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# Toolkit for the Assessment of Bus Stop Accessibility and Safety



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## Introduction

Bus stops are a key link in the journey of a bus rider. For people with disabilities, inaccessible bus stops often represent the weak link in the system and can effectively prevent the use of fixed-route bus service. Physical, cognitive and psychological barriers associated with bus stops can severely hamper bus ridership by the disability community, thus limiting their mobility and potentially leading to increased paratransit use and the resulting increase in costs.

This toolkit is primarily targeted toward staffs at transit agencies and public works departments who are responsible for bus stop design and placement. The toolkit is intended to be a convenient resource that can be used to enhance the accessibility of specific bus stops or help in the development of a strategic plan to achieve system-wide accessibility. Disability community representatives should also find materials in these pages that can be used to advocate for accessibility improvements and barrier removal.

We encourage you to selectively draw on the sections that are most relevant to your situation.

### Use the information and forms in this toolkit to:

- Determine minimum Americans with Disabilities Act (ADA) and Americans with Disabilities Act Accessibility Guideline (ADAAG) requirements.
- Enhance bus stop accessibility through universal design.
- Inventory bus stops.
- Develop a strategic plan for system-wide accessibility.
- Advocate for improvements.

This 2014 updated toolkit provides amendments to the original text necessary to bring the guidance for bus stop accessibility up to date and help ensure that users are applying the most recent or more stringent regulatory requirements. The U.S. Access Board, through an extensive outreach effort, revised the Americans with Disabilities Act Accessibility Guidelines (ADAAG) and published the final version, titled Americans with Disabilities Act—Architectural Barriers Act Accessibility Guidelines (ADA-ABA AG), of the amended text on July 23, 2004. The U.S. Department of Transportation adopted the revised ADA-ABA AG in its Final Rule, Department of Transportation ADA Standards for Transportation Facilities (2006) (DOT's ADA Standards, 2006) with modifications on the following requirements:

- Location of Accessible Routes (206.3)
- Detectable Warnings on Curb Ramps (406.8)
- Bus Boarding and Alighting Areas (810.2.2)
- Rail Station Platforms (810.5.3)

These standards became effective November 29, 2006. See DOT's notice adopting these standards [[www.fta.dot.gov/12325\\_5936.html](http://www.fta.dot.gov/12325_5936.html)] and applying them to facilities used by state and local governments to provide designated public transportation services, including bus stops and stations (810.2.2), and rail stations (810.5.3).

The U.S. Department of Justice adopted the revised ADA-ABA AG in its release of the 2010 ADA Standards for Design fully effective on March 15, 2012.

The Public Rights-of-Way Accessibility Guidelines (PROWAG) are, as of this update, undergoing revision. The PROWAG will likely alter the provisions for access to bus stops and other public rights-of-way elements affecting access to bus stops. This update of the toolkit includes minimal PROWAG standards noted with an "\*" as they are not federal regulatory *requirements*.

# Toolkit for the Assessment of Bus Stop Accessibility and Safety

While PROWAG addresses design guidelines for accessible sidewalks, street crossings and other elements of the public rights-of-way, ADAAG provides guidelines for public accommodation in commercial facilities and state and local government facilities, including transportation facilities. The PROWAG and ADAAG are *guidelines* issued by the U.S. Access Board and the DOT's ADA Standards (2006) are *standards* issued and enforced by the U.S. DOT. Standards are minimum requirements and enforced by the issuing agency. Guidelines are thoroughly developed recommendations supported by a synthesis and analysis of the current literature, expert opinion, and open forum commentary.

Users are cautioned to make certain that state and local codes relating to public rights-of-way elements and bus stops in the public right-of-way are researched to ensure that the most stringent (most accessible) requirement is met. Several states have issued accessibility design standards that mirror the PROWAG guidelines and therefore exceed the minimum standards of the DOT's ADA Standards (2006). To guarantee compliance with codes and standards adopted by municipalities, users of this toolkit must also make sure that they know the state and local standards.



## Myths of Bus Stop Accessibility

### **MYTH 1: Only a small percentage of the transit ridership will benefit from bus stop accessibility improvements.**

- Accessibility improvements for people with disabilities enhance the usability of transit systems for all riders. For example, paving a grassy surface to serve as a bus stop boarding and alighting area provides a stable surface for waiting patrons; adequate lighting would help minimize the security issues of using the bus after dark; and good information reduces ambiguity of the system. Accessibility improvements should be viewed within the context of general system usability.
- Accessibility improvements also benefit people with a range of disabilities, from physical conditions affecting mobility, stamina, sight, hearing, and speech to other conditions, such as emotional illness and learning disorders. Such disabilities may or may not be evident to others. The percentage of the U.S. population affected by a condition that constitutes a disability under the ADA is expected to increase over the coming decades, in part due to the growing older adult population. Additionally, transit users carrying packages or luggage, pushing children in strollers, or otherwise transporting items will also benefit from accessibility improvements. (U.S. Access Board, 2001)

### **MYTH 2: Bus stop accessibility and safety improvements are not our responsibility.**

- As bus stops can be located on the public right-of-way or on private property, transit agencies may not have jurisdiction to implement improvements. Though this may be the case, it is in the interest of the transit agency to work with its municipality, community and businesses on bus stop improvements. Bus stops advertise an image of the transit service and agency. Poorly maintained, unsafe, uninformative, and inaccessible stops convey a poor image of the agency and discourage use.
- Rising paratransit costs are another reason bus stop safety and accessibility improvements should be the responsibility of the transit agency. Providing an unobstructed boarding and alighting area, wayfinding signs, clear transit information at the eye level of a wheelchair user, and other basic improvements can encourage some paratransit users to use fixed-route transit, decreasing the agency's paratransit costs and providing a greater level of independent travel opportunities for individuals with disabilities.
- Lastly, several transit agencies have been sued and lost cases due to the inaccessibility of their bus stops. Transit agencies are required to provide accessible transit, and accessible bus stops are an integral part of an accessible system. Similarly, public works departments are required to construct accessible facilities and ensure that existing facilities are accessible as well.

## **MYTH 3: Once we have implemented bus stop accessibility improvements, the stop will always be accessible.**

- Even when accessibility and safety improvements have been implemented, the stop may not meet standards indefinitely. Many factors may decrease accessibility and safety, including construction, unregulated placement of newspaper vending machines and poor maintenance. Stops should be regularly monitored to ensure that the stop is clear of obstructions. Federal and state accessibility standards are consistently under review resulting in revisions due to many factors, such as technological advances, bus boarding and alighting equipment changes, community demands, and general improvements for transit accessibility.

## **MYTH 4: To change flag stops to fixed bus stops, each new stop must have a boarding and alighting area.**

- New bus stops must be accessible to all patrons. Agencies are not required, however, to install paved boarding and alighting areas at all stops. Where paved boarding and alighting areas are provided, they must comply with the requirements stated in the Design Guidelines on page 14. It is a requirement of DOT's ADA Standards (2006) that fixed bus stops be located where there is a firm, stable, level, and slip-resistant surface to facilitate boarding and alighting for all passengers. If this type of surface is not available at the location chosen for the bus stop, a paved boarding and alighting area (5' X 8' minimum) should be installed. If patrons who use wheelchairs are not able to use the stop, the transit agency would fail to meet the overarching mandate of Title II of the ADA to provide accessible transportation.

## **MYTH 5: We can prohibit patrons who use wheelchairs from boarding and alighting at stops that are not currently accessible under special circumstances.**

- A transit agency may not legally prohibit the boarding and alighting of passengers with wheelchairs, unless the lift or ramp would be damaged if deployed or if temporary conditions at the stop prevent any disembarkation. If the bus stop is located in an area where conditions would damage the lift, the operator should stop at a nearby location with a stable surface. Under normal circumstances, however, the transit agency cannot prohibit the use of a bus stop by a person with a disability regardless of the accessibility of a particular bus stop. (ADA DOT, Retrieved November 28, 2012)

## **MYTH 6: Installing the required ADA Accessibility Guidelines is all we need to do to be accessible for everyone.**

- The guidelines are minimum requirements, you can always do more to make your facilities easier for everyone to use. The design guidelines in this toolkit list the minimum ADA requirements and also universal design recommendations. Universal design provides a higher level of access for people with disabilities and the whole population. When designing your facilities, consider the needs of everyone—children, older adults, people with disabilities, and people who might have different abilities than our own. The guidelines are the minimum requirements that comply with the law. They are not necessarily *best practices*.

## Principles of Bus Stop Design

(Alberta Transportation & Utilities, 1996)

For a bus stop to be accessible, three elements should be incorporated into the siting and design of the stop. These elements are:

- >>> **Barrier-Free Design**
- >>> **Urban Wayfinding, Including Signage**
- >>> **Safety and Warning**

### Barrier-Free Design

Barrier-free design entails designing a bus stop and connecting pathways so that a person with a disability can proceed unimpeded to the sidewalk or an accessible building served by the transit stop. The basic principles of barrier-free design include these actions:

- Plan outdoor elements to minimize obstacles and eliminate travel hazards, such as support cables for utility poles and low signage protruding into the travel path.
- Position newspaper boxes and other street furniture in a manner that makes them accessible from the bus stop boarding and alighting area, connected to the accessible pathway and out of the main flow of pedestrian traffic.
- Avoid grade-level changes in sidewalks and platforms wherever possible.
- Provide a slip-resistant finish, good grip and sure footing to ensure surfaces are safe.
- Supply seating adjacent to pathway routes.

### Urban Wayfinding

Wayfinding is the process of movement from one predetermined destination to another and is an activity that demands complete involvement with the environment. Wayfinding systems allow people

to (1) determine their location within a setting, (2) determine their destination, and (3) develop a plan that will take them from their location to their destination. (Giuliani & Paradiso, 2001)

The basic principles of orientation and wayfinding are:

- Provide consistency and uniformity of elements and layout.
- Simplify orientation by using right angles for design elements and layout.
- Provide tactile as well as visual cues and landmarks within designs (e.g., sidewalks with grass shoulders or borders; street furnishings such as benches; garbage receptacles; planters located adjacent to, but not within, the path of travel; high contrasts on shelter door frames).



*The use of paving stones creates a park-like feel and makes this bus stop in Palm Springs, California tactually and visually distinct from the adjacent concrete sidewalk. Source: Robert Perrone Consulting*

- Illuminate walkways, hazards and waiting areas for orientation and security purposes.
- Provide logical, continuous and accessible travel paths from the sidewalk to the bus boarding and alighting area.
- Use color contrast, sound, light, and shade to accentuate travel paths between the shelter, sidewalk and bus boarding and alighting area.

## Safety and Warning

As with all aspects of roadway design and bus operations, an important element in the design of bus stops is safety and warning.

The basic principles of safety and warning are:

- Provide a bus stop with good ergonomics and effective wayfinding elements.
- Place street furniture such as benches, newspaper vending boxes and planters to create barriers from hazards.
- Ensure good lighting and visibility from surrounding land uses.
- Highlight the existence of hazards by distinctive markings, signs and higher light levels where inadvertent exposure to hazards cannot be blocked.

## Creating Accessible and Safe Bus Stops

### Distinction Between ADA Requirements and Universal Design (Giuliani & Paradiso, 2001)

*Accessible design focuses on compliance with laws, regulations and state or local building codes.* The laws and regulations are intended to eliminate certain physical barriers that limit the usability of environments for people with disabilities. These typically are based on the requirements detailed by the American National Standards Institute. With the passage of the ADA in 1990 and the subsequent development of the ADA Accessibility Guidelines (ADAAG), accessible design has focused more recently on satisfying these minimum technical criteria to allow most people with disabilities to use the built environment. The DOT's ADA Standards (2006) are the minimum requirements that comply with the law.

***The DOT's ADA Standards (2006) are the minimum requirements that comply with the law. They are not best practices. Universal design is intended to create environments that are more usable by all people, including people with disabilities.***

They are not necessarily *best practices*. The term *accessible* as defined in the ADA means that a site, building, facility, or portion thereof meets the minimum requirements of ADA-ABA-AG.

*Universal design is intended to create environments that are not only accessible but also usable by all people.* While considerations for people with disabilities are certainly necessary for universal design, they are not sufficient when planning and designing for the whole population. Universal design provides a higher level of access for people with disabilities. It also accommodates the needs and wishes of everyone—e.g., children, older adults, women, and men. Parents pushing strollers,

travelers pulling luggage, the older man needing a little more time to cross a street—all benefit from features of universal design. For additional background information on universal design, visit the Global Universal Design Educator’s Network at [www.udeducation.org/](http://www.udeducation.org/) and the Center for Universal Design at [www.ncsu.edu/ncsu/design/cud/](http://www.ncsu.edu/ncsu/design/cud/).

## Design Guidelines for Bus Stops

The following sections list accessibility benefits, minimum ADA requirements and universal design recommendations for the various elements of a bus stop.



***This bus stop in New York City has a bus boarding and alighting area that is free of obstructions for both front and rear doors. The sidewalk adjacent to the bus stop platform is wide enough to handle high pedestrian activity and to allow a person using a wheelchair to pass without entering the bus stop area. Source: Metropolitan Transportation Authority***

## Bus Stop Boarding and Alighting Areas

A bus stop boarding and alighting area is a site selected by the transit provider that provides the most practicable accessible environment. The designated bus stop area is clear of obstructions to facilitate boarding and alighting for all users.

### Accessibility Benefits

Providing a designated bus stop boarding and alighting area benefits all transit users. An area the length of the bus for transit purposes provides a comfortable waiting, alighting and boarding area for both front and rear doors and denotes the transit agency’s presence. People using wheelchairs will have less difficulty boarding and alighting the bus when there is a firm, stable, level, and unobstructed boarding and alighting surface on which to operate the wheelchair lift and ramp. People using wheelchairs or scooters require more space to wait and turn around than other transit users and therefore benefit from an accessible area at the bus stop necessary to maneuver a wheelchair for boarding or alighting the bus. (McMillen et al., 1999)

### Minimum ADA Requirements

Providing accessible bus stops requires choosing appropriate locations or improving the existing location. Coordination and cooperation with public works agencies, municipal government and business owners can enhance the connectivity between the land use and the bus stop. To ensure optimum bus stop placement, coordination should occur during the planning/development phase.

Bus stop sites must have the following: (U.S. Access Board, 2004)

- A firm, stable, and slip resistant surface;
- A minimum clear length of 96 inches (2,440 millimeters), measured perpendicular from the curb or vehicle roadway edge and a minimum clear width of 60 inches (1,524 millimeters), measured parallel to the vehicle roadway;

- A maximum cross slope of 1:48 (2.08%) on the boarding and alighting area perpendicular to the roadway;
- The slope of the boarding and alighting area parallel to the roadway shall be the same as the roadway slope to accommodate lift or ramp alignment; and
- Bus stop boarding and alighting areas must have an accessible connection to streets, sidewalks, or pedestrian paths; and
- Bus stop route identification signs must comply with the visual signage requirements of ADAAG Section 703 (e.g., finish and contrast, style, character proportions, height, and spacing).

The DOT's ADA Standards (2006) added language to the ADAAG 810.2.2 standards to recognize that there will be some situations in which the full dimensions of a bus boarding and alighting area complying with section 810.2.2 may not be able to be achieved. The DOT expects compliance to the greatest extent feasible. (DOT Final Rule Adopting New Accessibility Standards, November 29, 2006)

## *Universal Design*

Finding the proper location for a bus stop is challenging. Community Transit in Everett, Washington enlists help from the agency's bus drivers to determine where best to situate a stop. To test the potential locations, temporary markers, such as orange cones with bus stop signs, are installed and maintained while the local public is solicited for input. (Nelson\Nygaard w/Smith, 2005)

The bus stop boarding and alighting area guidelines outlined in the following section are not required but are strongly recommended to facilitate accessibility and safety for all users.

### ■ **Bus Stop Area** (TRB, 1996)

- Locate street furniture to maintain a minimum clear width of 48 inches (1,219 millimeters) and clear headroom of 80 inches (2,032 millimeters) from the pedestrian pathway to the stop.

- Clear the bus stop boarding and alighting area of all obstacles (including trees, newspaper boxes, waste, and recycling receptacles).
- Design the sidewalk adjacent to the bus stop boarding and alighting area to be wide enough to handle the expected levels of pedestrian activity and for two people using wheelchairs to pass each other traveling in opposite directions when two-way traffic is frequent (60 inches minimum is recommended).
- **Bus Stop Boarding and Alighting Area—Door Clearances** (Alberta Transportation & Utilities, 1996)
  - The front and rear door areas of a bus stop should be kept clear of trees, utility poles, wires, hydrants, and other infrastructure or street furniture. Because different types and sizes of buses are used, all bus stop boarding and alighting areas should account for the variance in door positions.
- **Types of Bus Stop Areas**—Various configurations of bus stop areas are available to accommodate passenger waiting, boarding and alighting. Determining the type of boarding and alighting areas to use depends on traffic conditions, bus priority, space availability, and the number of users at the stop.
  - Curbside stop—Curbside stops are typically installed on existing sidewalks. In urban areas, as prescribed by ADA, the stop is located in the parking lane with restricted parking. The length of the stop's curb may be painted a distinctive color to prevent or discourage parking. In suburban areas, the curbside stop may be located in the travel lane as the street may not incorporate a parking lane.

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## Advantages of Curbside Stops

- Provides direct access to bus stops by vehicles and patrons.
- Simple in design and generally inexpensive for transit agencies to install.

## Disadvantages of Curbside Stops

- May present problems for bus drivers trying to align the bus to the curb if not enough entering clearance is given due to parked cars (as shown in the picture to the left).
- May present problems for bus drivers trying to re-enter traffic, especially during periods of high volume traffic.



*The parked car leaves little clearance for the bus to pull in flush to the curb in Oakland, California. Source: Nelson\Nygaard Consulting Associates*

- **Bus Bay** (TRB, 1996)—Bus bays provide an area for buses to leave the main road to pick up passengers. They often have a shelter and other amenities for the waiting passenger.

## Advantages of Bus Bays

- Allows passengers to board and alight out of the travel lane.
- Provides a protected area away from traffic for both the stopped bus and patrons.
- Minimizes delay to through-traffic.

## Disadvantages of Bus Bays

- May present problems for bus drivers trying to re-enter traffic, especially during periods of high volume traffic.
- Is expensive to install compared to curbside stops.
- Is difficult and expensive to relocate.



*This bus bay in Tucson, Arizona prohibits parking and denotes a wheelchair-accessible area. Source: Nelson\Nygaard Consulting Associates*

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- **Bus Bulb**—also known as curb extensions, nubs and bus bulges—are a section of the sidewalk that extends from the curb of a parking lane to the edge of a through lane. This enables the bus to stop in the traffic lane instead of weaving in and out of parked cars. (TRB, 2001)

## Advantages of Bus Bulbs

- Allows drivers to pull in flush to the curb.
- Results in minimal delay to bus movements.
- Allows for more waiting room for bus patrons separated from the pedestrian flow and generally provides more space for amenities.

## Disadvantages of Bus Bulbs

- Can cause traffic to queue up behind the bus, causing traffic delays.
- Expensive to install compared to curbside stops.
- Difficult and expensive to relocate.



*A bus bulb in San Francisco, California. The bus stop area is extended into the parking lane and incorporates a shelter that does not impede the pedestrian right of way. The bulb allows the bus driver to pull up flush to the curb to facilitate the boarding and alighting of passengers. Source: Nelson\Nygaard Consulting Associates*

These two photos show examples of bus stops with poor accessibility.



