for future buses must be taken into consideration to ensure safe and efficient access for passengers. To provide for rear-door alighting from larger buses, the landing area should be at least 30 feet long for stops served by 40-foot buses and at least 40 feet long for stops served by 60-foot, articulated buses.

Surfaces should be stable, firm, and slip-resistant. Such provisions are beneficial for all transit users, but especially for those who have disabilities. Tactile surface treatments are suggested as needed to help visually impaired riders navigate the bus stop.

4. Seating

Seating provided at a transit stop should be commensurate with the level of use at a stop (as determined by the local jurisdiction), be located in such a way to meet all ADA/PROWAG requirements, and be made from durable, climate-appropriate materials.

4.1 Minimum Requirements

There must be 48 inches of clearance between bus stop amenities and switch boxes, mailboxes, utility boxes, light poles, and other obstructions to allow access and maintenance.

4.2 Best Practices

If possible, bus stop furniture must be placed outside the standard 5-foot sidewalk or clear area. An eight-foot clear area, free from other site furnishings, is preferred.

Benches should have a depth between 20 and 24 inches, be at least 42 inches in length, and have back support of at least 42 inches beginning at a height between 2 inches and 18 inches above the seat. Back support may be achieved through locating benches adjacent to walls or by other designs that will meet the minimum dimensions specified. Bench seats should be between 17 and 19 inches above the ground.

For ease of cleaning and to prevent debris from collecting, it is recommended that all furniture be 36 inches or greater from the face of a building or wall.

Arm rests on benches are recommended. The structural strength of the benches should be such that they can support at a minimum a vertical or horizontal point load at any given point on the surface, fastener, or mounting device.

Transit stop furniture over 2½ feet high should be located to provide clear visibility of the street for automobile drivers in nearby driveways.

Figures 6 and 7 show general site layouts with minimum and desirable clearances.

Figure 6: General Site Layout with Minimum and Suggested Clearances

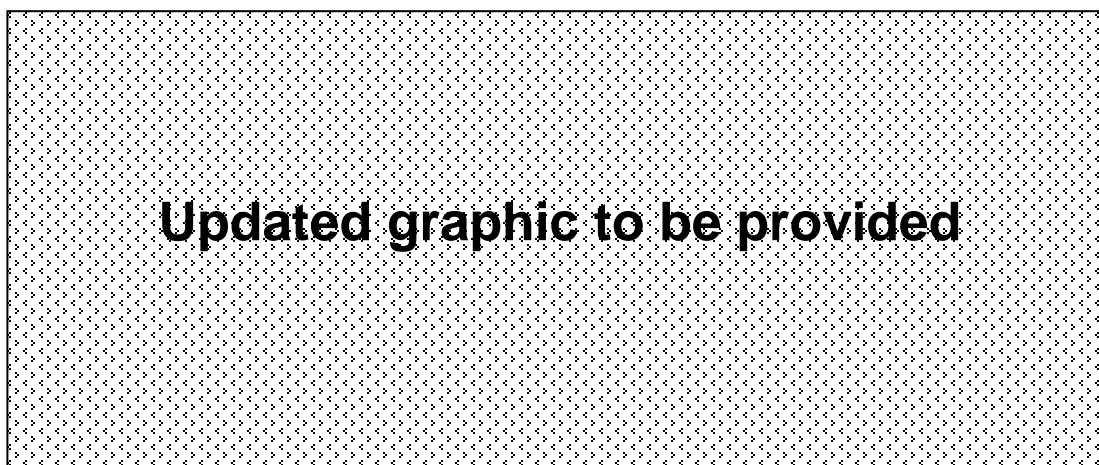
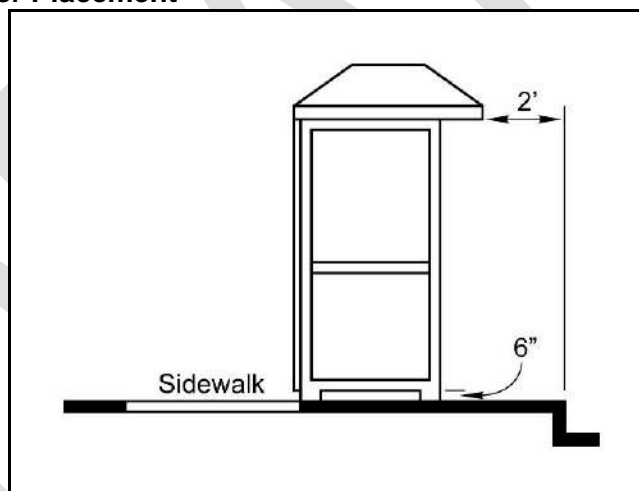


Figure 7: Shelter Placement



4.3 Additional Considerations

Each City may use its own bench and furniture design, but factors that should be considered include the following:

- Materials and structure should be chosen for strength, durability, ease of maintenance and resistance to weather conditions, graffiti, cutting, fire, and other forms of vandalism.
- Materials should allow air circulation and avoid retention of hot air. Materials should be finished to prevent overheating. (Possibilities include the use of perforated metal and special coating/paint finishes to prevent surfaces from becoming hot.)

- Design and colors should respond to architectural character of transit furniture in the area and adjacent development.
- Furniture should be readily replaceable and constructed for easy relocation to allow for bus route changes, street improvement projects, etc. Furniture should be anchored to prevent theft or other unauthorized movement.

