Arlington's Bus Stop Guidelines & Standards Manual

Vision, Plan, Design, Construct, Maintain

DES/DOT/Transit Bureau

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Arlington's Department of Environmental Services/Division of Transportation/Transit Bureau (Arlington Transit Bureau) serves as the lead for providing safe, accessible, easy to use, dependable and efficient transit services throughout Arlington. The purpose of this Bus Stop Guidelines and Standards Manual is to serve as the guiding document which Arlington uses when evaluating and implementing the design, function, and placement of bus stops. This manual outlines the set of design criteria and the minimum requirements to provide accessible, safe and efficient bus stops.

About Arlington

Arlington County, Virginia is adjacent to Washington, D.C. and is approximately 26 square miles in size, with both heavily urbanized land uses and suburban residential neighborhoods. Arlington has a population of approximately 240,000 with an additional 200,000 people commuting to Arlington each day for employment. Arlington County's vision is to be a diverse, inclusive, world-class urban community with secure, attractive residential and commercial neighborhoods where people unite to form a caring, learning, participating, sustainable community in which each person is important.

Arlington Transit (ART) is Arlington's local bus service which is provided by Arlington County. ART is driven by the people it serves and is honored to serve Arlington residents, commuters, businesses, schools, and visitors on our buses each day. ART buses operate on clean-burning Compressed Natural Gas (CNG) and are fully ADA accessible with wheelchair ramps and priority seating. ART provides service to numerous destinations in Arlington, including but not limited to Ballston, Clarendon, Columbia Pike, Courthouse, Lee Highway, Pentagon City, Crystal City, Washington Boulevard, and Rosslyn. ART also serves several high-level Federal agencies and facilities, such as the Pentagon, Transportation Security Administration (TSA), US Marshals Service, United States Department of State, Federal Deposit Insurance Corporation (FDIC), and Defense Advanced Research Projects Agency (DARPA).

Arlington is also served by regional bus and heavy rail provided by the Washington Metropolitan Area Transit Authority (WMATA), commuter rail provided by the Virginia Railway Express (VRE) and by neighboring transit systems: Alexandria's DASH, DC Circulator, Fairfax Connector, Loudoun County Transit, and Potomac and Rappahannock Transportation Commission's (PRTC) OmniRide.

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Introduction

This manual is provided to communicate guidelines and standards Arlington Transit Bureau abides by in the planning and providing of bus stops within Arlington. These standards apply to all public transportation bus stops that in whole or in part occupy public rights-of-way or dedicated easements. This manual shall be used by Arlington County Government staff, design professionals, engineers, contractors, developers and others seeking to incorporate transit access into site/development plans and/or individuals requesting a bus stop and/or service within an area. Please note, this manual is to be used by the Arlington Transit Bureau as the basis for the evaluation of new bus stop requests and any modification to an existing bus stop. This manual will be reviewed and revised annually as needed. The Arlington Transit Bureau is aware that a number of bus stops may not currently abide by the standards outlined in this manual and is committed to retrofitting existing stops as resources are made available. The purpose of this manual is to:

- Factor in requirements of the Americans with Disabilities Act (ADA) in the design and construction of bus stops;
- Promote consistency in bus stop design and placement to maximize the efficiency of transit operations;
- Ensure safety of transit users as well as pedestrians, bicyclists, and motor vehicle operators;
- Provide criteria on what appropriate amenities shall be placed at a bus stop factoring in usage, available right of way and surrounding land use; and
- Encourage the public to use public transit by providing accessible, safe, convenient, and comfortable bus stops.

The Arlington Transit Bureau requires internal and external stakeholders to take existing and proposed bus stops and routes into account from the beginning of the planning and design processes. The Arlington Transit Bureau reviews site plans to identify transit needs, opportunities, and provide feedback. Ongoing communication between the Arlington Transit Bureau and other stakeholders is necessary to solidify details of:

- Bus routes and modifications;
- Bus stop locations and amenity placement;
- Bus stop design, including ADA-compliance and adherence to federal regulations; and,
- Temporary bus reroutes and bus stops because of construction and/or emergencies

1. Stop Environment & Typologies

A bus stop is an area used for the waiting, boarding and alighting of bus passengers and includes associated amenities for bus passengers, and a bus stop zone is the clear curb and roadway area needed for the bus to safely service the stop. The purpose of a bus stop is to provide a safe, accessible, easily identifiable, and comfortable area for waiting, boarding, and alighting of bus passengers. This section presents typical bus stop typologies and the physical environments in which they are commonly found. This section also presents the classification and thresholds used by the Arlington Transit Bureau for bus stops in Arlington.

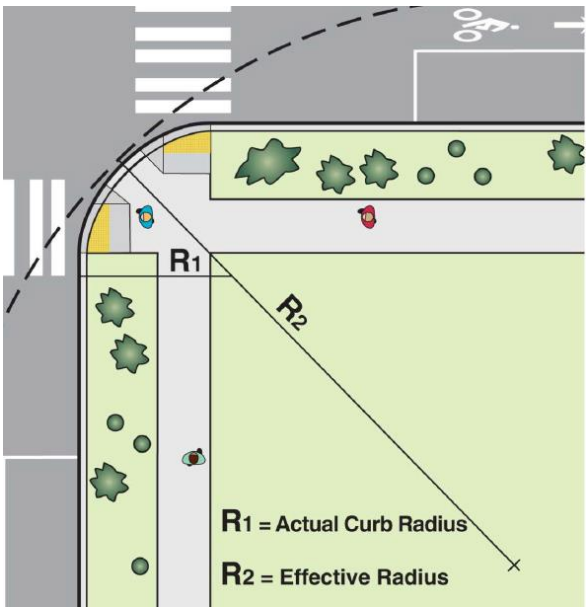
Arlington's urban layout plays a significant role in relation to public transit bus routes and stop locations as Arlington's built environment heavily influences transit service delivery. Key factors for determining safe yet efficient stop locations requires an evaluation of stop spacing, surrounding land use and areas, accessibility, and ridership. This preference is a desired standard for transit service delivery if optimal conditions are present, and the recommendations herein are not a final determination of a transit service delivery standard for all scenarios. All bus stop locations shall be approved by the Arlington Transit Bureau (TRANSIT) with consultation with Arlington's Transportation, Engineering, and Operations Bureau (TE&O) to ensure compatibility and consistency with Arlington's transportation planning and operations.

Before planning bus stop locations, it is critical to understand standard boarding and alighting environments. Three common bus stop typologies are: near-side, far-side and mid-block bus stops. These names are derived from a stop's physical location as it relates to an intersection. These stop typologies, coupled with pre-existing conditions within Arlington, are heavily factored into the formulation of ART, Metrobus, and other public transit services' routes and the eventual placement of stops along them.

Near-side

Near-side bus stops are stops that are located prior to a bus approaching an intersection. Near-side stops shall be at minimum five feet (5') before an intersection stop bar or crosswalk markings if a stop bar is not present. In cases where there is not a stop bar or crosswalk marking present, near-side stops shall be at minimum five feet (5') before a stop sign. In cases where there is not a stop bar, crosswalk marking present, or stop sign present, near-side stops shall be at minimum ten feet (10') before the Effective Radius of the curb. See Exhibit 1.1 on page 6 for a diagram showing the Effective Radius of the curb. Because drivers may be tempted to turn on red even when a bus is present, near-side bus stops shall be placed close enough to the intersection so that right-turning vehicles cannot merge in front of the bus.

Exhibit 1.1 – Diagram of Effective Radius of the curb



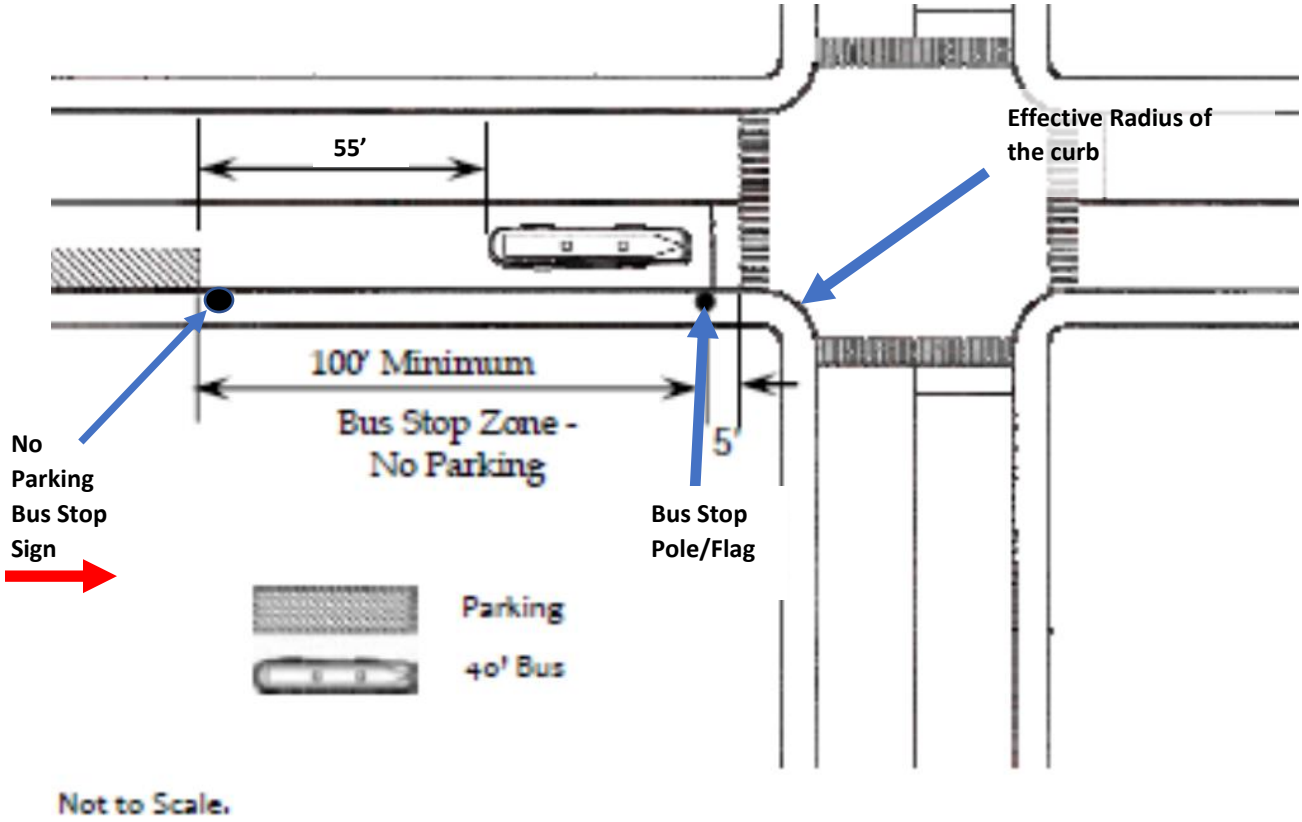
A minimum bus stop zone clearance of one hundred feet (100') from a stop bar, crosswalk marking, stop bar, or the radius of the oncoming intersection curb is needed to establish a safe near-side bus stop zone. This spacing provides enough room for bus operators to maneuver back into traffic while providing access to alighting passengers and other pedestrians to utilize crosswalks (if present).

Near-side stops are recommended:

- When traffic is heavier on the far-side than on the approaching side of the intersection.
- When pedestrian facilities on the nearside are more accessible than on the far-side.
- When street crossings and other pedestrian movements are safer when the bus stops on the near-side than the far-side.
- When a bus route features an impending right turn.
- When trip generator(s), exist prior to approaching an intersection; and/or when existing pedestrian infrastructure presents a safer environment for passengers than a far-side stop.

Advantages of Near-side bus stops	Disadvantages of Near-side bus stops
• Less potential conflict with traffic turning onto the transit route street from a side street. • Passengers usually de-board close to a crosswalk. • At signal-controlled locations, the near-side stop may be implemented as a queue jump—the bus pulls into	• Potential conflicts with right-turning traffic as cars may cut in front of the transit while it is stopped. • The stopped transit obscures the sight distance of drivers entering from the right as well as crossing pedestrians.

the stop, completes boarding, and then receives an advance or extended green phase through the intersection, while general traffic is held.	• At intersections controlled by a stop sign, the stopped transit may block visibility of the sign. • At signalized intersections, may result in schedule delays due to increase dwell time for loading and unloading passengers which may result in the bus sitting through an extra light cycle.



Far-side

Far-side bus stops are stops that are located after a bus has passed through an intersection. Far-side bus stops shall be at minimum sixty feet (60') after a crosswalk marking and/or the radius of the curb with the bus stop flag and pole being placed fifty feet (50') after a crosswalk marking and/or the radius of the curb, allowing for a ten foot (10') buffer zone which allows a bus operator to safely merge back into traffic and clear cars parked in on-street parking spaces. This spacing provides adequate room for a bus to clear both the intersection and the crosswalk to approach and leave the bus stop zone safely. Far-side stops are generally the safest bus stop configuration for pedestrians because buses will not obstruct drivers' views of crossing pedestrians as they would at near-side stops.

Whenever possible, the Arlington Transit Bureau will provide far-side bus stop locations due to this typology's benefits of minimizing conflicts with other vehicles, reducing conflicts for alighting passengers, and minimizing the bus stop's overall footprint on roadways in Arlington by requiring the shortest stop clearance and reducing impacts on on-street parking. However, when intersection geometry will not allow the use of a far-side stop, the Arlington Transit Bureau will use an appropriate mix of stop location typologies that will abide by the guidelines for stopping distances.

