Bus Stop Furniture Guidelines
September 2022

Downtown Berkeley BART
Source: AC Transit

Acknowledgements
Alameda Contra-Costa County Transit District: Carissa Lee, Kim Ridgeway, Robert del Rosario,
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Introduction
All transit rides begin and end at the bus stop. Whether you are walking by a bus stop or waiting at one, bus stop furniture—such as shelters and benches—plays a critical role in the quality of the customer experience. Bus stop furniture provides clear visual markers for riders looking to catch the bus, shelter from the elements, and information on when the next bus is arriving. Shelters and benches also provide a place for people to rest—surfaces to sit or lean on when waiting for the bus.

Bus stops are where the public space intersects with transit service. Well maintained and accessible bus stops depend on a mutually beneficial relationship between AC Transit and the local jurisdictions. Finally, bus stop furniture also sends a message to the public about AC Transit. A clean, safe, and informative bus stop suggests that riding the bus is a practical, appealing, and easy alternative to driving and parking.

The purpose of these guidelines is to:

- Communicate AC Transit's vision and long-term plan for bus stop furniture to internal staff, external stakeholders, the public, and elected officials.
- Establish bus stop shelter and bench placement standards: With over 5,400 bus stops and limited resources, AC Transit must prioritize placing bus stop furniture where it’s most needed. Prioritization shall include necessary ADA upgrades, accessibility, and need for seating and weather protection, along with budget limitations and restrictions.
- Show the roles and responsibilities that local jurisdictions, transit agencies, contractors, and the public have in supporting bus stop improvements.

About AC Transit
The Alameda-Contra Costa Transit District is the third-largest public bus system in California, serving 13 cities and adjacent unincorporated areas in Alameda and Contra Costa counties. The vast service area has an average of 175,000 riders a day, 53,041,000 riders a year and approximately 5,400 bus stops. AC Transit has been serving the East Bay since 1960, taking over from the Key System and its predecessors, which carried passengers via buses, horse-drawn rail, electric streetcars, and ferries over the previous 100 years.

AC Transit’s mission is to provide the community with safe, reliable, sustainable service that responds to the needs of our riders and our communities. This includes the improvement of the waiting environments for all riders, including seniors and people with disabilities.
Types and Design

There is a wide range of bus stop amenities that a transit agency, local jurisdiction or private developer can install at a bus stop. These amenities generally fall into two categories: street furniture for the comfort and safety of the bus rider and amenities such as public information, maps, schedules, fares, and real-time signage. This section focuses on street furniture types within the immediate purview of AC Transit, particularly bus shelters and seating, while touching on other amenities.

Bus Shelters

Bus shelters provide transit riders with protection from weather elements when waiting for the bus, especially rain, sun and wind, depending on the design. In addition, bus shelters are identifiable by both the rider and the bus operator as a place where one can wait for the bus. Often, bus shelters include other amenities such as seating, lighting, trash cans, real-time digital displays, public information and branding.

Bus Shelter Design Considerations

Structure: Bus shelters typically come in two structural types:

- **An enclosed design** bus shelter can have three or four wall panels and typically four corner-columns to support the structural load of the canopy
- **A cantilever design** usually has one wall across the back of the bus shelter area with an attached canopy that extends forward to the front of the bus shelter area.

Cantilever Bus Shelter
Bay Area Rapid Transit (BART)
El Cerrito Del Norte Station
Source: AC Transit

Enclosed Bus Shelter
Downtown Berkeley
Source: AC Transit
## Pros and Cons of Enclosed Design and Cantilever Design in Transit Shelters

<table>
<thead>
<tr>
<th>Structure Type</th>
<th>Pros</th>
<th>Cons</th>
</tr>
</thead>
<tbody>
<tr>
<td>Enclosed Design</td>
<td>• Provides more weather protection with multiple sides</td>
<td>• Needs more right-of-way for installation</td>
</tr>
<tr>
<td></td>
<td>• Requires less or no structural foundation. Most enclosed shelters are simply bolted into the ground.</td>
<td>• Accessibility is only through the front of the shelter</td>
</tr>
<tr>
<td></td>
<td>• More panels for advertising</td>
<td>• Enclosed space may reduce comfort of riders at busy bus stops</td>
</tr>
<tr>
<td>Cantilever Design</td>
<td>• Slimmer profile for installation in narrow right-of-way locations</td>
<td>• Requires a more significant structural foundation</td>
</tr>
<tr>
<td></td>
<td>• Provides more accessibility for the adjacent sidewalk and the passenger waiting area under the bus stop</td>
<td>• Provides less weather protection with no side barriers</td>
</tr>
<tr>
<td></td>
<td>• Provides more open space which some riders appreciate</td>
<td>• Less space for advertising. However, advertisements can still be placed on the back panel to maintain the slim profile of a bus shelter</td>
</tr>
</tbody>
</table>

### Canopy Height and Size

Standard bus shelter canopies are typically five or six feet wide have a typical height of eight feet. If possible, maintain an eight-foot canopy height to provide effective overhead covering, no matter the length or width of the canopy. In some cases, canopy heights may need to be adjusted to accommodate vertical clearances of buses and other vehicles in the adjacent lane of travel. Bus shelter canopies can be 12-feet high to avoid conflicts with buses and trucks, and to completely cover passengers as they board a bus. In these situations, the depth of the canopy should be at least eight feet. Canopies should be set 18 inches from the curb so that vehicles do not hit the canopy. Other factors to consider when setting the size of the canopy is the amount of available space needed for riders and the weight of the canopy. Heavier canopies will need larger load support. Canopy height and width are more often a critical design consideration in custom-designed bus shelters.
Materials
Selecting materials for a bus shelter are key for safety, durability, vandalism resistance and aesthetics. Structural materials can range from wood to aluminum to steel, while windscreen and roofing materials can include plastic, plexiglass, tempered glass and perforated metal.

