CapMetro

Bus Stop and Transit Amenity Design Standards and Specifications Manual

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Contents

Introduction 4

Related CapMetro Guidelines and Documents 4

Purpose and Need 5

Document Updates 5

Section 1. Administration 6

Section 1.1: Reference Design Codes and Manuals 6

Section 1.2: Variances to Criteria 6

Section 1.2.1: Process for Requesting Variances to Criteria 7

Section 2: Bus Stop and Transit Amenity Standard Details and Specifications 8

Section 2.1: Below Grade 8

Electrical Service Coordination 8

Table 1: Electric Service Process and Related Standard Details and Specifications 10

Other Utility Coordination 10

Section 2.2: At Grade 10

Bus Stop Footprint 11

City of Austin Multimodal Stop Requirements 11

Table 2: Bus Stop Footprint Standard Details and Specifications 12

In-Street Bus Pad 12

Table 3: In-Street Bus Pad Standard Details and Specifications 12

Temporary Bus Stop Requirements 12

Table 4: Requirements for Temporary local stops and Rapid Stations 14

Table 5: Temporary Transit Stop Documentation 14

Bikeshare Station Footprint 15

Bikeshare E-Bike Specifications 15

Table 6: Transit Amenity: Bikeshare Station Footprint Standard Details and Specifications 15

Section 2.3: Above Grade 15

Bus Specifications 15

Table 7: Bus Specifications 16

Shelters 16

Table 8: Transit Amenity: Bus Stop and Bus Station Shelter Standard Details and Specifications 17

Litter Containers 17

Table 9: Transit Amenity: Litter Containers Standard Details and Specifications 18

Benches 18

Table 10: Transit Amenity: Bench Standard Details and Specifications 19

Bicycle Parking 19

Table 11: Transit Amenity: Bike Parking Standard Details and Specifications 20

Signage & Wayfinding 20

Table 12: Transit Amenity: Signage and Wayfinding Standard Details and Specifications 21
Lighting 21
Table 13: Transit Amenity: Lighting Standard Details and Specifications 23
Appendix A: Table - Bus Stop and Transit Amenity Design Standards and Specifications 24
Appendix B: CapMetro Departmental Contact List 26
Document Review and Revision History 27

Introduction

As Central Texas continues to experience unprecedented growth, CapMetro is committed to delivering a safe, reliable, accessible, and customer-focused public transportation system that meets the evolving needs of the Central Texas region. The ***Bus Stop and Transit Amenity Design Standards and Specifications Manual*** (the "Manual") reflects that commitment by documenting CapMetro's comprehensive framework for the design and construction of bus stops and transit amenities across CapMetro's service area.

The intent of the Manual is to provide clear, consistent, and enforceable technical standards and specifications for all bus stops and transit amenity infrastructure within the public right-of-way. The Manual serves as a critical reference for municipalities, developers, engineers, contractors, and agency partners involved in projects that impact or support transit operations. As the Central Texas region grows and infrastructure demands increase, consistency in design and implementation is essential to ensuring high-quality rider experience and supporting operational efficiency across the CapMetro system. The standard details in this Manual support CapMetro's Strategic Plan 2030 and Transit Plan 2035 by advancing the region's shared vision of a transit system that is sustainable, equitable, connected, and responsive to community needs.

The Manual will be updated regularly to ensure that the latest specifications for CapMetro assets are available for review and that outdated and no longer used specifications are removed from the Manual as they are retired. The Manual establishes a formal process for evaluating variances and alternative solutions when unique site constraints exist, while keeping the integrity of CapMetro's operational, accessibility and safety standards.

The Manual addresses:

- The approach to installation of bus stops and related transit amenities;
- Required above and below grade components of bus stop and amenity design;
- Technical Specifications for utilities, bus stop footprints, shelters, lighting, benches, litter containers, bicycle parking, wayfinding, temporary stop placement, and bikeshare stations; and
- CapMetro's formal process for evaluation of variance to CapMetro's standards and specifications.

The Manual outlines detailed engineering criteria and specifications for installation of CapMetro assets and intends to standardize safety, accessibility, and long-term durability of CapMetro owned and maintained assets. Design principles are also referenced in this document, which includes an approach for planning and designing a system that meets customer and employee safety and security factors such as the use of Crime Prevention Through Environmental Design (CPTED) principles as a best practice. CPTED principles and design guidance are used when evaluating safety-related design elements, including lighting, visibility, and surveillance.

Related CapMetro Guidelines and Documents

This Manual complements other existing CapMetro documents that discuss bus stops and transit amenities in a different and supportive context. The documents serve different purposes and meet diverse needs; a list is below.

- Service Standards and Guidelines – CapMetro must federally produce and update a document called Service Standards and Guidelines (SSG). The SSG support CapMetro's compliance with Title VI of the Civil Rights Act and ensure equitable transit service delivery.
- CapMetro Transit Design Guidelines - CapMetro's Transit Development Guidelines (TDG) detail design strategies that a private developer can use to physically plan building density with transit supportive uses. The TDG augments CapMetro's Transit Oriented Development Policy and Transit Oriented Development Guidebook.
- CapMetro Facility Design Guidelines – CapMetro's Facility Design Guidelines serve to streamline the facility design process for both external consultants and internal teams at CapMetro by providing guidelines based on key design principles that build functional, safe, cost-effective, sustainable projects, while eliminating inconsistencies and preventing redundant work across design initiatives.

Purpose and Need

This Manual provides clear, consistent, and enforceable standards for all bus stops and transit amenity infrastructure within the public right-of-way. It serves as a critical reference for CapMetro employees and external municipalities, developers, engineers, contractors, and agency partners involved in projects that impact or support transit operations. The Manual serves to promote safety, accessibility, and long-term durability of stops and assets, guide maintenance and ensures the designs of federally funded transit elements are compliant with applicable regulations.