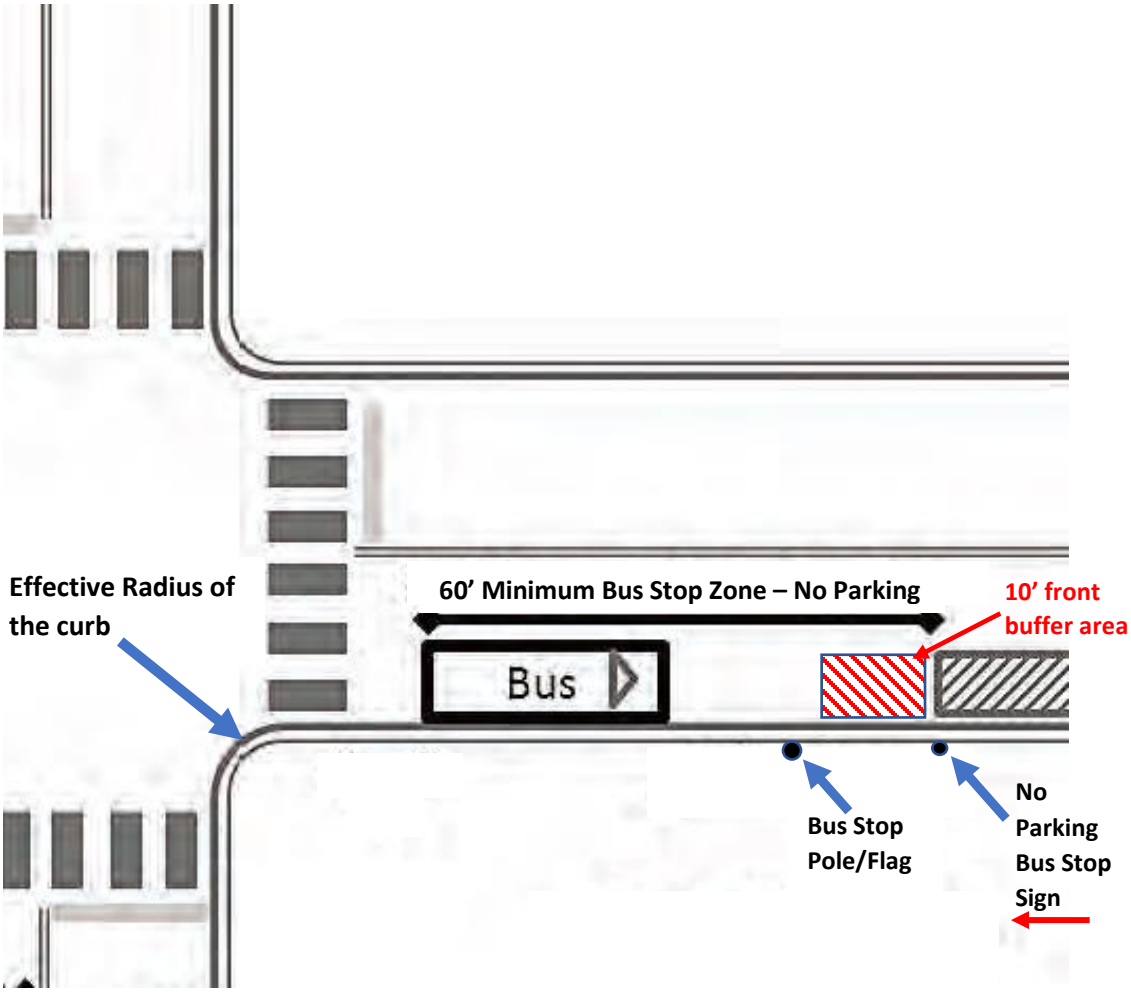
Far-side stops are recommended:

- When traffic and right turns are heavier[1] on the near-side than on the far-side of the intersection.
- When pedestrian facilities on the far-side are more accessible than on the near-side.
- At intersections where traffic conditions and signal patterns may cause delays.
- At intersections with Transit Signal Priority (TSP) treatments.
- When a trip generator is located on the far-side of intersection; and/or when existing pedestrian infrastructure presents a safer environment for passengers than a near-side location.

Advantages of Far-side bus stops	Disadvantages of Far-side bus stops
• Less potential conflict with traffic turning onto the transit route street from a side street. • Passengers usually de-board close to a crosswalk. • The bus can leave the stop once boarding is completed.	• Traffic may queue into intersection behind a stopped bus. • Potential conflicts with right-turning traffic as cars may cut in front of the transit while it is stopped. • The stopped transit obscures the sight distance of drivers entering from the right as well as crossing pedestrians.

[1] Subject to TRANSIT and TE&O Judgment.

• Alighting passengers are more visible to oncoming vehicles when the cross behind the bus. • Conflict between the bus and right turning vehicles are minimized. • Requires the least amount of clearance along the curb.	• Multiple buses may queue into intersection if insufficient curb space is available • Possible increase in rear end collisions due to driver expectation bus will continue moving after green light and not stop.



Not to Scale

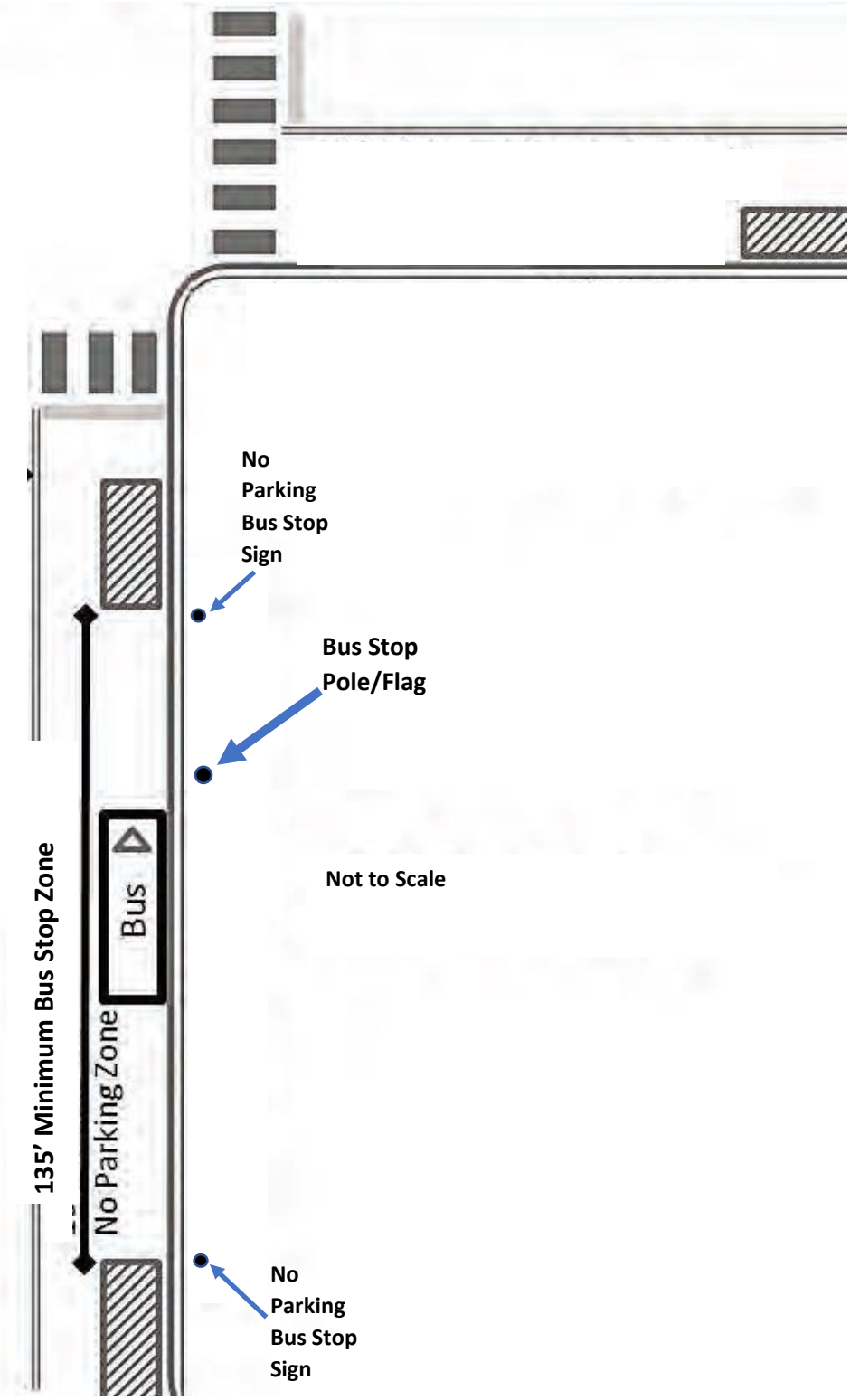
Mid-block

Mid-block bus stops are stops located approximately equidistant from the nearest intersections. In many cases, mid-block stops shall have an on-street parking clearance of one hundred thirty-five feet (135') to establish a safe bus stop zone. Midblock stops are typically used when passenger origins and destinations cannot be easily served at or near the intersection. Midblock stops are generally not preferred, and the Arlington Transit Bureau will only provide stop locations with midblock typologies in cases of special exception.
Midblock stops require the most amount of dedicated space when on-street parking is present and are typically only provided where midblock crosswalks are present, modifications to the sidewalk (such as curb extension/bulb) are made, and when origin and destinations cannot be adequately served by nearby intersections. The Arlington Transit Bureau highly discourages, but does not prohibit, the use of mid-block stops.

Mid-block stops are recommended:

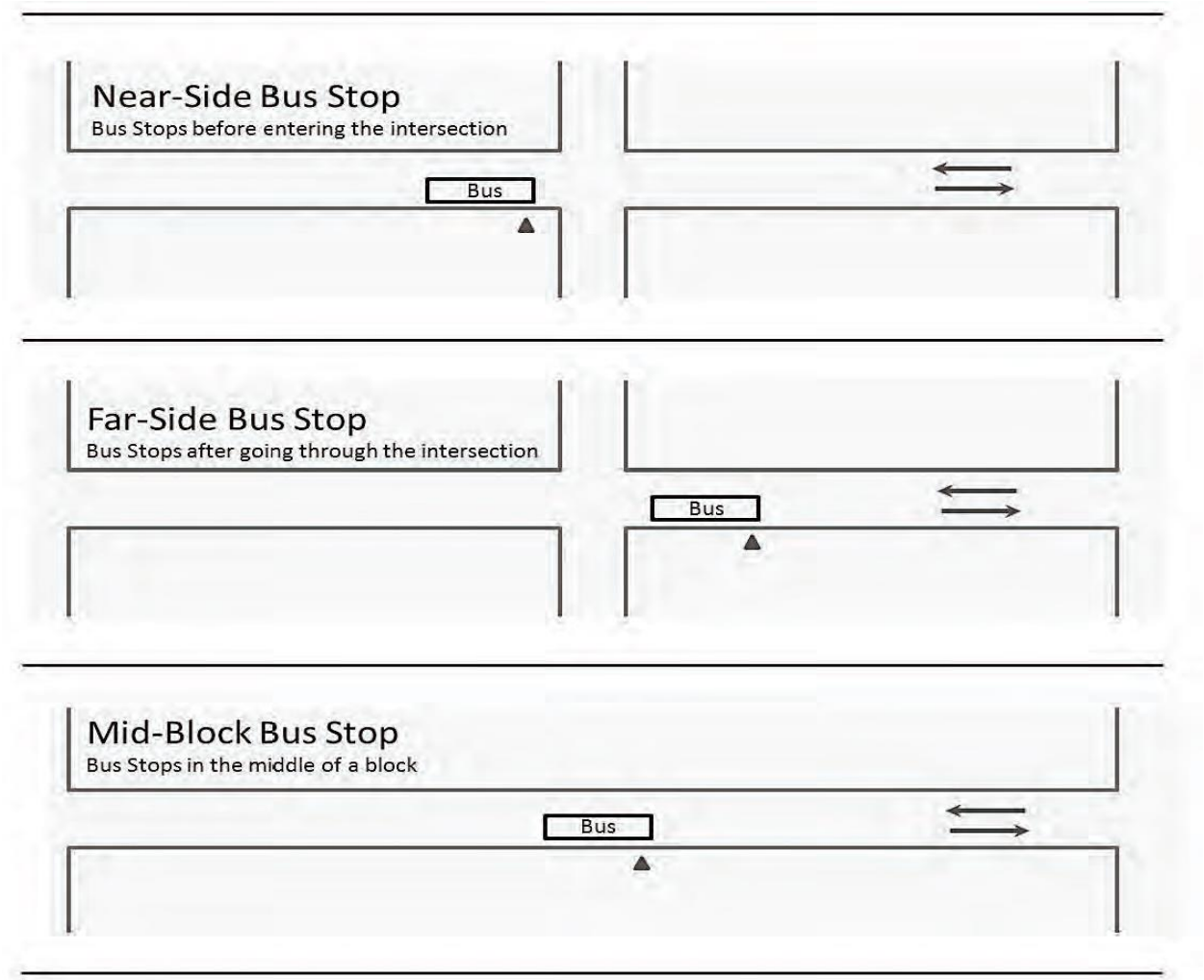
- When traffic or street/sidewalk conditions at the intersection are not conducive to a near-side or far-side stop.
- When the passenger traffic generator is in the middle of the block / major destination
- When the interval between adjacent stops exceeds stop spacing standards.
- When a mid-block stop is compatible with a corridor or district plan.
- When a high visibility pedestrian crossing can be provided at the stop location.

Advantages of Mid-block bus stops	Disadvantages of Mid-block bus stops
• The bus while stopped does not obstruct sight distances at an intersection. • May be closer to major activity centers than the nearest intersection.	• Requires most curb clearance of the three options (unless a mid-block sidewalk extension/bulb is built). • Encourages jaywalking unless a crosswalk is near. • May increase customer walking distances if the trip generator is close to an intersection.



Stop Classification

Exhibit 1.2 – Summary of Bus Stop Typologies Schematic & Minimum Bus Stop Zone Lengths



Minimum Bus Stop Zone Length (in ft.)					
Largest Bus Serving Stop	**Stop Location**	**Rear Buffer (pull-in)**	**Front Buffer (pull out)**	**Total Bus Stop Zone Length**	**Approximate Number of Parking Spaces Removed/Lost**
40'	Near-Side	55'	5' (from crosswalk/stop bar/Effective Radius of the curb	100'	5
40'	Far-Side	10'	10'	60'	3
40'	Mid-block	55'	40'	135'	7

The following is the Arlington Transit Bureau's determination for each classification. Required thresholds which the Arlington Transit Bureau uses to provide various amenities for each classification can be found in Exhibit 1.6 on page 16.

Tier II Stop - the minimum requirements include the following bus stop elements:

- A bus stop sign;
- An ADA- compliant passenger loading pad for front door loading and alighting; and,
- An accessible path/sidewalk providing access to and from the stop location to adjacent land uses.

Tier II stops are most appropriate for locations with lower ridership, under 40 boarding per day. Tier II stops are ideal where there is a lack of Arlington and/or Virginia Department of Transportation right-of-way to install additional amenities, mainly in locations where building footprints and/or private property lines are close to the sidewalk, which limit the amount of space for a bus stop beyond the requirements of a basic stop.

Tier I Stop – this type of stop shall be used where appropriate ridership and site conditions exist. Tier I stops require the following minimum bus elements to be provided:

- Bus stop sign;
- An ADA compliant passenger loading pad for front door boarding and alighting;
- An accessible path/sidewalk; and,
- A trash and recycling receptacle.

For Tier I stops, the following criteria will be used when evaluating an optional amenity request outside of providing a bus shelter:

- Ridership;
- Available right of way;
- Vertical and horizontal sight distance
- Obstructions, such as utility poles, structures, and significant trees;
- Total number of routes serving bus stop location; and,
- Special populations within service area at stop location (i.e. trip generators with a higher percentage of children, elderly, or disabled).

If site conditions allow, a Tier I stop shall also include a rear door alighting area. These stops go above and beyond the requirements of a Tier I stop and provide a better overall waiting experience.

Transit Station – at this time, this stop shall be used only along the Crystal City Potomac Yard Transitway and Columbia Pike. Features of a Transit Station include but are not limited to: shelters with interior lighting, benches, real-time transit information screens with audio components, 9.5-inch height curb, and at minimum an 80-foot long platform.

