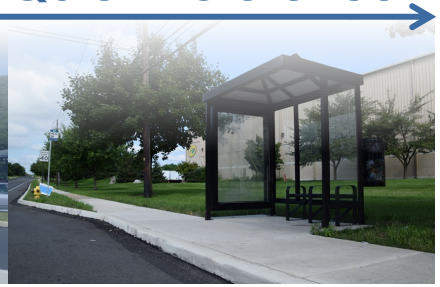
Building Better Bus Stops
Resource Guide

Overview

Bus stops provide a vital connection between public transportation service and the communities they serve. Ensuring bus stops meet the needs of all riders, transit agencies, and the community is essential for providing quality, efficient transit service.

The Building Better Bus Stops Resource Guide supports planning and design of safe, accessible, attractive, and connected bus stops across Pennsylvania. The resource guide provides a common set of tools and best practices for municipalities, transit agencies, planners, and engineers to encourage consideration and incorporation of transit in planning and design.

PPTA
Pennsylvania Public Transportation Association

pennsylvania
DEPARTMENT OF TRANSPORTATION

This Quick Reference provides highlights from the full Building Better Bus Stops Resource Guide available at: ppta.net/pages/betterbusstops

Resource Guide Contents

The following is a summary of what is included in the Building Better Bus Stops Resource Guide and summarized in this Quick Reference.

[1] Planning & Policy Resources

Summary of resources and tools available to plan for better bus stops.

Appendix A - Model Ordinance

For inclusion into a local Zoning Ordinance or Subdivision and Land Development Ordinance.

Appendix B - Plan Review Checklist

Guide for planners, engineers, and design reviewers when evaluating design plans including bus stops.

[2] Design Resources

Design guidance focused on improving passenger experiences, bus operations, and community connections at bus stops.

[3] Bus Stop Typologies

Typical layouts and configurations for eight (8) different types of bus stops based on local environment and context.

Part 1—Planning and Policy Resources of the **Building Better Bus Stops Resource Guide** identifies tools to incorporate and consider public transportation in land use plans and policies. It provides guidance about how to incorporate fixed route bus services and stops into comprehensive plans, land development ordinances, and other transportation plans. It emphasizes partnerships in achieving effective transit planning. It also introduces **Appendix A—Model Ordinance Language** and **Appendix B– Plan Review Checklist**.

Public Transportation Benefits

Delivers Economic Opportunity
$10 billion/year statewide in economic activity

Safer than a car
10x safer/mile

Saves money
Household savings of $10,000/year by living with one less car

Decreases gas consumption
1 passenger mile = 1/2 fuel consumption of private vehicle

Reduces air pollution
1 passenger mile = 95% less CO, 92% less VOCs, 50% less CO2 and NO

Increases Mobility
For ALL riders

Encourages Healthier Habits
2/3 of riders walk to bus stops

Sources: American Public Transportation Association (APTA) and Pennsylvania Public Transportation Association (PPTA)

Public Transportation and Land Use

Public transportation is inherently linked to the people it transports *and* the land uses those people frequent. Public transportation moves people between work, shopping, medical appointments, leisure activities, and home.

In Pennsylvania, municipalities have the power to plan and regulate land use. Public transportation agencies or authorities are responsible for planning and operating transit services, including fixed route bus service. While roles and responsibilities are separated, land use and transit are closely related. Land use development and design directly impact public transportation services and ridership.

Coordination between municipalities, transit agencies, property owners, developers, and residents can increase the use of public transit, offering numerous community benefits. Municipalities can encourage transit agencies to serve their citizens through transit-supportive land use and development decisions.

Municipal Planning Tools Supporting Public Transportation

Public transportation is a vital component of the mobility network in many communities across Pennsylvania. Municipal planning should consider how public transportation interfaces with existing and future land uses to maximize benefits for transit riders and the community.

