# YCIPTA Short Range Transit Plan

# Final Report Bus Stop Standards



Prepared for: Yuma Metropolitan Planning Organization 502 South Orange Avenue Yuma, Arizona 85364

On behalf of: Yuma County Intergovernmental Public Transportation Authority 2715 East 14th Street Yuma, AZ 85365

> Prepared by: Core Engineering Group, PLLC 200 East 16<sup>th</sup> Street, Suite 150 Yuma, AZ 85364

> > In association with: Publictransit.us 4398 Atlas Peak Road Napa, CA 94558



April 2014



Expires 3/31/16





# Table of Contents

I. Introduction
II. Definitions
III. Siting of Bus Stop Location
B. Location
IV. Bus Stop Location in Through Lane
A. Number of Lanes    8      B. Speed of Traffic    8
C. Driveways
V. Bus Stop Pullout Criteria
B. Speed of Traffic
C. Driveways
D. Bus Stop Pullout Layouts
VI. Signing
B. Format
VII. Amenities
B. Benches, Shelters & Trash Receptacles
VIII. Jurisdictions



# I. Introduction

Yuma County Intergovernmental Public Transportation Authority (YCIPTA) is committed to providing safe and efficient transit service for Yuma County and other areas in which it serves. The transit system provides safe and convenient bus stop locations on the existing street networks throughout the communities. The safety of not only the ridership of the transit system, but the general travelling public of the roadways and the pedestrians on the sidewalks are of the upmost importance to YCIPTA.

These guidelines have been developed through the cooperation of all the member organizations for YCIPTA. They should be utilized to safely locate and develop bus stops along the transit network. It will provide guidance on spacing and a consistent and efficient manner for the various scenarios encountered throughout the transit area.

The YCIPTA transit service area includes a variety of different community types from urban or suburban areas to rural areas. These guidelines look to address the different conditions; however, modifications for specific instances may be required. Those modifications need to be coordinated with the YCIPTA Transit Director and the local jurisdiction where the bus stop is to be sited. Bus stop locations may vary from time to time depending upon ridership demands, funding, and accessibility to adequate infrastructure. At no time should safety be compromised.

These guidelines are funded through a grant from the State of Arizona Department of Transportation (ADOT) through the Yuma Metropolitan Planning Organization (YMPO) for YCIPTA. The document is part of the Short Range Transit Plan for YCIPTA.

The guidelines presented hereafter are intended to provide criteria for siting proposed bus stop locations and are not meant to supersede the jurisdictional authority of the YMPO member agencies that have adopted or may adopt these standards. Applicants who are pursuing encroachment permits for bus stop locations must conform to these guidelines as well as the jurisdiction's encroachment permit process. Should the conditions at an existing bus stop location change as it relates to this standard, then the jurisdictional authority may require a re-review of the location to determine if it is still appropriate for a bus stop.



## II. Definitions

The following definitions are included in these standards for the clarity of application. These definitions are related to the application of these standards within the YCIPTA transit system.

- A. Bus Stop: location where bus picks up and/or drops off passengers. Can refer to on-street or off-street locations.
- B. Bus Stop Pullout: location where bus picks up and/or drops off passengers that is not in an active lane of traffic on a roadway, but is adjacent to an active lane of traffic.
- C. Far-Side Location: the location of a bus stop that is downstream of (after) the intersection.
- D. Mid-Block Location: the location of a bus stop that is between two intersections and not within 250 feet of either intersection.
- E. Near-Side Location: the location of a bus stop that is upstream of (before) an intersection.
- F. Rural Roadway: The classification of roadway that is located in an undeveloped or under developed area. It typically does not have curb at the edge of the pavement. The jurisdictional authority must concur with the classification as identified by the applicant in the encroachment application.
- G. Urban Roadway: A roadway that is located in a developed area and may be bounded by curbing. Typically the roadway also has gutters and sidewalk. The jurisdictional authority must concur with the classification as identified by the applicant in the encroachment application.
- H. Accessible Route: A continuous, unobstructed path that meets the requirements of ADA Accessibility Guidelines (ADAAG).