5. Shelter and Shade

Protection from the summer sun is a high priority in designing transit furniture and its associated landscaping. Transit shelters that provide weather protection and benches work best in conjunction with landscaping or vertical panels for shade. East- and west-facing shelters benefit when seating can be located on both sides of a shade element. The shelter provides overhead protection from weather conditions.

Shelters should be oriented to allow the bus driver to view waiting riders and so that waiting passengers can see oncoming transit vehicles. In addition, waiting passengers feel safer when they can clearly see their surrounding environment, including other pedestrians. Ideally, the final location of a bus stop shelter should enhance the circulation patterns of patrons, reduce the amount of pedestrian congestion at a bus stop, and reduce conflict with nearby pedestrian activities.

5.1 Minimum Requirements

ADA/PROWAG regulations require a clear space of 30 inches by 48 inches within the shelter for people in wheelchairs.

5.2 Best Practices

Shelter materials and design should:

- Be waterproof with provisions for drainage away from transit passengers and bus loading area.
- Be insulated so as not to collect and radiate heat.
- Allow maximum security for passengers.
- Keep a minimum 6-inch vertical clearance from the sidewalk to avoid collection of trash and debris.
- Display a 24-hour telephone number for emergency repairs.

The location of the curb and sidewalk and the amount of available right-of-way can be determining factors for locating a bus stop shelter.

- Bus stop shelters should not be placed in the wheelchair landing pad (see BUS STOP PAD).
- General ADA and PROWAG mobility clearance guidelines (see ACCESSIBILITY) should be followed throughout the shelter and between the shelter and other street furniture.
- Shelters located directly on the sidewalk or overhanging a sidewalk should be avoided because they may block or restrict general pedestrian traffic.

- To permit clear passage of the bus and its side mirror, a minimum distance of two feet should be maintained between the back-of-curb and the roof or panels of the shelter. Greater distances are preferred to separate waiting passengers from nearby vehicular traffic.
- The shelter should be located as close as possible to the far end of the bus stop zone so it is highly visible to approaching buses and passing traffic, and to minimize walking distance from the shelter to the bus.
- Locating bus stop shelters in front of store windows should be avoided when possible so as not to interfere with advertisements and displays.
- When shelters are directly adjacent to a building, a 12-inch clear space should be preserved to permit trash removal or cleaning of the shelter.

6. Lighting

Lighting affects bus patrons' perception of safety and security at a bus stop, as well as the use of the site by non-bus patrons. Good lighting can enhance a waiting passenger's sense of comfort and security; poor lighting may encourage unintended use of the facility by non-bus patrons, especially after hours.

Lighting should provide illumination of pedestrian walkways and eliminate shadow areas to increase the transit user's sense of safety. To address security concerns directly, call boxes may be installed (see Section 11).

6.1 Best Practices

For passenger comfort and convenience, a minimum lighting level of two foot-candles is desired throughout the bus stop area, including the shelter.

Where feasible, bus stops should be located so they will be illuminated by existing street lights. Where there are no existing streetlights, stops can be lit by backlighting from advertising installed at bus shelters as well as "stop call" lighting, which is activated by a waiting passenger and serves as a signal to approaching buses that a passenger is waiting. Interior lighting is recommended for shelters. When new lighting is to be installed, solar technology should be explored as an alternative to hardwiring.