<table>
<thead>
<tr>
<th>Shelter Structure Material</th>
<th>Aluminum</th>
<th>Steel</th>
<th>Wood</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Most common</td>
<td>Typically for larger bus shelters that bear more load</td>
<td>Wooden structures are rare and custom built to meet a certain aesthetic.</td>
</tr>
<tr>
<td></td>
<td>Long-lasting, light weight material</td>
<td>Example: Steel shelter canopies along Tempo Bus Rapid Transit (BRT) Line.</td>
<td>Wooden structures are susceptible to fires and aren’t recommended for permanent transit shelters.</td>
</tr>
<tr>
<td></td>
<td>Easy to install</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Less durable than steel</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Windscreen Materials</th>
<th>Tempered Glass</th>
<th>Perforated Metal</th>
<th>Plexiglass</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Provides for maximum visibility and increased sense of safety for those waiting for the bus.</td>
<td>More durable and easier to repair, than tempered glass. If vandalized, can easily be painted over.</td>
<td>Plexiglass can share the advantages of both tempered glass and perforated metal in the short-term.</td>
</tr>
<tr>
<td></td>
<td>Breakable and can be acid etched, resulting in more maintenance costs over time. Can pose a safety hazard if not cleaned up and replaced immediately. Additional staff to install a replace the glass due to heavy weight and expensive costs.</td>
<td>Provides less visibility and less shelter from wind and rain</td>
<td>Susceptible to chemical etching and fogs over time, leaving an unpleasant appearance.</td>
</tr>
<tr>
<td></td>
<td>Generally perceived as less aesthetically pleasing.</td>
<td></td>
<td>Regular replacement could address this issue, but the cost would need to be compared with the life cycle costs of the alternatives.</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Excellent as a translucent roofing material, due to the material’s light weight and flexibility.</td>
</tr>
</tbody>
</table>

Prefabricated Shelters and Custom Shelters
Most bus shelters are prefabricated “off the shelf” from shelter manufacturers, who mass-produce structures in large quantities for transit operators like AC Transit. For example, Tolar Manufacturing is a common shelter manufacturer in the Bay Area and on the west coast. This
company manufactured the transit shelters under the original 1999 AC Transit Bus Shelter Advertising contract.

The opposite of prefabricated shelters is custom design shelters, often designed and installed by private commercial and residential developers to meet aesthetic coherence that complement the surrounding environment.

<table>
<thead>
<tr>
<th>Type</th>
<th>Pros</th>
<th>Cons</th>
</tr>
</thead>
</table>
| Prefabricated Shelters | • Lower purchasing cost  
                    | • Lower maintenance cost due to the ability to stockpile less types of spare parts  
                    | • Consistency for visually impaired riders and those new to the transit system | • One size a one-size-fits-all solution for a region with different architectural styles, varying weather conditions and unique surrounding environments. |
| Custom Shelters  | • Can provide branding for specialized transit routes, such as rapid bus services.  
                    | • Can provide aesthetic continuity for developers and local jurisdictions. | • Inconsistent design and an unfamiliar footprint for visually impaired transit riders.  
                    |                                                                      | • Higher purchasing and maintenance costs.                                   |

While cost and maintenance can be an issue for custom design shelters, they may not pose a challenge to AC Transit if there is commitment from the developer to own and maintain them. However, a unique transit shelter design may have a footprint that transit riders may not be familiar with and have difficulty accessing. In these cases, it is important for private entities to coordinate with AC Transit Accessible Services to ensure ADA-compliance and universal design.

In between these two alternatives are mass-produced custom-designed shelters, such as the shelter design in San Francisco that was selected through a design competition and is maintained by Clear Channel Outdoor. To a lesser extent, many shelter fabricators that offer prefabricated solutions also offer minor design changes to their products for a more unique shelter appearance. Inexpensive design changes can be made with the shelter windscreens, paint color and sometimes the roof design as with the case with San Francisco. While this alternative is more expensive than a standard off-the-shelf solution, it can help with giving the transit agency or the local jurisdiction a unique identity or brand. The shelter manufacturer would need to produce some unique spare parts to maintain and repair the shelters.

Advertising and Non-Advertising

Shelters with advertising panels have the benefit of generating revenue to help offset the costs of a bus shelter program but there are tradeoffs:

- Advertising: Certain advertisements may be mistaken as being endorsed by the transit agency or local jurisdiction. This is particularly problematic with controversial advertisements related to politics or advocacy. A transit agency can avoid these issues
through very clear advertising guidelines, but careful attention is required to avoid violating the United States Constitutional First Amendment Rights of Freedom of Speech.

- Larger shelter footprint: The inclusion of an advertising panel for a six-foot by four-foot advertisement (standard media size) creates a larger footprint for the shelter that requires a wider sidewalk for placement. In an older built environment like the AC Transit service area, this becomes a significant barrier to installing shelters on public right-of-way.
- Visibility barrier: The advertising panel creates a visibility barrier both for the rider waiting inside the shelter and for the public to see into the shelter, creating a safety concern.