Exhibit 1.6 – Arlington Transit Bureau's Required Thresholds to Provide Various Bus Stop Elements within Arlington

	Tier I I Stop	Tier I Stop	Transit Stations
Daily Boarding	0-40	40 plus	N/A
Bus Stop Sign and Pole	Required	Required	Required
Unobstructed 5'x8' (Minimum) Passenger Boarding Area	Required	Required	Required
Rear Passenger Landing Pad/Area	Considered	Required	Required
Tactile Curb Warning Strip along the length of the curb	Not Required	Considered on bus bulbs and Required at locations which have curbs higher than 6"	Required
Sidewalk and Ramp Connections	Required	Required	Required
In Road Bus Pad	Considered	Considered	Required
Lighting (illumination of stop, under or near a light source/streetlight)	Required	Required	Required
Shelters	Not Required	Recommended (Required in some cases but may not be feasible)	Required
Benches	Considered for stops with more than 10 boarding per day	Considered	Required
Lean Bars	Considered for stops with more than 5 boarding per day	Considered	Considered
Trash and/or Recycling Receptacle	Considered	Required	Required
System and/or Route Map	Considered	Considered	Required
Real-time Transit Information Sign and Audio	Not Required	Considered	Required

2. Arlington Transit Bureau's Bus Stop Spacing and Placement Guidelines

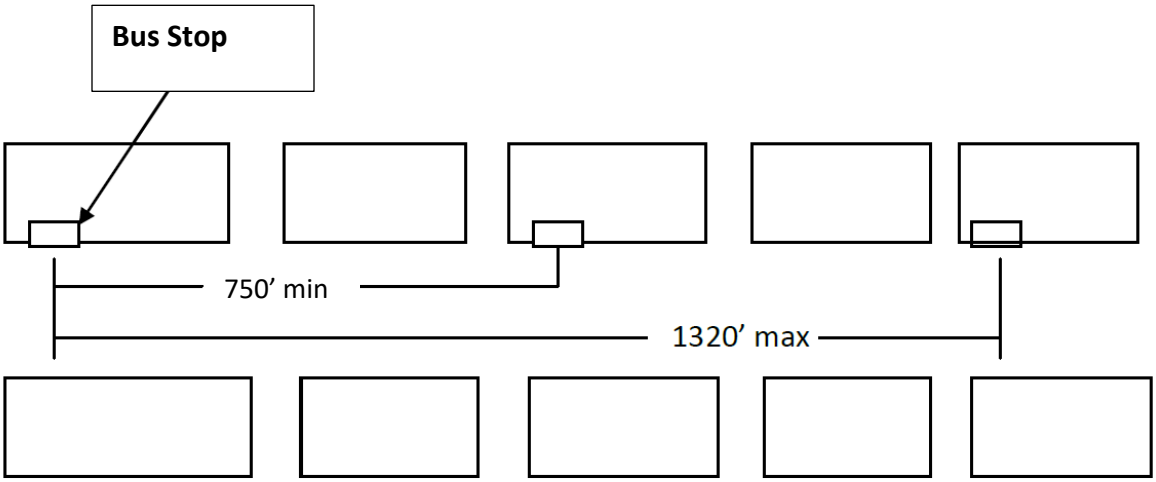
Bus stop locations serve as the first impression for individuals to access ART and regional transit systems in Arlington. Bus stop locations shall be convenient and be easily reached by persons walking or using a mobility device; but, stop locations shall be far enough apart to help buses move quickly and efficiently while in revenue service. Convenience for passengers and speed of buses shall be balanced in determining appropriate bus stop locations. Surrounding land use and potential ridership are also factors which are used in analyzing bus stop locations. Sufficient drainage is necessary at bus stops to ensure that neither the roadway nor bus stop area will be affected by flooding. Bus stops should be located at sites with sufficient drainage to ensure safe and reliable transit operations. The Transit Bureau may relocate a bus stop whose safety has been compromised by flooding.

It is important to understand the foundation of bus stop spacing, as an incorrect determination of the "optimal" spacing of bus stops can undermine the efficiency of ART and regional bus providers. Too many bus stops can result in a much slower trip while too few bus stops may result in significant service gaps along a route. Additionally, bus stops are typically planned in pairs to accommodate both inbound and outbound service.

Bus stop spacing is one of the most critical factors when planning ART, Metrobus, and other regional bus services and when inadequate spacing is employed, it can deter use by potential passengers. Ultimately, the Arlington Transit Bureau shall sufficiently space bus stops to allow passengers the greatest access to origins and destinations while minimizing the overall impact to the operating cost for delivering service. Because of the number of factors involved, each new or relocated stop must be examined on a case-by-case basis; however, the following are bus stop spacing guidelines and minimum clearances needed for providing bus service, bus stops, and bus stop zones:

- Within Arlington, bus stops shall ideally be spaced at intervals of no more than 1,320 feet (1/4 mile) and no less than 750 feet along a bus route. While these spacing standards are the general rule, exceptions may be made in special circumstances such as bus stops for limited, express, and bus rapid transit services.

Exhibit 2.1 – Bus Stop Spacing



The Arlington Transit Bureau will **not** give consideration for bus stop requests that present an inherent traffic management conflict which present safety issues for passengers, operators, pedestrians, bicyclists or motorists. The following scenarios shall **not** be considered:

- Driveways: buses accessing a stop shall not partially or fully block a driveway.
- Crosswalks: stops shall not be considered nor implemented where buses block a crosswalk to board and alight passengers. A minimum clearance distance of 5 feet between a crosswalk and the front or rear of a bus at a bus stop is desirable.
- Curves and Crests: stops shall not be in areas that result in stopping alongside horizontal curves with small radius and/or over the crest of a vertical curve, where sight distance becomes a concern for bus operators, bus patrons, pedestrians, bicyclists, and other vehicles.
- Steep Grades: stops should not be located on an upgrade in a residential area, since the bus engine noise created when the vehicle accelerates from a stop will impact area residents. Placing bus stops on steep grades should be avoided.
- Where there is not an accessible route for pedestrians to reach the bus stop.

Arlington Transit Bureau's (Internal) Bus Stop Spacing and Placement Considerations Checklist

In addition to what is noted above, the following is a checklist of the most important considerations for bus stop spacing and placement:

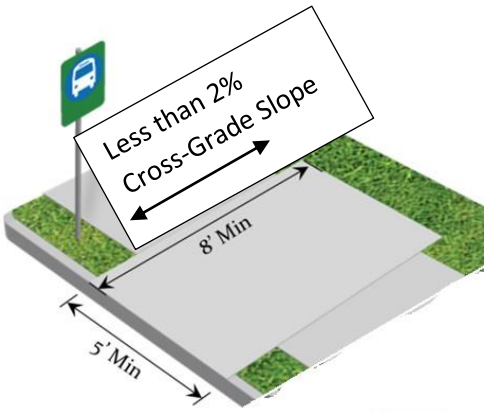
- ✓ Safety
  - Waiting, boarding and alighting must be safe
  - Access to a street crossing/crosswalk/curb ramp
  - Provide adequate sight distance, i.e., provide visibility between bus operator and waiting riders
  - Watch for other pedestrians
  - Consider impacts on other traffic such as vehicles, pedestrians, bicycles
  - Provide a safe location for operational movements

- ✓ Service quality tradeoffs – fewer stops mean the following:
  - Faster service
  - More potential for amenities at each stop
  - May require a longer walk from/to origin/destination
  - More ridership at existing stops
- ✓ Stops must be suitable for bus operations
  - Safe access into and out of bus stop location (no parking)
  - Provide bus operators with adequate view of street and pedestrian areas
  - Provide adequate sight distance for autos before bus stop, so drivers are aware the bus is stopped
  - Provide adequate weaving length where a lane change is required by the route layout
- ✓ Possible impacts on traffic safety and traffic delay
- ✓ Input and review by the public and by neighborhood and business associations
- ✓ Pedestrian safety to and from the stop and at the bus stop
- ✓ Accessible for all
  - Minimize cross slope, no more than 2% for level surfaces
  - If necessary, construct at minimum a 5' x 8' ADA compliant concrete pad at the bus stop for access to the front door of the bus.
  - Check for curb ramps at intersection and on surrounding streets
- ✓ Maximize accessibility to neighborhood or major generators
  - Preference for intersections at streets that connect into surrounding neighborhood
  - At major transit generators, locate the stop near pedestrian access to the generator, preferably at traffic signal
  - Look at pedestrian pathways (formal and informal), not just streets
- ✓ Stops should be paired, at same intersection when possible
- ✓ Ensure compatibility with adjacent properties
- ✓ Do not move existing stops for trash, noise, and/or nuisance. Instead, seek ways to address the problem directly

3. Bus Stop Design Elements

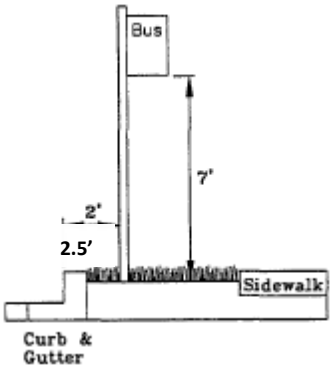
This section presents guidelines used by the Arlington Transit Bureau for including minimum required design elements as well as passenger amenities at bus stops such as benches, shelters, real time information and lighting at bus stops.

ADA-compliant Passenger Loading Pad



ADA-compliant passenger loading pad **- *Required* -** all bus stops in Arlington shall comply with the federal "Americans with Disabilities Act" (ADA) requirements. These documents can be accessed at the following web site: https://www.access-board.gov/guidelines-and-standards/buildings-and-sites/about-the-ada-standards/ada-standards. ADA-compliant passenger loading pads shall be constructed to a minimum 5' parallel to the curb x 8'perpendicular to the curb (not including the curb), slip-resistant and firm pad with less than a 2% cross-grade slope. These pads shall be connected to a sidewalk and to the curb providing a barrier-free/unobstructed, accessible path for ease in boarding and alighting of persons with disabilities. In specialized cases, approved by the Arlington Transit Bureau, due to right-of-way and other constraints, bus stops shall comply with ADA requirements to the maximum extent practicable.

ART and Other Bus Stop Signs and Poles



Bus stop signs and poles **- *Required* -** shall be installed at all public transportation bus stops in Arlington. ART bus stop signs shall be easily identifiable and contain, at a minimum: the ART logo, route information, and the stop ID number. ART bus stop signs shall be affixed to their own pole or shared on a Metrobus pole whenever possible and shall be perpendicular to the street to allow easy identification by ART bus operators and pedestrians walking along the sidewalk. ART and other bus stop signs shall not be placed where they block existing regulatory signage; particularly roadway signage, such as stop signs and speed limit signs. All bus stop signs and poles shall be placed at a minimum of two and a half feet (2.5') from the curb and two (2') ahead of the ADA-compliant Passenger Loading Pad. Bus stop signs shall be mounted at an angle perpendicular to the street and be at a minimum of 7' from the bottom of the sign to the ground. Bus stop signs must neither block nor be blocked by other signs and must not be obscured by trees, bushes, or other objects. Four-inch (4") PVC sleeve, installed at minimum 1 foot in depth below surface for the bus stop pole shall be provided when bus stop poles are mounted in concrete.

The following requirements shall be met for bus stop signage in Arlington to comply with ADA:

- Letters and numbers to be a width-to-height ratio between 3:5 and 1:1 and a stroke-width-to-height ratio between 1:5 and 1:10;
- Characters and numbers sized according to the viewing distance from which they are to be read;
- Minimum height is measured using an upper-case X. Lower case characters are permitted;

- Accompany pictograms with the equivalent verbal description placed directly below, with a border dimension of 6" minimum in height; and,
- Characters and background of signs in a non-glare finish, with characters and symbols contrasting from their background.

Bus Stop Zone

Bus stop zone **- *When Necessary* -** is the curb and roadway area needed for the bus to safely service the stop. At bus stops where parking exists, no parking signs shall be installed to create a dedicated bus stop zone. The Arlington Transit Bureau cannot guarantee ADA compliance at bus stops unless the bus has a clear path to and from the curb.

Rear Passenger Landing Pad

Rear passenger landing pad **– *Preferred* –** in addition to an ADA Passenger Loading Pad to access the front door of buses, Arlington prefers an additional landing pad at the rear door. The rear door landing pad shall be considered when more than twenty (20) daily passenger alighting exist.

Rear landing pads shall be accompanied by a front door ADA Passenger Loading Pad. The rear passenger landing pad shall also be clear of obstacles and at least 4'x 6' with a connection to the sidewalk. The rear passenger landing pad shall begin thirteen feet (13') from the bus stop pole and sign and end thirty feet (30') from the bus stop pole and sign and shall be connected to the pedestrian clear zone. This area shall be obstacle free.

Bus Shelters

Bus shelters **- *When Necessary* -** provide an additional amenity at bus stops and help to keep passengers out of various weather elements including wind, rain, snow, and extreme heat.

When providing a shelter, a minimum of 36" x 48" of clear floor area, entirely within the perimeter of the shelter, is required. Additionally, shelters shall be connected by an accessible route to the bus stop passenger loading pad to comply with ADA and shall not block pedestrian or motorists line of sight. Shelter size will be determined by anticipated service and use, including but not limited to: ridership, trip generators, availability of right-of-way (ROW), and if a stop

serves as a transfer location for other bus routes. Advertisements are not permitted in/on shelters in Arlington. All bus shelters design/models installed at bus stops within Arlington shall be approved by the Arlington Transit Bureau.

The following shall be maintained for bus shelters:

- At minimum five feet (5') of pedestrian accessible area and clearance, including clearance, between poles, hydrants and other obstacles,
- Clear pathway from the ADA waiting area inside the shelter to the ADA passenger loading pad, and;
- Clear pathway from the rear door landing path area to the pedestrian path.

Arlington has two standard styles of bus shelters (where ridership or function dictates, various and custom sizes and styles can be accommodated by the manufacturer):

Traditional Shelter

- *Brasco International's Slimline (SL) Hip (https://www.brasco.com/products/bus-stop-shelters/slimline/hip/) or equivalent*
  - *12' long x 5' wide x 7' high*
  - *10' long x 4' wide x 7' high for use in constrained settings*

Modern Shelter

- *Brasco International's Eclipse (EC) Sloped (https://www.brasco.com/products/bus-stop-shelters/eclipse/sloped/) or equivalent*
  - *16' long x 5' wide x 7' high*
  - *12' long x 5' wide x 7' high*
  - *10' long x 3' wide x 7' high for use in constrained settings*

Bus Stop Benches and Lean Bars

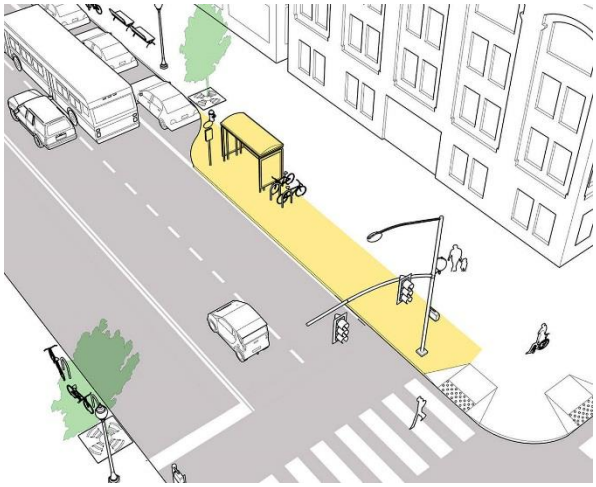
A bus stop bench and/or lean bar **- *When Necessary* –** a bus stop bench is provided at bus stops which exceed 10 boarding per day and a lean bar is provided at bus stops which exceed 5 boarding per day. Bus stop benches and lean bars are provided at bus stops with and without bus shelters. Bus stop benches and lean bars shall be installed on a paved surface and constructed of durable, tamper-proof material to prevent vandalism but also designed to prevent prolonged loitering. Bus stop benches and lean bars at bus stop(s) within bus shelter(s) and freestanding shall not hinder the accessibility of the stop by boarding or alighting passengers and bus stop benches shall abide by the following minimum requirements:
Bus stop benches and lean bars at bus stop(s) within bus shelter(s) and freestanding shall not hinder the accessibility of the stop by boarding or alighting passengers and bus stop benches shall abide by the following minimum requirements:

- Bus stop bench(es) and/or lean bar(s) placed outdoors shall not encroach upon the passenger loading pad or the pedestrian clear zone;
- Ensure clear floor or ground space for wheelchairs in bus shelters with seating (complies with ADAAG Section 4.2.4);

- Structure supporting vertical or horizontal forces of 250 pounds applied at any point on the seat, fastener, mounting device, or supporting structure; and,
- Exposed benches: slip resistant and designed to shed water.