Public transportation should be considered and incorporated into a variety of local government plans and studies, including, but not limited to, the following typical municipal planning documents:

- Comprehensive Plans
- Official Map and Ordinance
- Capital Improvement Plans
- Economic Development/ Revitalization Plans
- Open Space/Recreation Plans
- Corridor/Special Area Plans
- Active Transportation Plans

See Resource Guide Page 1-4

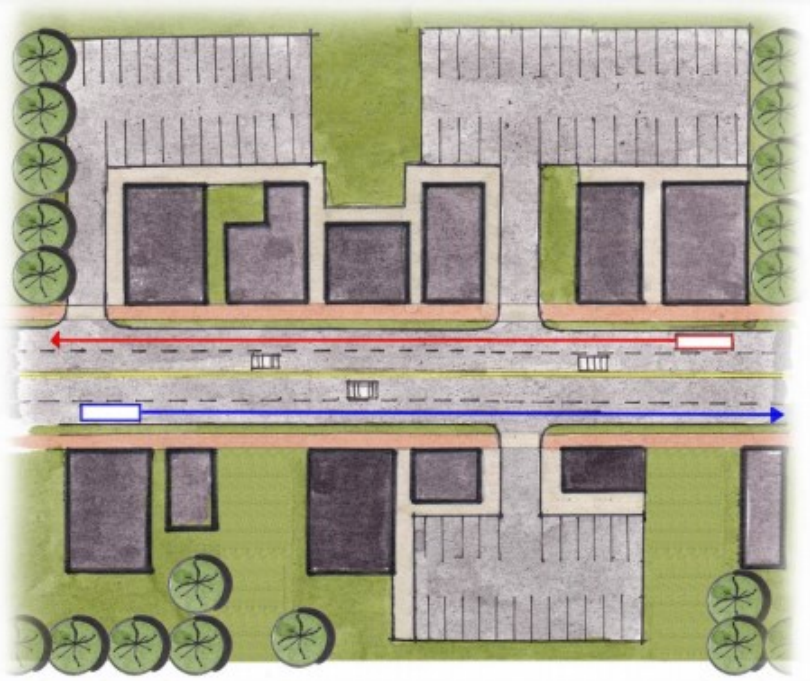


Image Credit: LANTA Transit Supportive Land Use for the Lehigh Valley, September 2013

Above: Sample corridor with fixed route bus transit service shows how local land use regulations impact and support transit. The site layout, building orientation, driveway/parking configurations, and pedestrian infrastructure provide safe, convenient and attractive connections between the bus route and destinations. This transit supportive design allows buses to operate on their desired route without deviating to serve specific locations.

Local land use regulations and design requirements can play a key role in facilitating efficient and high quality public transportation.

Steps: Incorporating Public Transportation into Municipal Planning

Evaluate Existing Conditions

- Existing Stop and Route Locations
- Key Destinations
- Transit Dependent Populations
- Service Frequency
- Ridership
- Access

Identify Future Needs

- Future Growth
- Land Use Changes
- Transit Oriented Development
- Demographic Trends

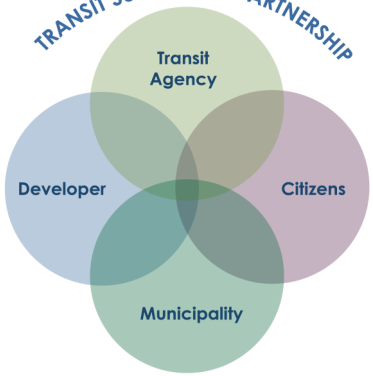
Develop Recommendations

- Coordinate with Transit Service Providers
- Implement Transit-Supportive Land Use and Infrastructure

See Resource Guide Page 1-6

Building Partnerships

Transit Supportive Partnerships help to proactively incorporate transit into municipal planning and design, strengthening and supporting transit as an accessible and viable transportation option.



Local Transit Agency Coordination

Transit agencies and authorities are responsible for planning and evaluating transit services within their service area. Service planning and longer range transit planning processes are opportunities for communities to provide input regarding the local vision and needs for transit. Municipalities should coordinate with transit providers for **Service Planning, Transit Development Plans,** and **Land Development Plan Review.**

See Resource Guide Page 1-12

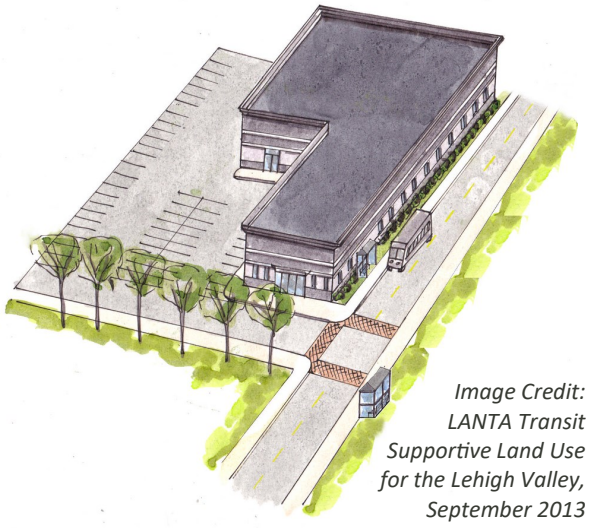


Image Credit: LANTA Transit Supportive Land Use for the Lehigh Valley, September 2013

Above: Example showing transit supportive site plans for industrial/office and commercial buildings. Sidewalks, crosswalks, and overall site design provide safe and convenient connections for transit riders.