Trash Cans
Trash cans provide a container for people to throw away their trash while waiting for the bus. Some transit shelters have trash cans attached to them. However, local jurisdictions typically provide their own trash cans and place trash cans near bus stops as a community-wide benefit. Most local jurisdictions take on trash disposal agreements with their local waste provider. Transit shelter designs should not include trash cans because of the additional complexity of disposing trash and because trash cans at transit shelters often fill up quickly before the next cleaning.

Real-Time Digital Displays & Push-To-Hear Buttons
Real-time arrival information provides riders with live updates on when a bus will arrive and removes unpredictability in the transit trip experience. In addition, audio buttons provide spoken updates to riders. According to the 2017 AC Transit On-Board Rider Survey, around 9% of participants said they do not have a smartphone with internet access. Real-time digital displays and audio buttons in bus shelters may provide bus arrival times for those who do not have access to a mobile device or may have a visually or hearing impairment.

At this time, real-time information digital displays and audio buttons are managed through separate contract and process from the bus shelters. To help facilitate the installation of these displays, the shelter designs must allocate space for a digital display and be able to connect from the real-time signage to a power source.

Public Information
At bus stops, public information can be found on bus stop poles and in transit shelters. Detailed public information complements real-time information, by confirming a rider’s location and
when their next bus is scheduled to arrive. In addition, public information at a transit shelter can provide information and announcements related to the surrounding community.

Different types of public information include:
- Line and System Maps
- Wayfinding Signage
- Line Schedules and Holiday Schedules
- Customer Service Information
- Information About the Community
- Maintenance Contact Information

This guide currently does not recommend what public information should be displayed on bus stop furniture. However, transit shelter designs should accommodate public information including map, schedule and insert holders of various sizes and the placement of an electronic display capable of displaying detailed information, if AC Transit begins to deploy such displays. In addition, the lighting in the shelters should provide sufficient illumination to read the public information during nighttime hours. Finally, the bus shelter design should provide contact information, such as a phone number, for the public to report maintenance needs.

**Lighting**
Ample lighting in bus shelters provide a sense of safety for riders when riding transit after dusk. Lighting should be incorporated, if possible in any shelter design and existing ambient or direct lighting should be considered as a factor when placing a bus shelter. However, this is not always possible as some shelters will need to be placed in less dense environments where lighting is sparse or non-existent.

The specific lighting standards for shelters and surrounding pedestrian environment will be left up to the local jurisdiction and the shelter manufacturer with review by AC Transit. While the use of LED lights may have environmental impacts, AC Transit prefers their use over other alternatives given their longevity, efficiency and brightness.

**Power Source to Shelter**
The bus shelter design and digital displays should have the option to be hooked up to a consistent electrical power source. This could be provided by the local utility provider (Pacific Gas & Electric in most cases), the local jurisdiction electrical grid, or through solar panels. The cost to power a shelter is significant and can often exceed the cost of the shelter itself due to installation costs such as trenching and on-going metering costs. On the other hand, solar panels avoid costly trenching but are expensive to procure and carry the challenge of theft, maintenance to ensure proper functionality, and deterioration over time. The feasibility of having lighting in a bus shelter and the ongoing cost of utility bills and maintenance should be evaluated during the design phase.
**Bus Benches and Seating**

Bus benches and seating can be found in transit shelters and can be a standalone amenity when a shelter installation is not feasible. If properly maintained, bus benches and seating are a viable and significantly more affordable alternative when a transit shelter cannot fit at a bus stop due to a lack of space. However, overhead protection from weather elements and amenities such as lighting, real-time information displays, and public information would not be integrated.

**Bus Benches and Seating Design Considerations**

**Dimensions:** Most benches are five to six-feet long and two to three-feet wide though smaller sizes are available for constrained bus stop locations.

**Seat Back:** A seat back provides a more comfortable sitting experience for transit riders and can be used to house advertising or custom artwork.

**Armrests:** Armrests add more comfort to the waiting experience and provide a place for someone to hold on when standing up or sitting down. Armrests also deter people from lying down on benches.

**Flip Seats:** Flip seats are usually narrower than a typical bench and less comfortable. However, they allow for smaller footprint, which can improve accessibility clearances. Like armrests, flip seats deter lying down or staying in the shelter for long periods of time.

**Bus Pole Seats:** At some bus stop locations, there may not be enough space for a bus bench. In these situations, bus pole seats can be attached to the bus pole to provide seating. Some bus pole seats have a smaller footprint size but less space for people to sit. If attached to the pole, the transit agency may be able to install these as part of a bus pole installation, which streamlines the installation process. This type of seating would likely need to be installed, owned, and maintained by the transit operator. Bus Poles should be located farther back from the roadway and approaching vehicles for the rider’s comfort and safety.

**Materials:** Bus bench materials can widely vary from aluminum to wood to concrete. Aluminum will have a different aesthetic from other materials but seems to be the most durable with the least amount of maintenance.

**Off-The-Shelf and Custom:** The consideration is similar to that of transit shelters: cost and maintenance.
Advertising and Non-Advertising: Advertising changes the design of a bench less than it changes the design of a bus shelter. However, the issues of advertising regulations and aesthetics are similar.