Temporary and permanent construction within the ROW require **standard details and specifications for design. The standards and specifications in this document are a requirement and are not advisory;** the document must be followed to not only meet federal and local criteria but also to direct the safe construction of public infrastructure within the ROW.

Document Updates

This document will be reviewed on an annual basis, and relevant standards and specifications will be updated as needed, with changes and dates documented.

Section 1. Administration

CapMetro's Capital Construction Engineering and Design Department (CCED) handles administering and updating this Manual annually in coordination with the Strategic Planning and Development Department (Planning). The sections below describe the CapMetro process when a bus stop or an amenity design drawing is being reviewed and describes what standards, codes, manuals and other administrative documents apply to the design deliverable. Roles and responsibilities are assigned to either CapMetro or the External Entity (EE) who are proposing and/or delivering the project. A list of applicable CapMetro staff contacts is listed in Appendix B

Section 1.1: Reference Design Codes and Manuals

The EE Design Engineer shall follow all applicable engineering codes, standards, and all Federal, State and local jurisdiction requirements. The most recent edition(s) of codes, manuals and requirements shall be used. Responsibility for all designs stays with the EE Engineer of Record (Design Engineer) and State of Texas Laws and Regulations. The EE Design Engineer shall identify all known or apparent code conflicts, shall notify CapMetro in writing and shall recommend a solution. The EE Design Engineer shall confirm those codes and manuals that have precedence.

Section 1.2: Variances to Criteria

The EE Design Engineers shall prepare signed and sealed drawings and technical specifications for each project per their design contract, as applicable, and all other applicable requirements including codes, regulatory standards, environmental impact statements, and CapMetro SSG.

During the design phase of a project, there may be specific instances in which the EE Design Engineer looks to deviate from the defined CapMetro criteria to develop a solution to a particular design problem. Any deviation, discrepancy, or unusual solution must be approved by CapMetro in writing before it can be included in the design. Deviations from the CapMetro established design criteria or specification may be submitted to CapMetro by an EE and shall be evaluated only if meeting the established requirements is determined by CapMetro to be impractical - not capable of being done within physical, social, or economic constraints.

In deciding whether to grant a variance to these Design Criteria, CapMetro will consider all **relevant factors**, including whether:

1. A variance is reasonably necessary for, and would not be detrimental to, the convenience, safety, health and/or welfare of the public.
2. There is exceptional or undue hardship on the applicant, or a physical impracticality to meet the criteria.
3. A variance will not impair the bus operations, maintenance, or transit safety, nor otherwise conflict with the purposes of this Design Criteria.

Upon review of a variance, specific attention shall be given by CapMetro to assure compliance of the request with the most current requirements of the Americans with Disabilities Act (ADA).

It is the responsibility of the EE Design Engineer to identify, explain and justify any variance from the established criteria and secure approvals from CapMetro. All variances to the criteria shall be submitted and approved by CapMetro in writing.

Where manufactured products are specified, alternative products are acceptable if the proposed substitution is an approved equivalent and approved by CapMetro in writing.

Section 1.2.1: Process for Requesting Variances to Criteria

1. EE Design Engineer submits requested variance identifying which CapMetro Design Criteria cannot be met and requests variance from the criteria to CapMetro Capital Construction, Engineering & Design (CCED) staff via emails listed in Appendix B. The email shall identify which of the three **relevant factors** (listed above) applies to the requested variance and shall include accurate contact information for response.
2. CapMetro CCED staff will review requested variance and contact if more information is needed and may accept or reject request within 30 calendar days.

Section 2: Bus Stop and Transit Amenity Standard Details and Specifications

Section 2 addresses the bus stop and transit amenity standard details and specifications approach for supporting infrastructure that is located below, at, and above grade level. This section also includes links to supporting documentation for the process needed to install, update, or relocate a CapMetro transit asset.

Section 2.1: Below Grade

This section establishes design criteria for both existing and proposed below ground utilities at bus stops and transit amenities. Any utility or utility facility that is proposed to be designed, installed, or relocated within a CapMetro bus stop footprint or as part of a transit amenity shall be in accordance with the provisions of the details and specifications in this section.

All utilities that are specifically designed for CapMetro projects should meet the criteria in the Manual and the codes and requirements of the local jurisdiction where the project is located. Where utility company criteria, public laws, or other standards applicable to the specific utility require a higher degree of protection, these laws and standards will take precedence over this Manual. CapMetro has the right to amend or waive the design standard details and specifications included in the Manual.

Electrical Service Coordination

CapMetro uses electrical service at bus stops and transit amenities to support safe and reliable operations, including pedestrian lighting, digital real-time passenger information displays, security cameras, and charging infrastructure for the electric Bikeshare system.

The electrical service process requires coordination among three parties: Austin Energy, the EE Project Manager/Owner, and CapMetro. The EE Project Manager/Owner is responsible for directly managing and executing the required coordination activities with Austin Energy, outlined below. CapMetro shall be included in and consulted at each major project milestone associated with electrical service installation. While the EE Project Manager/Owner is responsible for implementation and coordination, CapMetro is responsible for ongoing electrical service costs and the maintenance of CapMetro-owned electrical infrastructure and equipment[1].

The following process outlines the coordination required to establish electrical service for CapMetro owned and operated facilities and amenities within the City of Austin in coordination with Austin Energy. EE projects located outside of the City of Austin must follow local jurisdiction and electric service provider processes as applicable.

[1] The City of Austin is responsible for electrical service cost of Bikeshare infrastructure within the City of Austin ROW.

The party responsible for each activity is identified in parentheses.