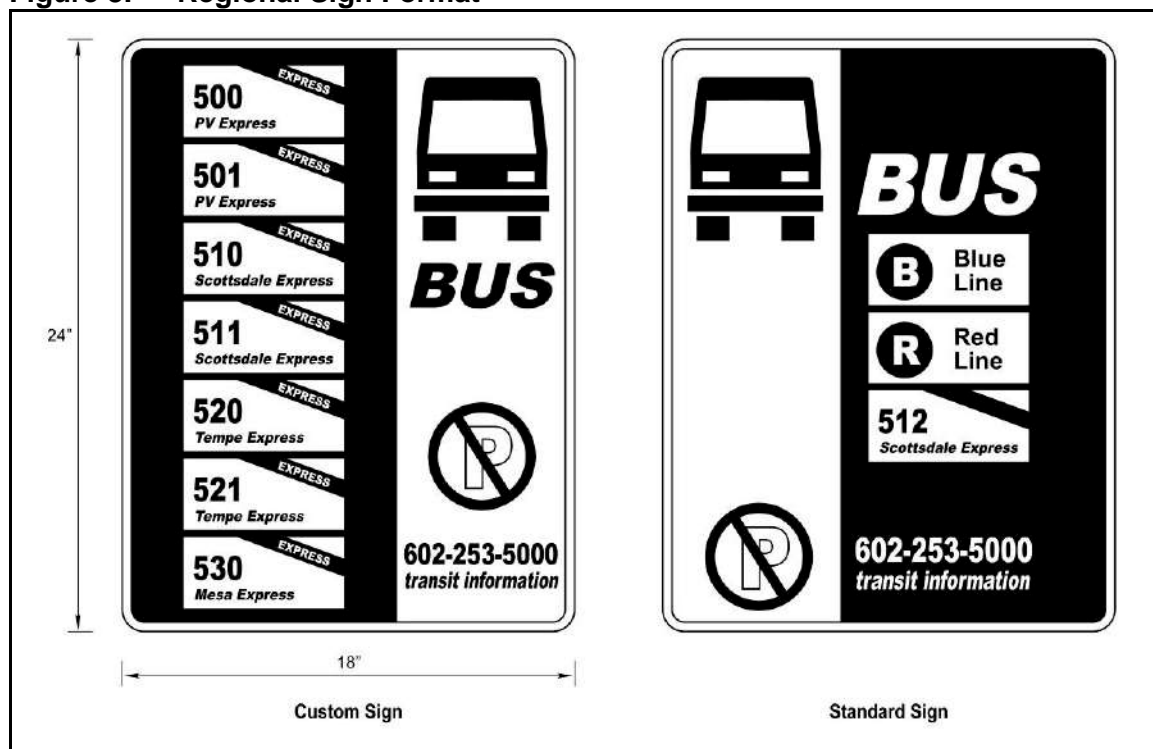
7. Information and Signage

The placement of bus stop signs is an important tool for transit systems to enhance passenger convenience, operations, and marketing. Bus stop signs are positioned to notify passengers that the bus will stop at that specific location. They serve as a reference for bus operators and as a point of identity for the transit system. Valley Metro branding elements should be included at all stops and will be identified in project agreement forms.

A regional bus stop sign, shown in Figure 8, is currently in use throughout the Valley. The standard regional sign identifies a location as a bus stop and includes the name and number of the bus route(s) being served and the most current transit information telephone number. The sign is 18 inches wide by 24 inches high, reflectorized for night time visibility, and is double-faced so that it can be seen from both directions. The

upstream side of the sign may contain “No Parking” information for motorists approaching the bus stop.

Figure 8: Regional Sign Format



Guidelines for bus route identification sticker placement are as follows:

- Up to three routes: center the stickers under the word “bus” with ¼ inch spacing between the stickers.
- Between three and seven routes: center the stickers on the blue field of the custom bus stop sign with approximately ¼ inch spacing between the stickers.
- More than seven routes: work with RPTA to design custom stickers that show more than one route per sticker.

7.1 Best Practices

Bus Stop Sign Placement

Bus stop signs must be placed near where passengers board at the front of the bus. The header sign is the point at which the front of the bus should be aligned when the bus is servicing passengers and thus should be placed approximately one foot beyond the far side of the landing area for stops served by front-lift buses.

A sign should be installed with its own sign post, at an angle perpendicular to the street. A non-wood light pole may be used if it is at the proper stop location and if the sign face is visible from both sides. Signs are not to be placed on wooden utility poles as they pose a hazard to linemen who climb the poles.

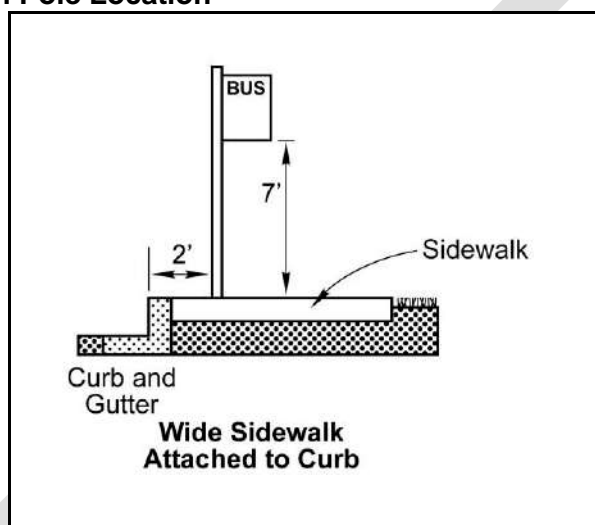
Bus stop signs should be placed independently of all other signs to maintain the importance and uniformity of the bus stop identity. The sign must be easily visible to the

approaching bus driver, ideally within four feet of the edge of the street. The bus stop sign should neither block nor be blocked by other jurisdictional signs.

To prevent the sign from being struck with the bus mirrors, it must be positioned no closer than two feet from the back-of-curb, as shown in Figure 9. The bottom edge of the sign should be positioned at a height of at least seven feet from the ground.

A signed no parking zone of 105 feet from the intersection should be maintained, and no parking is permitted at the bus stop itself. The no parking zone may be extended from the stop at the discretion of the jurisdiction.

Figure 9: Sign Pole Location



Design

A sign pole should include standard regional bus stop graphics visible from two directions. The sign pole may also include a transit information holder. (A standardized size will allow information sheets to be produced economically.) An information holder is not required, but if one is placed it must meet ADA/PROWAG placement standards. Figure 10 (on the next page) shows possible sign and pole configurations to place an ADA/PROWAG compliant information holder.

Information display

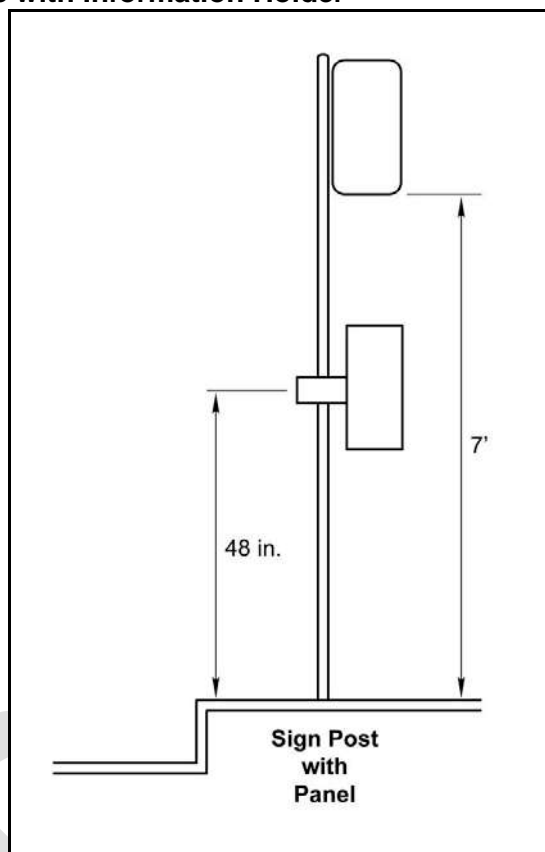
Interior panels of shelters also can be used for posting route and schedule information. Side panels may be large enough to display the entire system map and can include backlighting for display at night. Shelters that lack side panels can display route and schedule information on the interior roof of the shelter.