Multi-Modal Amenities
At a broader multi-modal perspective, there is also the emerging trend of mobility hubs where different modes of transportation converge, giving people multiple transportation options and connections depending on their need at that time. In addition to the amenities identified above, mobility hubs could include bike racks and corrals, and micro-mobility docking stations for electric scooters and bikes. These types of amenities are currently outside of the purview of AC Transit; however, examples of partnerships between providers of these services and transit agencies exist.

Overall Design Recommendation
Below is a summary of design recommendations followed by detailed justification. Together, these recommendations create a feasible bus shelter design to include in a long-term street furniture program.

<table>
<thead>
<tr>
<th>Design Element</th>
<th>Recommendation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Structure</td>
<td>Cantilever Design</td>
</tr>
<tr>
<td>Canopy Height and Size</td>
<td>8’(L) x 5’(W) x 8’(H) (typical) and up to 20’(L) x 8’(W) x 12’(H)</td>
</tr>
<tr>
<td>Materials</td>
<td>Aluminum (or steel) with perforated metal windscreens</td>
</tr>
<tr>
<td>Lighting</td>
<td>LED – local and manufacturer standards</td>
</tr>
<tr>
<td>Trash Cans</td>
<td>Do not include</td>
</tr>
<tr>
<td>Real-time Digital Displays &amp; Audio Announcement Buttons</td>
<td>Include under separate contract</td>
</tr>
<tr>
<td>Public Information</td>
<td>Maps, wayfinding signage, schedules, other information; must be updated regularly</td>
</tr>
<tr>
<td>Design Type</td>
<td>Off-the-shelf for consistency and ease of maintenance</td>
</tr>
<tr>
<td>Advertising</td>
<td>Include for additional revenue source</td>
</tr>
<tr>
<td>Power</td>
<td>Consistent power source needed for lights and signage</td>
</tr>
</tbody>
</table>

Example: Cantilever Bus Shelter with Seating
LA Metro | Los Angeles, CA
Source: Tolar Manufacturing
Site Conditions
Before adding bus stop furniture, assess the location of the bus stop ensure that bus shelters or benches can fit without obstructing accessibility. For full federal guidance, see Americans with Disabilities Act (ADA) Guidelines for Transportation Facilities, Section 810.2 and Section 209.2.3. Local and state ADA requirements may apply.

Minimum ADA requirements for clear bus stop landing area and accessible sidewalk:
- 8 ft (L) x 5ft (W) landing area at bus doors with wheelchair/mobility device access and must accommodate multiple bus types
- 36 inches minimum clear path of travel around all obstructions
- Landing area and clear path of travel can be within the shelter footprint, especially in a cantilever design with no column obstructions
- Shelter or bench should be as close as possible to the bus stop pole while meeting clearance requirements above
- Minimum 1 foot clearance behind the shelter and back of sidewalk to allow for maintenance
- Assuming a 36 inch shelter footprint at ground level for a cantilever shelter with seating, minimum sidewalk width is 8 feet if ramp landing area is adjacent to shelter or bench footprint and 12 feet if landing area is within or in front of shelter or bench footprint. If installing a bench, instead of a shelter, reduce measurements by 1 foot.
- If possible, shelters should not block adjacent property or business windows when placed at the back of sidewalk. Removal of the back windscreen can help to mitigate blockage of adjacent properties
- Shelter roof should be at least 18 inches away from face of curb to avoid conflicts with vehicles, especially buses pulling away from the curb

Overall, many factors determine bus stop furniture placement, including the available space, the pedestrian throughway and the location of the furnishing zone. AC Transit’s preference is to have bus shelters facing towards the street. However, in some cases, smaller sidewalks may require bus shelters to face backwards in order to meet ADA requirements and provide shelter. Determining site conditions can help inform the costs for designing, permitting, and constructing transit shelters or benches at a bus stop location.

Example: TriMet Bus Shelter
TriMet | Portland, OR | Source: AC Transit
Bus Stop Furniture Placement Guidelines

AC Transit serves more than 5,400 bus stops. Its goal is to improve the transit rider’s experience by proactively identifying bus stops where shelters and benches would make the most positive impact. With many stops and limited resources, AC Transit must prioritize where to improve bus stops. These placement guidelines, which set priorities for shelters and benches, are developed based on the Bus Stop Furniture Placement Methodology in the next chapter. This section lays out guidelines for:

- Adding and Removing a Shelter
- Adding and Removing a Bench

Adding a Shelter:
AC Transit recommends adding shelters at bus stops as funding and maintenance resources allow based on the following criteria:

- Locations with high ridership and high wait times.
- Neighborhoods with higher populations of people of color and low-income individuals.
- Social Service Locations within a quarter mile of a bus stop. These include locations that serve people with disabilities, housing for older adults, hospitals, healthcare clinics, or social service providers.

These factors were combined and scored using the Bus Stop Furniture Placement Methodology to produce a list of priority locations. The list is meant to be a starting point for bus stop furniture improvements. For a complete breakdown, see the chapter “Bus Stop Furniture Placement Methodology.”

Adding a Bench:

Some locations that may meet the criteria for a shelter may not have space to fit a shelter. Design, accessibility, and construction costs need to be considered when determining a shelter’s installation feasibility. AC Transit recommends adding a bench at bus stops, as funding and maintenance resources allow, at locations where there is not enough space to place a bus shelter. Most local jurisdictions have their own bench program, in which case AC Transit will work with them to request a stand-alone bench at these locations.