1. **Develop Site-Specific Electrical Plans (EE Project Manager/Owner)**
    - **a.** Prepare site-specific electrical plans for each project location in accordance with Austin Energy requirements. Refer to the Austin Energy Electric Service Planning Application (ESPA) process for detailed design requirements.
    - b. Provide EE Project Team with the applicable CapMetro standard specifications and electrical requirements within this Manual to inform the site-specific electrical design.
2. **Obtain Address Assignment (EE Project Manager/Owner)**
    - **a.** Coordinate with the appropriate local jurisdiction to obtain or verify a service address for each new bus stop, shelter, Bikeshare station or transit amenity requiring electrical service.
    - **b.** Provide the assigned service address for use in Austin Energy service applications, meter installation, billing, and asset tracking.
    - **c.** Notify CapMetro CCED Staff (Appendix B) of the assigned address and associated project location.
3. **Coordinate Austin Energy Service Design (EE Project Manager/Owner)**
    - **a.** Submit an ESPA to Austin Energy using the assigned service address and applicable project information.
    - **b.** Coordinate with Austin Energy throughout the service design process and respond to requests for additional information.
    - **c.** Pay all fees associated with obtaining Austin Energy's electrical service design and approvals.
    - **d.** Provide CapMetro CCED Staff with copies of Austin Energy design approvals and correspondence associated with major project milestones.
4. **Coordinate Construction and Inspections (EE Project Manager/Owner)**
    - **a.** Construct all electrical service infrastructure in accordance with approved plans and Austin Energy requirements.
    - **b.** Schedule and coordinate required inspections with Austin Energy and the applicable authorities having jurisdiction.
    - **c.** Keep CapMetro CCED Staff informed of inspection results, schedule changes, and major project milestones via formal correspondence (through email and meetings) at least weekly, unless otherwise requested by CCED staff or the Project Team.
5. **Install Electrical Service Infrastructure (EE Project Manager/Owner)**
    - **a.** Install all infrastructure required to support electrical service at the project location, including conduit, pull boxes, foundations, service equipment, and other components identified in the approved electrical design.
    - **b.** Complete all work necessary to prepare the site for meter installation and service energization.
    - **c.** Keep CapMetro CCED Staff informed of installation milestones via formal correspondence (through email and meetings) at least weekly, unless otherwise requested by CCED staff or the Project Team.
6. **Meter Decommissioning and Service Activation (CapMetro)**
    - **a.** For existing locations, CapMetro CCED Staff will coordinate with Austin Energy to decommission and remove existing electrical service and meters prior to construction, as required.

   b. Upon completion of construction and successful inspection, CapMetro CCED Staff will coordinate meter installation and service activation with Austin Energy.

7. **Final Electrical Connection and Acceptance (CapMetro)**
   a. CapMetro CCED Staff will coordinate the final electrical connection and energization activities, as required, with Austin Energy and a licensed electrical contractor.
   b. Following service activation, CapMetro will assume responsibility for ongoing utility service costs and maintenance of CapMetro-owned electrical assets and equipment.

Summary: Electric Service Roles and Coordination Requirements

The EE Project Manager/Owner is responsible for directly managing and executing the Austin Energy coordination process, including design, permitting, construction, inspections, and service application activities. CapMetro CCED Staff shall be included in all major milestones and decision points throughout the process, including address assignment, ESPA submittal, Austin Energy design approval, inspection completion, meter installation, and service activation. Documentation associated with each milestone shall be provided to CapMetro CCED Staff for review and tracking purposes.

Table 1 provides a link to the Austin Energy electric service process and electric technical details for Rapid and Bikeshare stations.

Table 1: Electric Service Process and Related Standard Details and Specifications

Item	Date Updated
Austin Energy ESPA Process	12/23/2023
Rapid Station Electrical Scope of Work	2026
Rapid Station Electrical - Routes 801, 803 (Sheets E001-E500)	6/25/2025
Rapid Station Electrical - Routes 800, 837 (Sheet 64A)	7/24/2024
Bikeshare Station Electrical (Sheets E001-E500)	3/10/2025

Other Utility Coordination

Standard bus stop construction avoids most utilities located in the ROW with the installation 6-inch-thick concrete pads (see Section 2.2 and Table 2 for Bus Stop Footprint Standard Details and Specifications). Due to the depth required to support the MetroRapid station infrastructure, every MetroRapid station must undergo an engineering process to mitigate and design around utilities.

To mitigate conflicts with utilities, EE contractors are responsible for contacting 811 and ensuring that all appropriate dig tests are completed prior to starting work.

If the bus stops are in the downtown area, or in the Downtown Austin Project Coordination Zone (DAPCZ) the EE contractor is required to include a Professional Engineered stamped drawing with a utility survey.

Section 2.2: At Grade

This section establishes design criteria for the physical footprint of permanent and temporary bus stops and transit amenities. All new or reconstructed CapMetro bus stops shall be in accordance with the provisions of the details and specifications in this section. CapMetro has the right to amend or waive the design standard details and specifications included in the Manual.

Furthermore, all permanent or temporary bus stops must be reviewed by CapMetro's Operation Hazard Assessment, which evaluates:

- Volumes and turning movements of vehicle traffic
- Types of traffic signal controls
- On-street vehicle parking and delivery areas
- Proximity to passenger crosswalks and curb ramps
- Bus routing patterns at an intersection
- Proximity of the bus stop for the route serving the opposite direction
- Width of street for passing buses and other larger vehicles
- Directions and widths of intersections
- Pedestrian activity through intersections
- Adequate curb space for number of buses expected to serve the stop at one time

Bus Stop Footprint

Bus stops and stations must meet the minimum footprint and engineering specifications detailed in Table 2 below. Table 2 includes links to standard bus stops that serve the majority of CapMetro's bus routes and Rapid Stations that serve Rapid routes 800, 801, 803, and 837. The Table includes all specifications for bus stop standards throughout the CapMetro system, which include pedestal bus stop designs that exist at many stop locations throughout the system but that are no longer implemented as part of new construction or reconstruction activities.