### III. Siting of Bus Stop Location

The siting of the bus stop location on a roadway has several considerations. The spacing between bus stops as well as the location in relation to the nearby intersections are two of the main considerations.

# A. Spacing

The spacing between consecutive bus stops on the same route is dependent upon the type of roadway on which the bus stops are located: urban or rural.

<u>Urban Roadway</u>: On an Urban Roadway, the minimum distance between bus stops is <sup>1</sup>/<sub>4</sub> of a mile. Situational exceptions may be allowed by the YCIPTA Transit Director and the local jurisdiction's engineer on a case by case basis. The absolute minimum spacing of the bus stops shall be 1/8 of a mile.

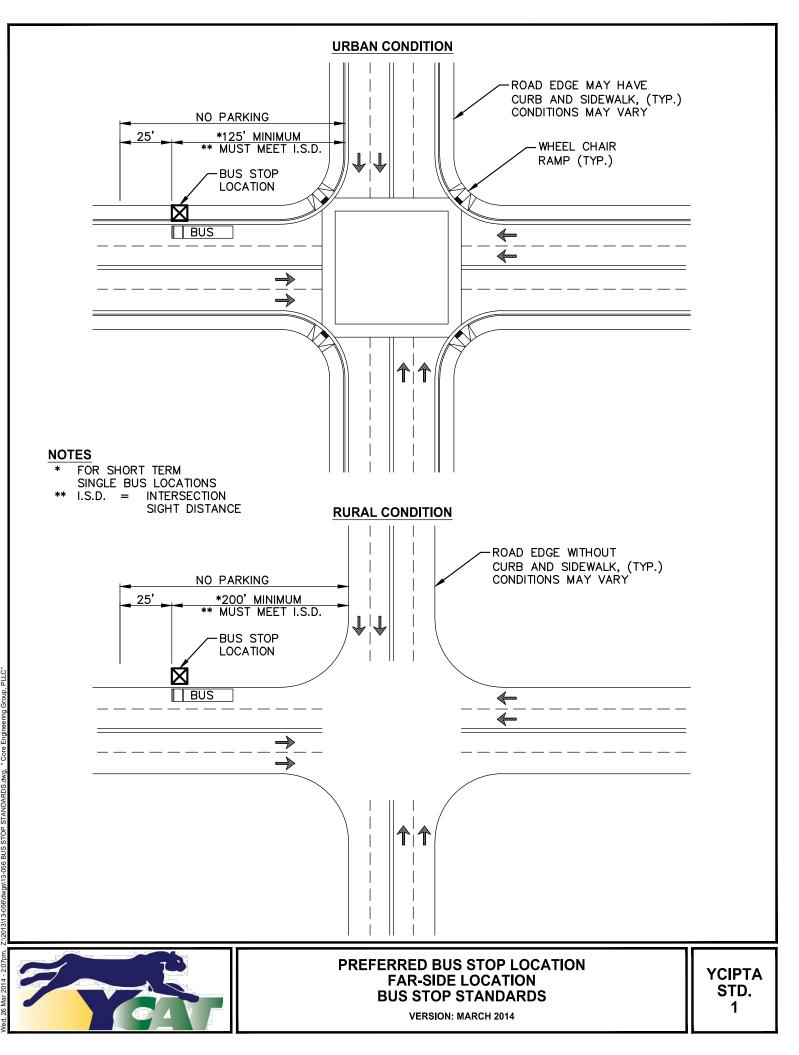
<u>Rural Roadway</u>: On a Rural Roadway, the preferred distance between bus stops is  $\frac{1}{2}$  of a mile. If a unique situation arises where a location generates an inordinately high number of riders, an exception may be allowed by the YCIPTA Transit Director and the local jurisdiction's engineer. The minimum spacing of the bus stops shall be  $\frac{1}{4}$  of a mile.