Removing a Shelter:
AC Transit recommends removing and/or relocating a shelter as funding and maintenance resources allow based on the following criteria:

- Locations with low ridership and low wait times.
- Changes in roadways or property boundaries that make it so the site cannot fit a shelter.
- There are site problems, such as inadequate clearance around the shelter for pedestrians or traffic safety issues.
- A bus stop is permanently removed. Some exceptions, such as pre-pandemic service reductions, may apply.
These factors were combined and scored using the Bus Stop Furniture Placement Methodology to produce a list of priority locations. The list is meant to be a starting point for bus stop furniture improvements. For a complete breakdown, see the chapter “Bus Stop Furniture Placement Methodology.”

Sometimes, a shelter may be temporarily removed if:

- It is in a construction zone, such as a streetscape project or development of a property. Local jurisdictions or developers must pay for temporary removals and reinstallations. For more information, see the “Roles and Responsibilities” section of this document.

**Removing a Bench**

AC Transit recommends removing and/or relocating a bench if:

- A bus stop is removed or relocated. Some exceptions, such as pre-pandemic service reductions, may apply.
- Changes in roadways or property boundaries that make it so the site cannot fit a bench.
- There are site problems, such as inadequate clearance around the bench for pedestrians or traffic safety issues.

Sometimes, a bench may be temporarily removed if:

- It is in a construction zone, such as a streetscape project or development of a property. Local jurisdictions or developers should coordinate with AC Transit staff on this and recognize there is a cost for temporary removals and reinstallations. For more information, see the “Roles and Responsibilities” section of this document.

**Shelters and Un-housed Individuals:** AC Transit strongly encourages retaining bus stop furniture and amenities for the comfort of riders and community placemaking. AC Transit recognizes that the un-housed is a symptom of the Bay Area’s larger housing shortage and will proactively work with local jurisdiction partners and community organizations to connect local support resources with unhoused person(s) residing in bus shelters or on bus benches.
Bus Stop Furniture Placement Methodology

The Bus Stop Placement Methodology was developed to help AC Transit decide which bus stops to place transit shelters and benches. The previous section, which lays out AC Transit’s guidelines for adding and removing shelters or benches, is based on this methodology. This methodology’s goal is to improve the transit rider’s experience by proactively identifying bus stops where shelters and benches would make the most positive impact.

With many bus stops and limited resources, this methodology is a guide for where to place bus stop benches and shelters.

While comprehensive, this methodology could change. It is an initial screening of potential shelter locations depending on other factors including ADA accessibility, funding, permitting and construction requirements, to name a few.

Identifying Factors for Analysis

The following analysis provides guidance on the distribution of bus shelters based on four factors: Person-Minutes, Percent of People of Color per Block Group, Percent of Low-Income People per Block Group, and Social Service Locations.

Person-Minutes: Person-Minutes is a calculation that considers how many people are waiting at a bus stop and for how long. Most shelter placement standards typically assign bus shelters based on a minimum number of average daily riders. For example, a transit agency may state that they will consider placing shelters at locations with fifteen or more average daily riders. However, this does not account for bus stops that have low ridership, but long wait times between each bus. For example, a bus stop where a bus comes every thirty minutes, may have overall lower ridership, but people waiting longer at this bus stop may enjoy a place to sit or respite from the sun and rain.

The Person-Minutes calculation combines both ridership and wait times from August through November Fall 2020 data. In other words, this calculation identifies locations where many people wait every day and where people tend to wait longer. The calculation is as follows:

\[
\text{Person-Minutes} = (\text{Average Daily Ridership}) \times (\text{Average Frequency})^1
\]

Ridership tends to be higher where there are major attractors. Therefore, Person-Minutes incorporates factors such as major attractors such as employment centers, senior homes, hospitals, grocery stores, and more. It also incorporates locations where people are more likely to transfer including.

Percent of People of Color per Census Block Group: This demographic factor is the percentage of people of color in each census block of a given bus stop. The data is from the American Community Survey 5-Year dataset (2015 – 2019). This factor is also used in AC Transit’s Title VI analysis.

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Percent of Low-Income People per Census Block Group: This demographic factor is the percentage of people 200% under the Federal Poverty line in each census block of a given bus stop, from the American Community Survey 5-Year dataset (2015 – 2019). This factor is also used in AC Transit’s Title VI analysis.

Social Service Locations: This factor identifies the total number of social services locations within a quarter mile (0.25 miles) of a bus stop. This includes locations that serve people with disabilities, housing for older adults, hospitals, healthcare clinics, or social service providers. Some social services, such as housing for older adults, have their own shuttle services or in-house transportation options. In this case, staff will further investigate the need for bus stop infrastructure at these bus stop locations. Individuals can travel more independently when they access local AC Transit bus routes, alleviating the need to use paratransit services. Focusing on the senior and disabled population in Alameda and Western Contra Costa Counties not only prioritizes locations that serve these populations, but all AC Transit riders.