Best Practices: Transit Supportive Land Use and Design

The Pennsylvania Municipalities Planning Code (MPC) enables municipalities to enact Zoning Ordinances and Subdivision and Land Development Ordinances (SALDOs) to protect public health, safety, and welfare and implement the comprehensive plan. Municipalities can incorporate transit supportive design into Zoning Ordinances and SALDOs to accommodate and support public transportation.

Land Use

- Encourage Mixed-Use
- Permit Higher Density
- Focus Development along Existing Transit Routes

Site Design

- Reduce Barriers to Transit Access
- Require Pedestrian Networks
- Relocate Parking and Car Access
- Accommodate Transit Vehicles
- Incorporate Access Management

Parking

- Reduce Parking Minimums
- Price On-street Parking Appropriately
- Require Bicycle Parking

Pedestrian / Bicycle Connections and Amenities

- Require Sidewalks
- Require Marked Crosswalks
- Encourage Landscaping/Streetscaping
- Promote On-road and Off-road Bicycle Facilities

Bus Stops

- Safe
- Accessible
- Attractive
- Convenient

See Resource Guide Page 1-8

Strengthening Partnerships

PennDOT Connects
Planning with our communities

PennDOT Connects is focused on promoting collaboration with local governments, MPOs/RPOs, and transit agencies at the beginning of a project; increasing efficiency and cost effectiveness.

Implementation Resources

Implementing bus stop improvements is not the sole responsibility of one entity. Rather, enhancements to the built environment, including those that support public transportation, are made over time through public and private investment in the community. Part 1 of the Building Better Bus Stops Resource Guide includes reference to resources focused on implementation:

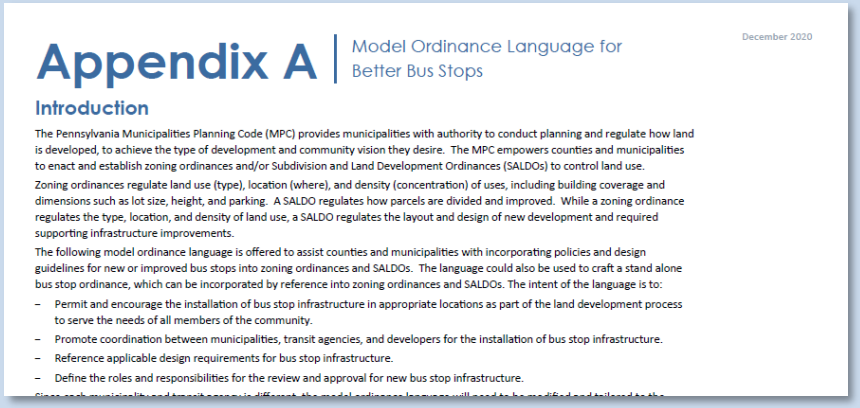
- Transportation Improvement Projects
- Land Development Projects
- Public-Private Partnerships
- Funding Sources

See Resource Guide Page 1-17

Model Ordinance Language

Appendix A of Building Better Bus Stops Resource Guide includes model ordinance language to incorporate policies and design guidelines for new or improved bus stops into municipal zoning ordinances and SALDOs. The Model Ordinance Language contains:

- Definitions for common bus stop elements
- Bus stop location and design guidance
- Requirements for coordinating potential bus stop locations with transit agencies based on development location/type
- Specific design guidelines and ADA requirements for bus stop infrastructure: ADA loading pads, bus shelters, benches, and other street furniture
- Agreement or permit requirements for installation and maintenance of bus stop infrastructure.



Appendix A | Model Ordinance Language for Better Bus Stops

December 2020

Introduction

The Pennsylvania Municipalities Planning Code (MPC) provides municipalities with authority to conduct planning and regulate how land is developed, to achieve the type of development and community vision they desire. The MPC empowers counties and municipalities to enact and establish zoning ordinances and/or Subdivision and Land Development Ordinances (SALDOs) to control land use.