It is preferred that bus stop benches and/or lean bars are placed at minimum three feet (3') from the curb at locations where parking has been removed to create a bus stop zone. If a bus stop is directly adjacent to a travel lane, the minimum distance benches and/or lean bars shall be placed is six feet (6') from the curb. Advertisements are not permitted on benches and lean bars in Arlington. All bus benches and lean bars installed at bus stops within Arlington shall be approved by the Arlington Transit Bureau.

Bus Stop Curb Extension/Bulbs



Bus stop curb extension/bulbs **- *When Necessary* -** have an extended sidewalk up to the travel lane, allowing the bus to remain in the rightmost travel lane when picking up and dropping off passengers. The extension/bulb typically replaces a section of on-street parking to allow passengers to safely reach the bus. Bus stop extension/bulb eliminate the need for a bus stop zone and the need for a bus to merge back into traffic providing additional space for parked cars and minimal travel time delay. The bus stop extension/bulb area provides additional waiting space for patrons, allowing for additional stop amenities and access while removing passengers from pedestrian flow on the sidewalk. The minimum tangent length of a curb extension is 40 feet. Refer to Arlington County Horizontal Standards H-3.3 Curb Extensions for further information.

Bus Pad

Bus pad **- *When Necessary* -** is a concrete pavement area within the roadway adjacent to a bus stop to bring greater durability and longevity to the roadway pavement under frequent braking action by buses. Due to loads and shear forces applied to pavement surfaces during bus starting and stopping movements, concrete has the best potential for shape retention. Bus pads are typically installed at bus stop locations that have a high frequency of service, e.g. greater than four buses per hour. For Tier I and Tier II bus stops, bus pads shall be forty-five feet (45') by either twelve feet (12') or eleven feet (11') depending on the width of the travel lane. For transitway stops, bus stop pads shall be the entire length of the stop area and width of the travel lane. Bus pads shall include ten inch (10") thick reinforced concrete with welded wire fabric 6" x 6"– W2.9 x W2.9 over a 6" aggregate base.

Real Time Information

Real Time Information - ***When Necessary* -** The Arlington Transit Bureau highly encourages providing real-time information at and/or near bus stops to aid in providing information for bus

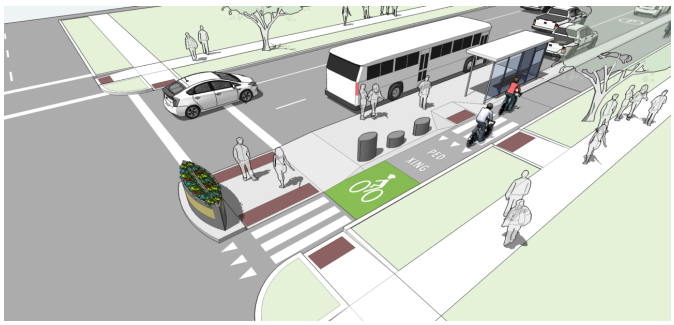
passengers. Real-time information broadly defined means providing a method of visual and/or audio information at bus stops on the status of buses including approximate locations and predictive real-time of bus arrival. Individuals shall be able to access real-time information through dynamic signs at or near bus stops, smartphones, and through the internet. Any real time information sign shall be approved by the Transit Bureau.

Lighting

Lighting - ***Preferred –*** The Arlington Transit Bureau highly encourages providing lighting within bus shelters and near bus stops to aid in visibility of waiting passengers and to create a safer waiting experience. Lighting helps increase visibility of passengers and pedestrians while also providing a safer passenger waiting environment. Providing of lighting can present logistical challenges and may require some maintenance to ensure continued operation. Bus stops which are served after dark shall be located where they will be illuminated at night, preferably from an overhead street light. If this is not possible, installation of new lighting at the bus stop shall be considered. On a case by case basis two 2-inch HDPE conduits may be placed as required for future uses. When utilizing an electric power source, bus shelters and transit stations shall not tap into existing streetlight or signal meter; moreover, bus shelters and transit stations shall require a separate meter.

Floating Bus Stop

Floating Bus Stop – **When Necessary** – A raised bus stop that is separate from the sidewalk area to permit a bicycle lane to bypass the bus stop and waiting area. Reduces conflicts between bus and bicycle traffic by creating a separate bicycle facility to the right of all bus traffic.



Trash and Recycling Receptacles

Trash and recycling receptacles ***– Required and When Necessary -*** are essential for ensuring a clean passenger waiting area. Only County approved trash and recycling receptacles shall be installed. Both trash and recycling receptacles are required at all bus stops that have bus shelters. Trash and recycling receptacles shall be set in place. In some locations blast resistant designs may be desirable. Trash nor recycling receptacles shall not infringe upon the ADA passenger loading pad area, accessible areas which connect to and from a bus shelter, nor on a sidewalk. A 2'x6' (or 2'x3' for dual stream) concrete pad should be provided for trash and recycling receptacle placement opposite the approach side of the bus stop.

Providing of trash and recycling receptacles shall require proof of a maintenance plan and/or a signed agreement with Arlington's Solid Waste Bureau (SWB) or private entity to ensure trash and recycling are being emptied and are not contributing to litter and other debris at stops. The

Transit Bureau shall not install neither a trash nor recycling receptacle at a bus stop location until a proof of maintenance plans is established and/or a signed agreement is reached with SWB or any private entity.

Landscaping

Landscaping ***– Preferred -*** near bus stops is encouraged to improve the bus stop environment and maximize passenger comfort; however, planted areas should be far enough back from the curb face as not to interfere with bus operations or passenger and pedestrian accessibility. All landscaping elements shall be maintained so that they do not limit the accessibility or visibility of the stop. Landscaping at and around bus stops shall be coordinated with Arlington Urban Forestry and Natural Resources.

Lane Markings & Regulatory Signage

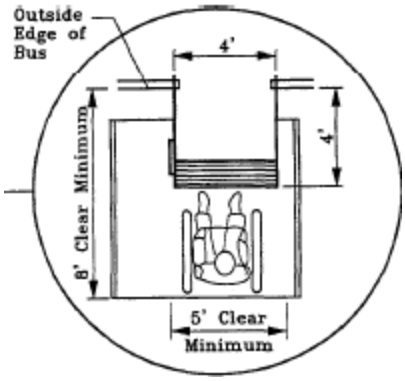
Lane Markings & Regulatory Signage – ***When Necessary*** – include elements such as the use of color and marking material, as well as regulatory signage contribute to n safety and the success of transit. Colored pavement can enhance the visibility of the transit lane, reducing vehicle incursions and improving on-time performance, in addition to other benefits. Regulatory Signage can prohibit vehicle movements and alert other street users of approaching transit vehicles. Red colored pavement may be used to improve the conspicuity of the bus lane, visually enforcing dedicated transit space and thereby reducing the number of non-authorized vehicle incursions. Colored pavement can be considered anywhere a roadway lane is reserved exclusively or primarily for buses and can be applied solely at the start of a lane (i.e., to guide turning other vehicles away from the bus lane), only in the sections where only buses are permitted (i.e., to indicate where vehicles may enter the lane to make right turns), or for the full length of the lane, including sections where other vehicles are permitted by law to briefly enter the lane (i.e., to enter or cross the lane to make a right turn, to stop to immediately pick up or drop off passengers).

4. Bus Stop Design Standards

Successful bus stops are designed to link to other transportation modes, existing or planned. Accommodating sidewalks are critical to assuring the safe and accessible transport of bus patrons between the origin/destination and a bus stop. The following section highlights the guiding principles that address the Arlington Transit Bureau's bus stop design guidelines and standards.

Americans with Disabilities Act (ADA) and Arlington Transit Bureau Standards

In accordance with the Americans with Disabilities Act of 1990 (ADA) and subsequent amendments, the following minimum conditions shall be met for bus stops:



- A firm, stable surface for the passenger loading pad;
- A minimum clear/unobstructed bus stop passenger loading pad of 5' parallel to the road/curb by 8' perpendicular to the curb (the existing width of a sidewalk may be counted towards the 8' wide perpendicular to the curb area);
- A maximum cross slope of 1:50 (2%) for the passenger loading pad; and,
- Connection to/from the passenger loading pad, curb, and sidewalk or pedestrian path by an accessible route

In addition to the minimum ADA conditions, the following minimum Arlington Transit Bureau Standards shall be met for bus stops:

Additional Standards

- The unobstructed ADA passenger loading pad area shall be accessible via the front of the bus and accessible from a bus shelter, bus stop bench, or lean bar (if present or if installed) and the adjacent sidewalk;

- Passenger loading pads shall never be placed on storm drain inlets, catch basins, and other obstacles that would make the bus stop and bus stop loading pad inaccessible or create tripping hazards;

- Areas which tend to accumulate standing water shall be avoided or improved;

- A bus stop in an area with existing on-street curbside parking requires either removal of enough parking to permit the bus to pull off, service the stop, and re-enter the travel lane, or installation of a sidewalk extension/bulb-out to provide passenger access to the bus. Parking shall be prohibited within bus stop zones;

- Bus stop zones consist of: 100' bus stop zone at near-side stops, 60' bus stop zone at far-side stops, and 150' bus stop zone at mid-block stops). Signage shall be installed noting no parking and/or no parking bus stop zone – see prior Exhibits 1.3, 1.4, and 1.5;

- If the bus stop is located on a bulb out / curb extension into the roadway, the removal of parking shall not be required; the minimum tangent length of a curb extension is 40 feet. Refer to Arlington County Horizontal Standards H-3.3 Curb Extensions for further information;

- Near-side bus stops are stops that are located prior to a bus approaching an intersection. Near-side stops shall be at minimum five feet (5') before an intersection stop bar or crosswalk markings if a stop bar is not present. In cases where there is not a stop bar or crosswalk marking present, near-side stops shall be at minimum five feet (5') before a stop sign. In cases where there is not a stop bar, crosswalk marking present, or stop sign present, near-side stops shall be at minimum ten feet (10') before the Effective Radius of the curb. A minimum bus stop zone clearance of one hundred feet (100') from a stop bar, crosswalk marking, stop bar, or the radius of the oncoming intersection curb is needed to establish a safe near-side bus stop zone. This spacing provides enough room for bus operators to maneuver back into traffic while providing access to alighting passengers and other pedestrians to utilize crosswalks (if present);

- Far-side bus stops are stops that are located after a bus has passed through an intersection. Far-side bus stops shall be at minimum sixty feet (60') after a crosswalk marking and/or the radius of the curb with the bus stop flag and pole being placed fifty feet (50') after a crosswalk marking and/or the radius of the curb, allowing for a ten foot (10') buffer zone which allows a bus operator to safely merge back into traffic and clear cars parked in on-street parking spaces. This spacing provides adequate room for a bus to clear both the intersection and the crosswalk to approach and leave the bus stop zone safely. Far-side stops are generally the safest bus stop configuration for pedestrians because buses will not obstruct drivers' views of crossing pedestrians as they would at near-side stops;

- Mid-block bus stops are stops located approximately equidistant from the nearest intersections. In many cases, mid-block stops shall have an on-street parking clearance of one hundred thirty-five feet (135') to establish a safe bus stop zone. Midblock stops are typically used when passenger origins and destinations cannot be easily served at or near the intersection. Midblock stops are generally not preferred, and the Arlington Transit Bureau will only provide stop locations with midblock typologies in cases of special exception. Midblock stops require the most amount of dedicated space when on-street parking is present and are typically only provided where midblock crosswalks are present, modifications to the sidewalk (such as curb extension/bulb) are made, and when origin and destinations cannot be adequately served by nearby intersections. The

Arlington Transit Bureau highly discourages, but does not prohibit, the use of mid-block stops;

- Bike racks and scooters shall be placed outside of a bus stop zone. Bike racks and scooters can be placed adjacent to a bus stop zone;

- Bike-share stations and parklets, where provided, shall be placed outside of, but adjacent to a bus stop zone;

- If feasible, bus stops and routes shall remain open and accessible while the site is under construction. If it is not feasible for the bus stop to remain open, a temporary bus stop location shall be coordinated with the Arlington Transit Bureau; signs noting the bus stop closure and location of the temporary bus stop shall be installed at all bus stops taken out of service due to construction; all temporary bus stop locations shall be ADA compliant; notification of closure signs installed at bus stops taken out of service shall meet guidelines outlined in Arlington's Title VI policy (https://www.arlingtontransit.com/art/assets/File/Title_VI_Program_FINAL_opt.pdf);

    a. If pedestrian routes to and from a temporary or permanent bus stop is blocked due to construction, alternative routes which must be ADA compliant must be provided;

    b. Alternative routes must have a smooth, continuous hard surface through their entire length and must be signed;

    c. Alternative routes with temporary walkways less than 5 feet wide through their entire length must provide passing spaces 5 feet by 5 feet at intervals no longer than every 200 feet;

    d. Traffic control devices and signs, including variable message signs, must not interfere with accessibility and paths to and from permanent and temporary bus stops;

    e. Where an alternative route to a temporary or permanent bus stop cannot be provided, Maintenance of Traffic (MOT) plans must include a temporary bus stop;

    f. All temporary bus stops must be made ADA compliant to the fullest extent as possible; and

    g. Arlington Transit Bureau must be involved in the planning of traffic control during construction at/near bus stops.

- Newspaper boxes can provide waiting bus patrons with convenient access to reading material. However, newspaper boxes that obstruct access to the passenger landing area, sidewalk, shelter, or posted bus and/or rail information and/or not being maintained shall be removed or relocated. Newspaper boxes shall not be chained or otherwise affixed to the bus stop sign pole, shelter, or bench.; and,

- Trees, shrubs, and landscaping can enhance the level of passenger comfort and attractiveness of transit, and should be positioned and maintained such that safety, visibility, and accessibility are not compromised. Trees, shrubs and landscaping may be used to distinguish the bus stop from the adjacent sidewalk area or to continue the prevailing pattern of tree planting along a block but shall not interfere with bus operations. This may often mean that, where space allows, street trees in a bus stop would not be along the same alignment as trees or shrubs on the rest of the block. This can help call out the bus stop as a special location on the sidewalk; in these cases, selecting tree species distinct from the prevailing tree species on the street can enhance this effect. Positioning trees and shrubs beyond the ADA required bus stop passenger loading pad and rear door alighting areas preserves the sightline for approaching vehicles and decreases the likelihood that these elements conflict with the path of the bus.

    - Street trees near bus stop approaches or directly adjacent to bus travel lanes shall be located to avoid conflict with bus. Tree branches that extend into the roadway below 12 feet should be trimmed back at least three feet from the curb; otherwise such branches become an obstacle that the bus operator may not be able to avoid. Grass should not be planted between the sidewalk and the curb at bus passenger loading pad (boarding) nor the rear door alighting areas (to meet ADA requirements, at least five feet parallel to the street and eight feet perpendicular to the street must be hard surface). All landscaping elements shall be maintained so that they do not limit the accessibility or visibility of the stop.