*Above: The lack of a firm, stable and slip resistant boarding and alighting area and accessible connecting pathway makes this stop in British Columbia inaccessible. Rider safety is compromised as the poor drainage and grassy/muddy waiting area create slippery conditions. Source: BC Transit in British Columbia, Canada*



*This stop in Berkeley, California does not have adequate clearance to deploy a wheelchair ramp. Additionally, the stop lacks identity, being indiscernible from a newspaper vending machine area. Source: Nelson\Nygaard Consulting Associates*

This photo shows an example of a bus stop with good accessibility.



**The stop area and boarding and alighting area, pictured here in Oakland, California, are clear of obstructions. People using wheelchairs have enough room to maneuver, and the stop is spatially and visually distinct from the pedestrian walkway. Source: Nelson\Nygaard Consulting Associates. Note that the revised ADAAG allows that the 5 feet by 8 feet boarding and alighting area can extend into a bus shelter floor area as long as the boarding and alighting area is not obstructed in any way.**

## Bus Shelter Design

A bus shelter provides seating and protection from the elements while passengers wait for a bus. Standardized shelters exist that accommodate various site demands and passenger volumes. Typically, a shelter is constructed of clear side-panels for visibility and safety.

The U.S. Department of Transportation's Circular on Title VI Requirements and Guidelines for Federal Transit Administration Recipients states that providers of fixed-route public transportation must adopt service policies that ensure service design and operations

practices do not result in discrimination on the basis of race, color or national origin. The guidance states that transit providers must evaluate their transit amenities policy to ensure amenities are distributed in an equitable manner. Transit amenities refer to items of comfort, convenience and safety that are available to the general riding public. In the case of bus stops, amenities would include things such as shelter, lighting, benches, and other features to enhance safety and comfort during transit use. Please refer to Chapter IV of the U.S. DOT Circular on Title VI Requirements and Guidelines for Federal Transit Administration Recipients.

### Accessibility and Safety Benefits

The seating and protection provided by shelters benefits bus patrons with mobility impairments. Additionally, a shelter clearly marks a bus stop, supplies an area to post route and timetable information, and provides refuge for waiting passengers separated from the public way. Locating shelters in areas with good lighting and visibility from surrounding land uses enhances the safety of bus stop.

### Minimum ADA Requirements

(U. S. DOT, 2006)

Install new or replace bus shelters to accommodate the following:

- A minimum clear floor area of 30 inches by 48 inches (762 millimeters by 1,219 millimeters), entirely within the perimeter of the shelter, must be maintained;
- Placement of clear floor space should not impede the use of a bench by other transit users; and
- The shelter must be connected by an accessible route to the bus stop boarding and alighting area.

Additionally,

- Bus stop shelters cannot obstruct the boarding and alighting area.
- ADA clear width and maneuvering requirements must be followed around the shelter and between the shelter and other street furniture.
- A minimum clearance of 36 inches (914 millimeters) must be maintained around the shelter and an adjacent connecting sidewalk (more is preferred).

*Universal Design*  
(TRB-19, 1996)

- **When to Install a Shelter**—The decision to install a shelter is the result of a system-wide policy set by the departments of a transit agency. The estimated number of passenger boardings and surrounding land use are important determinants. For example, people traveling to and from a hospital or senior center might have a higher priority for a bus shelter located nearby. Suggested boarding levels by area type that transit agencies may use to decide when to install a shelter are as follows (these values represent a composite of prevailing practices):

<i>Location</i>	<i>Minimum boardings</i>
<b>Rural</b>	10 boardings per day
<b>Suburban</b>	25 boardings per day
<b>Urban</b>	50 to 100 boardings per day



*This bus shelter in Mableton, Georgia is placed on a concrete slab that is level with the sidewalk and provides a firm, stable surface for people using wheelchairs and does not obstruct the bus boarding and alighting area. Source: G. Araki*



*This bus shelter is placed on a concrete slab that is level with the sidewalk. It provides eight feet perpendicular to the curb, including the space within the shelter for easy maneuvering with a wheelchair. Source: Tindale-Oliver & Associates, Inc.*

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■ **Location**—Ideally, the location of a bus stop shelter should enhance the circulation patterns of patrons, reduce the amount of pedestrian congestion at a bus stop, and reduce conflict with nearby pedestrian activities. The following guidelines should be used when placing a shelter at a bus stop:

- Permit clear passage of the bus and its side mirror with a minimum distance of 24 inches (610 millimeters) between the back-face of the curb and the roof or panels of the shelter. Greater distances are preferred to separate waiting passengers from nearby vehicular traffic, and state or local right-of-way standards will likely dictate minimum setback requirements.
- Locate the shelter as close as possible to the established boarding and alighting area, and provide visibility to approaching buses and passing traffic.
- Preserve a 12-inch (305 millimeter) clear space to permit trash removal and cleaning of the shelter when shelters are directly adjacent to a building.

■ **Design Considerations**—Shelter design is based on criteria related to climate, agency, policies, and streetscape context. The following are general design guidelines to assist in providing accessibility and safety:

- Incorporate shelter dimensions that are nine feet long and five feet wide (2.7 meters by 1.5 meters).
- Design shelters with transparent sides for visibility and security (Alberta Transportation & Utilities, 1996)
- Mark glass panels with distinctive patterns, such as horizontal contrasting strips or circles, to indicate the presence of the panels.
- Include transit route maps, schedules and seating in shelters. Maps and schedules should be easily readable by people using wheelchairs and, to the greatest extent possible, people with visual impairments.

- Provide seating, if feasible, with sufficient space to move around.
- Provide surfaces to lean against if seating is not provided.
- Omit steps or other changes in elevation between the sidewalk/bus boarding & alighting area and the shelter.
- Maintain shelter openings to be a minimum of 36 inches (914 millimeters) clear to allow a person using a wheelchair to pass through.
- Consider heated shelters at high ridership stops in cold climates and ventilated shelters in hot climates.



*This shelter in Rochester, New York provides two openings for entering and exiting, as well as wind protection from the northern climate. Source: Rochester Genesee Regional Transportation*

# Toolkit for the Assessment of Bus Stop Accessibility and Safety



*These two shelters in Toronto, Canada, open onto the sidewalk to provide protection from snow or water splashed by moving cars. The shelter is enclosed except for the entranceway to protect against inclement weather. Source: SUNY Buffalo*



- **Cold Climates**—In areas where winter temperatures are low, installing shelters with wind protection and investing in heated shelters for large bus stops and transfer points may provide incentive for customers to use the transit service.
- **Hot Climates**—In southern climates with mild winter temperatures and extreme summer temperatures, shelters can be designed to be completely open to air circulation from all four sides. At sites with wind, rain or glare problems, standardized shelters can be retrofitted with panels to provide protection and shade. In the southwestern region of the United States, air temperatures can reach above 110 degrees Fahrenheit on a regular basis during the summer. Transit agencies can induce people to ride the bus in these conditions by providing cool air misters and evaporation cooling towers.



*This shelter in Palm Springs, California allows air to circulate. The panels are constructed of perforated metal to allow airflow while maintaining good visibility of the surrounding area. Source: Robert Perrone Consulting*

- **Seating**—Seats provide comfort to waiting customers and increase the attractiveness of the bus service, especially for people with mobility impairments. Patrons who have difficulty standing will benefit from seating and will more likely use transit services. Seating located in the shelter must leave clear space for patrons with wheelchairs to use the shelter.
- **Environmental Controls**—In orienting and configuring bus shelters, personnel should consider the environmental characteristics of each site. Shelters can be completely open to permit unlimited movement of air in hot climates, or panels can be erected to keep the interior of the bus shelter warm. The following examples provide guidance on the type and placement of shelters for various climates:

- **Location of Advertising**—Many transit agencies have paid advertising in bus shelters to reduce costs and to provide other benefits. Passenger and pedestrian safety and security are of greater concern at shelters with advertising. The advertising panels may limit views in and around a bus stop, making it difficult for bus drivers to see patrons. The panels can also reduce incidental surveillance from passing traffic. To prevent restricted sight lines and assist an approaching bus driver view the interior of the shelter easily, advertising panels should be placed downstream of the traffic flow. Indirect surveillance from passing traffic should be preserved through proper placement of the panels. (TRB-19, 1996)



*A shelter in Oakland, California with advertising placed downstream of traffic flow and good visibility. Source: Nelson/Nygaard Consulting Associates*

## Lighting

Lighting affects bus patrons' perception of safety and security at a bus stop as well as the use of the site by non-bus patrons. Good lighting can enhance a waiting passenger's sense of comfort and security; poor lighting may encourage unintended use of the facility by non-bus patrons, especially after hours. Lighting is particularly important in northern climates where patrons may arrive and return to the stop in darkness during the winter season. (TRB-19, 1996)

### *Accessibility Benefits*

Bus patrons who have low visibility in dimly-lighted areas benefit from good lighting at and around the bus stop. As stated before, lighting benefits all users by increasing the safety and security of the stop.

### *Minimum ADA Requirements*

No specific ADA lighting requirements.

### *Universal Design*

The following are highly recommended to provide a safe waiting environment:

Install lighting that provides between two to five foot-candles. (TRB-19, 1996)

- A foot-candle is a unit of illuminance on a surface that is a uniform point source of light of one candela and equal to one lumen per square foot. (Merriam-Webster, 2014)
- Illuminate bus patron's faces with lighting. Multiple sources of light are more resistant to vandalism and provide illumination that casts fewer intimidating shadows. Lighting that is too bright in bus shelters can also compromise personal safety, creating a fish bowl effect whereby the transit user can easily be seen by others but cannot see outside. (Vogel & Pettinari, 2002)

- Ensure light fixtures are vandal-proof but easily maintained. For example, avoid using exposed bulbs or elements that can be easily tampered with or destroyed. (TRB-19, 1996)
- Locate bus stops near existing streetlights for indirect lighting. When coordinating bus shelter or bench locations with existing streetlights, the minimum clearance guidelines for wheelchairs should be followed. (TRB-19, 1996)
- Transit agencies can install shelters with solar panels so that light can be provided without the need for wiring from an electricity source to the shelter. This is especially practical in remote areas.



*Indirect lighting illuminates the shelter and sidewalk in New York City, New York. The shelter is constructed with glass panels on all four sides, providing good visibility and better security. The shelter is designed with vandal proof, flexible photovoltaic (solar) cells with hidden batteries and energy efficient LED light fixtures. Solar electricity is stored during the day to provide security at night. With no connection to an electricity source needed, the transit agency does not have any excavation costs for installing wiring. Source: SUNY Buffalo*

## Security

(TRB-19, 1996)

Passenger security is a major issue in bus stop design and location and can positively or negatively influence a bus patron's perception of the bus stop. From the perspective of security, landscaping, walls, advertising panels, and solid structures can restrict sight lines and provide spaces to hide. Each of these items can be an integral part of the bus stop, either by design or by proximity of existing land uses. Therefore, the transit and public works agencies should carefully review which amenities to include at a bus stop and consider any factors that may influence security.

### Accessibility Benefits

Security provisions enhance accessibility by increasing visibility of the stop. They also reduce the safety concerns of waiting at the stop at all hours, improve visibility from the stop and provide information that is useful for planning trips and maintaining personal safety.

### Minimum ADA Requirements

No specific ADA security requirements.

### Universal Design

Some guidelines regarding security at bus stops are as follows:

- Construct the bus shelter of materials that allow clear, unobstructed visibility both of patrons in the shelter for buses and passing traffic and of traffic and approaching buses for patrons waiting inside.
- Locate bus stops at highly visible sites to permit approaching bus drivers and passing vehicular traffic to see the bus stop clearly. Proximity to stores and businesses also enhance surveillance of the site.

- Limit landscaping elements to low-growing shrubbery, ground cover and deciduous shade trees. Evergreen trees provide a visual barrier and should be avoided.
- Coordinate bus stops with existing street lighting to improve visibility.
- Maintain the cleanliness of the bus stop. A well-maintained stop contributes to the concept of an owned environment. Refer to the Maintenance of Bus Stops and Shelters section for more information.
- Provide a payphone or police call box to allow emergency calls.
- Provide accurate route and schedule information.

## Accessible Paths

Walkways or sidewalks are essential links between the origin/destination of the trip and the bus stop. Their proper design and regular maintenance are important to providing a continuous barrier-free travel path for all people.

### Accessibility Benefits

Accessible paths allow all users to reach their destination conveniently and safely. For people who use mobility devices, an unobstructed, firm, stable, slip resistant, and wide pathway to the bus stop will facilitate use of the bus system. People who use wheelchairs or scooters require a wider path of travel than ambulatory pedestrians. Additionally, their stability and control can be affected by surfaces with excessive cross-slopes, grades (running slope) or rough terrain. Cross-slopes that change rapidly cause problems for people who use wheelchairs. The rate of change of a cross-slope is problematic when it occurs over a distance of less than 24 inches (610 millimeters), the approximate distance covered by a wheelchair wheelbase. (McMillen et al., 1999)

People who use walking aids include those who use canes, crutches or walkers to ease their ambulation. The limitations of people who use walking-aids might include the following: (McMillen et al., 1999)

- Difficulty negotiating steep grades
- Difficulty negotiating steep cross-slopes
- Decreased stability
- Slower walking speed
- Reduced endurance
- Inability to react quickly to dangerous situations
- Reduced floor reach

*Minimum ADA Requirements (U.S. DOT, 2006)*

At minimum, an accessible path should accommodate the following:

- A minimum clear width of 36 inches (915 mm). \*The U.S. Access Board's Public Rights-of-Way Accessibility Guidelines (PROWAG) recommend a minimum clear passage width of 48 inches (1,219 millimeters). This is especially important next to a curb drop-off;
- A corresponding accessible route from public transportation stops to the pedestrian route used by the general public;
- A maximum cross slope of 1:48 (2.08%);
- A maximum running slope of 1:20 (5%);
- Stable, firm and slip-resistant ground and floor surfaces;
- No change in vertical elevation greater than ¼ inch (6.4 mm) (or up to ½ inch (13 mm) if beveled on a slope no greater than 1:2.
- Openings in floor or ground surfaces (i.e., gratings) shall not allow passage of a sphere more than ½ inch (13 mm) diameter. Elongated openings must be placed so that the long dimension is perpendicular to the dominant direction of travel.

Objects may not protrude into an accessible route or maneuvering space. Guidelines for protruding objects are below: (U.S. DOT, 2006)

- Objects projecting from walls (e.g., telephones) with their leading edges between 27 inches and 80 inches (685 millimeters and 2,030 millimeters) above the finished floor shall protrude no more than 4 inches (100 millimeters) into the pathway;
- Objects mounted with their leading edges at or below 27 inches (685 millimeters) above the finished floor may protrude any amount;
- Free-standing objects mounted on posts or pylons, including sign panels, may overhang 12 inches (305 millimeters) maximum from 27 inches to 80 inches (685 millimeters to 2,030 millimeters) above the ground or finished floor. \*The proposed PROWAG limit this to 4" unless placed on a base (see: R402.3 and accompanying figure [www.access-board.gov/prowag/nprm.htm#r4](http://www.access-board.gov/prowag/nprm.htm#r4)).
- A minimum of 80 inches (2,030 millimeters) clear headroom must be provided along accessible paths. If the vertical clearance of an area adjoining an accessible route is reduced to less than 80 inches (nominal dimension), provide a barrier to warn people who are blind or have visual impairments.
- The DOT's ADA Standards (2006) retained language from former section 10/3.1(1), which provides that "elements such as ramps, elevators, or other circulation devices, fare vending or other ticketing areas, and fare collection areas shall be placed to minimize the distance which wheelchair users and other persons who cannot negotiate steps may have to travel compared to the general public." This requirement is intended to minimize the distance people with disabilities must travel to important facility elements.

## *Universal Design*

- Sidewalks (Alberta Transportation & Utilities, 1996)
  - Widen sidewalks to five or more feet to accommodate pedestrian activity in two directions and provide a comfortable bus stop waiting area.
  - Maintain walkways and bus stop areas to be clear of snow, ice and other debris.
  - Provide an accessible travel path that is the shortest distance between the bus stop and the sidewalk or destination.
  - Distinguish the surface of the bus stop from the surrounding areas to accommodate people with visual impairments. The use of different textures— such as concrete, paving stone, contrasting colors, tactile strips, and curbs—helps to delineate pathways.
- Street Furniture and Other Obstacles in Travel Path
  - Locate street furniture and signage—such as benches, sign posts and newspaper boxes—out of the travel path of pedestrians and transit passengers.
  - Define pathway junction points and clear them of obstructions.
- Curb Ramps
  - Grade-level changes are difficult for older adults and people with disabilities to negotiate. Any grade-level change without the aid of a curb ramp creates a mobility barrier. Refer to ADAAG Section 406 on curb ramps for more information.

## Examples of Bus Stops with and without Accessible Paths



**Example of an accessible bus stop with curb ramp leading to it in Buffalo, New York. Source: University at Buffalo, The State University of New York**

Ensuring that there is an unobstructed, firm, stable, and slip resistant path to the bus stop is essential to providing people with disabilities access to the bus. The following examples show a stop that is well connected and others that are inconvenient for all bus patrons.



**An accessible path is provided to and from the stop, linking the stop to the surrounding land uses in Eugene, Oregon. Source: G. Araki**

## Route and Timetable Information

(TRB-19, 1996)

Route and passenger information can be displayed in various ways. A flag sign is the most common method used by transit agencies to display information. Schedule holders and route information on the shelters are also commonly used.

### Accessibility Benefits

Reducing transit's ambiguity in terms of arrival time and route allows people with cognitive disabilities as well as general transit riders to use the system more effectively.

### Minimum ADA Requirements

Follow ADA requirements on accessible paths, signage, and protruding objects for guidelines on access to information by individuals with disabilities (see sections on Accessible Paths and Transit Signage).

**Left: The lack of an accessible path makes it difficult for a person using a wheelchair to access this stop in Red Bluff, California. All patrons would have to travel on gravel and on the roadway shoulder to use the stop. Source: G. Araki.**



*This bus stop in Buffalo, New York is not accessible as it lacks a cleared path to the shelter. Bus patrons with and without disabilities will have difficulty getting to the stop and getting onboard the bus due to the thick layer of snow. As it is difficult to clear snow from every bus stop, particularly those in residential neighborhoods, an agreement with property managers or residents may help with snow removal (See the Adopt-a-Stop Program website for more information). In this case, an agreement between the transit agency and the property manager of the building adjacent to the stop can ensure that the bus stop and a path leading to the stop are cleared of snow when the parking lot is plowed. Source: University at Buffalo, The State University of New York*

## *Universal Design*

Recommendations for route or patron information displays are as follows:

- Provide updated information when changes are made to routes and schedules.
- Consider the quality and appearance of information displays. A visually poor route map conveys a negative impression of the system.
- Make information displays permanent. Temporary methods for displaying information (such as tape-mounting) create a cluttered, unsophisticated appearance at the bus stop.
- Shelters or stops should be designed to accommodate route and schedule information so it is not added in places that reduce visibility or security.
- Use interior panels of shelters for posting route and schedule information. Side panels may be large enough to display the entire system map and can include backlighting for display at night.
- Install real time information display boards at key stops to give patrons up to the minute information on bus arrival times and delays. For people with visual impairments, a button may be provided that gives audio information when pressed. A discussion of real time information is included in the Technology and Product Links section.



**Above: Example of good route information and placement in Loveland, Colorado. The information is not cluttered and is provided in a prominent location, which reduces ambiguity in using the service. Source: Access Compliance Services**

	8th St @ Lincoln	Good Samaritan Village	28th East of Duffield
1		2	3
	6:38	6:46	6:54
	7:38	7:46	7:54
	8:38	8:46	8:54
	9:38	9:46	9:54
	10:38	10:46	10:54
	11:38	11:46	11:54
	12:38	12:46	12:54

**This picture provides a close-up of the timetable information provided in the above figure. The schedule is provided in large, easy to read text. Source: Access Compliance Services**

## Transit Signage

Proper signs at bus stops are an important element of good transit service. Signs serve as a source of information to patrons and operators regarding the location of the bus stop and are excellent marketing tools to promote transit use. Letter styles, sign appearance and color choice should be unique to the transit system so that passengers can readily identify bus stops.