Zoning ordinances regulate land use (type), location (where), and density (concentration) of uses, including building coverage and dimensions such as lot size, height, and parking. A SALDO regulates how parcels are divided and improved. While a zoning ordinance regulates the type, location, and density of land use, a SALDO regulates the layout and design of new development and required supporting infrastructure improvements.

The following model ordinance language is offered to assist counties and municipalities with incorporating policies and design guidelines for new or improved bus stops into zoning ordinances and SALDOs. The language could also be used to craft a stand alone bus stop ordinance, which can be incorporated by reference into zoning ordinances and SALDOs. The intent of the language is to:

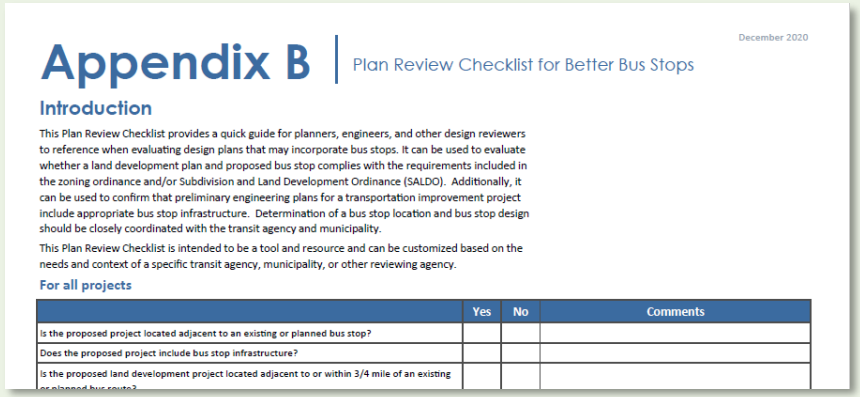
- Permit and encourage the installation of bus stop infrastructure in appropriate locations as part of the land development process to serve the needs of all members of the community.
- Promote coordination between municipalities, transit agencies, and developers for the installation of bus stop infrastructure.
- Reference applicable design requirements for bus stop infrastructure.
- Define the roles and responsibilities for the review and approval for new bus stop infrastructure.

See Resource Guide Appendix A

Plan Review Checklist

Appendix B of the Building Better Bus Stops Resource Guide includes a Plan Review Checklist for planners, engineers, and other design reviewers. It can be used to evaluate whether a land development plan or other transportation improvement plan includes appropriate bus stop infrastructure. Determination of a bus stop location and bus stop design should be closely coordinated with the transit agency and municipality. The checklist includes general requirements for:

- ADA Loading Pads
- Bus Stop Signs
- Benches
- Bus Shelters



Appendix B | Plan Review Checklist for Better Bus Stops

December 2020

Introduction

This Plan Review Checklist provides a quick guide for planners, engineers, and other design reviewers to reference when evaluating design plans that may incorporate bus stops. It can be used to evaluate whether a land development plan and proposed bus stop complies with the requirements included in the zoning ordinance and/or Subdivision and Land Development Ordinance (SALDO). Additionally, it can be used to confirm that preliminary engineering plans for a transportation improvement project include appropriate bus stop infrastructure. Determination of a bus stop location and bus stop design should be closely coordinated with the transit agency and municipality.

This Plan Review Checklist is intended to be a tool and resource and can be customized based on the needs and context of a specific transit agency, municipality, or other reviewing agency.

For all projects

	Yes	No	Comments
Is the proposed project located adjacent to an existing or planned bus stop?			
Does the proposed project include bus stop infrastructure?			
Is the proposed land development project located adjacent to or within 3/4 mile of an existing or planned bus route?			

See Resource Guide Appendix B

Part 2—Design Resources of the **Building Better Bus Stops Resource Guide** provides guidance related to the design of bus stops. It covers fixed route bus stop placement, configuration, and key elements, including ADA accessibility and pedestrian access. It also provides guidance for the placement, design, and maintenance of ADA loading pads, clear zones for waiting areas, and other bus stop amenities. Shelters, benches, bicycle parking, lighting, landscaping, and other amenities can increase the comfort and convenience of passengers and also help to make the bus stop more attractive.

Basic Bus Stop Design Principles

Accessible to everyone.