    - For more information regarding landscape and tree planting guidelines and regulations in Arlington, please visit:
        - Arlington's Landscape Standards: https://arlingtonva.s3.dualstack.us-east-1.amazonaws.com/wp-content/uploads/sites/38/2017/10/Landscape-Standards-OCT-2017.pdf

    - Administrative Regulation 4.3: Tree Planting on Public Land: https://arlingtonva.s3.amazonaws.com/wp-content/uploads/sites/38/2018/09/Tree-Planting-on-Public-Land.pdf

Bus Lane Width Standards

The width of lanes which buses utilize should be determined based on the available street space and the competing needs of bicyclists, pedestrians, and motorists. The minimum width of a curb-running lane which is being utilized by a bus is eleven feet (11') while other lanes can be minimum of 10' or 10.5'.

5. Requests for a New Bus Stop and the Removal, Relocation, or Consolidation of a Bus Stop

In the event the Arlington Transit Bureau receives a request for a new bus stop or for the removal, relocation, or consolidation of a bus stop, the Arlington Transit Bureau staff will first analyze the request by performing the following analysis:

1. Review of existing ridership, surrounding land use, transit routes which serve the bus stop, and spacing of existing bus stops;
2. Conduct a physical review of the location, review exiting conditions, and note any issues;
3. Review / find a new potential bus stop location in close proximity to the existing transit stop (For relocations and consolidations only);
4. Determine if the new location falls within the public right-of-way, meets ADA requirements, and is conducive to traffic patterns and street design
    a. If new location does not meet ADA requirements, improvement shall be made based on an engineering solution, funding and right-of-way available to make improvements.
5. If it is determined that the new location meets the necessary criteria, the process will continue by the installation of a bus stop pole and flag;

The Arlington Transit Bureau has the right to deny the installation of a new stop, the relocation, the consolidation, or the removal of an existing bus stop.

6. Adopt a Stop Program

Arlington Transit Bureau's Adopt-a-Stop program relies upon community partnerships to help maintain bus stops throughout the County. Individuals or groups can apply to adopt a bus stop for a commitment of one year. The adopter pledges to keep their adopted bus stop clean and perform the duties listed below:

1. Regularly maintain (at least once a week) the adopted bus stop by being responsible for trash pick-up.
2. When it snows, clear a sidewalk path from the nearest curb ramp to the bus stop and a path from the bus stop to the road.
3. Report vandalism, disturbances, safety issues, and items left at the bus stop to the Arlington Transit Bureau.
4. Participants must be 18 years or older, unless they are part of a group. If a group wants to adopt a stop the group leader must be at least 18 years of age and a group form must be filled out and turned in.

Bus stop adopters will be publicly recognized with a sign at the adopted bus stop and recognition on ART's web site. Individuals, community groups, civic associations and leasing agencies who own apartment complexes in Arlington are encouraged to participate in the Adopt-a-Stop program. For questions or more information please call 703-228-0638.

7. Bus Stop Maintenance

The Arlington Transit Bureau is responsible for monitoring and maintaining bus stops and bus stop amenities. Well maintained bus stops are crucial to Arlington's image and attractiveness of the public transit bus services which serve Arlington.

Maintenance shall happen as often as necessary to create a positive impression for the public and shall include:

- Cleaning of bus shelters and benches and/or lean bars to include but not limited to the removal of dirt, graffiti, posted materials, or stickers
- Fixing real-time information signage
- Removal of trash and recycling by SWB or other responsible entity per agreements as scheduled or dependent on the amount of trash that accumulates at the stop.
- Manual or chemical removal of weeds when needed
- Pruning of obstructing foliage (branches in advance of the bus stop)
- Verifying shelter lighting levels and replacement of bad bulbs and ballasts
- Cleaning a location to make a site safe and repair of items that pose a safety concern as soon as possible including but not limited to:
- Broken glass panels
- Broken frames of shelters
- Damaged benches and/or lean bars
- Snow and ice removal

8. Construction at/near Bus Stops

It is vital that private developers as well as Arlington staff coordinate construction at/near bus stops to ensure buses and passengers can safely access the stop during periods of construction. Requirements for construction at/near bus stops:

- If feasible, bus stops and routes shall remain open and accessible while the site is under construction. If it is not feasible for the bus stop to remain open, a temporary bus stop location shall be coordinated with the Arlington Transit Bureau; signs noting the bus stop closure and location of the temporary bus stop shall be installed at all bus stops taken out of service due to construction; all temporary bus stop locations shall be ADA compliant; notification of closure signs installed at bus stops taken out of service shall meet guidelines outlined in Arlington's Title VI policy: (https://www.arlingtontransit.com/art/assets/File/Title_VI_Program_FINAL_opt.pdf);
- If pedestrian routes to and from a temporary or permanent bus stop is blocked due to construction, alternative routes which must be ADA compliant must be provided;
    - Alternative routes must have a smooth, continuous hard surface through their entire length and must be signed;

  - Alternative routes with temporary walkways less than 5 feet wide through their entire length must provide passing spaces 5 feet by 5 feet at intervals no longer than every 200 feet;

- Traffic control devices and signs, including variable message signs, must not interfere with accessibility and paths to and from permanent and temporary bus stops;

- Where an alternative route to a temporary or permanent bus stop cannot be provided, Maintenance of Traffic (MOT) plans must include a temporary bus stop;

- All temporary bus stops must be made ADA compliant to the fullest extent as possible; and

- Arlington Transit Bureau must be involved in the planning of traffic control during construction at/near bus stops.

Appendix 1 – H-3.10 Arlington Transit Bureau Standards for Bus Stops

I. GENERAL

A. Description

This standard identifies minimum requirements that shall be met for all Bus Stops in the design and construction of elements for Arlington County Horizontal Design Standards. This standard meets the County's guiding principles for increasing pedestrian safety and accessibility, decreasing county infrastructure costs and balancing the use of the Right-of-Way between all modes of transportation.

B. Related Arlington County Standards

- Arlington County Construction Standards and Specifications
- Arlington County Horizontal Standards H-3.05 On Street Parking
- Arlington County Horizontal Standards H-3.3 Curb Extensions
- Arlington County Horizontal Standards H-3.9 Sidewalks
- Arlington County Horizontal Standards H-3.10 Bus Stops
- Arlington County Master Transportation Plan

C. Applicable Standards and Specifications

1. Americans with Disabilities Act - Accessibility Guidelines for Building and Facilities (ADAAG)
2. American with Disabilities Accessibility Guidelines for Public Rights-of-Way (PROWAG)

D. Quality Assurance

1. Reserved

E. Submittals

1. Design and placement of all bus stops shall be approved by the Arlington Transit Bureau with consultation with Arlington's Transportation, Engineering, and Operations Bureau to ensure compatibility and consistency with Arlington's transportation planning and operations.

II. DESIGN CONSIDERATIONS

A. Purpose

The purpose of a bus stop is to provide a safe, accessible, easily identifiable, and comfortable area for waiting, boarding, and alighting of bus passengers

B. Definitions

This glossary provides a partial list of selected terms, defining words or phrases that are used in this document:

1. ADA compliance: Characteristics of transit equipment, service and boarding areas that comply with the Americans With Disabilities Act (ADA) of 1990 and subsequent

amendments. ADA is legislation that mandates equal access to all public transportation services, regardless of mobility status. The ADA requires that fixed-route transit be accessible and that paratransit (curb-to-curb) service be provided in the same geographic areas on the same days and hours as the fixed route service.

2. Alighting: Passengers getting off a bus at a bus stop.

3. Amenities: specific passenger or bus features that enhance public transit, including but not limited to bus shelters, benches, lean bars, rear passenger landing pads, real-time information screens, and lighting.

4. Bike rack: a structure, device or accommodation for the short-term parking of bicycles.

5. Boarding: Passengers getting on a bus at a bus stop.

6. Boarding area: paved surface adjacent to the bus stop pole and bus stop sign used by boarding passengers to enter the bus.

7. Bus pad: is a concrete pavement area within the roadway at the bus stop zone to bring greater durability and longevity to the roadway pavement under frequent braking action by buses. A bus pad is not always an included element.

8. Bus shelter: A covered passenger waiting area, often semi-enclosed with benches, that provides protection from the elements. A bus shelter is typically placed within the waiting area.

9. Bus stop: A linear curbside area that is specially designated for buses stopping to board and/or alight passengers

10. Bus stop bench: A bench that can accommodate two or more persons and is placed at a bus stop for use by waiting passengers.

11. Bus stop pole: pole which the bus stop sign is affixed to which shall be easily identifiable and at a minimum of two and a half feet (2.5’) from the curb, two (2’) ahead of the ADA-compliant Passenger Loading Pad. Four-inch (4”) PVC sleeve, installed at minimum 1 foot in depth below surface, for the bus stop pole shall be provided when bus stop poles are mounted in concrete.

12. Bus stop sign: sign panel (Flag) indicating the presence of a bus stop and used by the bus operator to gauge where to stop the vehicle. Also used to convey information to passengers.

13. Bus stop spacing: The linear distance between individual bus stops.

14. Bus Stop Zone: The roadway area needed for the bus to service the stop.

15. Clear Space: The portion of a sidewalk that is unobstructed and available for through passage. Arlington’s preferred minimum clear space at bus stop is five (5’) feet.

H-3.10 Bus Stops

16. Dwell time: The time a bus spends at a stop, primarily for passengers to get on and off, measured as the interval between its stopping and starting.

17. Far-side: A location for bus stop placed immediately beyond the intersection.

18. Fixed-route bus service: Transit provided along dependable and defined routes with published schedules and stops at designated locations.

19. Information Systems: a static and or dynamic system providing additional passenger information.

20. Lighting: lights located within or adjacent to the boarding and waiting area. Can include lighting connected to a bus stop pole, lighting inside of a bus shelter, and street lights.

21. Mid-block bus stop: A transit stop located between distant intersections.

22. Moving area: the portion of the roadway used by the bus to approach and depart the bus stop. On street parking restrictions within the bus stop zone shall be required where parking is immediately adjacent to a bus stop.

23. Near-side: The location for a bus stop that is placed on the approach side of an intersection.

24. Passenger loading pad: ADA compliant pad(s) at bus stop. Passenger loading pads shall be constructed to a minimum 5’ x 8’, be slip-resistant and firm pad with no more than a 2% cross-grade slope. These pads shall be connected to a sidewalk and to the curb providing a barrier-free, accessible path for ease in boarding and alighting of persons with disabilities. In specialized cases, approved by the Arlington Transit Bureau, due to right-of-way and other constraints, bus stops shall comply with ADA requirements to the maximum extent practicable.

25. Pedestrian Clear Zone: clear zone represents an unobstructed, traversable sidewalk area or a short setback on a sidewalk area beyond the passenger loading pad.

26. Rear passenger landing pad: a paved surface within or adjacent to the pedestrian clear zone used by passengers exiting the rear doors of a bus. Rear passenger landing pads shall be accompanied by a front door ADA Passenger Loading Pad. Rear landing pads shall be accompanied by a front door ADA Passenger Loading Pad. The rear passenger landing pad shall also be clear of obstacles and at least 4’x 6’ with a connection to the sidewalk. The rear passenger landing pad shall begin sixteen feet (16’) from the bus stop pole and sign and end thirty feet (30') from the bus stop pole and sign and shall be connected to the pedestrian clear zone. This area shall remain obstacle free.

27. Seating: structure(s) located at a bus stop for passenger comfort. Seating may consist of either a bus stop bench or lean bar.

28. Trash and recycling receptacle: containers for the deposit of trash or recyclables either free standing or mounted to a bus shelter.

29. Travel lane: A lane devoted exclusively to vehicular traffic.

30. Trip generator: A land use or discrete activity that by nature of its operations tends to create a significant amount of travel. Also referred to as a 'trip attractor'.

31. Waiting area: typically, a paved surface within or adjacent to the pedestrian clear zone or within a bus shelter used by waiting passengers. The passenger loading pad area may be included within the waiting area. If provided bus stop amenities are located within the waiting area.

C. Applicability

These standards apply to all public transportation bus stops in Arlington that in whole or in part occupy public rights-of-way or dedicated easements.

D. Placement

1. Placement of all bus stops shall be approved by the Arlington Transit Bureau with consultation with Arlington's Transportation, Engineering, and Operations Bureau to ensure compatibility and consistency with Arlington's transportation planning and operations.

E. Bus Stop Design Standards

1. In accordance with the Americans with Disabilities Act of 1990 (ADA) and subsequent amendments, the following minimum conditions shall be met for bus stops:
   - A firm, stable surface for the passenger loading pad;
   - A minimum clear/unobstructed bus stop passenger loading pad of 5' parallel to the road/curb by 8' perpendicular to the curb (the existing width of a sidewalk may be counted towards the 8' wide perpendicular to the curb area);
   - A maximum cross slope of 1:50 (2%) for the passenger loading pad;
   - Passenger loading pads shall never be placed on storm drain inlets, catch basins, and other obstacles that would make the bus stop and bus stop loading pad inaccessible or create tripping hazards; and,
   - Connection to/from the passenger loading pad, curb, and sidewalk or pedestrian path by an accessible route.

In addition to the minimum ADA conditions, the following minimum Arlington Transit Bureau Standards shall be met for bus stops:

2. The unobstructed ADA passenger loading pad area shall be accessible via the front of the bus and accessible from a bus shelter, bus stop bench, or lean bar (if present or if installed) and the adjacent sidewalk;
3. Passenger loading pads shall never be placed on storm drain inlets, catch basins, and other obstacles that would make the bus stop and bus stop loading pad inaccessible or create tripping hazards;

4. Areas which tend to accumulate standing water shall be avoided or improved;

5. A bus stop in an area with existing on-street curbside parking requires either removal of enough parking to permit the bus to pull off, service the stop, and re-enter the travel lane, or installation of a sidewalk extension/bulb-out to provide passenger access to the bus. Parking shall be prohibited within bus stop zones;

6. If the bus stop is located on a bulb out / curb extension into the roadway, the removal of parking shall not be required; the minimum tangent length of a curb extension is 40 feet. Refer to Arlington County Horizontal Standards H-3.3 Curb Extensions for further information.

7. Near-side bus stops are stops that are located prior to a bus approaching an intersection. Near-side stops shall be at minimum five feet (5’) before an intersection stop bar or crosswalk markings if a stop bar is not present. In cases where there is not a stop bar or crosswalk marking present, near-side stops shall be at minimum five feet (5’) before a stop sign. In cases where there is not a stop bar, crosswalk marking present, or stop sign present, near-side stops shall be at minimum ten feet (10’) before the Effective Radius of the curb. A minimum bus stop zone clearance of one hundred feet (100’) from a stop bar, crosswalk marking, stop bar, or the radius of the oncoming intersection curb is needed to establish a safe near-side bus stop zone. This spacing provides enough room for bus operators to maneuver back into traffic while providing access to alighting passengers and other pedestrians to utilize crosswalks (if present). For a detail, please see Drawing 1.1.