### Accessibility Benefits

Transit signs are usually installed in an accessible position near the bus stop boarding and alighting area. For patrons using wheelchairs, the bus stop pole usually indicates where the bus will align to access the wheelchair lift or ramp. To indicate the stop location for a patron who has a visual impairment, the sign pole may be stylized to distinguish it from other poles on the path. For example, a perforated square pole uniquely identifies the stop. In Vancouver, British Columbia, a pole collar serves as a tactile marker.

### Minimum ADA Requirements (U.S. DOT, 2006)

Signs that identify the routes served by the transit stop must comply with the technical requirements for visual characters on signs unless audible sign systems or other technologies are used to provide the information.

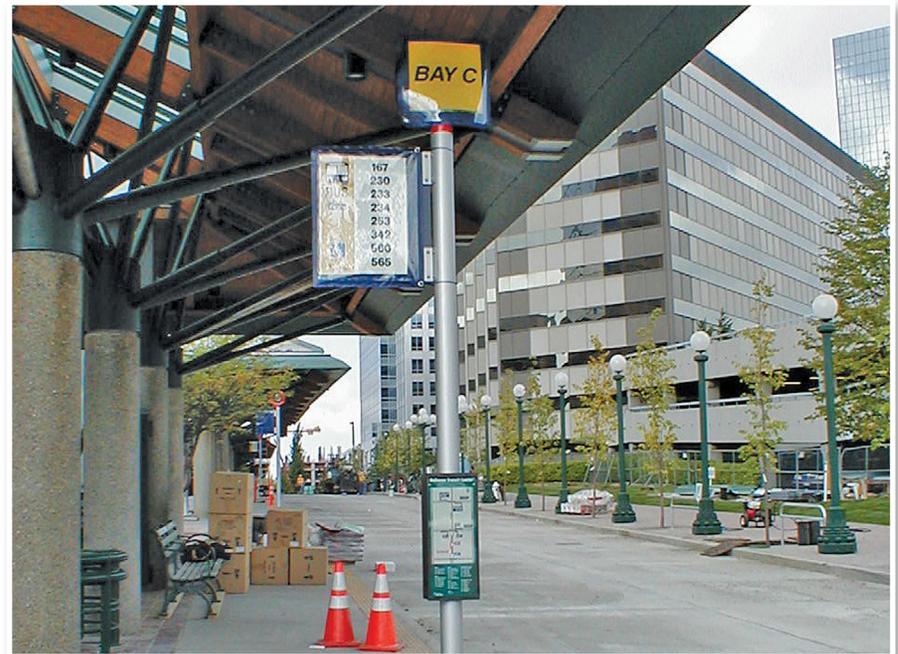
Provide bus stop signage that accommodates the following:

- Characters must be selected from fonts where the width of the uppercase letter “O” is 55 percent minimum and 110 percent maximum of the height of the uppercase letter “T”.
- Stroke thickness of the uppercase letter “T” shall be 10 percent minimum and 30 percent maximum of the height of the character.

- Characters must be in conventional form—not italic, oblique, script, highly decorative, or other unusual form.
- Character spacing shall be measured between the two closest points of adjacent characters, excluding word spaces. Spacing between individual characters shall be 10 percent minimum and 35 percent maximum of character height.
- Line spacing between the baselines of separate lines of characters with a message shall be 135 percent minimum and 170 percent maximum of character height.
- Characters and numbers shall be sized according to the horizontal and vertical viewing distance from which they are to be read (refer to table 703.5.5 in ADAAG for varying character height requirements.)
- Visual characters (on signs) shall be mounted 40 inches (1015 mm) minimum above the finished floor or ground surface.
- Pictograms shall have a field height of 6 inches (152 millimeters) minimum and must be accompanied with the equivalent verbal description placed directly below.
- Characters and their background on signs and pictograms shall have a non-glare finish, with characters and symbols contrasting from their background, either light on dark or dark on light.
- Follow protruding objects requirements (given in the Accessible Paths section).

Unlike other traffic signs, which conform to national engineering standards, transit signage is typically unique to each individual transit property. Customer information signs should be readily identifiable, legible, clear, and consistent not only for the general public but also for people with disabilities. The following considerations for signs are recommended:

- Provide double-sided signs for visibility from both directions and reflectorized or illuminated signs for nighttime visibility.

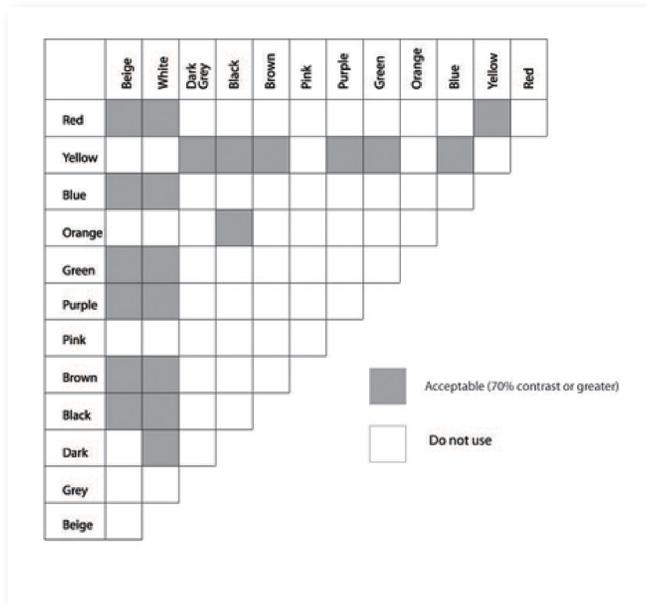


*The bus stop pole in Seattle, Washington displays the routes servicing the stop on a flag and timetables in an information panel. The information panel is at the eye level of a person using a wheelchair. Source: Sound Transit. Note that the revised ADAAG requires that visual signage characters be placed no lower than 40 inches (1015 mm) above the finished floor or ground surface.*

- Place bus stop signs at the location where people board the front door of the bus. The bus stop sign marks the area where passengers should stand while waiting for the bus and serves as a guide for the bus operator in positioning the vehicle at the stop. The bottom of the sign should be at least 7 feet (2.1 meters) above ground level and should not be located closer than 2 feet (0.6 meters) from the curb face.
- Deciding locations for bus stops and signposts should be coordinated with local and/or state jurisdictions.

- Ensure that the signs are not obstructed by trees, buildings or other signs and are located away from visual distractions.

Refer to Transit Cooperative Research Program (TCRP) Report 12, *Guidelines for Transit Facility Signing and Graphics* ([http://onlinepubs.trb.org/Onlinepubs/tcrp/tcrp\\_rpt\\_12-a.pdf](http://onlinepubs.trb.org/Onlinepubs/tcrp/tcrp_rpt_12-a.pdf)) for detailed information on transit signage. One section of the report, highlighted in Figure 1 below, provides guidance on acceptable color combinations for signs based on contrast. Color contrast is of critical importance to people with visual impairments. When selecting colors for information/guidance and directional signs, care should be taken to select colors that provide adequate contrast between the background and the characters, images, or pictographs. A good practice to follow is to ensure that dark characters are on a light background or that light characters are on a dark background. Black on white or white on black are excellent contrasting arrangements. The figure indicates that the following combinations are acceptable (70% contrast or greater):



**Figure 1.**  
**Acceptable Color Combinations**  
**Based on Contrast**  
**(TRB-12, 1996)**

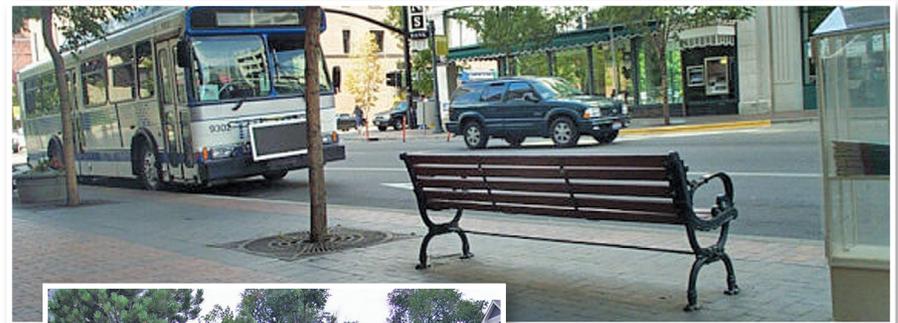
## Amenities

Amenities benefit all transit patrons if they do not reduce the minimum clear spaces required by ADAAG. This section outlines the optimal placement of various amenities.

### Benches

#### Accessibility Benefits

Transit users who experience difficulty walking and standing benefit from benches while waiting for the bus. Benches are beneficial when a shelter with seating is not provided and if bus headways are longer than 15 minutes. At stops with high ridership, benches may be provided in addition to shelters to accommodate patrons.



**Above: Example of a bench-only stop in Boise, Idaho. The bench is not located on the bus stop boarding and alighting area and does not impede access to the stop. Source: G. Araki.**

**The exterior bench at a stop in Greeley, Colorado is poorly placed, obstructing access to the boarding and alighting area and into the shelter. The stop would otherwise be accessible.**

## Minimum ADA Requirements

(U.S. DOT, 2006)

If benches are provided, they should adhere to the following ADA regulations:

- Clear floor or ground space for wheelchairs (complying with ADAAG Section 305);
- *Note that the scoping provisions of the revised ADAAG does not indicate that benches placed in the public right-of-way (at bus stops) must meet the provisions of Section 903 nor that the dimensional characteristics must be applied to benches in interior locations such as dressing, fitting and locker rooms. The scoping provisions of Public Rights-of-Way Accessibility Guidelines (PROWAG), however, do require that benches (R212 Street Furniture) meet accessibility requirements when provided.*
- Seat dimensions: 20 inches (510 millimeters) minimum to 24 inches (610 millimeters) maximum in depth and 42 inches (1,065 millimeters) minimum in length;
- Seat height: 17 inches (430 millimeters) minimum to 19 inches (485 millimeters) maximum above the floor or ground;
- Back support: 42 inches (1,065 millimeters) minimum in length and extends from a point two inches (51 millimeters) maximum above the seat to a point 18 inches (455 millimeters) minimum above the seat;
- Structure supporting vertical or horizontal forces of 250 pounds (1,112 newtons) applied at any point on the seat, fastener, mounting device, or supporting structure; and
- Exposed benches: slip resistant and designed to shed water.

## Universal Design

(TRB-19, 1996)

The following recommendations coordinate bench placement with the bus stop environment to enhance safety and accessibility:

- Provide 17-inch (430 millimeter) high bench seats. Higher benches may be uncomfortable for many users.
- Coordinate bench locations with existing shade trees if possible. Otherwise, install landscaping to provide protection from the wind and other elements. Uncomfortable bus stop environmental conditions, such as heat or sun, can discourage use of the bench, forcing patrons to find another place to wait for their bus.
- Coordinate bench locations with existing streetlights to increase visibility and enhance security at the stop.
- Locate benches on a non-slip, properly drained, concrete pad. Avoid locating benches in undeveloped areas of the right-of-way.
- Provide grab handles along the bench for patrons to use as support when standing up.
- Locate benches away from driveways to enhance patron safety and comfort.
- Maintain a minimum separation of 24 inches (610 millimeters) (preferably four feet or 1,219 millimeters) between the bench and the back face of the curb. As the traffic speed of the adjacent road increases, the distance from the bench to the curb should be increased to ensure patron safety and comfort.
- Maintain general ADA mobility clearances between the bench and other street furniture or utilities at a bus stop.
- Avoid installing the bench on the wheelchair boarding and alighting area.

- Provide additional waiting room near the bench (preferably protected by landscaping) at bench-only stops to encourage bus patrons to wait at the bus stop.
- Avoid metal seating surfaces. Such surfaces are cold in winter and hot in summer.

## Vending Machines

(TRB-19, 1996)

Vending machines can provide passengers with reading material and refreshments while they wait for the bus. For local, non-commuter routes, however, vending machines can be undesirable for the following reasons:

- The machines are often poorly maintained and reduce the amount of room for mobility and waiting.
- Trash accumulates at bus stops with vending machines. Trash removal is time-consuming and costly.

The revised ADAAG (at Section 228.1) requires that at least one vending machine, where provided, must meet the operable parts specifications of ADAAG Section 309. This section requires that an accessible clear space be provided; that operating controls of the device meet the reach range requirements of ADAAG—no control higher than 48 inches (1220 mm); and that operable parts be operable with one hand and not require tight grasping, pinching or twisting of the wrist and with a force not greater than five pounds to operate.

Transit agencies have limited regulatory authority concerning the placement of vending machines. Newsprint companies usually seek high-profile sites to locate their machines. Transit agencies should review the need for the installation of vending machines at bus stops or coordinate with their jurisdiction to implement a consolidated vending rack program. The benefits to patrons of having the machines near the stop versus having to maintain trash receptacles and keep the area free of improperly disposed material should be considered.

If vending machines are provided, they should be anchored to the ground to reduce vandalism and prevent being moved to where they may create an obstruction to the accessible path. ADA mobility guidelines should be followed for improved site circulation. Vending machines, newspaper boxes and other street furniture cannot reduce the minimum clear spaces required by ADAAG.



*The consolidated vending racks in Berkeley, California contain various publications, including newspapers and rental magazines. Source: Nelson/Nygaard Consulting Associates*

## Bicycle Storage Facilities

(TRB-19, 1996)

Bicycle storage facilities, such as bike racks, may be provided at bus stops for the convenience of bicyclists using transit. Designated storage facilities discourage bicyclists from locking bikes onto the bus facilities or on an adjacent property. Proper storage of bicycles can reduce the amount of visual clutter and ensure a clear pathway. ADA guidelines for the prevention of obstructions should be followed in bicycle storage placement.

## Trash Receptacles

(TRB-19, 1996)

Trash receptacles can improve the appearance of a bus stop by providing a place to dispose of trash. The installation of trash receptacles is typically a system-wide decision and the size, shape and color should reflect transit agency or public works department policy. ADA guidelines for access to, use of and the placement of trash receptacles must be followed to ensure unobstructed circulation.

## Shopping Cart Storage

(TRB-19, 1996)

Proper storage for shopping carts at bus stops adjacent to commercial shopping centers is needed. Because such bus stops normally do not have storage facilities for shopping carts, carts often litter the area around the stop and along the sidewalk leading to the stop. The sight of haphazardly placed shopping carts around a bus stop is visually unappealing and can make the sidewalk and bus stop boarding and alighting area inaccessible.



***This transit center in Lakewood, Washington, provides an area to store shopping carts to help prevent random placement of carts in and around the center. Source: Pierce Transit***

Since shopping carts are generated by the shopping center, agreements should be made between the landowner and the transit agency to remove the carts regularly. One solution is to install a storage facility near the bus stop to prevent random storage in and around the stop. Factors affecting installation of a storage facility include the location of the sidewalk, available right-of-way, utilities, landscaping, terrain, and cost. Any cart storage facility must follow ADA circulation guidelines and remain clear of the sidewalk and bus-stop boarding and alighting area.

## Communications

### Public Telephones

#### *Accessibility & Safety Benefits*

Telephones at bus stops offer many potential benefits for bus patrons, including the ability to make personal and emergency calls while waiting for the bus. As the use of personal cell phones increases, public phones are being removed. Where public telephones are provided, they must be placed in an accessible manner and provide the accessible characteristics defined below.

#### *Minimum ADA Requirements*

(U.S. DOT, 2006)

Provide telephones that adhere to the following:

- Where public telephones and telephone directories are provided, at least one must be accessible by people using wheelchairs. It must be located so that the receiver, coin slot, controls, and directories are no more than 48 inches (1220 mm) above the floor;
- The telephone must have a clear floor or ground space at least 30 inches by 48 inches (762 mm by 1220 mm), not impeded by bases, enclosures and fixed seats, that allows either a forward or parallel approach by a person using a wheelchair;

- Accessible telephones must have push-button controls where such service is available;
- Location follows guidelines detailed in the section on Accessible Path;
- Hearing aid compatible and volume control equipped in accordance with ADAAG Section 4.1.3; and
- The length of the cord from the telephone to the handset must be a minimum of 29 inches (735 mm).
- Accessible public telephones must have volume controls and must have a gain adjustable up to 20 decibel (dB) minimum.
- Where public telephones are provided at transportation facilities, at least one public TTY must be provided and be permanently affixed within, or adjacent to, the telephone enclosure. The touch surface of TTY keypads must be 34 inches (865 mm) minimum above the finished floor or ground surface.

## *Universal Design* (TRB-19, 1996)

Experience with pay phones at bus stops has given mixed results. For example, inclusion of phones at bus stops can create opportunities for illegal or unintended activities, such as drug dealing and loitering, compromising the safety in and around bus stops. Loitering by non-bus patrons at bus stops appears to increase with the installation of phones; this may discourage bus patrons from using the facility.

When locating a phone at a bus stop, the following guidelines should be considered:

- Separate the phone and the bus stop waiting area by a short distance when possible.
- Remove the return phone number attached to the phone.
- Limit the phone to outward calls only.

## *Police Call Box*

Police call boxes for transit systems are typically placed in rail stations or at large bus terminals. Providing call boxes at bus stops aids in establishing a safe environment, especially at stops that are less patronized or are located in suburban or rural areas.



*Example of a police call box.  
Source: Greater Cleveland  
Regional Transit Authority  
Police*

Call boxes are an alternative to public telephones. They require less maintenance and do not encourage loitering by non-transit patrons. Police response is improved as call boxes may be geographically identified instantly in the event of an emergency.

Call boxes must not obstruct access to the stop and must be accessible to users who are deaf or hard of hearing and people who use wheelchairs—48 inches (1220 mm) maximum reach range.

## Bus Stop Identification by People Who Are Blind or Have Visual Impairments

For people with visual disabilities to distinguish a bus stop from other street furniture, unique features should be incorporated into the

design of each bus stop. Stops that have shelters are more readily identifiable due to the unique features of the shelter. Bus stops that are identified only with a flag pole or that have the flag mounted on a utility pole, however, can be difficult to identify. To address this issue, a pole design that is unique to bus stops should be provided at all locations. For example, the pole may be square with holes running down its length. If a

unique pole is provided, the transit agency should educate customers who have visual impairments about this feature.

*Adopt-a-Stop programs are an effective way to maintain bus stops and provide informal community surveillance. Participation can be high if incentives are given, such as bus passes.*

## Maintenance of Bus Stops and Shelters

Regular maintenance is crucial to establishing and maintaining a barrier free bus stop environment. Trash and broken panel glass can reduce accessibility to a stop by obstructing the path of travel. Additionally, a poorly maintained stop presents an unfavorable image of the transit system and may become a site for criminal activities. Stops left dirty or shelters left broken create unsafe conditions, sending a message that no one is in control of the stop and it is thus ripe for unsavory and potentially illegal activities. (Loukaitou-Sideris, 1999)

Bus stop maintenance can be costly and time-consuming. Working agreements with local businesses or commercial centers can reduce the financial responsibilities of the transit agency or public works

department. For stops next to convenience stores, the transit or public works agency should try to obtain a working agreement with the local stores or businesses to provide trash removal and general maintenance at the bus stop. This should include snow removal.