Safe, convenient, and comfortable location.

Visible and easily identifiable.

Good pedestrian access and connections.
Well integrated with surroundings.

Includes amenities to make the wait comfortable.
Supports efficient and effective bus operations.

Source: Adapted from Memphis Area Transit Authority (MATA) Bus Stop and Accessibility Guidelines, 2017

Bus Stop Design

Bus stops are gateways to public transportation services and a key element of a multimodal transportation system. Bus stop design directly impacts public transportation riders in terms of accessibility, safety, comfort, and convenience. Additionally, the bus stop design impacts the quality, efficiency, and cost-effectiveness of public transportation operations. Each bus stop is unique and the design must consider the site specific context, potential users, roadway and roadside features, and land use context.

Bus stop designs should be developed through coordination with the public transit agency, owner of the roadway, and the adjacent property owner, if applicable. Additionally, provisions and agreements for ongoing maintenance should be identified prior to installation. Bus stops should be more than a sign on a post; they are a community asset, focal point of the streetscape, and a public gathering space.

Steps: Planning and Designing a Bus Stop

Outlined below are key steps for planning and designing new or improved bus stops. Coordinate with the transit agency regarding specific steps, policies, and practices.

[1] Identify

Identify potential for a new or improved bus stop during planning/design for projects with one of the following criteria:

- Transportation improvement project nearby an existing or planned bus route
- Land development project nearby, particularly when it may generate transit trips
- Community request for bus stop enhancements

[2] Evaluate

Coordinate with the transit agency and evaluate need, location, and feasibility of a new or improved bus stop.

No new or improved bus stop

The transit agency may determine that a bus stop is not necessary or feasible based on current conditions, but could be needed in the future. Consider reserving right-of-way, providing easements, or installing pedestrian infrastructure to support a future stop.

[3] Design

- Coordinate with transit agency, municipality, roadway owner, and adjacent property owner, as needed
- Determine bus stop placement and configuration
- Determine bus stop elements and amenities
- Obtain necessary permits/approvals and execute maintenance agreements

See Resource Guide Page 2-1 and 2-2

Key Factors: Evaluating Bus Stop Locations

Designing a bus stop starts by determining demand for the stop and selecting a proper location, which requires consideration of a number of factors.

Land Use
- Context and character
- Transit generators

Amenities
- Needs of riders
- Space

Ridership, Demographics and Equity
- Population and employment density
- Potential ridership
- Low-income and minority populations

Transit Operations and System Performance
- Stop spacing
- Stop serving opposite direction
- Transfers
- Bus schedule/travel time
- Operational and capital costs

Safety and Security
- ADA compliant boarding and alighting area
- Visibility and lighting
- Sight distance for pedestrians and drivers
- Roadway geometry
- Sight line obstructions

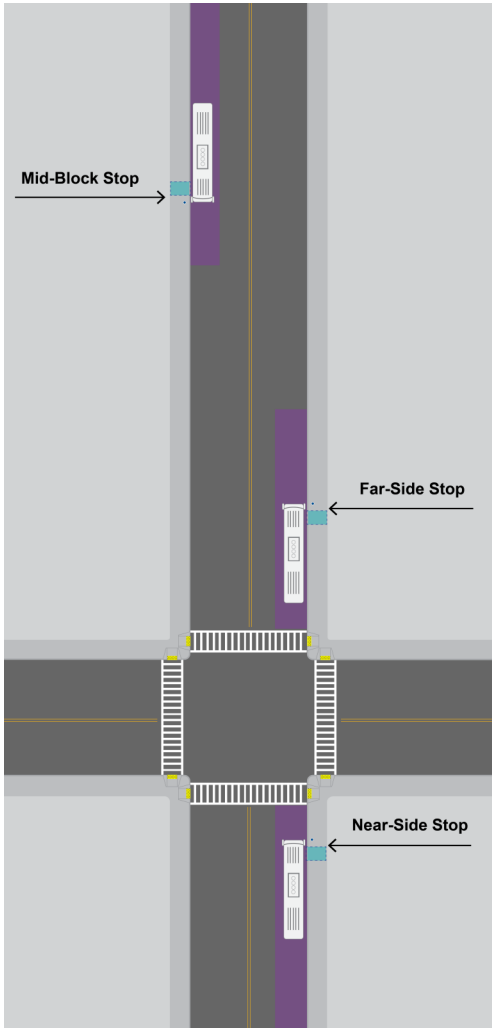
Pedestrian Connections and Accessibility
- Distance to destinations
- Pedestrian infrastructure
- ADA compliance
- Crosswalks

Roadway Operations
- Traffic volume and speed
- Travel lanes
- Driveways and intersections
- On-street parking and loading zones

See Resource Guide Page 2-3 and 2-4

Bus Stop Placement

Bus stops can be placed at three basic locations along a roadway. Alternatively, bus stops can be placed off a public roadway within the site of a transit center or generator.