8. Far-side bus stops are stops that are located after a bus has passed through an intersection. Far-side bus stops shall be at minimum sixty feet (60’) after a crosswalk marking and/or the radius of the curb with the bus stop flag and pole being placed fifty feet (50’) after a crosswalk marking and/or the radius of the curb, allowing for a ten foot (10’) buffer zone which allows a bus operator to safely merge back into traffic and clear cars parked in on-street parking spaces. This spacing provides adequate room for a bus to clear both the intersection and the crosswalk to approach and leave the bus stop zone safely. Far-side stops are generally the safest bus stop configuration for pedestrians because buses will not obstruct drivers’ views of crossing pedestrians as they would at near-side stops. For a detail, please see Drawing 1.2;

9. Mid-block bus stops are stops located approximately equidistant from the nearest intersections. In many cases, mid-block stops shall have an on-street parking clearance of one hundred thirty-five feet (135’) to establish a safe bus stop zone. Midblock stops are typically used when passenger origins and destinations cannot be easily served at or near the intersection. Midblock stops are generally not preferred, and the Arlington Transit Bureau will only provide stop locations with midblock typologies in cases of special exception. Midblock stops require the most amount of dedicated space when on-street parking is present and are typically only

provided where midblock crosswalks are present, modifications to the sidewalk (such as curb extension/bulb) are made, and when origin and destinations cannot be adequately served by nearby intersections. The Arlington Transit Bureau highly discourages, but does not prohibit, the use of mid-block stops. For a detail please see Drawing 1.3;

10. Bike racks and scooters shall be placed outside of a bus stop zone. Bike racks and scooters can be placed adjacent to a bus stop zone;

11. Bike-share stations and parklets, where provided, shall be placed outside of, but adjacent to a bus stop zone;

12. If feasible, bus stops and routes shall remain open and accessible while the site is under construction. If it is not feasible for the bus stop to remain open, a temporary bus stop location shall be coordinated with the Arlington Transit Bureau; signs noting the bus stop closure and location of the temporary bus stop shall be installed at all bus stops taken out of service due to construction; all temporary bus stop locations shall be ADA compliant; notification of closure signs installed at bus stops taken out of service shall meet guidelines outlined in Arlington's Title VI policy (https://www.arlingtontransit.com/art/assets/File/Title_VI_Program_FINAL_opt.pdf);
    a. If pedestrian routes to and from a temporary or permanent bus stop is blocked due to construction, alternative routes which must be ADA compliant must be provided;

    b. Alternative routes must have a smooth, continuous hard surface through their entire length and must be signed;

    c. Alternative routes with temporary walkways less than 5 feet wide through their entire length must provide passing spaces 5 feet by 5 feet at intervals no longer than every 200 feet;

    d. Traffic control devices and signs, including variable message signs, must not interfere with accessibility and paths to and from permanent and temporary bus stops;

    e. Where an alternative route to a temporary or permanent bus stop cannot be provided, Maintenance of Traffic (MOT) plans must include a temporary bus stop;

    f. All temporary bus stops must be made ADA compliant to the fullest extent as possible; and

    g. Arlington Transit Bureau must be involved in the planning of traffic control during construction at/near bus stops.

13. Trees, shrubs, and 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. Trees, shrubs and landscaping may be used to distinguish the bus stop from the adjacent sidewalk area or to continue the prevailing pattern of tree planting along a block but shall not interfere with bus operations. This may often mean that, where space allows, street trees in a bus stop would not be along the same alignment as trees or shrubs on the rest of the block. This can help call out the bus stop as a special location on the sidewalk; in these cases, selecting tree species distinct from the prevailing tree species on the street can enhance this effect. Positioning trees and shrubs beyond the ADA required bus stop passenger loading pad and rear door alighting areas preserves the sightline for approaching vehicles and decreases the likelihood that these elements conflict with the path of the bus.

    a. Street trees near bus stop approaches or directly adjacent to bus travel lanes shall be located to avoid conflict with bus. Tree branches that extend into the roadway below 12 feet should be trimmed back at least three feet from the curb; otherwise such branches become an obstacle that the bus operator may not be able to avoid. Grass should not be planted between the sidewalk and the curb at bus passenger loading pad (boarding) nor the rear door alighting areas (to meet ADA requirements, at least five feet parallel to the street and eight feet perpendicular to the street must be hard surface). All landscaping elements shall be maintained so that they do not limit the accessibility or visibility of the stop.

    b. For more information regarding landscape and tree planting guidelines and regulations in Arlington, please visit:
        i. Arlington's Landscape Standards: https://arlingtonva.s3.dualstack.us-east-1.amazonaws.com/wp-content/uploads/sites/38/2017/10/Landscape-Standards-OCT-2017.pdf

    c. Administrative Regulation 4.3: Tree Planting on Public Land: https://arlingtonva.s3.amazonaws.com/wp-content/uploads/sites/38/2018/09/Tree-Planting-on-Public-Land.pdf

14. The width of lanes which buses utilize should be determined based on the available street space and the competing needs of bicyclists, pedestrians, and motorists. The minimum width of a travel lane which is being utilized by a bus is eleven feet (11').

F. Bus Stop Amenities Design Standards

1. Bus Shelters

Bus shelters provide an additional amenity at bus stops and help to keep passengers out of various weather elements including wind, rain, snow, and extreme heat. When providing a

shelter, a minimum of 36" x 48" of clear floor area, entirely within the perimeter of the shelter, is required. Additionally, shelters shall be connected by an accessible route to the bus stop passenger loading pad to comply with ADA and shall not block pedestrian or motorists line of sight. Shelter size will be determined by anticipated service and use, including but not limited to: ridership, trip generators, availability of right-of-way (ROW), and if a stop serves as a transfer location for other bus routes. Advertisements are not permitted in/on shelters in Arlington. All bus shelters design/models installed at bus stops within Arlington shall be approved by the Arlington Transit Bureau.

The following shall be maintained for bus shelters:

- At minimum five feet (5') of pedestrian accessible area and clearance, including clearance, between poles, hydrants and other obstacles;
- Clear pathway from the ADA waiting area inside the shelter to the ADA passenger loading pad, and;
- Clear pathway from the rear door landing path area to the pedestrian path.

Arlington has two standard styles of bus shelters (where ridership or function dictates, various and custom sizes and styles can be accommodated by the manufacturer):

Traditional Shelter (Examples in Drawing 1.4)

- *Brasco International's Slimline (SL) Hip (https://www.brasco.com/products/bus-stop-shelters/slimline/hip/) or equivalent*
    - *12' long x 5' wide x 7' high*
    - *10' long x 4' wide x 7' high for use in constrained settings*

Modern Shelter (Example in Drawing 1.5)

- *Brasco International's Eclipse (EC) Sloped (https://www.brasco.com/products/bus-stop-shelters/eclipse/sloped/) or equivalent*
    - *16' long x 5' wide x 7' high*
    - *12' long x 5' wide x 7' high*
    - *10' long x 3' wide x 7' high for use in constrained settings*

Seating placed within shelters shall not encroach upon the ADA accessibility of the shelter. An area 3' wide and the depth of the shelter shall be provided for wheelchair use within the shelter.

Bus shelter concrete pad size will vary by the type and size of the shelter install. Specific calculations and stamped drawings for each shelter type and concrete pad size shall be obtained from the Arlington Transit Bureau. All bus shelters design/models installed at bus stops within Arlington shall be approved by the Arlington Transit Bureau.

Bus shelter placement shall follow the layout options shown in Drawing No. BS1.0. In cases where recommended layouts are not feasible, bus shelters shall be positioned in such a way to maintain.

- Clear 5' wide route from the waiting area inside the shelter to the boarding area.
- Clear 5' wide route from the back-door alighting area to the pedestrian clear zone.

2. Seating
   A bus stop bench and lean bar qualify as "Seating." A bus stop bench is provided at bus stops which exceed 10 boarding per day and a lean bar is provided at bus stops which exceed 5 boarding per day. Bus stop benches and lean bars are provided at bus stops with and without bus shelters. Bus stop benches and lean bars shall be installed on a paved surface. This surface shall include a 3' x 4'area for wheelchair use and may be part of the backdoor alighting area.

   Bus stop benches and lean bars at bus stop(s) within bus shelter(s) and freestanding shall not hinder the accessibility of the stop by boarding or alighting passengers and bus stop benches shall abide by the following minimum requirements:
   - Bus stop bench(es) and/or lean bar(s) placed outdoors shall not encroach upon the passenger loading pad or the pedestrian clear zone;
   - Ensure clear floor or ground space for wheelchairs in bus shelters with seating (complies with ADAAG Section 4.2.4);
   - Structure supporting vertical or horizontal forces of 250 pounds applied at any point on the seat, fastener, mounting device, or supporting structure; and,
   - Exposed benches: slip resistant and designed to shed water.

   It is preferred that bus stop benches and/or lean bars are placed at minimum three feet (3') from the curb at locations where on-street parking has been removed to create a bus stop zone. If a bus stop is directly adjacent to a travel lane, the minimum distance benches and/or lean bars shall be placed is six feet (6') from the curb. Advertisements are not permitted on benches and lean bars in Arlington.

   Specific for the type of benches and lean bars shall be obtained from the Arlington Transit Bureau. All bus stop benches and lean bars installed at bus stops within Arlington shall be approved by the Arlington Transit Bureau.

3. Lighting and Information Systems
   On a case by case basis two 2-inch HDPE conduits may be placed as required for future uses. See Drawing 1.6 for details.

4. Trash & Recycling Receptacles
   Trash & Recycling Receptacles are required at all bus stops that have shelters.
   Trash receptacles are preferred at all bus stops. Only County approved trash and recycling receptacles shall be installed. In some locations blast resistant designs may be desirable. Trash and/or recycling receptacles shall not infringe upon the passenger loading pad, the rear passenger landing pad, nor the pedestrian clear zone.

5. Newspaper Boxes & Publication Vending
   Newspaper boxes & Publication Vending can provide waiting bus patrons with convenient access to reading material. However, newspaper boxes and publication vending that obstruct access to the passenger landing area, sidewalk, shelter, or posted bus and/or rail information and/or not being maintained shall be removed or relocated. Newspaper boxes

and publication vending shall not be chained or otherwise affixed to the bus stop sign pole, shelter, or bench. A 2’ x 6’ concrete pad may be provided on a case by case basis. Newspaper boxes and publication vending shall not be located within the passenger loading pad, rear passenger landing pad, bus shelters, nor the pedestrian clear zone.

6. Bus Pad
   Bus pads are typically installed at bus stop locations that have a high frequency of service, e.g. greater than four buses per hour. Bus pads shall be at minimum forty-five feet (45’) by either twelve feet (12’) or eleven feet (11’) depending on the width of the travel lane shall include ten inch (10”) thick reinforced concrete with welded wire fabric 6” x 6”– W2.9 x W2.9 over a 6” aggregate base. All bus pad(s) installed at bus stops within Arlington shall be approved by the Arlington Transit Bureau.

G. Materials

1. The standard material used for bus stops is poured in place concrete.

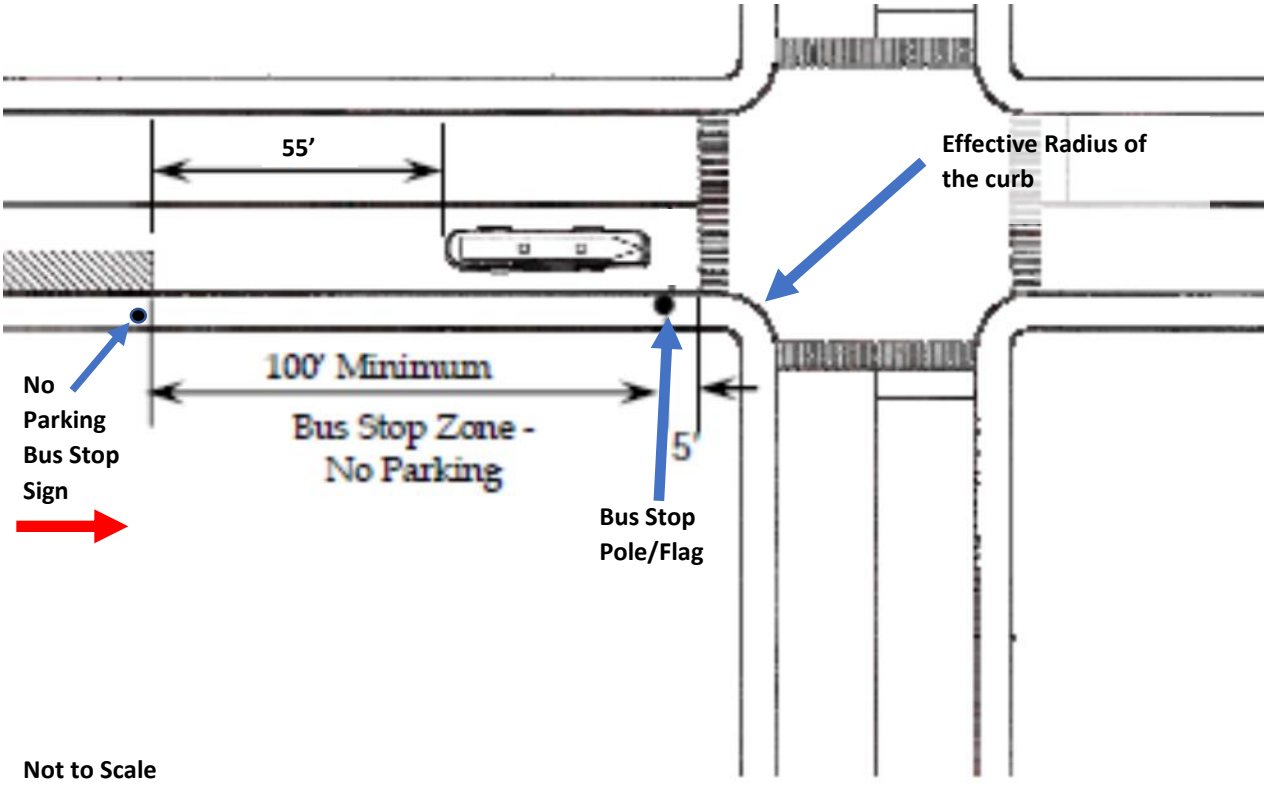
2. Materials other than poured in place concrete may be used in limited installations on a case by case basis.

3. All alternate materials shall be ADA compliant.

4. Bus pads – Shall be 10” thick reinforced concrete with welded wire fabric 6” x 6”– W2.9 x W2.9 over a 6” aggregate base.