Adopt-a-Stop programs are an effective way to maintain bus stops and provide informal community surveillance. King County Metro Transit in Seattle, Washington administers an Adopt-a-Stop program for maintaining bus stops and shelters. The agency installs the trash can at the stop and provides liners to the local program participant. The individual keeps the stop clean and empties the trash can in exchange for a monthly pass. The program has been a success with the participation of several hundred individuals. (Nelson/Nygaard w/Hudson, 2005)

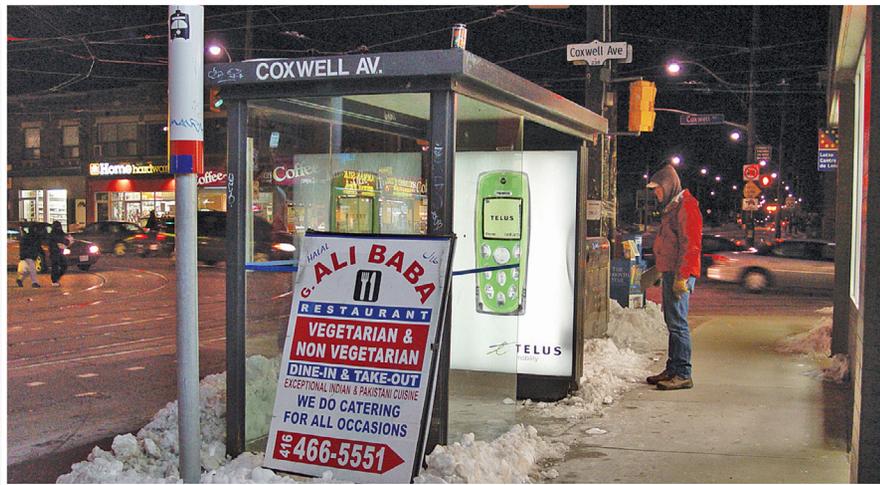
Tri-Met in Portland, Oregon compensates its Adopt-a-Stop participants with ten bus tickets per month for maintaining their stops. More than 800 bus stops within Tri-Met's service area have been adopted, and litter has been reduced by 80% through the program. (Volinski & Tucker, 2003) Tri-Met outlines their maintenance procedures in their *Bus Stop Guidelines 2002*, which is reproduced in Appendix B.



*The glass panels of this bus shelter are raised above the ground to accommodate cleaning but not so high as to create a problem for people who use white cane. Picture taken in Toronto, Canada. Source: SUNY Buffalo*

When selecting a transit shelter, two important considerations are the level of maintenance it will require and how vandal-resistant it is. Most shelters are designed to address both of these issues; therefore, servicing costs should be minimal. (BC Transit, n.d.) To enhance ventilation and to reduce the clutter that can accumulate inside a shelter, a 6-inch (152 millimeter) clearance between the ground and the bottom of the panels is standard in fully enclosed shelters. (TRB-19, 1996)

To ensure regular maintenance, a database containing maintenance schedules can be created to track the condition of the facilities, including pavement surface conditions; age of the facilities; history of damage; and condition of shelters, benches or other transit amenities. This information can be collected during the bus stop assessment. The maintenance database can be linked as a subsection of the bus stop inventory database.



*Although snow has been removed from the entrance to the shelter and the bus stop boarding and alighting area, this bus stop in Toronto, Canada appears to be the collection area for the plowed snow. This conveys a poor message about the value of the bus stop and shelter. Additionally, the restaurant sign obstructs the site lines of a person who uses a wheelchair. Source: SUNY Buffalo*

## Key Players and Agency Coordination

Because bus stops are generally located on public property, several players are involved in construction, improvements, and maintenance. Partnerships, therefore, between the transit agency, municipal departments, and the public are valuable in providing accessible and safe bus stops.

Generally, transit agencies can benefit from partnerships with the following for bus stop improvements:

- Agencies within state departments of transportation
- Public works departments
- City/municipal offices
- Disability community representatives, advocacy groups, and paratransit offices
- Businesses and developers
- General public

Partnerships with the public are helpful in maintaining stop accessibility. Through such programs as the previously mentioned Adopt-a-Stop, the public can assist in the maintenance of the bus stop by agreeing to pick up litter, clean the stop amenities, and report any items needing repair. Tri-Met in Portland, Oregon, compensates individuals in their Adopt-a-Stop program with gloves, cleaning supplies, and a steady supply of bus tickets. These types of partnerships are also successful with businesses and developers. (Tri-Met, 2002)

Examples of interagency coordination are provided in Appendix C.

## Interdepartmental Collaboration

In addition to cooperating with state and municipal offices and agencies, the transit agency can facilitate the implementation of bus stop improvements through strong internal organization. An effective example from Tri-Met is provided in Appendix C.

Planners who are responsible for bus stop design and location should consult bus operators about safe locations for pulling over a bus on established or soon-to-be-established routes. Bus operators are often well-aware of the best locations to place such a stop where they could easily pull the bus over and serve customers with disabilities more effectively.

## Driver Training and Support

ADA requires that public transportation providers train their employees to proficiency as it pertains to providing service to individuals with disabilities. Effective driver training helps ensure accessible and safe service. Training programs may include:

- Sensitivity and awareness training for all transit personnel who interact with the public.
- Discussion of different causes and characteristics of mobility, hearing, visual, and cognitive disabilities.
- Demonstration and hands-on experience with any technologies or mobility devices used, such as wheelchairs, hearing aids, white canes, and assistive listening devices.
- Training on interpersonal skills and etiquette when serving customers who have disabilities.
- Training on ADA requirements and etiquette related to customers who have service animals.

*ADA requires drivers to announce major intersections and other specific bus stops, operate wheelchair lifts, assist passengers boarding the lift or ramp, and secure wheelchairs and scooters.*

- Training on the fundamentals of communication etiquette when speaking with people who are deaf or hard of hearing.
- Training on the importance and relevance of stop and route announcements on transit vehicles and at bus stops.
- Training on orienting people with visual impairments. The operator needs to give explicit directions when people with visual impairments are looking for a vacant seat or departing the vehicle.
- Training on safety concerns related to loading and unloading people who use mobility devices at bus stops. (Hunter-Zaworski & Hron, 1993)

## Reducing Bus Operator Tasks

- Bus operators are responsible for many tasks other than driving. The introduction of new technology can help free up time for bus drivers to help patrons with disabilities. ADA requires that drivers announce major intersections and other specific bus stops, operate wheelchair lifts, assist passengers boarding the lift or ramp, and secure wheelchairs and other wheeled mobility devices. As part of their operator responsibilities, drivers must give schedule information, handle any passenger situations, and monitor the fare box. These responsibilities are in addition to negotiating traffic, making transfers, staying on schedule, and changing destination signs. Some of these tasks could be replaced by technology, such as automatically-changing destination signs and automated stop and route announcements. (Hunter-Zaworski & Hron, 1993)

## Cooperation Between Drivers and Bus Stop Planners

Pulling flush to the curb at a bus stop can be a challenging task for bus drivers. One option to assist drivers in pulling to the curb is painting a guidance line in the roadway to help the driver maintain the proper approach angle to position the bus parallel to the curb. The EXCALIBUR Project in London experiments with guidance lines at a prototype bus stop. (Tyler & Caiaffa, 1999)

Automated docking systems are another form of technology that can be used to help the driver pull in parallel at a bus stop to better assist boarding and alighting. Automated precision bus docking allows a bus to consistently pull up to a bus stop at precisely the desired distance to the curb, using a magnetic marker or laser guidance system. A discussion of these technologies can be found in the Technology and Product Links section.



*This photo illustrates how guidance lines can be incorporated at a stop (Note: in this U.K. example, the bus travels on the other side of the street, but the guidance line principle can be applied in a U.S. context). Source: University College London.*

## Rural Bus Stops

According to the 2000 U.S. Census and the Rural Assistance Center, approximately 27% of the United States population is made up of rural residents and approximately 11 million people with disabilities live in rural areas. Rural transportation providers often apply creative and innovative strategies to offer service in areas where traditional roadside transit stops are great distances apart or may not exist. Rural service strategies that promote livability include:

- Creating accessible rural bus stops by installing a concrete or asphalt pad on the shoulder of the road with a curb cut that meets ADA guidelines.
- Encouraging community connections through volunteer driver programs. Friends, neighbors and co-workers can provide reimbursable, individualized transportation by participating in a volunteer system.

In rural and isolated suburban areas, it is not uncommon to have paved roads with open ditches along the sides to channel storm water. Some of these areas have sidewalks, but most do not, and pedestrians are required to walk on the shoulder of the road. The shoulder often has a steep slope and is comprised of loose material such as gravel and dirt. (BC Transit, n.d.)

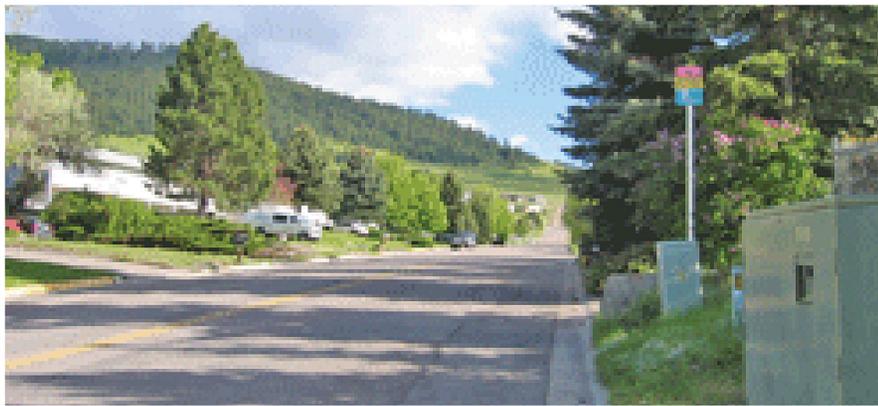
Municipalities typically have capital works programs to replace the open ditches with storm sewers. Given the capital cost of such an upgrading, the elimination of ditches and the provision of sidewalks will be a long-term objective in many instances. Transit riders, in the interim, have to board buses without the benefit of a curb to lift them closer to the first step of the bus. Additionally, transit passengers have to get on and off a bus on a gravel or dirt surface. This boarding and unloading situation is difficult for older adults and especially for people using wheelchairs or other mobility devices.

To create an accessible bus stop in rural and suburban areas, transit agencies can install an elevated concrete or asphalt boarding and alighting area on the shoulder of the road. A raised boarding and alighting area, along with a kneeling bus, overcomes the slope issue and provides an accessible boarding environment. Curb ramps between the raised boarding and alighting area and the roadway or shoulder surface must meet the DOT's ADA Standards (2006). Although the elevated boarding and alighting area creates grade changes, differentiating between vehicle and pedestrian rights-of-way increases pedestrian safety and provides an accessible ramp slope.

The boarding and alighting area must follow regulations given in the Bus Stop Platforms and Bus Stop Boarding and Alighting Areas section of this toolkit.



*A rural bus stop in Willows, California situated on an unpaved area. The stop is located a considerable distance away from the road, requiring either the patron to walk to the road's edge or the bus to pull off the road. Source: G. Araki*



## Technology and Product Links

Innovations in transit and wayfinding technology provide improved accessibility and safety for all users of bus systems, including talking signs, automated docking systems, NextBus, i-Stop, and applications (*apps*) for such personal handheld devices as cell phones and tablets.

## Talking Signs® Technology

Remote infrared audible signs, or RIAS, allow people who cannot read printed materials to directly know what and where objects are located. Unlike braille, raised letters or voice signs which passively label a location or give instructions to a specific goal, the remote signage technology developed at the Smith-Kettlewell Eye Research Institute (Talking Signs®) provides a repeating, directionally selective voice message which originates at the sign and is transmitted by infrared light to a hand-held receiver some distance away.

To learn more about the technology, visit the following website, which contains reports detailing Talking Signs® research and tests:

- Smith-Kettlewell Eye Research Institute [www.ski.org/Rehab/WCrandall/introts.html](http://www.ski.org/Rehab/WCrandall/introts.html). The website

*Left: This Missoula, Montana stop is not accessible. It lacks a bus stop boarding and alighting area and a connecting accessible path, forcing riders to wait on the road. Also, the slope of a wheelchair ramp deployed from the bus to the ground will be too steep for people who use wheelchairs to board the bus. And, placing the bus stop pole in landscaping off the side of the road makes it difficult for people with visual impairments to locate the stop. Source: Alexandra Enders, University of Montana*

## Automated Docking Systems

Automated precision bus docking allows a bus to consistently pull up to a bus stop at precisely the desired distance to the curb, using a magnetic marker or laser guidance system.

The California Partners for Advanced Transit and Highways (PATH) at the University of California, Berkeley demonstrated their precision docking system on a 60-foot research bus along a one-mile stretch in San Leandro, California. The steering of the bus was assisted by a series of magnets embedded in the pavement. The bus detects the magnets and steers based on the information received from the magnets. The driver maintains control of the braking and acceleration. This system allows the bus to pull into stops to within a lateral accuracy of 1 centimeter, or about the width of a pinky finger. Researchers say that the precision docking will shave seconds of the time needed to load and unload passengers at each stop, increasing efficiency and reliability to the route. (Yang, 2008) *Researchers showcase automated bus that uses magnets to steer through city streets.* UC Berkeley News. [berkeley.edu/news/media/releases/2008/09/05\\_autobus.shtml](http://berkeley.edu/news/media/releases/2008/09/05_autobus.shtml)

Carnegie Mellon University, in association with Université Blaise-Pascal, developed a multiple sensor fusion for detecting the location of curbs, walls and barriers. The researchers utilized a laser line striper, a vehicle state estimator, a video camera, and a laser scanner to detect an object at one location, track it alongside the vehicle and search for it in front of the vehicle. The study showed that data from a laser line striper fused with vehicle state estimation, video image and object detection gave reliable measurements of continuous objects alongside the vehicle. These systems can provide the driver with a higher degree of control and can prevent collisions. (Aufrère, Mertz & Thorpe, 2003)

For more information on both of these systems, refer to the following websites:

- **PATH:**  
[www.path.berkeley.edu/Publications/Intellimotion/intel73.pdf](http://www.path.berkeley.edu/Publications/Intellimotion/intel73.pdf)  
[berkeley.edu/news/media/releases/2008/09/05\\_autobus.shtml](http://berkeley.edu/news/media/releases/2008/09/05_autobus.shtml)  
[www.path.berkeley.edu/Default.htm](http://www.path.berkeley.edu/Default.htm)
- **Robotics Institute:** [www.ri.cmu.edu/](http://www.ri.cmu.edu/)

## NextBus

NextBus uses Global Positioning System (GPS) tracking satellites to provide vehicle arrival information and real-time maps—not just bus schedules—to passengers and managers of public transit, shuttles and trains.

NextBus information provides actual arrival information, updated at regular intervals to account for traffic variations, breakdowns and other day-to-day problems faced by any transit provider. The information displays can be installed in bus stop shelters.

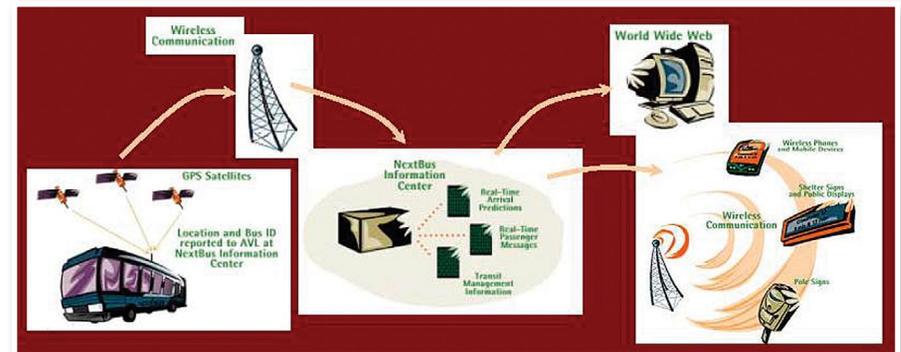


Figure 2. NextBus Information Flow

GPS Satellites, points to:

Location and Bus ID reported to AVL at NextBus Information Center, which points to:

Wireless Communication, which points to:

NextBus Information Center, which points to:

Real-Time Arrival Predictions, Real-Time Passenger Messages, Transit Management Information, which points to:

World Wide Web, Wireless Communication: Wireless Phones and Mobile Devices, Shelter Signs, and Public Displays, Pole Signs. Source: AC Transit

Technology is now available that provides information to passengers through an audio broadcast, which may provide route or NextBus information. This information may be accessed by all passengers by pushing a button on the stop ID pole or may be limited to passengers holding a coded transmitter. This technology should also be combined with a visual display of route information to be accessible to all transit users.

NextBus now provides real-time travel information via landline phone, cell phone or SMS (text) messaging.

For more information refer to the following website:

- **NextBus:** [www.nextbus.com](http://www.nextbus.com)

## Solar Bus Stop Lighting Systems

Bus Stop Lighting Systems are Solar-powered bus-stop illumination systems featuring a flashing beacon that notifies bus drivers of a stop request, overhead security lighting and an illuminated transit timetable. These systems are self-contained with solar-charging occurring during the day and are activated by bus patrons after dark with touch switches. Solar Bus Stop Lighting Systems are commonly utilized at stops located in less developed areas with minimal lighting or fast moving traffic, mainly located in suburban and rural areas. Options to activate the solar lighting with sensors instead of touch switches provide a better alternative for people with visual impairments.

For more information, refer to the following website:

- **National Solar Online:** [www.nationalsolaronline.com/pdf/Solar\\_Powered\\_Bus\\_Stop\\_Lighting.pdf](http://www.nationalsolaronline.com/pdf/Solar_Powered_Bus_Stop_Lighting.pdf)



**Example of a Solar Bus Stop Lighting System.**



**Figure 3. Bus Information Display. Photos of bus shelters at 40th Street and Ashby Avenue with real-time NextBus bus arrival times displayed. Source: AC Transit**

## Bus Stop Shelter Product Links

A variety of transit shelter types are readily available. The following are some of the companies that specialize in bus stop furniture and shelters:

### JCDecaux

- Products: Street furniture, including benches, bus shelters and advertising panels.
- Website: [www.jcdecaux.com/en/Innovation-Design/Design](http://www.jcdecaux.com/en/Innovation-Design/Design)

### Cemusa

- Products: Street furniture, including benches, bus shelters, kiosks, and trash receptacles.
- Website: [www.cemusa.com/cemusa/index.html?lang=EN](http://www.cemusa.com/cemusa/index.html?lang=EN)

### Tolar Manufacturing Company Inc.

- Products: Benches, bus shelters, kiosks, and trash receptacles.
- Website: [www.tolarmfg.com/street.html](http://www.tolarmfg.com/street.html)

### Daytech Limited

- Products: Benches, bus shelters, kiosks, and map and schedule frames.
- Website: [www.daytechlimited.com](http://www.daytechlimited.com)

### Carmanah

- Products: Solar powered outdoor lighting
- Website: [carmanah.com/outdoor-lighting/applications/general-area-lighting](http://carmanah.com/outdoor-lighting/applications/general-area-lighting)

### Simme LLC

- Products: Bus stop seating
- Website: [www.simmeseat.com](http://www.simmeseat.com)

### Solar Electric Power Company

- Products: Solar lighting for walkways and bus shelters
- Website: [www.sepco-solarlighting.com/projects/solar-shelter-lighting/](http://www.sepco-solarlighting.com/projects/solar-shelter-lighting/)

## How to Conduct a Bus Stop Inventory

Inventorying conditions at and around bus stops is the first step in determining needed improvements and planning for implementation of those improvements. The inventory data can also be used to communicate the bus stop's location, coordinates, condition, and the surrounding land uses. Those data can help inform patrons with disabilities of the stop's travel path and accessibility. Additionally, a database of existing conditions provides transit agencies information they can use to comply with ADA regulations and coordinate with other agencies in those efforts.