See Resource Guide Pages 2-5 to 2-9

Bus Stop Configuration

Roadside or Curbside Stops

Roadside or curbside stops are located along the side of a roadway with no modification to the edge of the roadway or curb. Roadside stops are the most common type of bus stop configuration. Roadside stops may be placed within the travel lane, on-street parking lane, or shoulder.

See Resource Guide Pages 2-10 to 2-13

Curb Extensions

Stops with a curb extension or bus bulb have a physical extension of the curb line and sidewalk area into the parking lane or shoulder. This configuration creates additional space for the bus stop and allows the bus to stop in the travel lane. A wider sidewalk improves pedestrian circulation and creates additional space for shelters, benches, waste receptacles, and bicycle racks.

Bus Bays

A bus bay, which can also be referred to as a pull out or turn out, includes a designated area for buses to stop that does not block a travel lane while loading and unloading passengers. Bus bays require the curb to be setback away from the travel lane. This stop configuration type allows traffic to pass around the stopped bus.

Special Stops

Special stop configurations may be warranted in areas where there is high ridership, transfers, or special safety considerations. Examples include Transfer Center, Super Stop or Mobility Hub, and Boarding Island.

Other Siting and Design Considerations

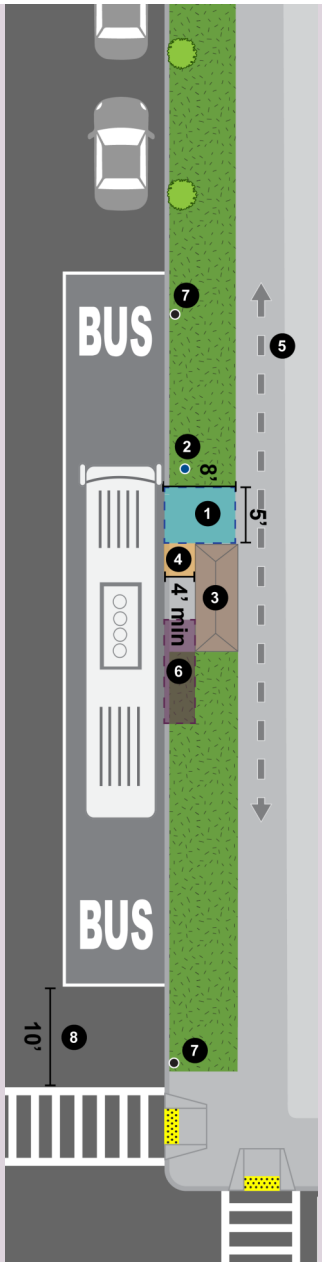
The design of a bus stop should be based on the size and dimensions of transit vehicles servicing the stop. Bus stop design considerations related to the transit vehicle include length, width and clearances, and turning radii. The most common sizes of buses operating in Pennsylvania are 35’ and 40’, but vary from agency to agency. Other siting and design considerations are listed below.

- Driveways and Access Management
- Sight Lines and Sight Distance
- Curb Management and Parking Restrictions
- Bicycle Lanes
- Pavement Markings and Signage
- Pavement Material
- Traffic Signals
- Transit Signal Priority (TSP)
- Queue Jump and Bypass Lanes
- Roundabouts

See Resource Guide Pages 2-13 to 2-17

Basic Bus Stop Elements

Bus stop elements are curbside facilities located at a bus stop to provide safe access to the bus service, make the stop visible, and enhance the comfort of waiting passengers.