Data Analysis
After identifying the factors for analysis, staff gathered the data, calculated the percentile rank for each factor, and weighted each factor. The weighting is as follows:

- Person-Minutes: 100
- Percent of People of Color per Census Block Group: 50
- Percent of Low-Income People per Census Block Group: 50
- Social Service Locations: 35

Person-minutes was given the highest weighted score of 100 because it identifies bus stop locations where placing a shelter or bench will impact the most people, often waiting longer periods of time. People of Color and Low-Income were given a weighted score of 50 in order to prioritize neighborhoods that may historically have less infrastructure investments. Finally, Social Service Locations were given a score of 35 to ensure that ridership and wait times (person-minutes) is given more weight to account for major ridership attractors (such as shopping centers) that all people, including senior adults and people with disabilities, can use and access.

A total list of scores for 2022 can be found in Appendix A. This methodology omits bus stops with recent improvements to the bus stop furniture or pre-existing infrastructure. This includes transit centers, Tempo Bus Rapid Transit platforms, BART stations and streets with city, county, or developer funded improvements. Locations with zero ridership and Census block groups with zero population are also be omitted.

This list is an initial screening of potential shelter locations and would change depending on other factors such ADA accessibility, existing transportation options (such as shuttles), location-specific funding, permitting and construction requirements, outreach at bus stops, and recent improvements to a bus stop, to name a few.
### Sample of Priority Bus Stop Locations for Placing Shelters or Benches

<table>
<thead>
<tr>
<th>Bus Stop Location</th>
<th>Person-Minutes (Percentile Rank)</th>
<th>% People of Color in Block Groups (Percentile Rank)</th>
<th>% Low-Income Population in Block Groups (Percentile Rank)</th>
<th>Social Services within a Quarter Mile (Percentile Rank)</th>
<th>Weighted Score (100 x Person-Minutes) + (50 x People of Color) + (50 x Low-Income) + (35 x Social Services)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 San Pablo Av &amp; Van Ness St</td>
<td>89.60%</td>
<td>79.10%</td>
<td>89.60%</td>
<td>98.60%</td>
<td>208</td>
</tr>
<tr>
<td>2 Marina Way &amp; Nevin Av</td>
<td>81.40%</td>
<td>90.70%</td>
<td>87.30%</td>
<td>98.60%</td>
<td>205</td>
</tr>
<tr>
<td>3 San Pablo Av &amp; Van Ness St</td>
<td>86.00%</td>
<td>79.10%</td>
<td>89.60%</td>
<td>97.70%</td>
<td>205</td>
</tr>
<tr>
<td>4 Telegraph Av &amp; Haste St</td>
<td>95.70%</td>
<td>46.90%</td>
<td>99.70%</td>
<td>96.50%</td>
<td>203</td>
</tr>
<tr>
<td>5 Church Ln &amp; San Pablo Av</td>
<td>84.00%</td>
<td>79.10%</td>
<td>89.60%</td>
<td>96.50%</td>
<td>202</td>
</tr>
<tr>
<td>6 San Pablo Av &amp; Stone St</td>
<td>82.90%</td>
<td>93.50%</td>
<td>93.60%</td>
<td>72.50%</td>
<td>202</td>
</tr>
</tbody>
</table>

### Methodology Challenges

- **Accessibility:** The Methodology does not include information about a bus stop’s accessibility. Currently, AC Transit does not have a comprehensive inventory of bus stop conditions. An initial analysis using Google Street View and a field visit may be necessary to determine if a bus stop can incorporate an accessible transit shelter. Bus stop locations that cannot fit an accessible transit shelter would qualify for a bench.

- **Bus Stop Conditions May Change:** There are over twenty-four cities with multiple projects happening at once affecting bus stops through AC Transit’s service area. AC Transit does not have an ongoing database of changes, at this time. Some bus stop locations that have recently been improved due to a local jurisdiction’s complete streets project or a developer funded project may still be on the list. Staff should assess each bus stop location prioritized through the placement guidelines and determine if recent improvements have been made to the bus stop and if the stop can accommodate an accessible shelter or bench. If not, staff would move to the next location on the list.

- **Ridership and Frequency Data is Constantly Changing:** The data used to calculate person-minutes—average daily ridership and average frequency per bus stop—may change depending on ridership trends and funding availability. Therefore, it may be worth updating the analysis every five years.
Outreach

Outreach is essential for educating stakeholders about any bus stop furniture changes. Some stakeholders could advocate for more shelters and benches while others would oppose them. In either instance, stakeholder outreach is necessary to understand public opinion and consider adjustments based on feedback. Below are outreach guidelines for adding or removing bus shelters and/or stand-alone benches, as well as roles and responsibilities in communicating with stakeholder groups. AC Transit will develop a robust outreach strategy depending on the situation or activity related to the changes to the street furniture program.

**Purpose:**
- To educate stakeholders on methodology for furniture decisions
- To educate stakeholders on roles and responsibilities
- To educate stakeholders on ADA compliance.
- To receive feedback on installation(s) or removal(s).