Many agencies have staff and/or community volunteers use checklists to inventory and assess the conditions of the bus stops and surrounding pathways. This toolkit includes two such checklists; each can be modified and used to inventory bus stops in a particular area. The amenities frequently assessed during a bus stop inventory are:

- Sidewalk presence and condition near the bus stop.
- Roadway crossing treatments near the bus stop (e.g., crosswalks, pedestrian signals, pedestrian push-buttons, pedestrian signal timing, audible warning signals).
- Path of access between the sidewalk and bus stop boarding area.
- Readability of bus stop signs.
- Obstructions at bus stop.
- Bus stop shelters and seating.
- Other bus stop amenities (e.g., trash receptacles, newspaper vending boxes, bicycle racks).

Using the information collected on the checklists, transit agencies, planning offices, and citizens can identify and prioritize improvements needed to address accessibility, security, operation, and passenger comfort issues. Often transit agencies will then use this process and the resulting information to create an ADA-required comprehensive implementation plan (i.e., ADA Self-Evaluation/Self-Assessment and Transition Plan).

Multiple agencies and partners should be included in the process from the beginning. These would include stakeholders (e.g., right-of-way owners, representatives of local jurisdictions, state department of transportation) and owners of the various pieces of infrastructure (e.g., advertising benches, newspaper racks). (Hillsborough Area Regional Transit, 2008) *Draft Summary Report*. Hillsborough Area Regional Transit Authority. [www.gohart.org/departments/planning/bus\\_stop\\_study\\_draft.pdf](http://www.gohart.org/departments/planning/bus_stop_study_draft.pdf).) This should be an agency-wide inventory effort for transit agencies to include staff from operations, maintenance, and administration, as well as bus drivers and riders.

Public involvement is also an important part of the inventory and planning process. Accessibility committees should be involved from the outset, providing input at key phases. In some communities accessibility committees initiate the process using the checklists to open a neutral dialogue with transit agencies.

Other partners in the bus stop inventory process include representatives from disability groups, passengers, local jurisdictions, state DOT representatives, the metropolitan planning organization (MPO)/rural planning organization (RPO), and the transit agency board of directors. Additional public outreach activities could include public workshops early in the inventory process; the presentation of draft inventory findings in open houses; and presentations to numerous groups, including human services, disability and aging groups, and several MPO committees.

## Sample Bus Stop Checklists

The most comprehensive Bus Stop Checklist (Appendix A) is based on a model used by Arlington County in Virginia and has been modified to incorporate items and ideas from other checklists and feedback from a series of field tests. (Note 4: Refer to Appendix E for a list of locations where the checklist was tested.) Toolkit users are encouraged to customize the checklist according to local needs, issues, and concerns. The Bus Stop Checklist is intended for use by transit and public works agencies.

The Quick Bus Stop Checklist (Appendix B) is a shortened version of the comprehensive checklist and is suggested for use by advocates and the general public.

Both checklists have been updated to include the revised DOT's ADA Standards (2006) and ADAAG requirements.

Although a checklist may be completed at any time of day, certain sections, such as the lighting assessment, are best performed in the evening or night-time to effectively determine the safety, security, and accessibility of the stop.

The equipment needed to acquire data for the site is listed below, divided into basic and additional. These categories are based on the type of information the transit agency is collecting, the use of paper forms or electronic device, and the level of accuracy desired.

### ■ Basic

- Database
- Checklist
- Clipboard
- Camera (preferably digital to be able to download to a database)
- Measuring wheel
- Slope measuring level/device (Smartlevel)

### ■ Additional

- Handheld device, tablet or laptop onto which the checklist can be downloaded
- Global Positioning System (GPS) to calculate the location of the bus stop
- Vehicle with GPS outfitted with computer equipment and sensors to transport the crew to the bus stop locations and gather data

## ■ After Conducting the Bus Stop Inventory

- If the checklist was completed using paper forms, the information gathered should be entered into a database. An Excel spreadsheet or Access database are the most convenient ways to store the information.
- Once a database is created, the data may be used to prioritize improvements according to the condition of the stop or shelter, the use of the stop by people with disabilities, ridership, and/or the importance of the connections provided by the bus stop location. The database should be updated regularly to include the current conditions at the stop.



*A transit agency official measures the distance between the edge of the shelter and the curb, using a measuring wheel, to determine if enough clearance is available for wheelchair users to board and alight the bus. Source: Nelson\Nygaard Consulting Associates*

## APPENDIX A. Comprehensive Bus Stop Checklist

<b>BUS STOP CHECKLIST</b>		<b>PART A: IDENTIFICATION/LOCATION</b>	
<i>Route Name:</i>	<i>Location:</i>	<i>Weather Conditions:</i>	<i>Stop No.:</i>

PART A: IDENTIFICATION/LOCATION			
		Yes	No N/A
<b>A1</b>	Is there a bus shelter?	<input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/>
	<i>If YES, what is the number of the shelter?</i>		
	<i>If NO, is there an exterior alternative shelter nearby (i.e. - awning, overhangs, underpass)?</i>	<input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/>
<b>A2</b>	Street Name:		
<b>A3</b>	Nearest Cross Street (street name or landmark if mid-block):		
<b>A4</b>	Bus Route Direction:		
	North Bound <input type="checkbox"/>	South Bound <input type="checkbox"/>	More than one direction <input type="checkbox"/>
	East Bound <input type="checkbox"/>	West Bound <input type="checkbox"/>	
<b>A5</b>	What is the purpose of the stop?		
	Park and Ride <input type="checkbox"/>	Boarding <input type="checkbox"/>	Both Boarding and Alighting <input type="checkbox"/>
	Kiss and Ride <input type="checkbox"/>	Alighting <input type="checkbox"/>	Transfer <input type="checkbox"/>
	Other (specify): <input type="checkbox"/>		
<b>A6</b>	What is the average number of daily boardings at the stop?		
<b>A7</b>	Where is the bus stop positioned in relation to the nearest intersection?		
	Nearside (Before the bus crosses the intersection)	<input type="checkbox"/>	
	Far Side (After the bus crosses the intersection)	<input type="checkbox"/>	
	Mid-block	<input type="checkbox"/>	
	Not near an intersection	<input type="checkbox"/>	
	Freeway bus pad	<input type="checkbox"/>	
	N/A	<input type="checkbox"/>	

<i>Date</i>	<i>Time:</i>	<i>Surveyor:</i>
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# Toolkit for the Assessment of Bus Stop Accessibility and Safety

## BUS STOP CHECKLIST

## PART A: IDENTIFICATION/LOCATION

<i>Route Name:</i>	<i>Location:</i>	<i>Weather Conditions:</i>	<i>Stop No.:</i>
--------------------	------------------	----------------------------	------------------

<b>A8</b>	Distance from bus stop pole to curb of cross street in feet:																								
<b>A9</b>	Adjacent property address or name of business (only if readily visible):																								
<b>A10</b>	Adjacent Property Description:																								
	<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 25%; padding: 2px;">Apartment Building <input type="checkbox"/></td> <td style="width: 25%; padding: 2px;">Industrial Site/Bldg. <input type="checkbox"/></td> <td style="width: 25%; padding: 2px;">Park <input type="checkbox"/></td> <td style="width: 25%; padding: 2px;">School <input type="checkbox"/></td> </tr> <tr> <td style="padding: 2px;">Day Care <input type="checkbox"/></td> <td style="padding: 2px;">Library <input type="checkbox"/></td> <td style="padding: 2px;">Park and Ride <input type="checkbox"/></td> <td style="padding: 2px;">Supermarket <input type="checkbox"/></td> </tr> <tr> <td style="padding: 2px;">Government Building <input type="checkbox"/></td> <td style="padding: 2px;">Mall/Shopping Center <input type="checkbox"/></td> <td style="padding: 2px;">Place of Worship <input type="checkbox"/></td> <td style="padding: 2px;">Transit station/center <input type="checkbox"/></td> </tr> <tr> <td style="padding: 2px;">Hospital <input type="checkbox"/></td> <td style="padding: 2px;">Nursing Home <input type="checkbox"/></td> <td style="padding: 2px;">Residence – townhouse <input type="checkbox"/></td> <td style="padding: 2px;">Vacant lot <input type="checkbox"/></td> </tr> <tr> <td style="padding: 2px;">Human Service Agency <input type="checkbox"/></td> <td style="padding: 2px;">Office Building <input type="checkbox"/></td> <td style="padding: 2px;">Residence – detached <input type="checkbox"/></td> <td style="padding: 2px;">Other (specify): <input type="checkbox"/></td> </tr> <tr> <td style="padding: 2px;"></td> <td style="padding: 2px;"></td> <td style="padding: 2px;">Retail Store <input type="checkbox"/></td> <td style="padding: 2px;"></td> </tr> </table>	Apartment Building <input type="checkbox"/>	Industrial Site/Bldg. <input type="checkbox"/>	Park <input type="checkbox"/>	School <input type="checkbox"/>	Day Care <input type="checkbox"/>	Library <input type="checkbox"/>	Park and Ride <input type="checkbox"/>	Supermarket <input type="checkbox"/>	Government Building <input type="checkbox"/>	Mall/Shopping Center <input type="checkbox"/>	Place of Worship <input type="checkbox"/>	Transit station/center <input type="checkbox"/>	Hospital <input type="checkbox"/>	Nursing Home <input type="checkbox"/>	Residence – townhouse <input type="checkbox"/>	Vacant lot <input type="checkbox"/>	Human Service Agency <input type="checkbox"/>	Office Building <input type="checkbox"/>	Residence – detached <input type="checkbox"/>	Other (specify): <input type="checkbox"/>			Retail Store <input type="checkbox"/>	
Apartment Building <input type="checkbox"/>	Industrial Site/Bldg. <input type="checkbox"/>	Park <input type="checkbox"/>	School <input type="checkbox"/>																						
Day Care <input type="checkbox"/>	Library <input type="checkbox"/>	Park and Ride <input type="checkbox"/>	Supermarket <input type="checkbox"/>																						
Government Building <input type="checkbox"/>	Mall/Shopping Center <input type="checkbox"/>	Place of Worship <input type="checkbox"/>	Transit station/center <input type="checkbox"/>																						
Hospital <input type="checkbox"/>	Nursing Home <input type="checkbox"/>	Residence – townhouse <input type="checkbox"/>	Vacant lot <input type="checkbox"/>																						
Human Service Agency <input type="checkbox"/>	Office Building <input type="checkbox"/>	Residence – detached <input type="checkbox"/>	Other (specify): <input type="checkbox"/>																						
		Retail Store <input type="checkbox"/>																							
<b>A11</b>	Distance from previous bus stop (in feet):																								

<i>Date</i>	<i>Time:</i>	<i>Surveyor:</i>
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# Toolkit for the Assessment of Bus Stop Accessibility and Safety

## BUS STOP CHECKLIST

## PART B: PEDESTRIAN ACCESS FEATURES

<i>Route Name:</i>	<i>Location:</i>	<i>Weather Conditions:</i>	<i>Stop No.:</i>
--------------------	------------------	----------------------------	------------------

### PART B: PEDESTRIAN ACCESS FEATURES

#### Section B-1: Landing Area Assessment

<b>B1</b>	Is there a landing area at least 5 feet wide and 8 feet deep adjacent to the curb/street?	Yes <input type="checkbox"/>	No <input type="checkbox"/>	
<b>B2</b>	Where is the landing area positioned in relation to the curb/street?			
	Below street level (low ground or shoulder) <input type="checkbox"/>	Shoulder <input type="checkbox"/>	Other (specify): <input type="checkbox"/>	
		Adjacent <input type="checkbox"/>		
	Sidewalk <input type="checkbox"/>	Bus Bulb <input type="checkbox"/>	Off-Road/No sidewalk <input type="checkbox"/>	
<b>B3</b>	What is the material of the landing area?			
	Asphalt <input type="checkbox"/>	Dirt <input type="checkbox"/>	Other (specify): <input type="checkbox"/>	
		Gravel <input type="checkbox"/>		
	Concrete <input type="checkbox"/>	Grass <input type="checkbox"/>	Pavers <input type="checkbox"/>	
<b>B4</b>	Are there problems with the landing area surface?	Yes <input type="checkbox"/>	No <input type="checkbox"/>	
	<i>If YES, rank resulting accessibility potential:</i>			
		Not Accessible	Minimally Accessible	Accessible
	Uneven	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	Slopes up from the street	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	Slopes down from the street	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	Requires stepping over drain inlet	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	Other (Specify)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<b>B5</b>	Are there any obstacles that would limit the mobility of a wheelchair?	Yes <input type="checkbox"/>	No <input type="checkbox"/>	

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# Toolkit for the Assessment of Bus Stop Accessibility and Safety

## BUS STOP CHECKLIST

## PART B: PEDESTRIAN ACCESS FEATURES

<i>Route Name:</i>	<i>Location:</i>	<i>Weather Conditions:</i>	<i>Stop No.:</i>
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	<i>If YES, describe obstruction:</i>
<b>B6</b>	Additional landing area comments:
<b>B7</b>	Landing area recommendations:
	Widen sidewalk to expand landing area to 5 feet wide and 8 feet deep <span style="float: right;"><input type="checkbox"/></span>
	Install curb bulb or remove on street parking <span style="float: right;"><input type="checkbox"/></span>
	Move object to improve accessibility (specify where):
	Make the following repairs (specify):
	Other (specify):

### Section B-2: Connections (Trip Generators)

<b>B8</b>	What are the primary trip generators for passengers at this stop? (Check all that apply)		
	Apartments - large building/complex <input type="checkbox"/>	Human service agency – what kind? <input type="checkbox"/>	School –Elementary/Middle <input type="checkbox"/>
	Apartments - small building <input type="checkbox"/>	Library <input type="checkbox"/>	School -High <input type="checkbox"/>
	Townhomes <input type="checkbox"/>	<u>Major Shopping/employment</u> (Mall, Wal-Mart, Kmart, Target, other big department store) <input type="checkbox"/>	School - College/University/ Technical school <input type="checkbox"/>
	Detached homes <input type="checkbox"/>	<u>Neighborhood Shopping</u> (supermarket, drugstore, Goodwill, strip mall with basic needs shopping) <input type="checkbox"/>	Senior center <input type="checkbox"/>
	Day care/pre-school <input type="checkbox"/>	Nursing home/assisted living <input type="checkbox"/>	Transfer to other bus routes <input type="checkbox"/>

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# Toolkit for the Assessment of Bus Stop Accessibility and Safety

## BUS STOP CHECKLIST

## PART B: PEDESTRIAN ACCESS FEATURES

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	Gas station <input type="checkbox"/>	Office building/employment <input type="checkbox"/>	Transit station/center <input type="checkbox"/>		
	Government building <input type="checkbox"/>	Park and Ride lot <input type="checkbox"/>	Other (Specify): <input type="checkbox"/>		
	Hospital/major clinic <input type="checkbox"/>	Place of worship <input type="checkbox"/>			
	Hotel <input type="checkbox"/>	Restaurant <input type="checkbox"/>			
<b>B9</b>	How wide is the sidewalk?				
	No sidewalk <input type="checkbox"/>	less than 3' <input type="checkbox"/>	3'-5' <input type="checkbox"/>	5' or greater <input type="checkbox"/>	N/A <input type="checkbox"/>
<b>B10</b>	Are there physical barriers that constrict the width of the sidewalk within the block on which the bus stop is located?				Yes <input type="checkbox"/> No <input type="checkbox"/>
	<i>If YES, what is the narrowest useable width:</i>				
	Less than 3' <input type="checkbox"/>		3' or greater <input type="checkbox"/>		
<b>B11</b>	Rank the condition of the sidewalk:				
	1 <input type="checkbox"/>	2 <input type="checkbox"/>	3 <input type="checkbox"/>	4 <input type="checkbox"/>	5 <input type="checkbox"/>
	<i>1=hazardous – large breaks, cracks, root uplifting, someone could get hurt from normal use or use of a wheelchair would be difficult</i>				
	<i>2=in poor shape though not hazardous – very rough, some root uplifting, cracks, breaks</i>				
	<i>3=fair – minor root uplifting, minor cracks or breaks</i>				
	<i>4=good – not perfect but no immediate repair</i>				
	<i>5=cosmetically excellent; new</i>				
<b>B12</b>	Does the landing pad connect to the sidewalk?				Yes <input type="checkbox"/> No <input type="checkbox"/>
	<i>If YES, what does the sidewalk connect to:</i>				
	One of the trip generators listed in Question B8 <input type="checkbox"/>		The nearest intersection <input type="checkbox"/>		
<b>B13</b>	Where is the nearest street crossing opportunity?				
	The nearest intersection <input type="checkbox"/>		Mid-block crosswalk <input type="checkbox"/>		
<b>B14</b>	What pedestrian amenities are at the nearest intersection (or other crossing opportunity)?				
	Curb cuts all corners/ both sides <input type="checkbox"/>	Pedestrian crossing signal <input type="checkbox"/>	Traffic Light <input type="checkbox"/>		

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# Toolkit for the Assessment of Bus Stop Accessibility and Safety

## BUS STOP CHECKLIST

## PART B: PEDESTRIAN ACCESS FEATURES

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	Visible crosswalk <input type="checkbox"/>	Audible crosswalk signal <input type="checkbox"/>	Crossing guard assistance <input type="checkbox"/>
	Curb cuts at some corners/one side <input type="checkbox"/>	Accessible Pedestrian Signal (APS) <input type="checkbox"/>	Tactile warning strip on curb cut <input type="checkbox"/>
			Other (specify): <input type="checkbox"/>
<b>B15</b>	Is there a companion bus stop across the street?		Yes No N/A <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>
<b>B16</b>	Are there connections to other transportation services at this bus stop?		Yes No <input type="checkbox"/> <input type="checkbox"/>
	<i>If YES, check all that apply</i>		
	Bus services, same or other agency <input type="checkbox"/>	Local Rail <input type="checkbox"/>	Commuter Rail <input type="checkbox"/>
	Greyhound <input type="checkbox"/>	Other (Specify): <input type="checkbox"/>	
<b>B17</b>	Pedestrian connection recommendations:		
	Construct sidewalk	<input type="checkbox"/>	
	Widen sidewalk	<input type="checkbox"/>	
	Improve landing area connections to sidewalk	<input type="checkbox"/>	
	Install curb cut(s) at:		
	Move object to improve accessibility (specify where):		
	Make the following repairs (specify):		
	Other (specify):		

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## BUS STOP CHECKLIST

## PART B: PEDESTRIAN ACCESS FEATURES

<i>Route Name:</i>	<i>Location:</i>	<i>Weather Conditions:</i>	<i>Stop No.:</i>
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<b>B18</b>	Additional pedestrian connection comments:
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# Toolkit for the Assessment of Bus Stop Accessibility and Safety

## BUS STOP CHECKLIST

## PART C: PASSENGER COMFORT AMENITIES

<i>Route Name:</i>	<i>Location:</i>	<i>Weather Conditions:</i>	<i>Stop No.:</i>
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## PART C: PEDESTRIAN COMFORT AMENITIES