City of Austin Multimodal Stop Requirements

The City of Austin Transportation Criteria Manual (TCM) Section 6.2.3 requires the construction of a multimodal stop when a bus stop or transit station is reconstructed adjacent to an existing or planned bicycle lane or shared-use path. For the purposes of this requirement, a bicycle facility refers to on-street bicycle lanes and shared-use paths and does not include bicycle parking, bicycle racks, or Bikeshare stations unless otherwise specified by the applicable jurisdiction.

The required multimodal stop configuration shall be determined based on the type of bicycle facility, available right-of-way, and site-specific conditions. Design treatments shall conform to the City of Austin TCM Interim Standards SD 1401 and any subsequent updates adopted by the City.

During project development, the EE Project Manager/Owner shall identify existing and planned bicycle facilities within the project area and coordinate with the applicable jurisdiction to verify planned bicycle infrastructure that may affect the final stop configuration.

Table 2: Bus Stop Footprint Standard Details and Specifications

Item	Date Updated
Standard Bus Stop Layout	3/7/2025
Standard Bus Stop Engineering Specifications	3/10/2025
Local Pedestal Bus Stop Footprint (Discontinued)	10/13/2000
Rapid Station Engineering Specifications - Routes 801, 803	6/25/2025
Rapid Station Engineering Specifications – Routes 800, 837	7/24/2024
City of Austin TCM Interim Standards SD 1401 – Multimodal Bus Stop Layouts	2/26/2026

In-Street Bus Pad

In-street concrete bus pads shall be installed at bus stops that are served by six (6) or more buses per hour. In-street concrete bus pads may also be required at locations where a geotechnical evaluation identifies soil conditions that warrant additional pavement reinforcement to accommodate recurring bus loading.

Design and construction requirements for in-street concrete bus pads shall comply with the applicable engineering specifications identified in Table 3.

Table 3: In-Street Bus Pad Standard Details and Specifications

Item	Date Updated
Standard Bus Stop Engineering Specifications (Sheet C-03)	3/10/2025
Rapid Station Engineering Specifications - Routes 801, 803 (Sheet S301)	6/25/2025
Rapid Station Engineering Specifications – Routes 800, 837 (Sheet 42)	7/24/2024

Temporary Bus Stop Requirements

The CapMetro service area has experienced substantial and on-growing growth. As such, CapMetro must balance persistent construction impacts with the need to safely and reliably serve our customers. During construction a bus stop may be temporarily or permanently relocated. Permanently relocated bus stops will utilize all standards and specifications listed in the other sections of this manual. CapMetro utilizes internal standard operating procedures which include tasks such as updating GIS and Google Maps, internal departmental coordination/communication with operations, facilities, and planning and proper notification to customers.

A temporary bus stop shall be provided whenever construction, maintenance, development, special events, or other activities require the closure or relocation of an existing bus stop and no alternative existing bus stop is available within 0.25 miles of the affected location. An existing available stop within 0.25 miles of the affected location shall also be refurbished or expanded to accommodate necessary amenities from an affected stop. Exceptions may be considered when access to an alternative stop

requires pedestrians to cross a high-volume roadway, a complex intersection, or a roadway with a posted speed limit greater than 35 mph.

The requirements below (see Table 5) apply to all temporary and relocated local and Rapid bus stops and are based on the Stop Type as defined by the Service Standards and Guidelines and by the duration of the impact. Generally, higher level Stop Types and longer duration of impact require larger temporary stops to accommodate amenities such as benches and shelters. In these instances, if an amenity was present at the previously affected location, it should be provided at the temporary location, and the temporary stop platform should adhere to the Standard Bus Stop Engineering Specifications in Table 2. Temporary stop locations and proposed infrastructure shall be evaluated in coordination with CapMetro Service Impacts and CCED staff prior to activation and periodically throughout the duration of use, and whenever site conditions change to ensure continued compliance with safety, accessibility, and operational requirements.

While local bus stops utilize a low-impact shelter, Rapid shelters are substantially more robust, requiring a greater level of coordination to manage impacts. Rapid shelters are permanent and can only be removed when impacted directly by construction. Rapid shelters are only to be installed when they are placed in their permanent location. In addition, removal and relocation of Rapid stations may be subject to Federal Transit Administration approval, requiring further advance notice. For temporary Rapid stops, bolt-down shelters with refurbished shelter banners are required. Decommissioning a Rapid shelter is a multistep process as detailed below:

- Electrical Coordination:
    - CapMetro coordinates with Austin Energy to disconnect electrical meter and pull box
    - A third-party electrician must be contracted to remove wire connections to pull box
- Disassembly of Shelter Structure
    - Requires dedication of staff and resources with lifting mechanisms. Rapid shelters vary in size and therefore scale of disassembly effort.
        - Rapid 801 and 803 shelters require approximately 4 hours of labor to remove and place into storage
        - Rapid 800 and 837 shelters can require up to 2 days of labor to remove and place into storage. Due to the scale of removal, a site-specific engineered Traffic Control Plan (TCP) is required during removal.

The EE Project Manager/Owner shall coordinate with CapMetro Service Impacts Staff to demonstrate the impacts to an existing bus stop, identify an appropriate temporary stop location, and determine all requirements necessary to provide a safe, fully accessible, and ADA-compliant replacement stop. Coordination shall begin no later than six (6) months prior to the anticipated project start date and before finalization of the Traffic Control Plan (TCP). A temporary bus stop will be appropriate to the duration of use. This may include either utilization of existing suitable infrastructure or construction of a new temporary bus stop, if no existing suitable infrastructure is present.

The EE Project Manager/Owner shall design, permit, construct, and maintain the temporary bus stop in accordance with applicable local, state, and federal requirements. Temporary stop infrastructure shall be fully installed and operational at least four (4) weeks prior to the closure of the existing stop and activation of the temporary stop.

For projects within the City of Austin right-of-way, the applicable Permit Review Form shall be submitted as part of the Traffic Control Plan (TCP) and/or Right-of-Way (ROW) permitting process.