**Activities that determine when outreach is required:**
- Adding or Removing a Bus Shelter
- Adding or Removing a Stand-Alone Bench/Seating

**Activities that do not require outreach:**
- Adding or Removing Trash Cans
- Adding or Removing Advertisements
- Cleaning and Maintenance

**Stakeholders:**

<table>
<thead>
<tr>
<th>External Stakeholders</th>
<th>Riders, Customers, with emphasis on the Senior and Disabled communities, AC Transit’s Accessibility Advisory Committee (AAC), Local Jurisdiction Staff, Elected Officials, Merchants/Business and Property Owners in proximity to the bus stop requiring the change</th>
</tr>
</thead>
<tbody>
<tr>
<td>Internal Stakeholders</td>
<td>AC Transit Staff (including Planning, Accessible Services, External Affairs, Pole Crew, and Maintenance) and the AC Transit Board of Directors</td>
</tr>
</tbody>
</table>
Maintenance
While the design of shelters and benches and their location are critical to a street furniture program, the success of a program ultimately depends on the maintenance component. Bus stops are where the public space intersects with transit service. Well maintained and accessible bus stops depend on a mutually beneficial relationship between AC Transit and the local jurisdictions. Finally, bus stop furniture also sends a message to the public about AC Transit. A clean, safe, and informative bus stop suggests that riding the bus is a practical, appealing, and easy alternative to driving and parking. This section lays out the best practices for maintain bus stop furniture

Ongoing Maintenance
When maintaining bus shelter furniture, it’s important to think about what needs to be cleaned and how often. The minimum recommended maintenance requirements for bus shelters are:

- Maintenance visits to each shelter twice per week or more as needed. Visits include:
  - Cleaning of shelter structure within a fifteen feet radius around the shelter. This includes picking up trash, clearing debris, and light graffiti cleaning.
  - Inspection of shelter structure and amenities (including lighting and power, maps and information) for damage.

- Monthly power-washing of each shelter and surrounding vicinity

- Ad-hoc cleanings and/or power-washings

- 24-hour emergency response to address any damage to a shelter that potentially results in a safety hazard to transit riders and the public

- Replacement and updating of maps, schedules and community information inserts on a quarterly basis.

Repairing Bus Stop Furniture
While a transit shelter’s structure and materials can help minimize damage and vandalism, shelter structures may still be damaged. When repairing bus stop furniture, consider the following:

- Identify a responsive and knowledgeable maintenance team to conduct repairs. The team needs to be well-equipped with necessary tools and training. Ideally, repairs should be made within twenty-four to forty-eight hours. If more efficient, it is possible that the shelter repair team is separate from the shelter maintenance team due to the different skill sets and equipment required. The repair team could also be responsible for shelter installations and removals.

- Identify a location to stock and store spare parts.

While custom-designed individual bus shelters, often installed by private developers, may make aesthetic sense, they must be maintained with the same requirements identified in this section of the guidelines. This includes the availability of spare parts to immediately repair any damages. This responsibility should fall on the shelter owner.
Reporting
The final component of a sound maintenance program is regularly updated maintenance reporting. The reporting system should:

- Identify who cleaned the furniture, what did they do, and when and where.
- Include before and after photos of the maintenance
- Identify updates to map, schedule and information updates
- Identify when lighting inspections and repairs were completed
- List the total inventory of spare parts for repairs
- Identify who requested the cleaning (i.e. the public, staff, etc.)

Penalties
In order to hold parties accountable for proper maintenance, the lead program agency should implement financial penalties for poor performance. These come in the form of liquidated damages clauses in contracts or reimbursement of the cost for another party to remedy the deficient work. As an example, if a maintenance contractor fails to conduct a maintenance visit to a shelter, the shelter owner or program manager can hire another contractor to do the work or conduct the effort in-house. The original maintenance contractor would have to pay the cost for the work performed by the other party. If overall maintenance is done in-house, accountability would lie in the agency’s employee performance policies and agreements.

Benches and Other Street Furniture
Stand-alone benches and seating should have similar maintenance requirements as shelters but to a lesser degree since they have less damageable parts, are easier to add or remove, and have a smaller footprint. Benches and seats may be cheaper and easier to replace than repair and therefore the bench owner or program manager should have spare benches on hand for quick replacement.

At this time, real-time information digital displays and audio buttons should be maintained through a separate process based on hardware and software needs.
Roles and Responsibilities

Maintaining and installing bus stop furniture often involves multiple stakeholders, including the transit agency, third-party contractors, and/or the local jurisdiction. Bus stops and the appurtenant furniture send a message to the public about the jurisdiction’s public space and the experience of taking the bus. So, the relationship between AC Transit, third-party contractors, and the local jurisdictions remains a key part of the program’s success. This section documents past roles and responsibilities and lays out important considerations for future roles and responsibilities.

Past Roles and Responsibilities

In 1998, AC Transit entered into a Joint Powers Agreement (JPA) with local jurisdictions to develop a Request for Proposals (RFP) to select a third-party contractor who would help install, maintain, and construct transit shelters. The JPA also helped determine shelter locations and coordination shelter permitting in the jurisdiction owned right-of-way (ROW).

After the RFP was released in 1998, in 1999 AC Transit entered into an agreement with a third-party advertising company to install, own, and maintain transit shelters at bus stops at no cost to AC Transit. In exchange, the third-party advertising company received advertising revenue space at transit shelters. The revenue paid for bus shelter maintenance and leftover profits for the advertising company. Over time, transit shelter advertising revenue has decreased because advertising has moved online. There is less incentive for advertising companies to take on maintenance and capital work.

Roles for A Bus Stop Furniture Program

AC Transit is often the first one to be contacted whenever a shelter needs to be maintained. However, many bus stop furniture programs involve multiple stakeholders including the local jurisdictions or a third-party consultant.