1 ADA Loading Pad

- Firm and stable surface
- Minimum clear length of 8' measured perpendicular to the roadway
- Minimum clear width of 5' measured parallel to the roadway

2 Informational Signage

- Minimum 2' between the sign support and the curb/edge of the roadway
- Not obstructing pedestrian route
- Mounted on a post (or a shelter) that does not include any traffic control devices

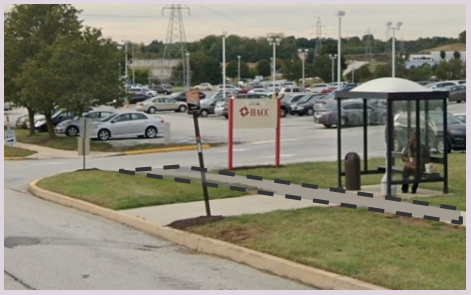
3 Shelter, Bench, Bicycle Parking, Lighting, Trash Receptacle, and other Amenities (optional)

- Locate amenities to ensure they do not obstruct access to the bus stop or the pedestrian access route
- Consider maintenance responsibilities and requirements before installation

4 Accessible Route

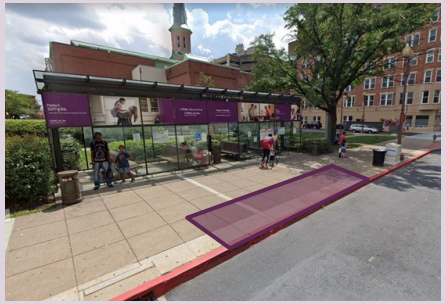
- Desirable minimum width of 4' with a required minimum clear width of 3'

5 Accessible Route (through the stop and to destinations)



- Firm, stable, and slip resistant surface
- Desirable minimum width of 5' with a required minimum clear width of 4'

6 Clear Zone for Rear Door and Waiting Area



- Level area free of obstructions to wait for the bus and access the bus via the rear door

7 No Parking Signs or Designation (if applicable)

- No parking may be designated with signs, painted curbs, and/or pavement markings
- Municipalities are responsible for no parking designations

8 Safety Buffer

- Buffer distance between the end of the bus stop zone and a crosswalk, intersection, or driveway

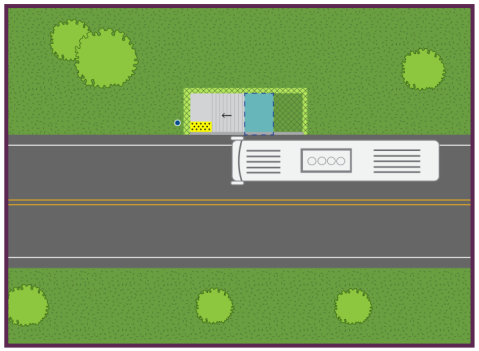
Landscaping / Stormwater

- Locate trees, landscape, and stormwater management features to ensure they do not obstruct access for pedestrians or visibility

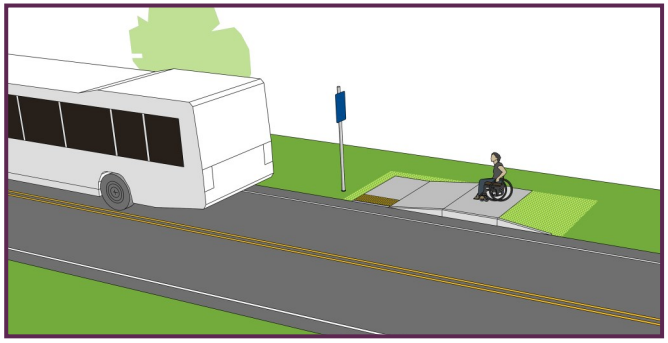
See Resource Guide Pages 2-18 to 2-30

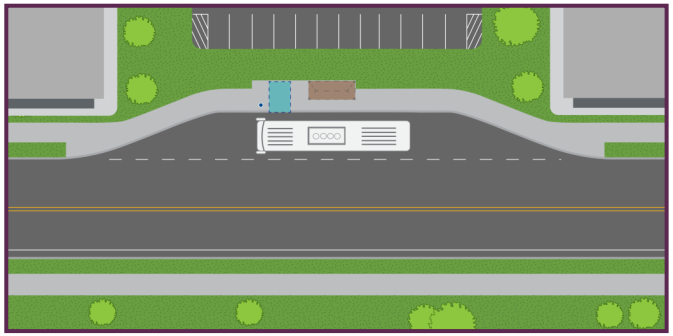
Part 3—Bus Stop Typologies of the **Building Better Bus Stops Resource Guide** presents graphical renderings and notes regarding design treatments for eight different bus stop configurations. The bus stop typologies reflect different community contexts and different levels of supportive infrastructure for bus stops. While the bus stop typologies do not cover every type of bus stop and all aspects of design, they highlight common bus stop elements and design considerations, especially in rural and suburban settings.