The EE Project Manager/Owner shall verify compliance by utilizing the Temporary Transit Stop Pre-Implementation Checklist, including, at a minimum:

- Safety of the boarding and waiting area;
- Accessibility and pedestrian access;
- Stop visibility and signage;
- Continuous and protected pedestrian routes;
- Rider information and communications;
- Transit operational requirements and traffic impacts;
- Passenger comfort considerations; and
- Required permits, approvals, and agency coordination.

Refer to the Temporary Transit Stop Pre-Implementation Checklist for detailed temporary bus stop evaluation criteria and implementation requirements.

Table 4: Requirements for Temporary local stops and Rapid Stations

	Duration of Construction/Impact to local stop/Rapid Station		
Stop Type[2]	**Less than 30 days**	**31-60 days**	**61+ days**
1	5'x8' minimum landing pad with accessible route to safe crossing	5'x8' minimum landing pad with accessible route to safe crossing	5'x8' minimum landing pad with accessible route to safe crossing
2	5'x8' minimum landing pad with accessible route to safe crossing	9'x 25' landing pad with accessible route to safe crossing	9'x 25' landing pad with accessible route to safe crossing
3	5'x 8' landing pad with accessible route to safe crossing	9'x 25' landing pad with accessible route to safe crossing	9'x 25' landing pad with accessible route to safe crossing
4	5'x 8' landing pad with accessible route to safe crossing	9'x 25' landing pad with accessible route to safe crossing	9'x 25' landing pad with accessible route to safe crossing
RAPID	5'x 8' landing pad with accessible route to safe crossing	9'x 25' landing pad with accessible route to safe crossing	9'x 25' landing pad with accessible route to safe crossing

Table 5: Temporary Transit Stop Documentation

Item	Date Updated
Permit Review Form	6/4/2026
Temporary Transit Stop Pre-Implementation Checklist	6/4/2026

[2] Stop Types are defined within CapMetro's Service Standards and Guidelines.

Bikeshare Station Footprint

Bikeshare stations sizes and electrification methods can vary by surrounding context and must adhere to the Bikeshare Station Specifications.

When seeking to incorporate a Bikeshare station within a private site, an EE should consider utilizing easements or license agreements to place Bikeshare stations on their sites. If the EE cannot accommodate a Bikeshare station within the site but would like to promote Bikeshare as part of their Transportation Demand Management (TDM) strategy, the EE shall work with Austin Energy and City of Austin Development Services Department to create an Easement Agreement (General Exempt Permit) to permit conduit connections from the site to the ROW to power an Electric Bikeshare Station. CapMetro requires that EEs coordinate Bikeshare siting efforts with the CapMetro BikeShare program prior to finalizing site plan. See Appendix B for the appropriate contact.

Bikeshare E-Bike Specifications

CapMetro has a 100% pedal assist e-bike fleet. Bikes have an internal battery located inside the downtube. Batteries may be charged while docked at certain grid connected stations or manually replaced by technicians. Bikes have 3-speed internal hub gearing paired with central mid-drive electric motor. Bikes have 24” wheels. Bikes are “one size fits most” with a 10” adjustable seat post range that can be adjusted by the user.

Table 6: Transit Amenity: Bikeshare Station Footprint Standard Details and Specifications

Item	Date Updated
Bikeshare Station Specifications	6/25/2025

Section 2.3: Above Grade

This section establishes design criteria for how transit vehicles can interact with bus stops and for all elements and transit amenities that can be placed upon bus stops. CapMetro’s SSG determines which bus stops are eligible or required to receive certain transit amenities. CapMetro has the right to amend or waive the design standard details and specifications included in the Manual.

Bus Specifications

Buses in use by CapMetro are city, intercity, and articulated buses and are 35’, 45’, and 60’ in length. This list of Bus Dimensions, Weight, and Measurements in the table below provides full details of all vehicles utilized within CapMetro’s bus fleet. When designing roadway and curb modifications, EE should conduct turning analyses with the Bus Dimension and Turning Specifications file and CAD Bus Specifications file (which utilizes a 40’ bus with its front bike rack deployed) in the table below to ensure that buses can facilitate proper and safe turns utilizing the proposed roadway geometry.

Table 7: Bus Specifications

Item	Date Updated
Bus Dimensions, Weight, and Measurements	6/4/2026
Bus Dimension and Turning Specifications	4/21/2018
Bus CAD File for Turning Analysis	4/21/2026

Shelters

Bus stop and station shelters are determined by stop typology (Standard or Local vs. Rapid) and available space/stop footprint, as listed in Table 8. Overall requirements for shelters are listed below.

General Requirements:

1. Shelters shall be manufactured in accordance with contract documents, specifications, and drawings.
2. Shelters shall be designed and manufactured to comply with the Americans with Disabilities Act (ADA), applicable building codes, and all applicable local, state, and federal requirements.
3. Shelters shall be designed to withstand extreme wind, weather, and rain loads typical of Central Texas.
4. Shelters shall be designed for assembly, installation, disassembly, and removal by a moderately experienced technician using standard tools and equipment.
5. Shelters shall be designed to accommodate the installation of solar lighting, solar panels, and associated battery systems.
6. All necessary penetrations required for installation of shelter components and associated equipment shall be provided.

Materials and Structural Requirements:

1. Structural steel shall conform to ASTM A36, with a minimum yield strength of 36,000 psi.
2. Structural aluminum members shall be Alloy 6063-T5 or greater.
3. All holes shall be drilled or punched.
4. Aluminum welding shall conform to AWS D1.2. Electrodes shall conform to AWS/SFA 5.10, Class ER4043.
5. All welding shall be performed at the manufacturer's facility.
6. Each shelter leg base shall include a thick, custom-fabricated aluminum escutcheon cover mechanically attached to the base plate.