For example, AC Transit’s 1999 Transit Shelter Agreement included three key stakeholders: the local jurisdictions, the third-party contractor, and AC Transit:
<table>
<thead>
<tr>
<th>Local Jurisdictions</th>
<th>AC Transit</th>
<th>Private Sector (Contractor)</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Sidewalk and Street Maintenance</td>
<td>• Installing the Bus Stop Flag and Pole</td>
<td>• Installation and Maintenance of Bus Shelter and associated elements:</td>
</tr>
<tr>
<td>• Red Curb Maintenance</td>
<td>• Developing and Posting Route Information on Flag</td>
<td>• Lighting and Electricity</td>
</tr>
<tr>
<td>• Crosswalk and Signal Maintenance</td>
<td>• Maintaining Flag and Pole</td>
<td>• Seating</td>
</tr>
<tr>
<td>• Installing and Maintaining City-owned Trash Cans</td>
<td>• Installation and Maintenance of Digital Displays</td>
<td>• Clear Channel-owned Trash Cans</td>
</tr>
<tr>
<td>• Final Approval of Bus Stop and Bus Shelter Locations</td>
<td>• Identifying Bus Stop Locations in Coordination with Local Jurisdiction</td>
<td>• Bus Schedule Information</td>
</tr>
<tr>
<td></td>
<td>• Administer the Transit Shelter Contract</td>
<td>• Advertising</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• PSAs (produced by others)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Identifying Bus Shelter Locations in Coordination with AC Transit and Local Jurisdictions</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Applying for Appropriate Permits for Installation and Maintenance</td>
</tr>
</tbody>
</table>

Moving forward, these stakeholders will continue to be involved. However, their responsibilities may be different depending on whether the work is done in-house or contracted to a third-party.

**Responsibilities for A Bus Stop Furniture Programs**

A bus stop furniture program should address the following responsibilities:

- Maintenance and Capital Work
- Ownership and Liability
- Advertising
- Program Management
- Developers

**Maintenance and Capital Work:** Maintenance and capital work may be the responsibility of either the transit agency’s in-house staff, the local jurisdiction, or a third-party consultant. Stakeholders have the choice to either take the maintenance and capital work of bus stop furniture in-house or contract it out. Depending on the level of involvement, stakeholders define the scope, with some choosing to focus resources solely on transit shelters.
A transit agency may administer a maintenance contract under a consolidated, agency-wide program. Alternatively, a local jurisdictions, such as in the City of Alameda, Emeryville, and Oakland operate their own transit shelter program as the public right-of-way. In this situation, the local jurisdiction oversees all the functions identified above and uses its discretion on whether or not to manage these with in-house or third-party consultant staff.

Cost impacts for different scenarios to manage or perform the identified functions above can vary. While in-house management and operations help to ensure program quality, they typically come with a higher cost than a third-party consultant who may specialize in this work, usually because of higher salaries and better employee benefit packages. On the other hand, while a third-party consultant may be more affordable, quality of work could suffer with less direct oversight over performance.

A Note on Trash Cans: Trash accumulation results in very unpleasant waiting environment for bus riders and a poor impression of public transit. Depending on the location, it is very difficult to keep up with trash removal and disposal costs. Trash cans and trash removal on the local jurisdiction right-of-way is the responsibility of the local jurisdiction. Exceptions to this include Eastmont Transit Center and Tempo Bus Rapid Transit stations which are maintained by AC Transit contractors.

Benchs: Many local jurisdictions often have their own benches or contract bench maintenance to a third-party contractor.
Ownership and Liability: Ownership and Liability is typically tied to maintenance and upkeep of bus stop furniture, including transit shelters and benches. Some factors to anticipate when owning a shelter include liability and insurance, total cost of the assets, and ability to respond quickly to incidents in the field.

Advertising: Transit agencies and local jurisdictions typically contract out advertising space to a third-party contract. Usually, advertising contracts include some form of revenue sharing between the contractor and the transit agency or local jurisdiction. Contractors managing advertising in transit shelters should follow AC Transit’s existing Board Policy for advertising standards and local jurisdiction advertising standards.

Program Management: Regardless of who owns or manages bus stop amenities, the transit agency or local jurisdiction should identify a program manager. Bus Stop Furniture Program Managers think strategically about bus stop furniture placement, manage finite resources, ensure contract compliance, and make sure day-to-day requests from the public are met.

Developers: Local jurisdictions often have permit or Transit Demand Management (TDM) policies that require developers to fund and install bus stop furniture, including benches, trash cans, and transit shelters. A new development can also integrate bus stops and their appurtenant furniture into the streetscape by providing awnings extending from the building or real-time screens. In these situations, it is best for the local jurisdiction or developer to have full responsibility over the bus stop furniture.

If the developer or the city wish to incorporate the shelters into the larger shelter program, the shelter design must be the same and a regular stream of funding must be provided to the program manager for ongoing maintenance, repairs and management. If a developer or local jurisdiction must remove or relocate a shelter, they would be responsible for the work involved and the capital and maintenance costs. However, the shelter program manager/owner should be informed so that the two parties can coordinate on outreach and reporting.

Privately Funded Shelters: Sometimes, a private organization or local community group may want to install a shelter. The organization or community group should work with AC Transit staff and the local jurisdictions to identify funding, stakeholders, and develop the appropriate documents to meet permitting requirements including locating shelters in an ADA accessible location. The organization or community group is responsible for the ownership, maintenance, and repair of shelters, unless they reach an agreement with AC Transit.
Appendix A: Bus Stop Furniture Placement Analysis Results