### Section C-1: Shelters (move to Section C-2 if there is no shelter)

<b>C1</b>	What is the orientation of the bus shelter in relation to the street?	
	Facing towards the street	<input type="checkbox"/>
	Facing on-coming traffic	<input type="checkbox"/>
	Facing away from the street	<input type="checkbox"/>
<b>C2</b>	What kind of shelter is it? Insert shelter relevant to your system.	
	Own transit agency <input type="checkbox"/>	Another transit agency (shared stop) <input type="checkbox"/>
	Other (Specify): <input type="checkbox"/>	
<b>C3</b>	If non-standard shelter, what are the approximate dimensions (width, height and depth in feet) of the interior standing area?	
	Width:	
	Height:	
	Depth:	
<b>C4</b>	Does the shelter have a front center panel (i.e. two openings)?	Yes No <input type="checkbox"/> <input type="checkbox"/>
	<i>If YES, what are the dimensions of the opening?</i>	
<b>C5</b>	Could a person using a wheelchair maneuver into the shelter?	Yes No <input type="checkbox"/> <input type="checkbox"/>
<b>C6</b>	Could a person using a wheelchair fit completely under the shelter (minimum space of a common mobility device is 30 in. by 48 in. (760 mm by 1200mm))?	Yes No <input type="checkbox"/> <input type="checkbox"/>
	What are the dimensions of the clear space in the shelter?	
<b>C7</b>	What is the distance of the front of the shelter from the curb in feet?	
	0 - 2' <input type="checkbox"/>	2' - 4' <input type="checkbox"/>
	4' - 6' <input type="checkbox"/>	6' - 8' <input type="checkbox"/>
	8' - 10' <input type="checkbox"/>	>10' <input type="checkbox"/>
<b>C8</b>	Are there damages to the bus shelter?	Yes No <input type="checkbox"/> <input type="checkbox"/>
	<i>If YES, check all that apply:</i>	

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# Toolkit for the Assessment of Bus Stop Accessibility and Safety

## BUS STOP CHECKLIST

## PART C: PASSENGER COMFORT AMENITIES

<i>Route Name:</i>	<i>Location:</i>	<i>Weather Conditions:</i>	<i>Stop No.:</i>
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	Broken panels	<input type="checkbox"/>
	Graffiti	<input type="checkbox"/>
	Holes in the roof	<input type="checkbox"/>
	Missing panels	<input type="checkbox"/>
	Needs repainting	<input type="checkbox"/>
	Other (specify):	<input type="checkbox"/>
<b>C9</b>	What is the approximate age of the shelter?	
<b>C10</b>	Rank the condition of the shelter:	
	1 <input type="checkbox"/>	2 <input type="checkbox"/>
	3 <input type="checkbox"/>	4 <input type="checkbox"/>
	5 <input type="checkbox"/>	
	<i>1=hazardous – broken glass, unstable</i> <i>2=in poor shape though not hazardous</i> <i>3=fair – needs repainting, glass panels need thorough cleaning, protruding but not hazardous bolts</i> <i>4=good – not perfect but no immediate repair need</i> <i>5=cosmetically excellent; new</i>	
<b>C11</b>	Additional shelter comments:	
<b>C12</b>	Shelter recommendations:	
	Remove center panel	<input type="checkbox"/>
	Make the following repairs (specify):	<input type="checkbox"/>

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# Toolkit for the Assessment of Bus Stop Accessibility and Safety

## BUS STOP CHECKLIST

## PART C: PASSENGER COMFORT AMENITIES

<i>Route Name:</i>	<i>Location:</i>	<i>Weather Conditions:</i>	<i>Stop No.:</i>
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	Move object to improve accessibility (specify where):
	Move shelter to improve accessibility (specify where):
	Other (specify):

### **Section C-2: Seating Assessment (move to Section C-3 if there is no seating)**

<b>C13</b>	What is the type of seating available?							
	Bench inside shelter – <i>skip to question C15</i>	<input type="checkbox"/>						
	Freestanding bench	<input type="checkbox"/>						
	Fold down bench	<input type="checkbox"/>						
	Leaning bench	<input type="checkbox"/>						
	Other (specify):	<input type="checkbox"/>						
<b>C14</b>	If not inside shelter, what is the distance of the seating from the curb in feet?							
	<table style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 15%; text-align: center;">0 - 2'    <input type="checkbox"/></td> <td style="width: 15%; text-align: center;">2' - 4'    <input type="checkbox"/></td> <td style="width: 15%; text-align: center;">4' - 6'    <input type="checkbox"/></td> <td style="width: 15%; text-align: center;">6' - 8'    <input type="checkbox"/></td> <td style="width: 15%; text-align: center;">8' - 10'    <input type="checkbox"/></td> <td style="width: 15%; text-align: center;">&gt;10'    <input type="checkbox"/></td> </tr> </table>	0 - 2' <input type="checkbox"/>	2' - 4' <input type="checkbox"/>	4' - 6' <input type="checkbox"/>	6' - 8' <input type="checkbox"/>	8' - 10' <input type="checkbox"/>	>10' <input type="checkbox"/>	
0 - 2' <input type="checkbox"/>	2' - 4' <input type="checkbox"/>	4' - 6' <input type="checkbox"/>	6' - 8' <input type="checkbox"/>	8' - 10' <input type="checkbox"/>	>10' <input type="checkbox"/>			
<b>C15</b>	Are there problems with the seating?	Yes <input type="checkbox"/> No <input type="checkbox"/>						
	<i>If YES, check all that apply:</i>							
	Broken pieces	<input type="checkbox"/>						
	Needs painting	<input type="checkbox"/>						
	Graffiti	<input type="checkbox"/>						
	Not securely installed	<input type="checkbox"/>						
	Other (specify):	<input type="checkbox"/>						
<b>C16</b>	Rank the condition of the seating:							
	<table style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 15%; text-align: center;">1        <input type="checkbox"/></td> <td style="width: 15%; text-align: center;">2        <input type="checkbox"/></td> <td style="width: 15%; text-align: center;">3        <input type="checkbox"/></td> <td style="width: 15%; text-align: center;">4        <input type="checkbox"/></td> <td style="width: 15%; text-align: center;">5        <input type="checkbox"/></td> </tr> </table>	1 <input type="checkbox"/>	2 <input type="checkbox"/>	3 <input type="checkbox"/>	4 <input type="checkbox"/>	5 <input type="checkbox"/>		
1 <input type="checkbox"/>	2 <input type="checkbox"/>	3 <input type="checkbox"/>	4 <input type="checkbox"/>	5 <input type="checkbox"/>				

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# Toolkit for the Assessment of Bus Stop Accessibility and Safety

## BUS STOP CHECKLIST

## PART C: PASSENGER COMFORT AMENITIES

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	<p><i>1=hazardous – broken, someone could get hurt from normal use</i></p> <p><i>2=in poor shape though not hazardous</i></p> <p><i>3=fair – needs repainting, needs cosmetic attention,, protruding but not hazardous bolts</i></p> <p><i>4=good – not perfect but no immediate repair need</i></p> <p><i>5=cosmetically excellent; new</i></p>
<b>C17</b>	Additional seating comments:
<b>C18</b>	<p>Seating recommendations:</p> <p>Move seating to improve accessibility (specify where):</p> <hr/> <p>Make the following repairs (specify):</p> <hr/> <p>Other (specify):</p> <hr/>
<b><i>Section C-3: Trash Assessment (move to Section C-4 if there is no trash receptacle)</i></b>	
<b>C19</b>	What is the type of installation for the trash receptacle?

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# Toolkit for the Assessment of Bus Stop Accessibility and Safety

## BUS STOP CHECKLIST

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	Attached to the shelter	<input type="checkbox"/>
	Free standing	<input type="checkbox"/>
	Garbage bag	<input type="checkbox"/>
	Bolted to sidewalk	<input type="checkbox"/>
	Other (specify):	<input type="checkbox"/>
<b>C20</b>	Are there problems with the trash receptacle and surrounding area?	Yes No <input type="checkbox"/> <input type="checkbox"/>
	<i>If YES, check all that apply:</i>	
	Trash can very full	<input type="checkbox"/>
	Graffiti at bus stop	<input type="checkbox"/>
	Bus stop littered	<input type="checkbox"/>
	Grocery carts left at stop	<input type="checkbox"/>
	Trash can not securely installed	<input type="checkbox"/>
	Adjacent property littered	<input type="checkbox"/>
	Other (specify):	<input type="checkbox"/>
<b>C21</b>	Additional Comments:	
<b>C22</b>	Trash recommendations:	
	Install trash can due to litter problem	<input type="checkbox"/>
	Make the following repairs (specify):	
	Move trash can to improve accessibility (specify where):	
	Other (specify):	
<b>Section C-4: Newspaper Boxes (move to Part D if there are no newspaper boxes)</b>		

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# Toolkit for the Assessment of Bus Stop Accessibility and Safety

## BUS STOP CHECKLIST

## PART C: PASSENGER COMFORT AMENITIES

<i>Route Name:</i>	<i>Location:</i>	<i>Weather Conditions:</i>	<i>Stop No.:</i>
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<b>C23</b>	Are the newspaper boxes a barrier to sidewalk use?	Yes No <input type="checkbox"/> <input type="checkbox"/>
<b>C24</b>	Are the newspaper boxes a barrier to bus access/egress?	Yes No <input type="checkbox"/> <input type="checkbox"/>
<b>C25</b>	Are they chained to the bus stop pole, shelter, or bench?	Yes No <input type="checkbox"/> <input type="checkbox"/>
<b>C26</b>	Are they blocking access to posted bus schedule info?	Yes No <input type="checkbox"/> <input type="checkbox"/>
<b>C27</b>	Additional newspaper box comments:	
<b>C28</b>	Newspaper box recommendations:	
	Move trash can to improve accessibility (specify where):	
	Other (specify):	

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# Toolkit for the Assessment of Bus Stop Accessibility and Safety

## BUS STOP CHECKLIST

## PART D: SAFETY AND SECURITY FEATURES

<i>Route Name:</i>	<i>Location:</i>	<i>Weather Conditions:</i>	<i>Stop No.:</i>
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<b>PART D: Safety and Security Features</b>		
<b>Section D-1: Traffic and Pedestrian Issues</b>		
<b>D1</b>	Where is the bus stop area located?	
	In travel lane	<input type="checkbox"/>
	Bus lane/pull off area	<input type="checkbox"/>
	Paved shoulder	<input type="checkbox"/>
	In right turn only lane	<input type="checkbox"/>
	Unpaved shoulder	<input type="checkbox"/>
	Off street	<input type="checkbox"/>
	“No Parking” portion of street parking lane	<input type="checkbox"/>
	Other (specify):	<input type="checkbox"/>
<b>D2</b>	Is the bus stop zone designated as a no parking zone?	Yes No <input type="checkbox"/> <input type="checkbox"/>
	<i>If YES, indicated by:</i>	
	One “No Parking” sign	<input type="checkbox"/>
	2 or more “No Parking” signs	<input type="checkbox"/>
	“Bus Only” sign	<input type="checkbox"/>
	Painted curb	<input type="checkbox"/>
	Painted street	<input type="checkbox"/>
<b>D3</b>	Are cars parked between the landing area and the bus stopping area?	Yes No <input type="checkbox"/> <input type="checkbox"/>
<b>D4</b>	What is the posted speed limit in MPH?	Not posted <input type="checkbox"/>
<b>D5</b>	What are the traffic controls at the nearest intersection for the street?	
	Traffic signals	<input type="checkbox"/>
	Flashing lights	<input type="checkbox"/>
	Stop/Yield sign	<input type="checkbox"/>
	None	<input type="checkbox"/>
Other (specify):	<input type="checkbox"/>	
<b>D6</b>	How many total lanes are on both sides of the road?	

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# Toolkit for the Assessment of Bus Stop Accessibility and Safety

## BUS STOP CHECKLIST

## PART D: SAFETY AND SECURITY FEATURES

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	1 <input type="checkbox"/>	2 <input type="checkbox"/>	3 <input type="checkbox"/>	4 <input type="checkbox"/>	Other (specify): <input type="checkbox"/>	N/A <input type="checkbox"/>
<b>D7</b>	Is there on-street parking permitted just before or after the bus stop zone?					Yes <input type="checkbox"/> No <input type="checkbox"/> N/A <input type="checkbox"/>
	<i>If YES, what is the length of the "No Parking" area in feet:</i>					
<b>D8</b>	Are there potential traffic hazards?					Yes <input type="checkbox"/> No <input type="checkbox"/>
	<i>Yes, check all that apply:</i>					
	The bus stop is just over the crest of a hill					<input type="checkbox"/>
	The bus stop is just after a curve in the road					<input type="checkbox"/>
	The bus stop is near an at-grade railroad crossing					<input type="checkbox"/>
	Waiting passengers are hidden from view of approaching bus					<input type="checkbox"/>
	A stopped bus straddles the crosswalk					<input type="checkbox"/>
	Bus stop just before crosswalk					<input type="checkbox"/>
	High speed traffic					<input type="checkbox"/>
	No crosswalk					<input type="checkbox"/>
Other (specify)					<input type="checkbox"/>	
<b>D9</b>	Additional traffic safety comments / recommendations:					
<b>Section D-2: Lighting Assessment (assessment preferably taken in the evening or at night)</b>						
<b>Go to Section D-3 if no lighting</b>						
<b>D10</b>	What type of lighting is available?					
	Street light					<input type="checkbox"/>
	Shelter lighting					<input type="checkbox"/>
	Outside light on adjacent building					<input type="checkbox"/>
	Other (specify):					<input type="checkbox"/>

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# Toolkit for the Assessment of Bus Stop Accessibility and Safety

## BUS STOP CHECKLIST

## PART D: SAFETY AND SECURITY FEATURES

<i>Route Name:</i>	<i>Location:</i>	<i>Weather Conditions:</i>	<i>Stop No.:</i>
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<b>D11</b>	Does the light produce a glare?	Yes <input type="checkbox"/> No <input type="checkbox"/>
<b>D12</b>	How even is the light distributed?	Yes <input type="checkbox"/> No <input type="checkbox"/>
<b>D13</b>	Additional comments:	

### Section D-3: Pay Phone

<b>D14</b>	Is there a pay phone within the immediate vicinity? <i>If NO, skip to Question D16.</i>	Yes <input type="checkbox"/> No <input type="checkbox"/>
<b>D15</b>	Is the pay phone within reach of a wheelchair user?	Yes <input type="checkbox"/> No <input type="checkbox"/>
<b>D16</b>	If no pay phone is provided, is there a police call box?	Yes <input type="checkbox"/> No <input type="checkbox"/>
<b>D17</b>	Additional comments:	

### Section D-4: Landscaping Assessment

<b>D18</b>	Are there problems with the landscaping around the bus stop? <i>If YES, check all that apply:</i>	Yes <input type="checkbox"/> No <input type="checkbox"/>
	Trees/bushes encroaching on the landing area	<input type="checkbox"/>
	Trees/bushes encroaching on the sidewalk	<input type="checkbox"/>
	Tree branches that would hit the bus	<input type="checkbox"/>
	Other (specify):	<input type="checkbox"/>

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**BUS STOP CHECKLIST**

**PART D: SAFETY AND SECURITY FEATURES**

<i>Route Name:</i>	<i>Location:</i>	<i>Weather Conditions:</i>	<i>Stop No.:</i>
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<b>D19</b>	Additional comments:
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***Section D-5: Safety Recommendations***

<b>D20</b>	Improve pedestrian safety by:	<input type="checkbox"/>
	Trim trees or branches	<input type="checkbox"/>
	Move bus stop to:	
	Other (specify):	

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# Toolkit for the Assessment of Bus Stop Accessibility and Safety

## BUS STOP CHECKLIST

## PART E: INFORMATION FEATURES

<i>Route Name:</i>	<i>Location:</i>	<i>Weather Conditions:</i>	<i>Stop No.:</i>
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<b>PART E: Information Features</b>		
<b>E1</b>	Is there a bus stop sign? <i>If NO, move to question E6.</i>	Yes No <input type="checkbox"/> <input type="checkbox"/>
<b>E2</b>	What provider name is on the bus stop ( <i>list all providers utilizing stop</i> )? Provider 1: Provider 2: Provider 3: Provider 4:	
<b>E3</b>	Are bus routes indicated on the bus stop sign? <i>If YES, what routes?</i>	Yes No <input type="checkbox"/> <input type="checkbox"/>
<b>E4</b>	How is the sign installed? On its own pole On a building On a utility pole On a shelter Other (specify):	 <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>
<b>E5</b>	Are there problems with the signage? <i>If YES, check all that apply:</i> Sign in poor condition Pole in poor condition Sign position hazardous to pedestrians Sign not permanently mounted Lighting on sign is poor Other (specify):	Yes No <input type="checkbox"/> <input type="checkbox"/>  <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>
<b>E6</b>	Is there route/schedule/map (circle as appropriate) information posted? <i>If NO please move to question E9.</i>	Yes No <input type="checkbox"/> <input type="checkbox"/>

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## BUS STOP CHECKLIST

## PART E: INFORMATION FEATURES

<i>Route Name:</i>	<i>Location:</i>	<i>Weather Conditions:</i>	<i>Stop No.:</i>
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<b>E7</b>	Where is the route/schedule/map (circle as appropriate) information posted?	
	On Pole under bus stop sign	<input type="checkbox"/>
	On its own pole	<input type="checkbox"/>
	On a building	<input type="checkbox"/>
	On a utility pole	<input type="checkbox"/>
	On a shelter	<input type="checkbox"/>
	In a shelter	<input type="checkbox"/>
	Other (specify):	<input type="checkbox"/>
<b>E8</b>	Is the information at eye level of a wheelchair user?	Yes No <input type="checkbox"/> <input type="checkbox"/>
<b>E9</b>	Is there a schedule rack?	Yes No <input type="checkbox"/> <input type="checkbox"/>
	<i>If YES, are repairs needed?</i>	Yes No <input type="checkbox"/> <input type="checkbox"/>
<b>E10</b>	Is there real time information display?	Yes No <input type="checkbox"/> <input type="checkbox"/>
	<i>If YES, is it at eye level of a wheelchair user?</i>	Yes No <input type="checkbox"/> <input type="checkbox"/>
<b>E11</b>	Is signage text ADA compliant (refer to the <i>Toolkit for the Assessment of Bus Stop Accessibility and Safety</i> for guidelines)?	Yes No <input type="checkbox"/> <input type="checkbox"/>
<b>E12</b>	Is information provided in Braille or by a Talking Signs® transmitter for people with visual impairments?	Yes No <input type="checkbox"/> <input type="checkbox"/>
<b>E13</b>	Additional signage & information comments:	
<b>E14</b>	Signage & information recommendations:	
	Make the following repairs:	<input type="checkbox"/>
	Other (specify):	<input type="checkbox"/>

<i>Date</i>	<i>Time:</i>	<i>Surveyor:</i>
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**BUS STOP CHECKLIST**

**PART F: DIAGRAMMATIC SKETCH OR PHOTOGRAPH**

<i>Route Name:</i>	<i>Location:</i>	<i>Weather Conditions:</i>	<i>Stop No.:</i>
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**PART F: Diagrammatic Sketch or Photograph**

Sketch or photograph the layout of the bus stop area and any traffic controls. On sketch or photograph, be sure to note locations of:

<input type="checkbox"/> Bus stop sign pole	<input type="checkbox"/> Newspaper boxes	<input type="checkbox"/> Traffic signals/stop signs
<input type="checkbox"/> Other poles	<input type="checkbox"/> Anything else installed at bus stop	<input type="checkbox"/> Railroad tracks
<input type="checkbox"/> Landing Pad	<input type="checkbox"/> Sidewalks	<input type="checkbox"/> Bus stop across the street
<input type="checkbox"/> Shelter	<input type="checkbox"/> Sidewalk barriers	<input type="checkbox"/> Heating units in shelters
<input type="checkbox"/> Bench	<input type="checkbox"/> Crosswalks	<input type="checkbox"/> Bike racks
<input type="checkbox"/> Trash can	<input type="checkbox"/> Curb cuts	<input type="checkbox"/> North/South/East/West

<i>Date</i>	<i>Time:</i>	<i>Surveyor:</i>
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## BUS STOP CHECKLIST

## PART F: DIAGRAMMATIC SKETCH OR PHOTOGRAPH

<i>Route Name:</i>	<i>Location:</i>	<i>Weather Conditions:</i>	<i>Stop No.:</i>
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<i>Date</i>	<i>Time:</i>	<i>Surveyor:</i>
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## APPENDIX B. Quick Bus Stop Checklist