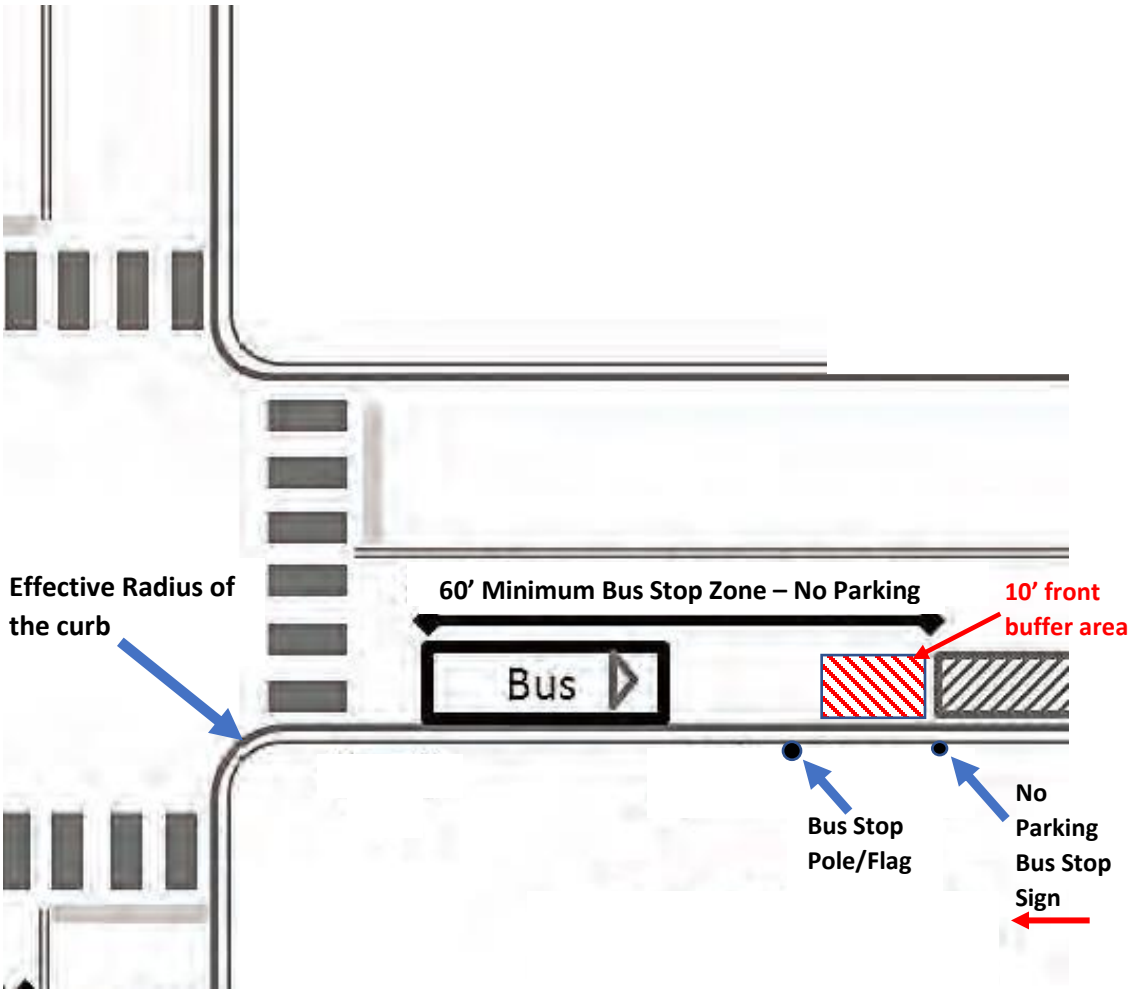
H-3.10 Bus Stops

Drawing 1.1: Near-side Stop



H-3.10 Bus Stops

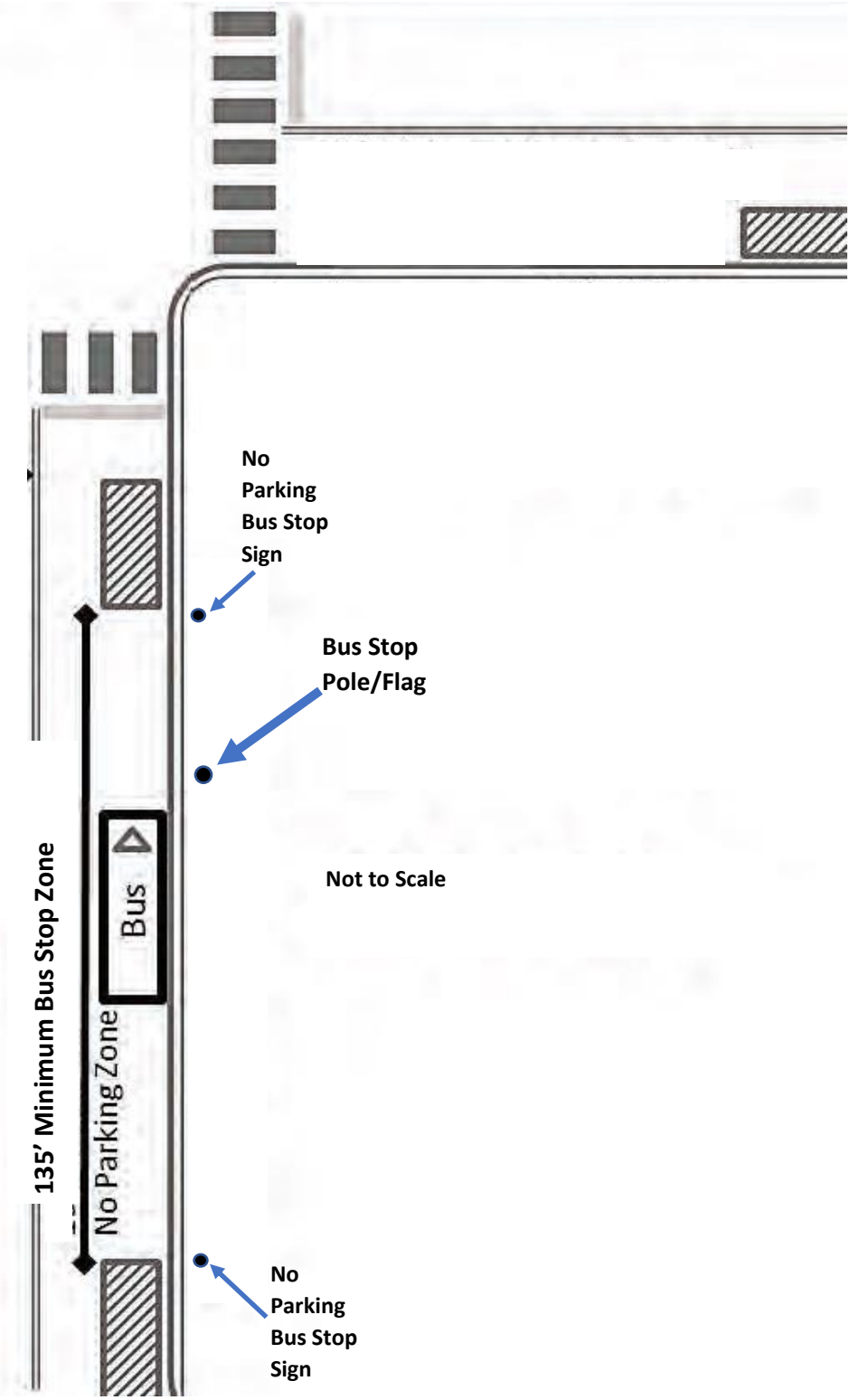
Drawing 1.2: Far-side Stop



Not to Scale

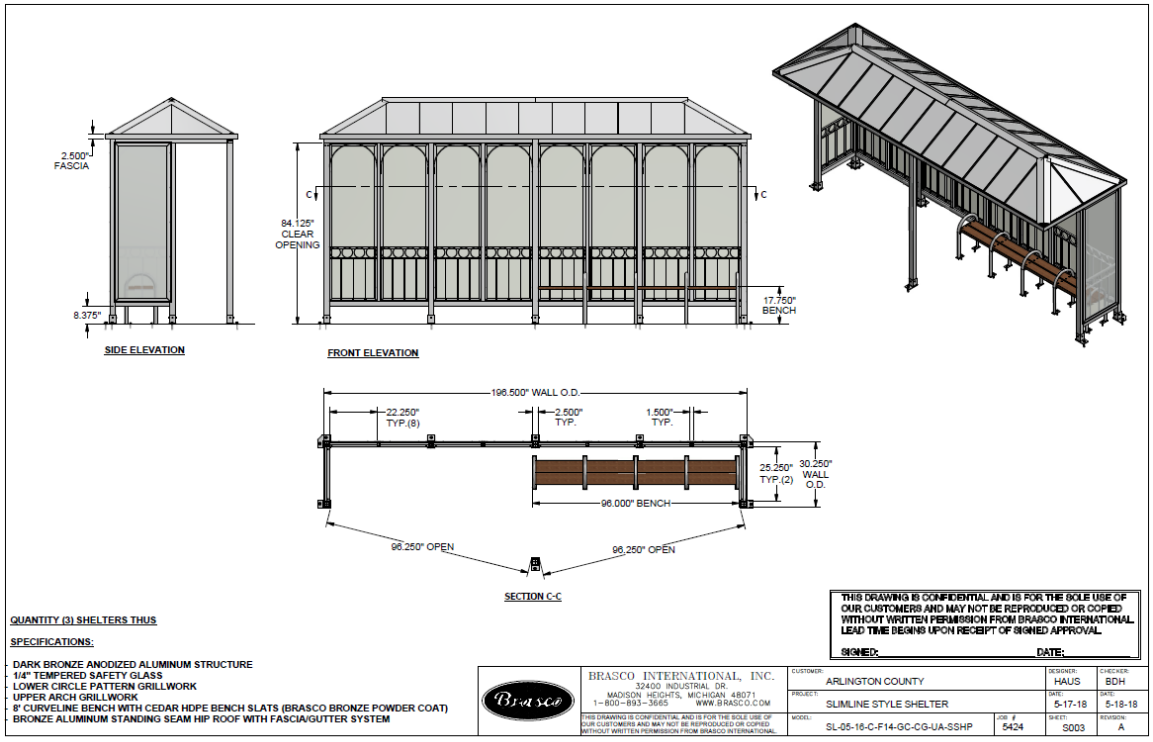
H-3.10 Bus Stops

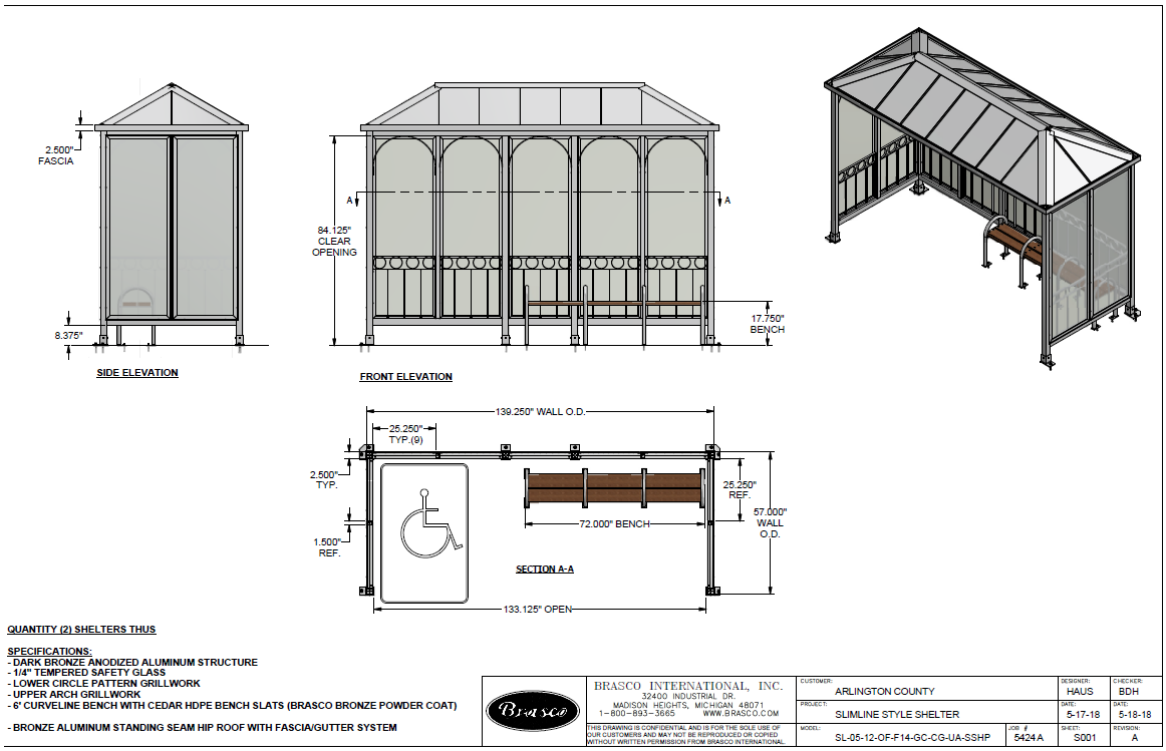
Drawing 1.3: Mid-block Stop



H-3.10 Bus Stops

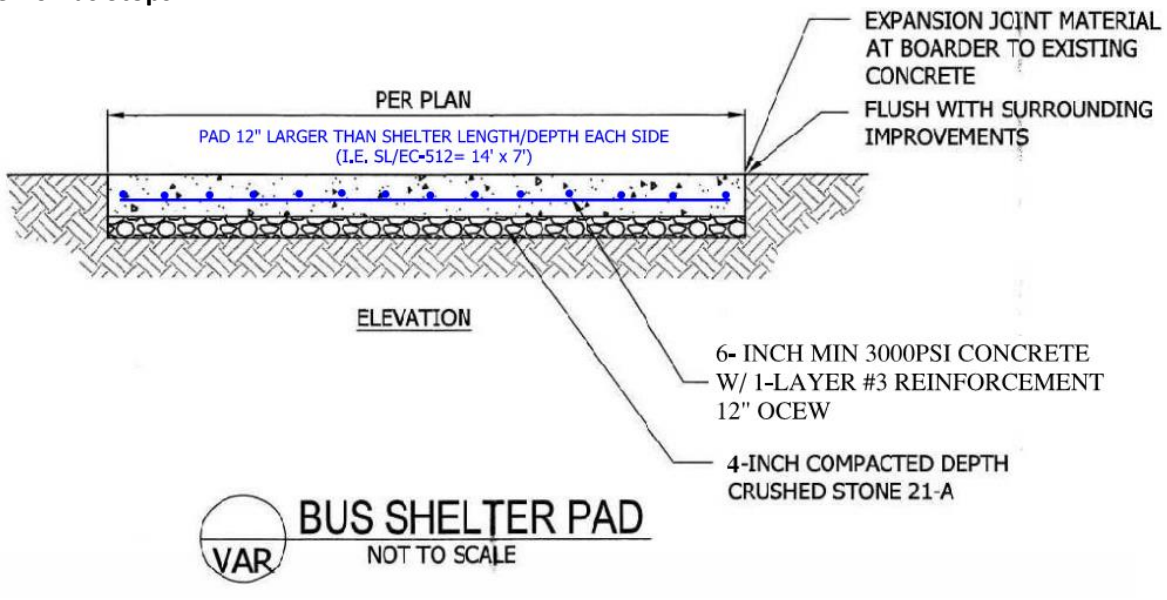
Drawing 1.4: Examples of Brasco International's Slimline (SL) Hip (shop drawings and calculations shall be obtained from the Arlington Transit Bureau)