Some recommendations for route or patron information display are as follows:

- Provide updated information when changes are made to routes and schedules.
- Consider the quality and appearance of information displays. A visually poor route map conveys a negative impression of the system.
- Make information displays permanent. Temporary methods for displaying information (such as tape-mounting) create a cluttered, unsophisticated appearance at the bus stop.

- Follow ADA/PROWAG clearance, mobility, and visual guidelines for access of information by individuals with impairments.

Figure 10: Sign Pole with Information Holder



8. Trash Receptacle

Trash receptacles can improve the appearance of a bus stop by providing a place to dispose of trash. Low user volumes may not justify the inclusion of this amenity at a bus stop; however, an ongoing litter problem at a bus stop may warrant the provision of a trash receptacle at an otherwise low-volume location.

Trash cans should be positioned to encourage use by waiting passengers without blocking wheelchair or pedestrian access to the landing pad, bus, shelter, sidewalk, or information case. It is recommended that the trash receptacle be placed near the boarding area of the bus to encourage patrons to dispose of trash as they board. At bus stops where shelters are installed, the trash receptacle should ideally be positioned to the immediate right or left of the shelter (although sidewalk conditions and right-of-way limitations may prevent this).

Due to heightened security concerns, some municipalities may consider adding ballistic blankets to the insides of trash receptacles at stops with increased security needs. This is intended to absorb blast forces from a bomb placed in the bin.

8.1 Best Practices

The trash receptacle should have:

- A minimum capacity of 30 gallons
- Fixed components to prevent unauthorized removal
- Materials that allow for air circulation and avoid containment of hot air
- Materials that are finished to prevent overheating

When installing a trash receptacle:

- Anchor the receptacle securely to the ground to reduce unauthorized movement.
- Locate the receptacle away from wheelchair landing pad areas and allow for at least a 4-foot separation from other street furniture. If recycling is also placed adjacent to the trash receptacle, the same circulation requirements apply.
- Locate the receptacle at least two feet from the back of the curb.
- Ensure that the receptacle, when adjacent to the roadway, does not visually obstruct nearby driveways or land uses.
- Avoid installing receptacles that have ledges or other design features that permit liquids to pool or remain near the receptacle—this may attract insects.
- Avoid locating the receptacle in direct sunlight.

9. Landscaping

Landscaping can enhance the level of passenger comfort and attractiveness of transit, but should be positioned and maintained such that safety, visibility, and accessibility are not compromised by encroaching bushes, uneven grass surfaces, etc.

A landscape plan should incorporate shade trees for bus stops, maximizing shading for summer morning and afternoon hours. Any landscaping provided should be located so as not to obstruct the shelter canopy or visibility of the bus stop.

9.1 Best Practices

Shade trees and other protective landscaping should be provided wherever possible within the bus stop easement, in addition to incentives recommended to adjacent developments. This landscaping could be considered part of the development's frontage landscape and could count towards any landscaping requirements that may apply. Considerations for selection and location of landscaping include:

- Mature trees with adequate canopy to shade the seating area
- Low-water consumption trees and shrubs
- Tree location should consider the solar orientation of the transit stop. (Priority should be given to shading afternoon summer sun.)
- Transit landscaping should be compatible with other frontage landscaping.

Tree branches that extend into the roadway below 11 feet should be trimmed back at least two feet from the curb otherwise they become an obstacle that the bus driver may not be able to avoid. Grass should not be planted between the sidewalk and the curb at bus boarding and alighting areas (to meet ADA/PROWAG requirements, at least five feet parallel to the street and eight feet perpendicular to the street must be hard surface).

10. Bicycle Accommodation

Bicycle storage facilities, such as bike racks, may be provided at bus stops for the convenience of bicyclists using transit. Designated storage facilities discourage bicycle riders from locking bikes to bus facilities or on an adjacent property. Proper storage of bicycles can reduce the amount of visual clutter at a stop by confining bikes to one area. The provision of bicycle facilities is discretionary. Cities must evaluate bicycle usage at each location, as well as user requests.

10.1 Best Practices

Bicycle riders need security, damage prevention, and convenience. Bicycle racks and lockers at bus stops must also have a compact design and ease of maintenance.

Types of bicycle storage facilities

Good bicycle storage facilities will do the following:

- Provide the ability to lock frame and at least one wheel. Devices that lock front wheel only cause security problems for bicycles with “quick release” wheels.
- Support the bicycle without pinching or bending the wheel.
- Avoid scratching the paint on the bicycle frame.
- Provide a place to lean a bicycle while locking it.
- Provide a quick, easy-to-identify locking procedure.