Finish:

1. All metal components shall be finished with a super-durable baked powder coat.
2. Standard color shall be RAL 9006 – White Aluminum, with a clear coat.

Table 8: Transit Amenity: Bus Stop and Bus Station Shelter Standard Details and Specifications

Item	Date Updated
Standard Bolt-Down Shelter 5’ x 12’	10/20/2020
Standard Bolt-Down Shelter 7’ x 14’	10/24/2019
Local Pedestal Bus Stop Footprint (Discontinued)	10/13/2000
Rapid Station Shelter (2023) - Routes 801, 803	3/28/2023
Rapid Station Shelter (2024) – Routes 800, 837	7/24/2024

Litter Containers

Appropriate litter containers are also determined by stop typology as well as by documented or anticipated volume of litter. Overall requirements for litter containers are listed below.

General Requirements:

1. Litter receptacles shall be manufactured in accordance with contract documents, specifications, and drawings.
2. The receptacle shall include a 32-gallon black round liner or approved equivalent.
3. The liner shall be durable, dent resistant, environmentally friendly, and manufactured using recycled content where available.

Materials and Construction:

1. Receptacle shall be fabricated from ASTM A36 hot-rolled mild steel.
2. Steel shall be wheelabrated prior to fabrication.
3. Vertical slats shall be 1/4-inch x 1-1/2-inch mild steel straps welded to 1/4-inch x 1-1/2-inch hoops.
4. Flared straps shall be welded to 1/2-inch diameter rod.
5. Four mounting tabs with 1/2-inch holes shall be welded to the base ring.
6. Door shall be self-latching and secured with a keyed lock.
7. A 10-inch x 13-inch steel decal plate shall be provided with stainless steel attachment hardware.
8. Decal plate and bolt heads shall be powder coated to match the receptacle.
9. Decal plate shall be factory installed in landscape orientation, with the center of the plate located 180 degrees from the center of the door and the top of the plate level with the top of the door.

Welding:

1. Welds between flat straps shall be smooth, continuous fillet welds.
2. Welds shall be ground smooth where necessary to eliminate burrs and sharp edges.
3. Welds where flared straps meet the 1/2-inch rod shall be ground smooth for appearance.

Coating and Finish:

1. Following fabrication, receptacles shall be cleaned and treated using an iron phosphate process prior to coating.
2. Surface preparation shall include:
    - Non-chromated alkaline cleaner;

    - Iron Phosphate Treatment; and
    - Acidic sealer for maximum coating adhesion.
3. Protective coating shall consist of:
    - Corrosion-resistant epoxy undercoat;
    - Approved Silver/Silvadillo/RAL9006 color coat; and
    - Clear topcoat.
4. Color coat and clearcoat shall be polyester TGIC powder applied using the dry electrostatic process.
5. Finished coating thickness shall be a minimum of 4 mils on all surfaces.
6. Finish shall contain no lead.

Interior Liner:

1. The litter receptacle shall include an OTTO USA Multi-Purpose Container #1332-BLK, 32-gallon liner, approximately:
    - Height: 28 inches
    - Width: 22 inches
    - Depth: 22 inches

    or an approved equivalent.

Table 9: Transit Amenity: Litter Containers Standard Details and Specifications

Item	Date Updated
Standard Bus Stop Landfill Litter Container	10/31/2022
Standard Bus Stop Recycling Litter Container	10/31/2022
Rapid Station Landfill Litter Container	11/15/2022
Rapid Station Recycling Litter Container	11/15/2022
Bigbelly Litter Container	2019

Benches

Standard backed benches are utilized at Standard Bus Stops without shelters. Stops with shelters utilize backless benches. Rapid stations use 96-inch backless benches. Overall requirements for benches are listed below.

General Requirements:

1. Benches shall be constructed in accordance with contract documents, specifications, and drawings.
2. Bench seating surfaces shall be aluminum.
3. Benches shall include arms at both ends and at the center position.
4. Benches shall be provided with freestanding/surface-mount supports. Supports shall be shipped with glides that may be removed for surface mounting.
5. All cantilever supports shall be surface mounted to concrete.
6. Tamper-resistant screws shall be used for bench installation and assembly.
7. All aluminum components shall resist rusting, chipping, peeling, and fading.

Materials and Structural Requirements:

1. Aluminum seating surfaces shall consist of extruded aluminum boards.
2. Aluminum seating surfaces shall be clear anodized (202-R1) and powder coated.
3. Supports shall be cast ductile iron.
4. End caps, back straps, and optional arm rests shall be 319 cast aluminum.

Finish:

1. Bench metal components shall be finished in Silver using a super-durable baked powder coat.
2. Primer shall be a rust inhibitor.
3. Topcoats shall be thermosetting TGIC polyester powder coat resistant to UV exposure, chipping, and flaking.
4. Coating performance shall meet the following minimum requirements:

Test	Standard	Requirement
Gloss Consistency	ASTM D523	±5% from standard
UV Resistance	ASTM G155, Cycle 7	Delta E < 2 at 2.0 mils; <20% gloss loss
Cross-Hatch Adhesion	ASTM D3359, Method B	100% pass
Flexibility – Mandrel	ASTM D522	3 mm at 2 mils
Erichsen Cupping	ISO 1520	8 mm
Impression Hardness	ISO 2815	95
Impact Resistance	ASTM D2794	60 in-lbs. at 2.5 mils
Pencil Hardness	ASTM D3363	2H minimum
Corrosion Resistance	ASTM B117	Max. undercutting 1 mm after 1,500 hours
Humidity Resistance	ASTM D2247	Max. blisters 1 mm after 1,500 hours

5. The specified coating system shall be equivalent to Pangard II or approved equivalent.

Table 10: Transit Amenity: Bench Standard Details and Specifications

Item	Date Updated
Standard Bus Stop Bench – 71” backed	12/18/2019
Standard Bus Stop Bench – 71” backless	12/18/2019
Rapid Station Bench – 96” backless	11/08/2007

Bicycle Parking

Bicycle parking supports first- and last-mile connections and should be incorporated at transit facilities where site conditions, surrounding land uses, and available right-of-way allow. Bicycle parking shall be

provided through the installation of bicycle racks located in visible, well-lit, and easily accessible areas near passenger boarding and waiting areas.