### QUICK BUS STOP CHECKLIST

<i>Route Name:</i>	<i>Location:</i>	<i>Weather Conditions:</i>	<i>Stop No.:</i>
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<b>PART A: IDENTIFICATION/LOCATION</b>											
<b>A1</b>	Street Name:										
<b>A2</b>	Nearest Cross Street (street name or landmark if mid-block):										
<b>A3</b>	Bus Route Direction: <table border="1" style="width: 100%; border-collapse: collapse; margin-top: 5px;"> <tr> <td style="width: 33%; padding: 5px;">North Bound <input type="checkbox"/></td> <td style="width: 33%; padding: 5px;">South Bound <input type="checkbox"/></td> <td style="width: 34%; padding: 5px;">More than one direction <input type="checkbox"/></td> </tr> <tr> <td style="padding: 5px;">East Bound <input type="checkbox"/></td> <td style="padding: 5px;">West Bound <input type="checkbox"/></td> <td></td> </tr> </table>	North Bound <input type="checkbox"/>	South Bound <input type="checkbox"/>	More than one direction <input type="checkbox"/>	East Bound <input type="checkbox"/>	West Bound <input type="checkbox"/>					
North Bound <input type="checkbox"/>	South Bound <input type="checkbox"/>	More than one direction <input type="checkbox"/>									
East Bound <input type="checkbox"/>	West Bound <input type="checkbox"/>										
<b>A4</b>	Where is the bus stop positioned in relation to the nearest intersection? <table border="1" style="width: 100%; border-collapse: collapse; margin-top: 5px;"> <tr> <td style="width: 80%; padding: 5px;">Nearside (Before the bus crosses the intersection)</td> <td style="width: 20%; padding: 5px; text-align: center;"><input type="checkbox"/></td> </tr> <tr> <td style="padding: 5px;">Far Side (After the bus crosses the intersection)</td> <td style="text-align: center;"><input type="checkbox"/></td> </tr> <tr> <td style="padding: 5px;">Mid-block or not near an intersection</td> <td style="text-align: center;"><input type="checkbox"/></td> </tr> <tr> <td style="padding: 5px;">Freeway bus stop boarding and alighting area</td> <td style="text-align: center;"><input type="checkbox"/></td> </tr> <tr> <td style="padding: 5px;">N/A</td> <td style="text-align: center;"><input type="checkbox"/></td> </tr> </table>	Nearside (Before the bus crosses the intersection)	<input type="checkbox"/>	Far Side (After the bus crosses the intersection)	<input type="checkbox"/>	Mid-block or not near an intersection	<input type="checkbox"/>	Freeway bus stop boarding and alighting area	<input type="checkbox"/>	N/A	<input type="checkbox"/>
Nearside (Before the bus crosses the intersection)	<input type="checkbox"/>										
Far Side (After the bus crosses the intersection)	<input type="checkbox"/>										
Mid-block or not near an intersection	<input type="checkbox"/>										
Freeway bus stop boarding and alighting area	<input type="checkbox"/>										
N/A	<input type="checkbox"/>										
<b>A5</b>	Distance from bus stop pole to curb in feet:										
<b>A6</b>	Adjacent property address or name of business (only if readily visible):										

<i>Date</i>	<i>Time:</i>	<i>Surveyor:</i>
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# Toolkit for the Assessment of Bus Stop Accessibility and Safety

## QUICK BUS STOP CHECKLIST

<i>Route Name:</i>	<i>Location:</i>	<i>Weather Conditions:</i>	<i>Stop No.:</i>
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### PART B: Boarding and Alighting Area Assessment

<b>B1</b>	Is there a boarding and alighting area at least five feet wide parallel to the edge of the roadway and eight feet deep perpendicular to the edge of the roadway adjacent to the curb/street?	Yes No <input type="checkbox"/> <input type="checkbox"/>
<b>B2</b>	B2. Where is the boarding and alighting area positioned in relation to the curb/street?	
	Below street level (low ground or shoulder) <input type="checkbox"/>	Shoulder <input type="checkbox"/> Other (specify): <input type="checkbox"/>
	Adjacent <input type="checkbox"/>	Bus Bulb <input type="checkbox"/> Off-Road/No sidewalk <input type="checkbox"/>
<b>B3</b>	What is the material of the boarding and alighting area?	
	Asphalt <input type="checkbox"/> Dirt <input type="checkbox"/> Gravel <input type="checkbox"/> Other (specify): <input type="checkbox"/>	
	Concrete <input type="checkbox"/> Grass <input type="checkbox"/> Pavers <input type="checkbox"/>	
<b>B4</b>	Are there problems with the boarding and alighting area surface? <i>If YES, rank resulting accessibility potential:</i>	Yes No <input type="checkbox"/> <input type="checkbox"/>
<b>B5</b>	Are there any obstacles that would limit the mobility of a person using a wheelchair (trash receptacle, newspaper boxes, landscaping, other)? <i>If YES, describe obstruction:</i>	Yes No <input type="checkbox"/> <input type="checkbox"/>

<i>Date</i>	<i>Time:</i>	<i>Surveyor:</i>
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# Toolkit for the Assessment of Bus Stop Accessibility and Safety

## QUICK BUS STOP CHECKLIST

<i>Route Name:</i>	<i>Location:</i>	<i>Weather Conditions:</i>	<i>Stop No.:</i>
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<b>B6</b>	Additional boarding and alighting area comments:
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### PART C: PEDESTRIAN COMFORT AMENITIES

#### **Section C-1: Shelters (move to Section C-2 if there is no shelter)**

<b>C1</b>	What are the approximate dimensions (width, height and depth in feet) of the interior standing area?							
	Width:							
	Height:							
	Depth:							
<b>C2</b>	Could a person using a wheelchair or other mobility device maneuver into the shelter?	Yes <input type="checkbox"/> No <input type="checkbox"/>						
<b>C3</b>	Could a person using a wheelchair or other mobility device fit completely under the shelter (minimum space of a common mobility device is 30 in. by 48 in. (760 mm by 1200mm))?	Yes <input type="checkbox"/> No <input type="checkbox"/>						
<b>C4</b>	What is the distance of the front of the shelter from the curb in feet?							
	<table style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 12.5%; text-align: center;">0 - 2' <input type="checkbox"/></td> <td style="width: 12.5%; text-align: center;">2' - 4' <input type="checkbox"/></td> <td style="width: 12.5%; text-align: center;">4' - 6' <input type="checkbox"/></td> <td style="width: 12.5%; text-align: center;">6' - 8' <input type="checkbox"/></td> <td style="width: 12.5%; text-align: center;">8' - 10' <input type="checkbox"/></td> <td style="width: 12.5%; text-align: center;">&gt;10' <input type="checkbox"/></td> </tr> </table>	0 - 2' <input type="checkbox"/>	2' - 4' <input type="checkbox"/>	4' - 6' <input type="checkbox"/>	6' - 8' <input type="checkbox"/>	8' - 10' <input type="checkbox"/>	>10' <input type="checkbox"/>	
0 - 2' <input type="checkbox"/>	2' - 4' <input type="checkbox"/>	4' - 6' <input type="checkbox"/>	6' - 8' <input type="checkbox"/>	8' - 10' <input type="checkbox"/>	>10' <input type="checkbox"/>			
<b>C5</b>	Additional shelter comments:							

#### **Section C-2: Seating Assessment (move to Part D if there is no seating)**

<b>C6</b>	What is the type of seating available?	
	Bench inside shelter – <b>skip to question C8</b>	<input type="checkbox"/>
	Freestanding bench	<input type="checkbox"/>
	Fold down bench	<input type="checkbox"/>
	Leaning bench	<input type="checkbox"/>
	Other (specify):	<input type="checkbox"/>
<b>C7</b>	If not inside shelter, what is the distance of the seating from the curb in feet?	

<i>Date</i>	<i>Time:</i>	<i>Surveyor:</i>
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# Toolkit for the Assessment of Bus Stop Accessibility and Safety

## QUICK BUS STOP CHECKLIST

<i>Route Name:</i>	<i>Location:</i>	<i>Weather Conditions:</i>	<i>Stop No.:</i>
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	0 - 2' <input type="checkbox"/>	2' - 4' <input type="checkbox"/>	4' - 6' <input type="checkbox"/>	6' - 8' <input type="checkbox"/>	8' - 10' <input type="checkbox"/>	>10' <input type="checkbox"/>
<b>C8</b>	Rank the condition of the seating:					
	1 <input type="checkbox"/>	2 <input type="checkbox"/>	3 <input type="checkbox"/>	4 <input type="checkbox"/>	5 <input type="checkbox"/>	
<i>1=hazardous – broken, someone could get hurt from normal use</i> <i>2=in poor shape though not hazardous</i> <i>3=fair – needs repainting, needs cosmetic attention,, protruding but not hazardous bolts</i> <i>4=good – not perfect but no immediate repair need</i> <i>5=cosmetically excellent; new</i>						
<b>C9</b>	Additional seating comments:					

### PART D: Information Features

<b>D1</b>	Is there a bus stop sign? <i>If NO, move to question D5.</i>	Yes <input type="checkbox"/> No <input type="checkbox"/>
<b>D2</b>	Are bus the routes served indicated on the bus stop sign? <i>If YES, what routes?</i>	Yes <input type="checkbox"/> No <input type="checkbox"/>
<b>D3</b>	How is the sign installed?	
	On its own pole	<input type="checkbox"/>
	On a building	<input type="checkbox"/>
	On a utility pole	<input type="checkbox"/>
	On a shelter	<input type="checkbox"/>
	Other (specify):	<input type="checkbox"/>

<i>Date</i>	<i>Time:</i>	<i>Surveyor:</i>
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# Toolkit for the Assessment of Bus Stop Accessibility and Safety

## QUICK BUS STOP CHECKLIST

<i>Route Name:</i>	<i>Location:</i>	<i>Weather Conditions:</i>	<i>Stop No.:</i>
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<b>D4</b>	Are there problems with the signage?	Yes No <input type="checkbox"/> <input type="checkbox"/>
	<i>If YES, check all that apply:</i>	
	Sign in poor condition	<input type="checkbox"/>
	Pole in poor condition	<input type="checkbox"/>
	Sign position hazardous to pedestrians	<input type="checkbox"/>
	Sign not permanently mounted	<input type="checkbox"/>
	Lighting on sign is poor	<input type="checkbox"/>
	Other (specify):	<input type="checkbox"/>
<b>D5</b>	Is there route/schedule/map (circle as appropriate) information posted?	Yes No <input type="checkbox"/> <input type="checkbox"/>
	<i>If NO, skip to Question D8</i>	
<b>D6</b>	Where is the route/schedule/map (circle as appropriate) information posted?	
	On pole under bus stop sign	<input type="checkbox"/>
	On its own pole	<input type="checkbox"/>
	On a building	<input type="checkbox"/>
	On a utility pole	<input type="checkbox"/>
	On a shelter	<input type="checkbox"/>
	In a shelter	<input type="checkbox"/>
	Other (specify):	<input type="checkbox"/>
<b>D7</b>	Is the information at eye level of a person using a wheelchair and no lower than 40 inches (1015 mm) above the finished floor ground surface?	Yes No <input type="checkbox"/> <input type="checkbox"/>
<b>D8</b>	Additional signage & information comments:	

### PART E: Other Amenities

<b>E1</b>	What other amenities are at the bus stop?
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<i>Date</i>	<i>Time:</i>	<i>Surveyor:</i>
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# Toolkit for the Assessment of Bus Stop Accessibility and Safety

## QUICK BUS STOP CHECKLIST

<i>Route Name:</i>	<i>Location:</i>	<i>Weather Conditions:</i>	<i>Stop No.:</i>
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	Trash receptacle	<input type="checkbox"/>
	Telephone or police call box	<input type="checkbox"/>
	Newspaper boxes	<input type="checkbox"/>
	No other amenities	<input type="checkbox"/>
	Other (specify):	<input type="checkbox"/>
<b>E2</b>	Do any of these amenities obstruct the access of a person using a wheelchair or other mobility device to the boarding and alighting area or other amenities within the site?	Yes <input type="checkbox"/> No <input type="checkbox"/>
	<i>If YES, specify what the amenity is blocking access to:</i>	
	Bus shelter	<input type="checkbox"/>
	-Seating area for people using wheelchairs or other mobility devices	<input type="checkbox"/>
	Bus ingress or egress	<input type="checkbox"/>
	Bus stop information	<input type="checkbox"/>
	Other (specify):	<input type="checkbox"/>

### PART F: Traffic and Pedestrian Safety Issues

#### Section F-1: Traffic and Pedestrian Issues

<b>F1</b>	Where is the bus stop area located?	
	In travel lane	<input type="checkbox"/>
	Bus lane/pull off area	<input type="checkbox"/>
	Paved shoulder	<input type="checkbox"/>
	In right turn only lane	<input type="checkbox"/>
	Unpaved shoulder	<input type="checkbox"/>
	Off street	<input type="checkbox"/>
	“No Parking” portion of street parking lane	<input type="checkbox"/>
	Other (specify):	<input type="checkbox"/>
<b>F2</b>	Is the bus stop zone designated as a no parking zone?	Yes <input type="checkbox"/> No <input type="checkbox"/>
	<i>If YES, indicated by:</i>	

<i>Date</i>	<i>Time:</i>	<i>Surveyor:</i>
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# Toolkit for the Assessment of Bus Stop Accessibility and Safety

## QUICK BUS STOP CHECKLIST

<i>Route Name:</i>	<i>Location:</i>	<i>Weather Conditions:</i>	<i>Stop No.:</i>
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	One "No Parking" sign	<input type="checkbox"/>
	2 or more "No Parking" signs	<input type="checkbox"/>
	"Bus Only" sign	<input type="checkbox"/>
	Painted curb	<input type="checkbox"/>
	Painted street	<input type="checkbox"/>
<b>F3</b>	Are cars parked between the landing area and the bus stopping area?	Yes No <input type="checkbox"/> <input type="checkbox"/>
<b>F4</b>	What is the posted speed limit in MPH? <span style="float: right;">Not posted</span>	<input type="checkbox"/>
<b>F5</b>	What are the traffic controls at the nearest intersection for the street?	
	Traffic signals	<input type="checkbox"/>
	Flashing lights	<input type="checkbox"/>
	Stop/Yield sign	<input type="checkbox"/>
	None	<input type="checkbox"/>
	Other (specify):	<input type="checkbox"/>
<b>F6</b>	How many total lanes are on both sides of the road?	
	1 <input type="checkbox"/> 2 <input type="checkbox"/> 3 <input type="checkbox"/> 4 <input type="checkbox"/> Other (specify): <input type="checkbox"/>	N/A <input type="checkbox"/>
<b>F7</b>	Are there potential traffic hazards?	Yes No <input type="checkbox"/> <input type="checkbox"/>
	<i>Yes, check all that apply:</i>	
	The bus stop is just over the crest of a hill	<input type="checkbox"/>
	The bus stop is just after a curve in the road	<input type="checkbox"/>
	The bus stop is near an at-grade railroad crossing	<input type="checkbox"/>
	Waiting passengers are hidden from view of approaching bus	<input type="checkbox"/>
	A stopped bus straddles the crosswalk	<input type="checkbox"/>
	Bus stop just before crosswalk	<input type="checkbox"/>
	High speed traffic	<input type="checkbox"/>
	No crosswalk	<input type="checkbox"/>
	Other (specify)	<input type="checkbox"/>

<i>Date</i>	<i>Time:</i>	<i>Surveyor:</i>
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# Toolkit for the Assessment of Bus Stop Accessibility and Safety

## QUICK BUS STOP CHECKLIST

<i>Route Name:</i>	<i>Location:</i>	<i>Weather Conditions:</i>	<i>Stop No.:</i>
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<b>F8</b>	Additional traffic safety comments / recommendations:
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**Section F-2: Lighting Assessment (assessment preferably taken in the evening or at night)**  
**Go to Part G if no lighting**

<b>F9</b>	What type of lighting is available?	
	Street light	<input type="checkbox"/>
	Shelter lighting	<input type="checkbox"/>
	Outside light on adjacent building	<input type="checkbox"/>
	Other (specify):	<input type="checkbox"/>
<b>F10</b>	Additional comments:	

### PART G: Getting to the Bus Stop

<b>G1</b>	How wide is the sidewalk?	
	No sidewalk <input type="checkbox"/> less than 3' <input type="checkbox"/> 3'-5' <input type="checkbox"/> 5' or greater <input type="checkbox"/> N/A <input type="checkbox"/>	
<b>G2</b>	Rank the condition of the sidewalk:	
	1 <input type="checkbox"/> 2 <input type="checkbox"/> 3 <input type="checkbox"/> 4 <input type="checkbox"/> 5 <input type="checkbox"/>	
1=hazardous – large breaks, cracks, root uplifting, someone could get hurt from normal use or use of a wheelchair would be difficult 2=in poor shape though not hazardous – very rough, some root uplifting, cracks, breaks 3=fair – minor root uplifting, minor cracks or breaks 4=good – not perfect but no immediate repair 5=cosmetically excellent; new		
<b>G3</b>	Are there physical barriers that constrict the width of the sidewalk within the block on which the bus stop is located?	Yes <input type="checkbox"/> No <input type="checkbox"/>
<i>If YES, what is the narrowest useable width:</i>		

<i>Date</i>	<i>Time:</i>	<i>Surveyor:</i>
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# Toolkit for the Assessment of Bus Stop Accessibility and Safety

## QUICK BUS STOP CHECKLIST

<i>Route Name:</i>	<i>Location:</i>	<i>Weather Conditions:</i>	<i>Stop No.:</i>
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	Less than 3' <input type="checkbox"/>	3' or greater <input type="checkbox"/>
<b>G4</b>	G4. Does the boarding and alighting area connect to the sidewalk?	Yes <input type="checkbox"/> No <input type="checkbox"/>
<b>G5</b>	Where is the nearest street crossing opportunity?	
	The nearest intersection <input type="checkbox"/>	Mid-block crosswalk <input type="checkbox"/>
<b>G6</b>	What pedestrian amenities are at the nearest intersection (or other crossing opportunity)?	
	Curb ramps at all points where a curb is encountered along the accessible route(s) <input type="checkbox"/>	Pedestrian crossing signal <input type="checkbox"/>
	Visible crosswalk <input type="checkbox"/>	Traffic light <input type="checkbox"/>
	Curb cuts at some corners/one side <input type="checkbox"/>	Audible crosswalk signal <input type="checkbox"/>
		Crossing guard assistance <input type="checkbox"/>
	Other (specify):	Accessible Pedestrian Signal (APS) <input type="checkbox"/>
		Tactile warning strip on curb cut <input type="checkbox"/>
		<input type="checkbox"/>

<i>Date</i>	<i>Time:</i>	<i>Surveyor:</i>
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## APPENDIX C. Tri-Met Maintenance Guidelines

(Tri-Met, 2002)

Tri-Met in Portland, Oregon, provides guidelines on maintenance activities in their *Bus Stop Guidelines 2002* manual. The agency defines a clean stop as free from:

- Debris, including cigarette butts, cups and newspapers
- Foreign substances, including gum, spills and food
- Insects and weeds
- Graffiti (written or etched)
- Unauthorized stickers or posters

Well-maintained stops reflect the following elements:

- Overall passenger facilities are in good repair
- Areas and improvements are in good condition and all repairs are current
- All amenities (shelters, benches, trash receptacles) are properly installed to meet the requirements of city ordinances and the Americans with Disabilities Act (ADA)
- Furniture surfaces are in good condition, including no rust, marring or scratches
- Signage, walls, seating, and kiosks are in good condition
- Lighting is in good working order at all times
- Free from overhanging trees or brush

Tri-Met's guidelines for repair, maintenance and cleaning are detailed below:

- Repairs are performed by both in-house employees and contractors.
- Pick up trash and debris within a 15-foot radius of bus stops (blowers shall not be used).