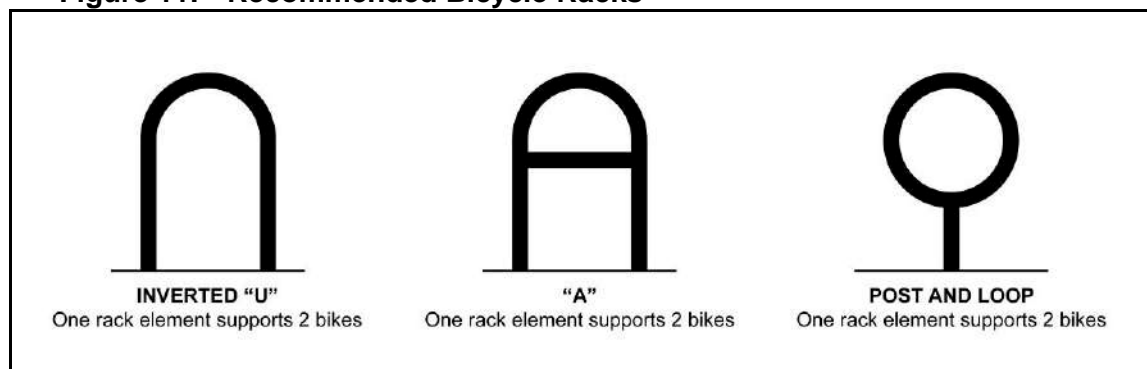
Inverted “U” rack elements mounted in a row should be placed on 30” centers. This allows enough room for two bicycles to be secured to each rack element. Normally, the handlebar and seat heights will allow two bicycles to line up side-by-side if one of them is reversed. When there is a conflict, the bikes can be placed slightly offset from one another as shown. If the elements are placed too close together, it becomes difficult to attach two bikes to the same element.

Wave style racks are not recommended. Bicyclists commonly use a “wave” rack as if it were a single inverted “U.” This limits the actual capacity of the rack to two bikes regardless of the potential or stated capacity. Bicycles parked perpendicular to a wave rack (as intended by the manufacturer) are not supported in two places and are more likely to fall over in the rack. The advertised capacity of a wave rack is usually much higher than the practical capacity.

Recommended types of bicycle racks are shown in Figure 11.

Placement and Site Layout

Placement of bicycle facilities is important to meet ADA/PROWAG requirements and to provide a facility that bicyclists will use. If it is too inconvenient and time consuming to squeeze a bike into the space and attach a lock, a cyclist will look for an alternative place to park or use one rack element per bike and reduce the projected parking capacity. If the space is

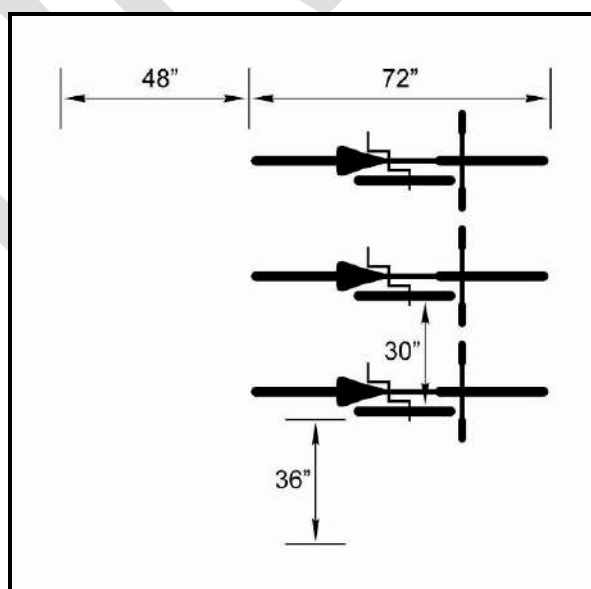
Figure 11: Recommended Bicycle Racks

too narrow, a mountain bicycle will not fit. At the same time, minimal space usage can be critical in the limited right of way available at bus stops.

The following should be kept in mind when integrating bicycle facilities at bus stops:

- Bicycle racks may not block pedestrian access to the bus boarding and alighting area.
- Maintain minimum 48 inch clearance between rack and other stop furniture per ADA/PROWAG standards.
- Provide at least 30-inch spacing between bicycle parking spaces.
- Allow at least 72 inches perpendicular to bike rack for the bike, and at least 48 inches around the bike for access and circulation, as shown in Figure 12.
- Coordinate the location of the storage area with existing on-site lighting.
- Do not locate the storage area where views into the area are restricted by the shelter, landscaping, or existing site elements, such as walls.

Figure 12 shows proper bicycle parking facility spacing.

Figure 12: Bicycle Rack Clearances

10.2 Additional Considerations

Other considerations regarding bicycle facilities include the following:

- Bicycle rack design should not trap debris.
- Design and placement should complement other transit furniture at bus stop.
- Finishes should be graffiti resistant. Where applicable, the device should be coated to eliminate scratching of bicycle frame.
- Bicycle rack should be easy to install but difficult to steal.
- Artistic bike racks can be used if they meet all minimum requirements.
- To the extent feasible, bus stops should be located so they do not block bicycle travel lanes.

11. Call boxes

Call boxes link the transit user to emergency personnel and increase the user's sense of safety at an isolated stop.

11.1 Best Practices

Call boxes should be provided at stops where safety concerns have been raised, or where there is high nighttime usage. They must be kept in working order, even if they are rarely used, and must be accessible to persons with disabilities.