The preferred bicycle rack type is the inverted-U rack (or approved equivalent), as it provides secure support for both the bicycle frame and wheels, accommodates a variety of bicycle types, and may be installed individually or in groups to meet site-specific demand. Where available, rack selection shall conform to applicable City of Austin or local jurisdiction bicycle rack specifications.

The quantity and configuration of bicycle racks should be determined based on factors including anticipated demand, surrounding land use, multimodal connectivity, available right-of-way, and site-specific constraints. Requirements for Bikeshare stations are addressed separately in the **Bikeshare Facilities** section of the Manual.

In accordance with the CapMetro Service Standards and Guidelines, bicycle rack installations shall meet the following requirements:

- Bicycle racks shall not obstruct pedestrian walkways, accessible routes, boarding areas, or bus door zones.
- Bicycle racks should be in highly visible and adequately illuminated areas.
- Bicycle racks should be installed on a paved or concrete surface and shall not be placed on unpaved surfaces such as grass or dirt.
- Bicycle racks should be located to provide convenient access for transit customers while minimizing conflicts with pedestrian and vehicle movements.

Where applicable, bicycle rack installations within the City of Austin shall also comply with Section 9.8.0 of the TCM.

Table 11: Transit Amenity: Bike Parking Standard Details and Specifications

Item	Date Updated
710S-3: Bicycle Rack Installation in Concrete Paver Sidewalk- Alternative 1	9/26/2012
710S-5: Bicycle Rack Installation in Concrete Paver Sidewalk- Alternative 2	9/26/2012
710S-6C: Furnishing Location in 12” Wide or Less Sidewalks – Bicycle Rack Sitting	9/26/2012
Bicycle Rack – Lean Bar	2024

Signage & Wayfinding

The specifications below details specifications and established guidelines for signage components at Standard Bus Stop and Rapid Stations.

General Requirements:

1. Banners/signs shall match the overall appearance, design, and aesthetic of existing CapMetro bus stop signage.
2. The Contractor shall complete field verification and provide a final interpretation of the specifications prior to fabrication.
3. Field verification and the Contractor's final interpretation shall be documented and submitted to the CapMetro Project Manager for written approval.

Finish:

1. Signs shall be powder coated using the approved blue color scheme.
2. Paint specifications and color requirements shall be provided by the CapMetro Marketing Department.

Graphics:

1. Graphic layouts, text, fonts, dimensions, and other branding requirements shall be provided by the CapMetro Marketing Department when applicable.

Table 12: Transit Amenity: Signage and Wayfinding Standard Details and Specifications

Item	Date Updated
Overall Signage Guide	2026
Standard Bus Stop - Neighborhood Pole	3/28/2018
Rapid Bus Stop - Elite Pole	11/2/2022
Braille Tile	2026

Lighting

Per the CapMetro SSG, "*People should feel safe using transit…[l]ighting and visibility are considered as part of the design of amenities and placement of stops.*"[2] CapMetro's Safety staff review all stop locations for adequate ambient lighting. Much like other infrastructure in the ROW, the installation of lighting features must take into consideration the surrounding environment, availability of electric service, and/or solar power capacity. Therefore, surrounding lack of shade, adjacent trees, and/or buildings that will cast a shadow must be taken into consideration. All lighting at CapMetro bus stops and transit amenities must comply with the following parameters. For wired electrical lighting, see section 2.1 for below grade electrical requirements.

General Requirements

Shelter Solar Lighting

1. Solar lighting shall be compatible with the existing Tolar Model 32640-03 (5' x 12') shelter (Standard Bolt-down Shelter in Table 8).
2. The system shall be designed to connect to and attach easily to the shelter.
3. Solar lighting shall be manufactured in accordance with the existing lighting design drawings and specifications.

Stand-Alone Solar Lighting

1. System shall be manufactured in accordance with the existing lighting design drawings and specifications.
2. System shall include LED luminaires, solar panels, batteries, mounting brackets, and all required hardware.
3. System shall be designed for mounting to existing neighborhood signage posts at local bus stops.
4. The photovoltaic (PV) panel shall be tilted and able to be turned in any direction to orient south without affecting the orientation of the luminaire.

Remote Solar Lighting

1. System shall be manufactured in accordance with the existing lighting design drawings and specifications.
2. System shall provide power to one or more remotely mounted luminaires for lighting shaded bus stops from a nearby unshaded location.
3. Lighting profiles shall be fully customizable.

Minimum Performance Requirements

Shelter Solar Lighting

1. Illumination: 5–45 foot-candles
2. Security light wattage: Minimum 8 W
3. Solar array: Minimum 80 W Pmax
4. Battery capacity: Minimum 36 Ah at 12 VDC
5. Battery chemistry: Sealed lead-acid AGM
6. System voltage: 12 VDC
7. LED life: Minimum 50,000 hours
8. Battery autonomy: Minimum five (5) days
9. Solar panel warranty: 25 years
10. Battery warranty: Minimum five (5) years prorated
11. Other system components warranty: Minimum ten (10) years

Stand-Alone Solar Lighting

1. Security light wattage: Minimum 5 W
2. Solar panel: Minimum 20 W Pmax
3. Battery capacity: Minimum 20 Ah at 12 VDC
4. Battery chemistry: LiFePO4
5. System voltage: 12 VDC
6. LED life: Minimum 50,000 hours
7. Battery autonomy: Minimum four (4) days
8. Battery warranty: Minimum five (5) years prorated
9. Other system components: Minimum ten (10) year warranty
10. Solar panel warranty: 25 years