Rural/Suburban Stops

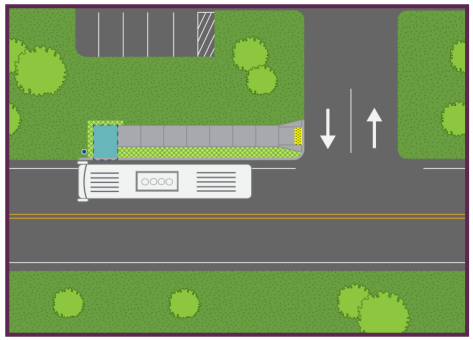


Curb Height ADA Loading Pad



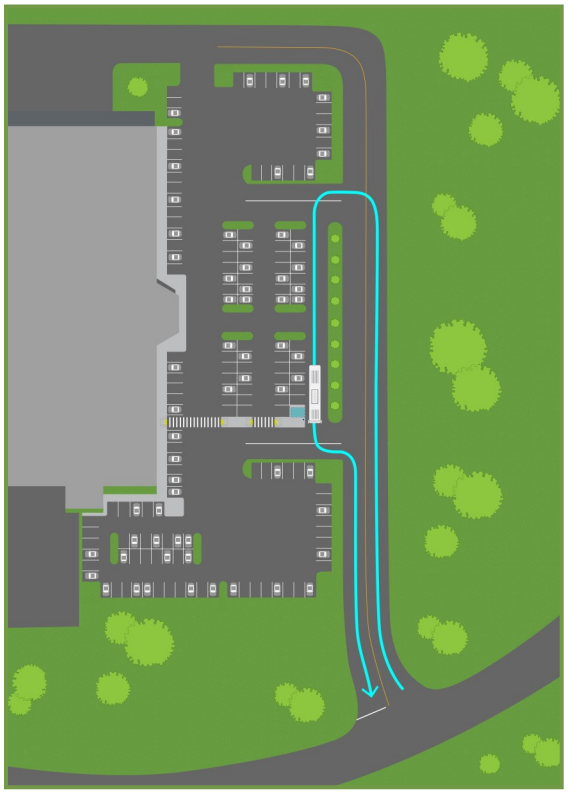


Closed Bus Bay



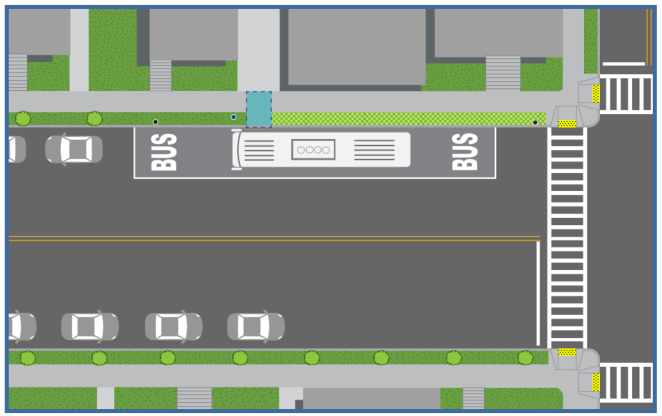
Commercial Driveway

Suburban Stops—Within a Site

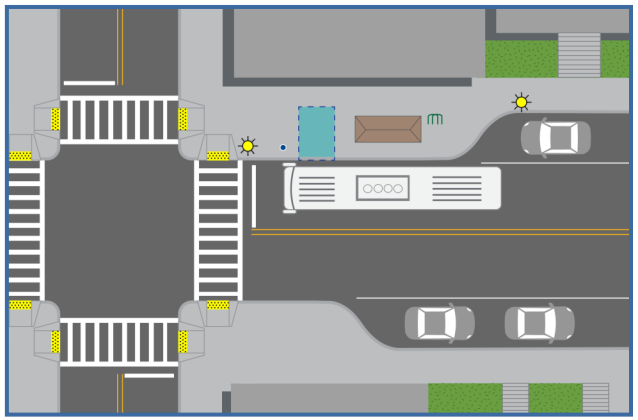


See Resource Guide Part 3

Urban/Suburban Stops



Far-Side Basic Stop



Near-Side Stop with Curb Extension and Shelter