11.2 Additional Considerations

Potential partnering opportunities exist where stops are located on college and office campuses where the college or firm may have a call box/panic button system in place. The bus stop location could be tied into the existing system.

12. Advertising

An advertising shelter program is neither prohibited nor promoted by RPTA, although some cities have ordinances prohibiting advertising. Typically, if a city chooses to rely on an advertising program, a private company would purchase, install, light, clean, and maintain shelters. The company would lease advertising space in these shelters. Some shelter advertising programs also return a portion of the advertising revenue to the local community.

13. Artistic Elements

Artistic and aesthetic elements may be incorporated into transit furniture design as part of a streetscape effort to enhance the urban environment. Customized or artistically designed bus stops can make waiting for a bus more pleasant. Innovative designs may also help provide a covered shelter or seating (e.g., flip-seats or awnings) for passengers at locations that do not have sufficient space. However, custom-designed passenger waiting areas should not obscure identification of the bus stop. Transit agency bus stop signs and schedule displays should be available at these types of bus stops. The functionality of the stop should not be compromised in the name of art—the stop should provide as much patron comfort, safety, and security as possible. Artist-

designed stops must meet all applicable standards. RPTA does not provide funding for the additional cost of artistic stops.

Neighborhood or business interests may also want the shelters and bus stop signs to reflect the character of the district. One method is to develop a distinct color or logo for each neighborhood or route group. This can be implemented by the transit agency with appropriate coordination and participation from the neighborhoods.

14. Maintenance

Though RPTA does not fund maintenance, well-maintained bus stops are crucial to the image of the transit system. Damaged furniture should be repaired and trash build-up tended to immediately to maintain a positive impression for transit patrons and the general public.

A routine maintenance schedule is to be determined by each city and can include:

- Full wash-down of shelter and accessories
- Removal of all dirt, graffiti, and pasted material
- Squeegee wipe-down of glass surface
- Removing and replacing trash bag
- Litter pick up around stop or shelter/accessories to a distance of ten feet
- Manual or chemical weeding
- Pruning obstructed tree growth
- Touching up paint scratches (may require a City permit).

Items that pose a safety problem should be repaired promptly or at least within 24 business hours of being reported. Repairs that do not pose safety problems should be completed within three days. Occasional night illumination checks are recommended to verify lighting levels and replace bulbs and ballasts.

15. Adopt-a-Stop

Individual cities may consider a program by which bus stops may be “adopted” by individuals or organizations, much in the same way highways are adopted. The adoptive entity is then publicly recognized through an identification name plate or signage affixed to the shelter or bus stop sign pole. An example of suggested wording for this plate or sign is “City of Avondale Bus Stop #154, Adopted by John Doe Associates.”

“Adopted” bus stops are cleaned by the adoptive entity or funded by adoptive entity while still cleaned by the city. An agreement or memo of understanding should be developed by the city for each adopted stop so that the adoptive entity is aware of their responsibilities. Stops with or without shelters may be adopted.

16. Integrating Bus Stop Facilities and Development

Land development and re-development provides an opportunity for enhancing transit infrastructure. Good development practices include providing bus stop right-of-way and/or amenities and creating good pedestrian to and from bus stops. Having discussions about bus stop access early in the development approval process will ensure that bus stop infrastructure and connectivity are considered at a time when

changes can still be incorporated into site plans. To ensure optimum bus stop placement, coordination between RPTA, the local agency, and the developer should occur during the planning and development phase.

Bus Stop Infrastructure

When a development is constructed adjacent to an existing or planned bus stop location, if provided for in local zoning regulations, the developer should be responsible for providing all or part of RPTA-designated passenger amenities conforming to these Design Guidelines. Generally speaking, if the value of a development is \$500,000 or more, the developer should provide a shelter in addition to the general site design requirement. Developers are encouraged to place shelters that conform to local standards for passenger recognition and ease of maintenance.

Pedestrian Access

Sidewalk placement that is coordinated with land use and bus stop locations is critical to encouraging transit use, enhancing safety, and reducing walking time. Ideally, transit patrons should not have to travel more than ¼-mile to reach a bus stop. This ideal distance, which equates to a walk of roughly ten minutes, can be achieved by connecting destinations with well-constructed walkways and/or by designing site layouts with pedestrian access in mind.

As with any pedestrian improvement, strict adherence to mobility clearances, widths, and slopes should be followed to improve access for persons with disabilities.

Pathway Design

Pedestrian improvements include defined or designated walkways through parking lots and openings or gates through walls. Access ways can be as elaborate as a landscaped sidewalk through the parking lot or as simple as painted walkways that caution drivers and orient pedestrians. New residential developments should consider constructing breaks in walls between properties to allow pedestrian passageway to bus stops. Alternatively, in place of open breaks, a development may have locked pedestrian gates for which every resident has a key.