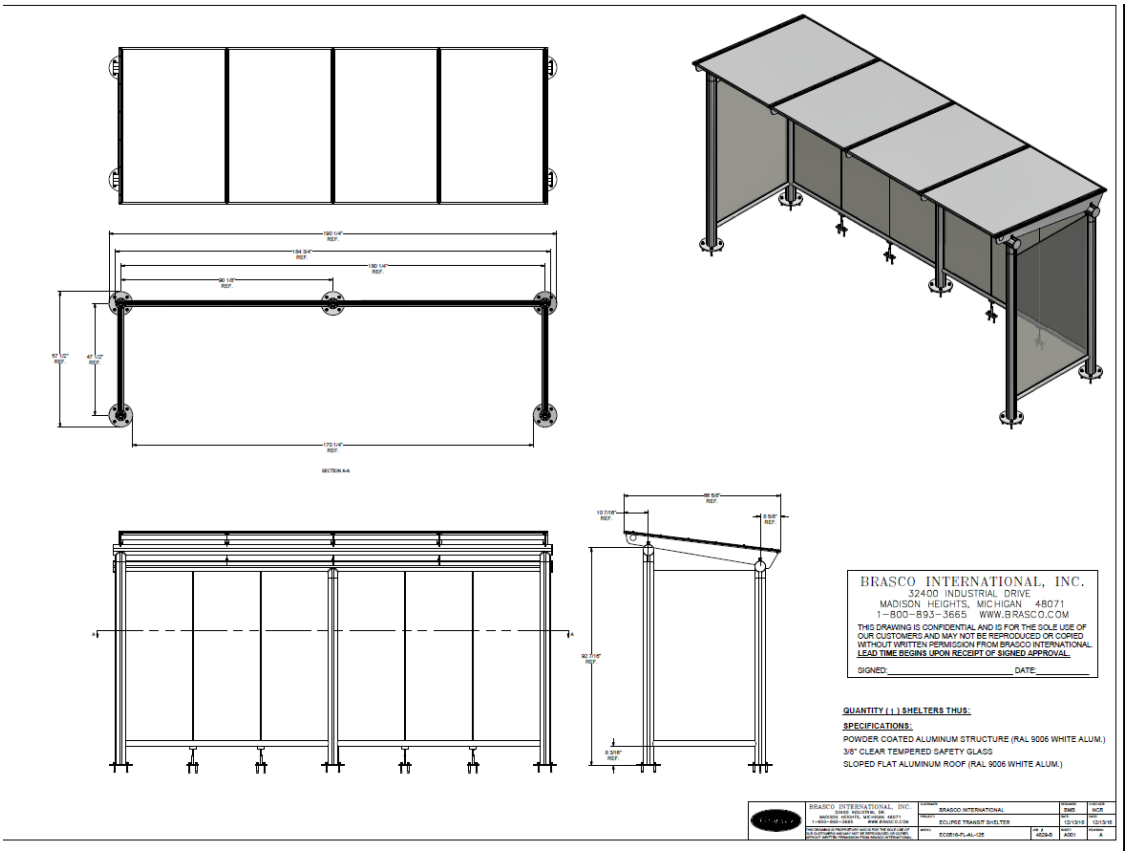
Shelter manufacturer recommendation: a minimum 6-inch-thick, 3000 PSI concrete pad for areas with wind speeds lower than 110 MPH. The contract pad should allow a minimum of 6 inches around the shelter's perimeter to prevent concrete breakage when anchoring. Concrete may or may not require additional reinforcement.

H-3.10 Bus Stops



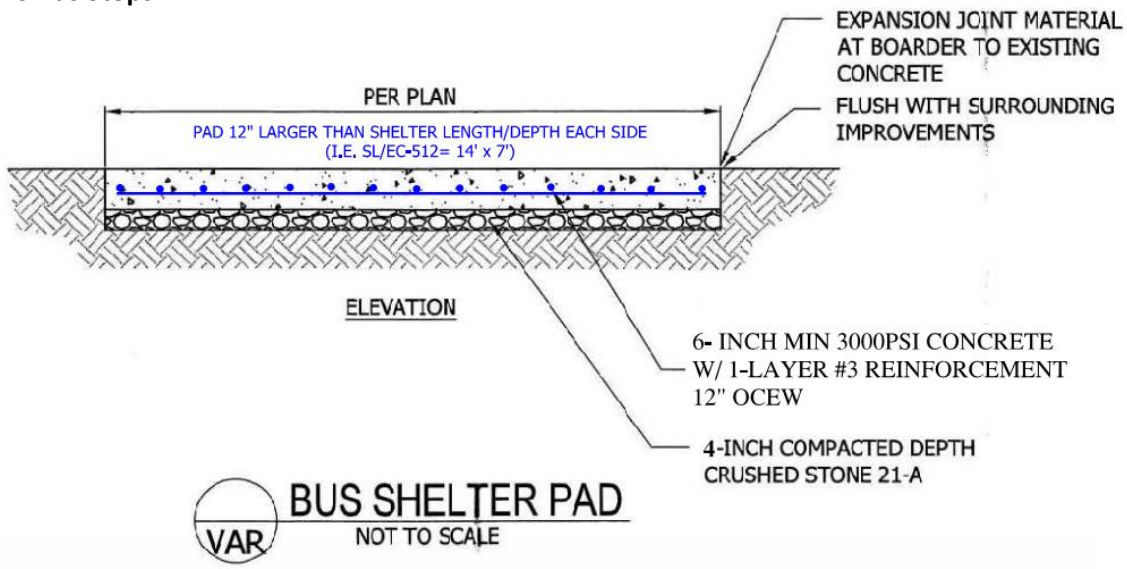
H-3.10 Bus Stops

Drawing 1.5: Example of Brasco International's Eclipse (EC) Sloped (shop drawings and calculations shall be obtained from the Arlington Transit Bureau)

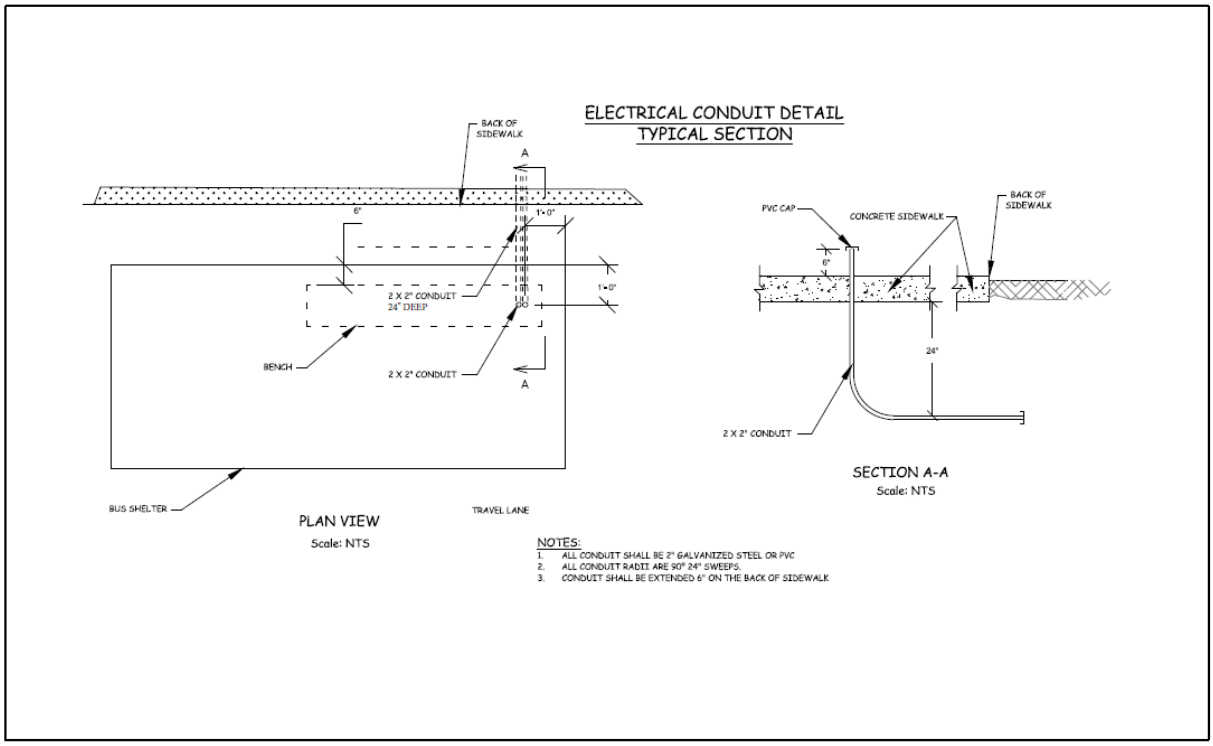


Shelter manufacturer recommendation: a minimum 6-inch-thick, 3000 PSI concrete pad for areas with wind speeds lower than 110 MPH. The contract pad should allow a minimum of 6 inches around the shelter's perimeter to prevent concrete breakage when anchoring. Concrete may or may not require additional reinforcement.

H-3.10 Bus Stops

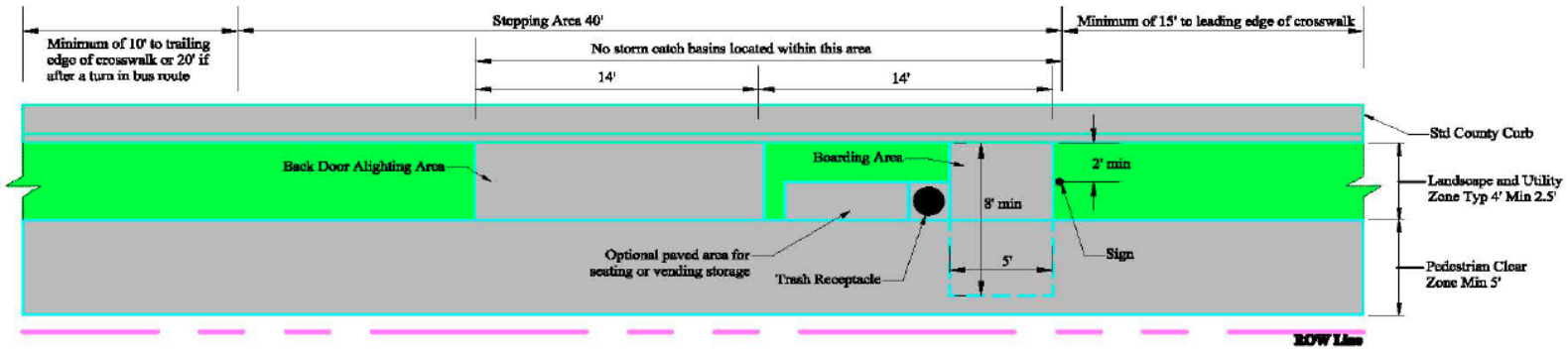


Drawing 1.6: Bus Shelter Electrical Conduit Detail

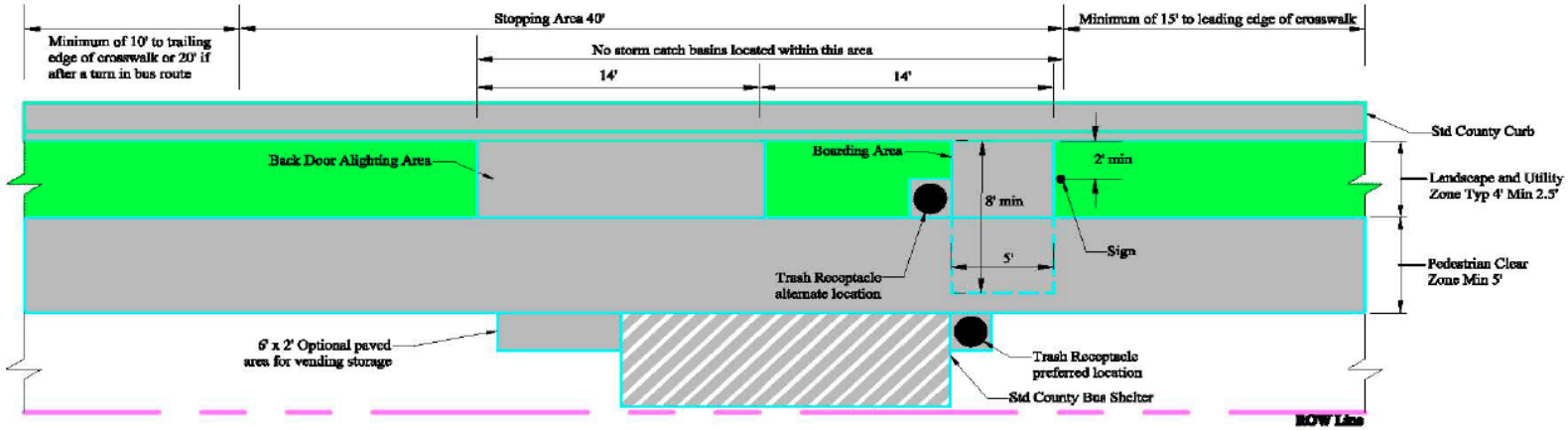


H-3.10 Bus Stops

DETAILS



Typical Bus Stop - No Shelter



Typical Bus Stop - With Shelter

BUS STOPS

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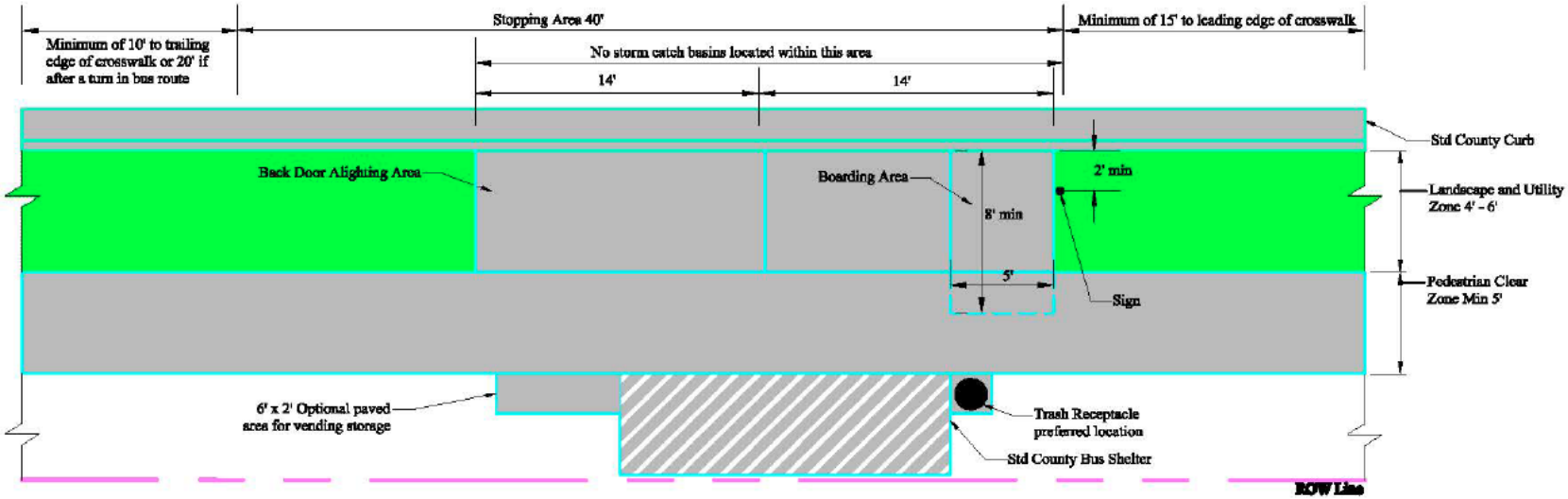
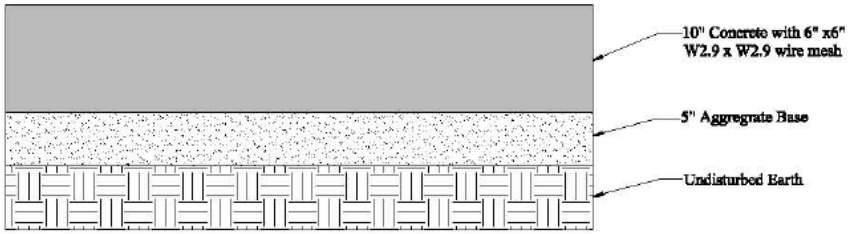


Typical Bus Stop In commerical area

Bus Pad Cross-Section



BUS STOPS

REVISION & DATE

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