Remote Solar Lighting

1. Solar panel: Minimum 70 W Pmax
2. Battery capacity: Minimum 40 Ah at 12 VDC
3. Battery chemistry: LiFePO4
4. System voltage: 12 VDC
5. LED life: Minimum 50,000 hours
6. Battery autonomy: Minimum five (5) days
7. Battery warranty: Minimum five (5) years prorated
8. Other system components: Minimum ten (10) year warranty
9. Solar panel warranty: 25 years

Finish and Security

Shelter Solar Lighting

1. System enclosure shall be aluminum.
2. Enclosure shall be powder-coated RAL 9006 White Aluminum with clear coat.
3. Solar units and associated hardware shall be vandal resistant.
4. All fasteners shall be tamper resistant.
5. Complete PV LED lighting system shall carry certification from a Nationally Recognized Testing Laboratory (NRTL), such as UL or approved equivalent. Certification of individual components alone shall not satisfy this requirement.

Stand-Alone Solar Lighting

1. All metal components shall be powder-coated RAL 9006 White Aluminum.
2. Solar units and associated hardware shall be vandal resistant.
3. All fasteners shall be tamper resistant.

Remote Solar Lighting

1. System enclosure shall be powder-coated RAL 9006 White Aluminum.
2. Solar units and associated hardware shall be vandal resistant.
3. All fasteners shall be tamper resistant.
4. Maintenance personnel shall be able to service the solar units with minimal effort.

Table 13: Transit Amenity: Lighting Standard Details and Specifications

Item	Date Updated
SELS Solar Lighting	5/31/2022
SELS Solar Lighting Foundation	10/20/2020
Urban Solar Dual Luminaire	5/24/2021
Urban Solar Pedestrian Scale Lighting	7/14/2020
Urban Solar Shelter Lighting	7/13/2020

Appendix A: Table - Bus Stop and Transit Amenity Design Standards and Specifications

Item	Date Updated
710S-3: Bicycle Rack Installation in Concrete Paver Sidewalk- Alternative 1	9/26/2012
710S-5: Bicycle Rack Installation in Concrete Paver Sidewalk- Alternative 2	9/26/2012
710S-6C: Furnishing Location in 12” Wide or Less Sidewalks – Bicycle Rack Sitting	9/26/2012
Bicycle Rack – Lean Bar	2024
Bigbelly Litter Container	2019
Bikeshare Station Electrical (Sheets E001-E500)	3/10/2025
Bikeshare Station Specifications	6/25/2025
Braille Tile	2026
Bus CAD Files for Turning Analysis	4/21/2026
Bus Dimension and Turning Specifications	4/21/2018
Bus Dimensions, Weight, and Measurements	6/4/2026
Local Pedestal Bus Stop Footprint (Discontinued)	10/13/2000
Overall Signage Guide	2026
Rapid Bus Stop - Elite Pole	11/2/2022
Rapid Station Bench – 96” backless	11/08/2007
Rapid Station Electrical - Routes 800, 837 (Sheet 64A)	7/24/2024
Rapid Station Electrical - Routes 801, 803 (Sheets E001-E500)	6/25/2025
Rapid Station Engineering Specifications – Routes 800, 837	7/24/2024
Rapid Station Engineering Specifications - Routes 801, 803	6/25/2025
Rapid Station In-Street Pad - Routes 800, 837 (Sheet 42)	7/24/2024
Rapid Station In-Street Pad - Routes 801, 803 (Sheet S301)	6/25/2025
Rapid Station Landfill Litter Container	11/15/2022
Rapid Station Recycling Litter Container	11/15/2022
Rapid Station Shelter (2023) - Routes 801, 803	3/28/2023

Item	Date Updated
Rapid Station Shelter (2024) – Routes 800, 837	7/24/2024
SELS Solar Lighting	5/31/2022
SELS Solar Lighting Foundation	10/20/2020
Standard Bolt-Down Shelter 5’ x 12’	10/20/2020
Standard Bolt-Down Shelter 7’ x 14’	10/24/2019
Standard Bus Stop - Neighborhood Pole	3/28/2018
Standard Bus Stop Bench – 71” backed	12/18/2019
Standard Bus Stop Bench – 71” backless	12/18/2019
Standard Bus Stop Engineering Specifications	3/10/2025
Standard Bus Stop In-Street Pad (Sheet C-03)	3/10/2025
Standard Bus Stop Landfill Litter Container	10/31/2022
Standard Bus Stop Layout	3/7/2025
Standard Bus Stop Recycling Litter Container	10/31/2022
TCM Interim Standards SD 1401 – Multimodal Bus Stop Layouts	02/26/2026
Temporary Transit Stop Pre-Implementation Checklist	6/1/2025
Urban Solar Dual Luminaire	5/24/2021
Urban Solar Pedestrian Scale Lighting	7/14/2020
Urban Solar Shelter Lighting	7/13/2020

Appendix B: CapMetro Departmental Contact List

Department	Staff Contact	Email Address	Date Updated
Capital Construction, Engineering & Design (CCED)	**Moraima Dones** Program Manager, Bus Transit Construction	moraima.dones@capmetro.org	08/13/2026
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Service Impacts	**Laurie Michel** Superintendent	Laurie.Michel@capmetro.org	08/13/2026
Service Impacts	**Ross Hopkin** Manager, Service Impacts Traffic Control	Ross.Hopkin@capmetro.org	08/13/2026
Planning	**Jake Boone** Planning Technician MetroBike Program	Jake.Boone@capmetro.org	9/16/26

Document Review and Revision History

Revision	Description	Date
V1.0	Original Version	November 16, 2026

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Review Contributors:

- Capital Construction, Engineering, and Design
- Strategic Planning and Development
- Service Impacts
- Facilities Management
- Safety
- Systemwide Accessibility