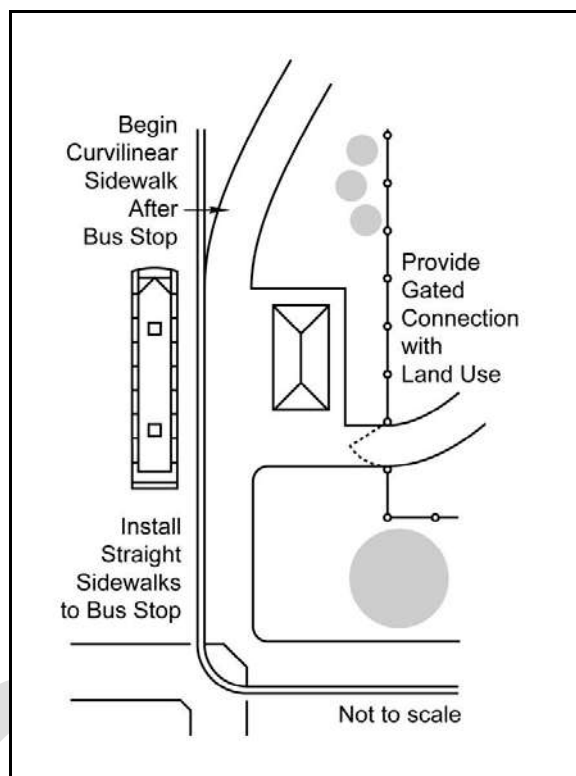
Site Layout

Another strategy to improve pedestrian access at or to bus stops is to orient the site layout with the explicit goal of minimizing distances to bus stops. Pedestrian and transit user access to buildings is encouraged by locating buildings at the minimum setback at arterial-to-arterial intersections and arterial-to-collector intersections, or where transit service is provided or planned (all arterial and collector streets). Main entrances to commercial buildings should face the street, with pedestrian bus stop access pathways protected from automobile traffic. Ideally, pedestrians should be able to access the street without crossing a large parking lot. Another solution is to “flip” the traditional commercial layout, so that buildings are closer to sidewalks and parking is placed in the rear and sides. Driveways should not be located within a bus stop and/or pullout area.

When a bus stop is located adjacent to a shopping center, collaboration with RPTA is encouraged to locate shopping cart storage near the bus stop, thus providing a convenient place for customers using transit to return their carts. (The storage location would be installed and maintained by the shopping center.)

Figure 13 shows an example of desirable access to an adjacent development.

Figure 13: Desirable Pedestrian Access from Developments



17. Bus Pullout

Bus pullouts provide an area for buses to stop outside of the traffic lane. Although they may be helpful for overall roadway operations, bus pullouts can cause delays for transit passengers because the bus must exit and re-enter the traffic stream. They may also increase the average person-delay for motorists using the street.

Bus pullouts are desirable where street traffic speeds are 40 mph or more and one of the following conditions exist:

- Peak period boarding average exceeds five people per bus
- Average peak period dwell time exceeds 30 seconds per bus
- A high frequency of accidents involving buses occurred within past year
- Two traffic lanes or less exist in one direction of travel

OR

Bus pullouts may be desirable where buses are expected to layover at the end of a trip.

Note: Installing a bus pullout for a layover/recovery point may or may not be a good choice. Layover/recovery locations often change as funding becomes available for more frequent service and/or routes are extended.

Guidelines for bus pullouts are the following:

- Pullout should be placed at signal-controlled intersections where the signal can create gaps in traffic.
- Far side intersection placement is desirable (may vary based on site conditions).
- 11-foot width is desirable to reduce sideswipe accidents.

A severe physical obstruction may require a mid-block bus pullout, but this design should only be used when the standard far-side bus pullout is infeasible. A far-side pullout design is superior to the mid-block design because it reduces walking distances for bus transfers, encourages patrons to use the intersection crosswalk, and reduces right-of-way acquisition.

Bus pullout designs are shown in Figures 14 and 15.

Figure 14: Far-Side Bus Pullout

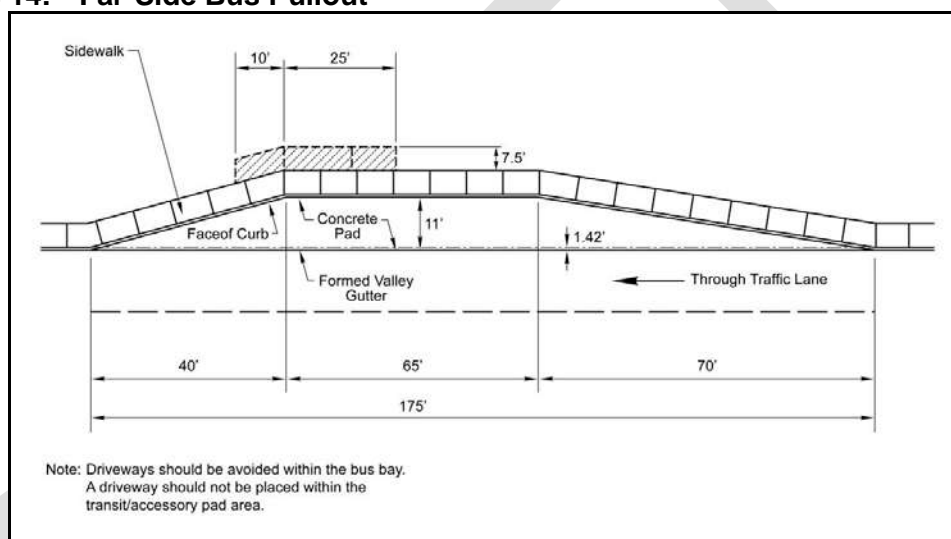
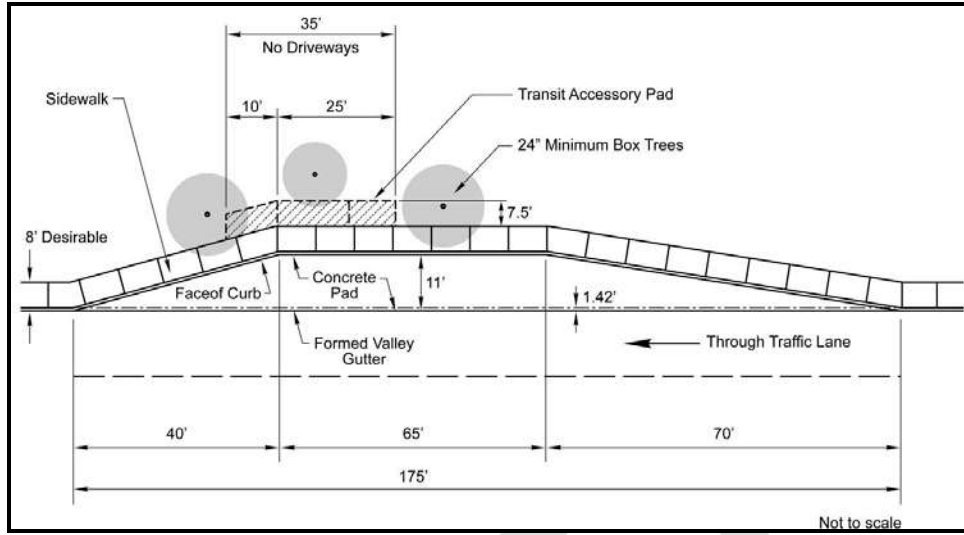