- Remove graffiti, stickers and unauthorized signs and posters.
- Power wash all amenities with water. Using a ladder, clean the shelter roof inside and outside with a soft bristled brush until all dirt has been removed. Clean and flush gutters and drain holes of all debris. Clean the shelter frame, bench and windows (inside and outside) until all dirt has been removed using a soft bristled brush and pressure washer. Dry windows with a squeegee so that no smears or streaks remain visible. Wipe benches completely dry after cleaning or graffiti removal to allow immediate customer use and to prevent claims for damaged clothing.
- Emergency cleaning—all emergency cleanings shall be completed within four hours of notification, except broken glass, which shall be replaced within two hours of notification.

Tri-Met operates several public-private partnerships in an effort to keep their stops clear of litter and graffiti. Whenever possible, Tri-Met seeks sponsors to assist with the growing trash problem. In most cases, Tri-Met provides the trash receptacle at a particular shelter. The sponsor collects and disposes of the trash as needed. A plaque on the trash can denotes the sponsor's name. Tri-Met maintains the trash can by providing the liner insert, and repairs and repaints (due to graffiti) on an as-needed basis. In addition, they operate their waste disposal routine.

For locations without sponsors, Tri-Met has its own in-house trash collection crew. The crew follows a regular route schedule and also assists in emergency trash pick-up as needed. When a sponsor neglects a trash can due to moving, vacation, etc., the crew assists until another sponsor is found.

Tri-Met partners with Stop Oregon Litter and Vandalism (SOLV) to provide anti-litter and graffiti programs in addition to the regular maintenance routines described above. The SOLV program consists of three major components:

- **Adopt-a-Stop:** A customer agrees to pick up litter, clean the stop amenities and report any items needing repair in exchange for gloves, cleaning supplies and a steady supply of bus tickets.
- **Keep-a-Can:** If a trashcan needs to be cleaned at a particular stop, customers or local businesses can sponsor a trash can. Under the program, volunteers agree to empty and provide service for a trash can. In return, Tri-Met will provide an attractive, industrial strength can, liner and soda can recycling container for the stop.
- **First Step Youth Program:** During the summer, SOLV and Tri-Met organize groups of at-risk students to clean up street litter and graffiti, focusing on Tri-Met transit corridors. Tri-Met provides group payment, supervision and transportation.

Tri-Met's bus stop amenities are monitored and have an established shelf life for replacement as a result of accidents, vandalism or general wear over time. Regular maintenance will extend the life of bus shelters and other bus stop features, but their replacement is eventually required. The Capital Improvement Program (CIP) identifies the following criteria for the replacement of bus stop shelters:

- Condition compromises customer safety
- Exceeds a 15-year life cycle
- Customer security is in some way compromised
- Parts for repair and maintenance are no longer available
- The shelter is not in compliance with ADA guidelines

Bus stop signs are similarly replaced if they pose a safety concern for bus riders; they have been damaged or vandalized; they impede mobility-required ADA clearance and maneuvering requirements; or they exceed an 8-year life cycle. Bus stop features may be in good condition beyond their expected life in which case replacement would be deferred. Signs, shelters and other amenities may be upgraded or moved to reflect changes in bus stop use or coordination with other development projects.

## APPENDIX D. Case Studies/Examples of Agency Coordination

### City of Winnipeg Transit System's Organizational Support for Bus Stops

(Nelson\Nygaard w/Regiec, 2005)

The City of Winnipeg Transit System in Canada provides an example of partnerships that have helped implement bus stop improvements and projects. In 1992, the mayor of Winnipeg established a task force to review the status of the paratransit service (referred to as Handi-Transit) and assess emerging technologies to make the fixed-route bus system accessible. Winnipeg Transit decided to convert their fleet to low-floor buses—the first three low-floor buses procured were dedicated to Route 10. Improvements were implemented at the bus stops along the route through the following process:

1. The agency enlisted the support of local area city councilors of cities affected by the route.
2. Citizens, accompanied by their city councilors, made safety and accessibility assessments along the route.
3. With citizen input, the agency developed guidelines for the Route 10 bus stops which became the blueprint for all bus stops in the system.
4. The agency continued the audit internally of all 4,500 stops, based on the input obtained through the Route 10 outreach and accessibility improvements. The guidelines serve as an example to staff and private contractors who are implementing the bus stop improvements.

Winnipeg city departments have interdepartmental meetings to coordinate future projects. Construction projects are circulated to all the departments (including Transit and Fire) to obtain feedback. The feedback is then incorporated into the project plan. Bus stop

improvements and considerations are therefore incorporated into the project before construction begins. The agency has cultivated a good working relationship with the Public Works and Planning departments and is apprised of sidewalk construction projects at least a year in advance.

### Tri-Met Organizational Support for Bus Stop Management

(Tri-Met, 2002)

Tri-Met in Portland, Oregon uses a comprehensive coordinated plan to ensure bus stop accessibility. Many of the elements of this plan could be replicated at other transit agencies that may not have placed as much focus on bus stop accessibility.

### Public-Private Partnerships

An agreement between Tri-Met and the city of Portland has simplified the siting and permitting process for bus shelters and amenities to allow for quicker installation. Tri-Met encourages developing intergovernmental agreements and memoranda of understanding with municipal departments as they have improved Tri-Met's ability to provide bus stop accessibility and amenity improvements.

Piggybacking on development projects helps in the implementation of bus stop improvements. Depending on the size and nature of the development, Tri-Met may request improvements to adjacent bus stops. If frontage improvements are planned, Tri-Met will request the addition of an ADA-compliant boarding and alighting area and a rear door landing area at stops that lack them. If ridership potential exists, the agency may request that the developer provide a bus shelter, a bench or other bus stop amenities as warranted. Developers are also required to maintain the stop to be free of litter and vandalism.

## Interdepartmental Coordination

In addition to cooperation with municipal offices and agencies, strong organization within the transit agency helps facilitate the implementation of bus stop improvements. Tri-Met's *Bus Stop Guidelines 2002* provides a good description of the responsibilities of each position and department in implementing bus stop improvements.

Tri-Met developed a carriage walk agreement between the Project Planning Department, which oversees bus stop placement and design, and the Bureau of Maintenance. The agreement coordinates bus stop accessibility improvements (including ADA-compliant boarding and alighting areas and curb ramps) with the city's efforts to upgrade pedestrian infrastructure (such as curb ramps and accessible sidewalks).

The Operating Projects Department is responsible for the design and placement of bus stops, including shelter and amenity placement. The section works closely with other Tri-Met departments to provide for the regular maintenance and management of bus stops as well as the implementation of bus stop development programs. The following is a brief description of the section's positions and their responsibilities:

- *Programs Manager*: Responsible for developing and implementing a five-year Bus Stops Management and Development Plan, which includes negotiating agreements with each major jurisdiction. The manager is also responsible for coordinating programs as well as managing the department and program budgets and contracts. The Capital Programs Management Section, including positions matrixed from other departments, report directly to the programs manager for bus stop program related activities.
- *Project Planner*: Provides support for field checks and sign placement. Works with the programs manager to develop and update the five-year Bus Stops Management and Development Plan. Provides the lead support for development and coordination of the Streamline Bus Improvement Program and other agency initiatives. Prepares conceptual designs for bus stop improvements and identifies right-of-way permit requirements for new or modified stops.
- *Maintenance Supervisor*: Assesses and manages the cleaning and repair needs and contracts and is responsible for quality control for these efforts.
- *Engineer*: Works closely with all members of the section but also reports to the Project Implementation Department within the Capital Project and Facilities Division. Using Tri-Met and jurisdiction standards, the engineer prepares design and construction drawings for all bus stop improvements. The engineer orders utility checks, works with jurisdictions regarding joint construction or traffic management's issues, establishes specifications for procurement contracts of bus stop shelters, signs and other amenities, and oversees the installation of these amenities.
- *Adopt-a-Stop Program Coordinator*: This person monitors partnership agreements for the servicing of bus stops, shelters and trash receptacles and is a contract employee of Stop Oregon Litter and Vandalism (SOLV).
- *Planner/Analyst*: Responsible for building and maintaining Tri-Met's central bus stops database. This position is a significant resource for the planning, analysis and geographic information system (GIS) mapping of bus stops and supporting information. The planner/analyst uses a Global Positioning System (GPS) locator device to accurately locate bus stops within the GIS files. This person also prepares status and performance reports to track cleaning, repair, and response to complaints and work orders.

- *Community Relations Specialist*: Serves as a central point of contact for all external and internal communications pertaining to bus stop related inquiries. This person prepares mailings and notices for bus stop changes and sets up community meetings pertaining to bus stop programs.

The overall responsibility for bus stops management resides with the Bus Stops Section. Some issues, however, require review and input from a broad cross-section of Tri-Met divisions.

- The *Service Planning Department*, in concert with the Scheduling Department, determines routes and the type of services to be provided along the routes. These have direct bearing on the location and design of bus stops.
- The *field operations supervisors* are in the best position to identify bus stop problems and operational concerns that influence bus stop placement. Road supervisors request bus stop changes based on field observations and as required to accommodate construction projects or events that cause the realignment of service. They also temporarily reroute service when bus stops are affected by construction activities. Road supervisors also receive customer comments in the course of their surveillance activities. Similarly, bus operators also pass on issues that they identify or comments from their bus riders.
- *Maintenance technicians* in the Facilities Management Department repair and maintain stops and shelters. Maintenance technicians also receive customer comments in the course of their activities, which are managed within their group or passed to the Bus Stops Section.
- The *Information Development Department* of the Marketing and Customer Service Division prepares specifications for signage and information displays and determines locations for other customer information. The Marketing Department manages the shelter and bench advertising programs. Individual requests and needs for bus stop changes funnel through the Customer Service Department and are recorded in a customer service inquiry database, which is assessed by the Bus Stops Management Section for research and response. Employer outreach efforts conducted by the Marketing Department provide input for program development.
- Tri-Met's *Committee on Accessible Transportation (CAT)* provides an important consultative role in the management of bus stops. This committee comments on bus stop design guidelines and the development of standard bus stop features (e.g., bus stop shelter design). This perspective helps to ensure compliance with ADA and helps set priorities for bus stop development programs.
- The *Public Art Program* also provides input for integrating art into bus stop design and in identifying opportunities for unique art projects associated with bus stops.
- Other groups are linked through the internal coordination plan and include *Safety, Training, and Real Property*.

## APPENDIX E: Sample Agreement for Private Road Bus Stop Placement

(Nelson\Nygaard w/Renfro, 2005)

Pierce Transit in Tacoma, Washington signs a Private Road Bus Stop Placement Use Agreement with owners of private property on which they would like to locate a stop. The agreement is provided below.

### PRIVATE ROAD BUS STOP PLACEMENT USE AGREEMENT

THIS USE AGREEMENT, made and entered into in triplicate, this day of 2005, by and between PIERCE COUNTY PUBLIC TRANSPORTATION BENEFIT AREA CORPORATION, a municipal corporation hereinafter called “Pierce Transit” and which represents the ownership and maintenance of a private road, hereinafter called the “Owner”.

### WITNESSETH:

WHEREAS, Owner represents the ownership and maintenance of a private road physically located at and further depicted on attached Exhibit “A”; and

WHEREAS, the Owner has requested that Pierce Transit place a bus stop adjacent to the private road and in a location agreed to by the adjacent property owner, and in accordance with the provisions of this agreement; and,

WHEREAS, the parties herein desire to enter into a general use agreement to allow Pierce Transit access to the described private road and allow placement and use of a bus stop by the public to access public transportation services offered from the described location; and,

WHEREAS, Pierce Transit agrees to provide transportation services to this location in consideration of this access and agreement subject to Pierce Transit’s operating requirements; and, WHEREAS, this agreement does not guarantee the delivery of any public transportation services to the property.

NOW, THEREFORE, in consideration of the covenants and agreements the parties hereinafter set forth, Owner does hereby grant unconditional access and use of the private roadway described above including the placement of a bus stop on Owner’s property.

1. **Premises.** The Owner grants to Pierce Transit the right to use that portion of the Owner’s premises shown (called the “Premises”) for a public bus stop.
2. **Usage Rights Granted.** Pierce Transit, at its expense, may install signs, paint markings, and other traffic control devices and make other improvements. All other changes shall require the consent of the Owner.
3. **Owner’s Rights.** The Owner reserves the right to make other uses of the Premises that do not interfere with Pierce Transit’s use.
4. **Term.** The term of this Agreement shall be ongoing commencing on this day of 2005. At any time, either Party may terminate this Agreement by giving two (2) months’ notice to the other party of its intent to terminate.
5. **Access.** Pierce Transit may authorize the use of the Owner’s driveways, walkways and improved surfaces surrounding the Premises for vehicular and pedestrian access to the Premises.
6. **Maintenance.** Pierce Transit shall only be responsible for maintenance of markings and improvements that it installs and will not be responsible for any roadway maintenance and repairs at the Premises location. Owner agrees that they have inspected the location of the bus stop and the adjacent roadway and have determined that the location of the bus stop is a safe location and that the roadway is adequate to accommodate public transit vehicles. Further, Owner will hold Pierce Transit harmless from any damage, claims, actions or losses to the roadway in connection

with the use of the Premises unless a result of Pierce Transit's sole negligence and to the extent permitted by law.

7. **Towing of Vehicles.** Pierce Transit may order vehicles to be towed away at its own expense and risk. Special consideration, however, shall be provided for vehicles displaying a government-issued accessible parking permit license plate or decal.
8. **Insurance.** Pierce Transit will procure and maintain, for the duration of the Agreement, insurance and/or self-insurance against claims for injuries to persons or damage to property that may arise from or in connection with the use of the Premises.
9. **Indemnification/Hold Harmless.** Pierce Transit will defend, indemnify and hold harmless the Owner, its officers, officials, employees, and volunteers from and against any and all claims, suits, actions or liabilities for injury or death of any person, or for loss or damage to property, which arises out of the use of Premises or from any activity, work or things done, permitted or suffered by Pierce Transit in or about the Premises, except only such injury or damage as shall have been occasioned by the sole negligence of Owner.
10. **Governmental Charges.** Pierce Transit shall not be responsible for any taxes, assessments, or governmental charges of any kind that may be levied against the Premises.
11. **Termination.** Pierce Transit will discontinue its use of the Premises on termination of this Agreement; will remove all signs and structures placed on the Premises by Pierce Transit; will repair any damage to the Premises caused by the removal; and will restore the Premises to as good a condition, less reasonable wear and tear, as existed prior to the execution of this Agreement.
12. **Accommodation.** The parties agree to make reasonable accommodations and to work together to resolve problems that may arise from time to time. Upon reasonable advance notice to Pierce Transit and its users, the Owner may secure the Premises on a limited number of dates to allow for construction on surrounding property or special events. The Owner agrees to provide special consideration for vehicles displaying a government-issued accessible parking permit license plate or decal.
13. **Entire Agreement.** This document contains the entire agreement between the parties and supersedes all other statements or understandings between the parties.

## APPENDIX F. Useful Resources

### ADA Standards for Transportation Facilities:

[www.access-board.gov/guidelines-and-standards/transportation/facilities/ada-standards-for-transportation-facilities](http://www.access-board.gov/guidelines-and-standards/transportation/facilities/ada-standards-for-transportation-facilities).

For technical assistance on the design requirements of ADA as they apply in new construction and alterations, contact:



#### U.S. Access Board

phone: (800) 872-2253 (voice) or  
(800) 993-2822 (TTY), weekdays  
10:00 – 5:30 ET (except Wednesday)  
e-mail: [ta@access-board.gov](mailto:ta@access-board.gov)  
fax: (202) 272-0081

### ESPA products:

The following resources may be ordered in print or downloaded free of charge from the ESPA website at [www.projectaction.org](http://www.projectaction.org):

- **Effective Transportation Advisory Committees: Creating a Group that Reflects all Community Voices**—This guidebook can serve as a helpful resource both to transit agencies that are considering creating an advisory committee for the first time and to agencies that are looking to make their current advisory committee more efficient. Sections include Purpose, Structure and Membership; Making Meetings Accessible; Orientation; Running a Meeting; and Community Involvement.
- **Accessible Pathways & Livable Communities Pocket Guide**—Accessible pathways help form the foundation of an accessible transportation system and a livable community. This pocket guide contains concepts for communities to consider when improving transportation facilities, sidewalks and routes to transit.
- **Accessible Pathways to Bus Stops and Transit Facilities: A Process Guide**—The built environment has a major effect on the ability of people with disabilities to negotiate sidewalks, curbs, pathways, street crossings, and transit station environments. *Accessible Pathways to Bus Stops and Transit Facilities: A Process Guide* describes a four-step process which can help communities create more accessible pathways with the goal of encouraging more people with disabilities to use fixed-route public transportation. The primary audience for the process guide is transit, transportation and public works agency staff as well as advocates that represent the disability community.
- **Accessible Pedestrian Signals: Making Your Community Safer and More Accessible for Everyone**—Describes the purpose and benefits of accessible pedestrian signals (APS) for communities across the nation. An overview of the issue, funding, safety, online resources, and ADA requirements form the basis of this fact sheet.
- **Neighborhood Wayfinding Assessment Pocket Guide**—This guide to neighborhood wayfinding describes things to consider when walking, driving, bicycling, or taking a bus or train to reach stores, community centers, libraries, parks, trails, restaurants, places of worship, or any destination of your choice! It was developed in partnership by the CDC Healthy Aging Research Network and ESPA.
- **Improving Transit Facility Accessibility by Employing Wayfinding Technology**—This information brief focuses on identifying new technologies that improve accessibility within transit systems, especially for customers who are blind or have visual impairments and use wayfinding to navigate their environment.

## Other Useful Organizations

- **Universal Design**—IDEA Center (Center for Inclusive Design and Environmental Access), State University of New York at Buffalo; Global Universal Design Educator’s Network—The IDEA Center’s website supports educators and students in their teaching and study of universal design by providing information on universal design and links to resources. [www.ap.buffalo.edu/idea/](http://www.ap.buffalo.edu/idea/)
- **Center for Universal Design, North Carolina State University**—The Center for Universal Design, an initiative of the College of Design, is a national information, technical assistance and research center that evaluates, develops and promotes accessible and universal design in housing, commercial and public facilities, outdoor environments, and products. Our mission is to improve environments and products through design innovation, research, education, and design assistance. [www.ncsu.edu/ncsu/design/cud/](http://www.ncsu.edu/ncsu/design/cud/)
- **Smart Growth America, National Complete Streets Coalition**—National resource to promote policies that encourage road networks that are safer, more livable and welcoming to everyone. [www.smartgrowthamerica.org/complete-streets](http://www.smartgrowthamerica.org/complete-streets)
- **Pedestrian and Bicycle Information Center**—PBIC offers training and information to diverse audiences about health, safety, engineering, advocacy, education, enforcement, access, and mobility as it relates to pedestrians and bicyclists. [www.pedbikeinfo.org/](http://www.pedbikeinfo.org/)

## Sample Transit Agency Bus Stop Documents

- **TriMet 2010 Bus Stop Guidelines**—These guidelines are an excellent resource for transit agencies interested in identifying the elements of their bus stops and updating their design and placement guidelines. It also covers partnership strategies with local entities and maintenance considerations. [trimet.org/pdfs/publications/bus-stop-guidelines.pdf](http://trimet.org/pdfs/publications/bus-stop-guidelines.pdf)
- **Pierce Transit 2005 Bus Stop Manual**—This manual describes the processes to establish and improve bus stops. It identifies agency standards for the location and installation of new bus stops and facilities and provides a framework for bus stop improvements. [www.piercetransit.org/documents/](http://www.piercetransit.org/documents/)

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