Figure 15: Mid-Block Bus Pullout



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APPENDIX I: MINIMUM REQUIREMENTS CHECKLIST

Site Selection (Section 1)

- Distance from unsignalized intersection: 85 feet (± 25 feet) from the curb point of tangency
- Distance from signalized intersection: 120 feet (± 25 feet) from the curb point of tangency
- Paved loading area clear of any obstructions
- Driveways located away from transit pad

Accessibility (Section 2)

- 48-inch clearance between bus stop components
- 96-inch clear length perpendicular to roadway, 60-inch parallel to roadway where wheelchair lift/ramp is to be deployed
- 8-foot sidewalk in vicinity of transit accessory pad on arterial streets
- 4-foot sidewalk minimum at all other locations

Bus Stop Pad (Section 3)

- 8-foot by 5-foot clear area on concrete pad
- Stops serving 40 foot buses: 30-foot long landing area
- Stops serving 60 foot buses: 40-foot long landing area
- All surfaces are stable, firm, and slip-resistant
- No abrupt changes in grade
- If sidewalk is separated from curb, a concrete clear area connects sidewalk to boarding/alighting area

Furniture (Section 4)

- All transit stop furniture placed outside the standard five foot sidewalk
- 48-inch horizontal clearance between all amenities and switchboxes, mailboxes, utility boxes, and light poles
- Furniture should be 36 inches or greater from the face of a building or wall

Shelter and Shade (Section 5)

- Overhead canopy of 65 square feet with a minimum width of 5.5 feet
- 7-foot clearance between underside of roof and sidewalk surface
- Minimum 2-foot clearance between shelter and curb
- Minimum of 10 linear feet of seating with 5 feet located under shelter
- Minimum 30-inches by 48-inches clear space within shelter
- Shelters should not be placed within the 8-foot by 5-foot wheelchair landing pad
- A minimum of 3 feet should be maintained around the shelter

APPENDIX II: DEVELOPER GUIDELINES

Land development and re-development provides an opportunity for enhancing transit infrastructure. Good development practices include providing bus stop right-of-way and/or amenities and creating good pedestrian to and from bus stops. Having discussions about bus stop access early in the development approval process will ensure that bus stop infrastructure and connectivity are considered at a time when changes can still be incorporated into site plans. To ensure optimum bus stop placement, coordination between RPTA, the local agency, and the developer should occur during the planning and development phase.

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Pathway Design

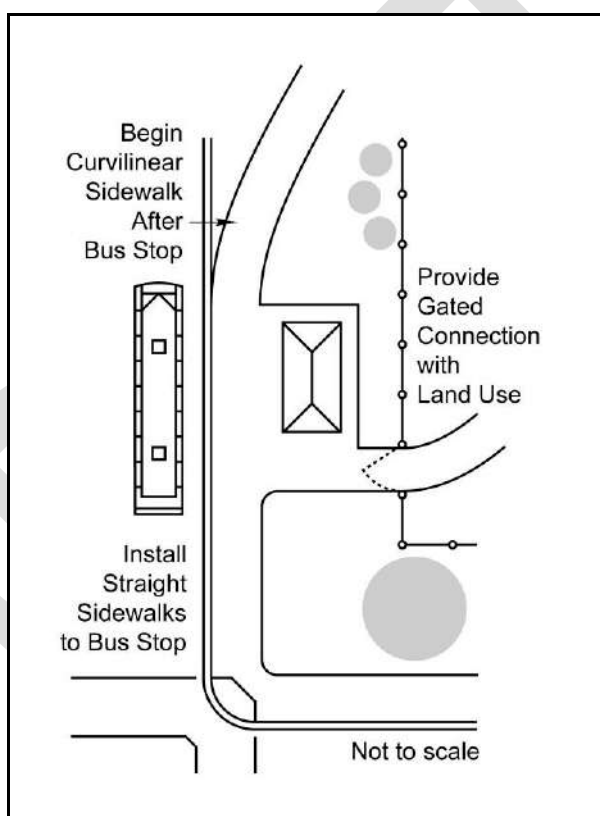
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Desirable Pedestrian Access from Developments



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