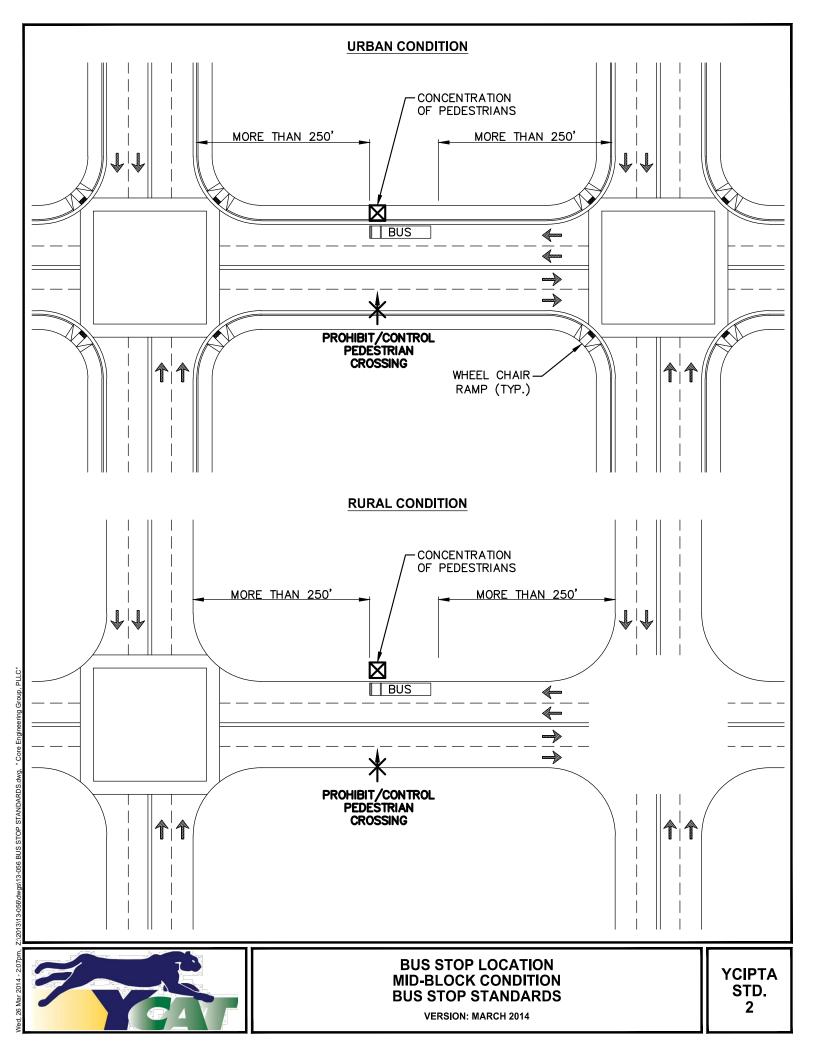
#### B. Location

There are three basic locations a bus stop may be sited: far-side location, midblock location and near-side location. The location shall be selected to maximize the safety of the traveling public and maintain the flow of traffic per AASHTO documents "A Policy on Geometric Design" and the "Roadside Design Guide" as well as the "Manual on Uniform Traffic Control Devices" (MUTCD). Sight distance for bus stops shall be reviewed as appropriate.

<u>Far-Side Location</u>: (YCIPTA Standard No. 1) The far-side of an intersection location is the preferred location for bus stops. This allows the intersection to continue operating without blocking traffic from accessing the intersection. Sufficient distance from the intersection is required to provide adequate sight distance and queuing for roadway traffic to the through lane. No queuing should be allowed if this location is a transfer bus stop.

<u>Mid-Block Location</u>: (YCIPTA Standard No. 2) The mid-block location for a bus stop can be considered given specific circumstances. A specific heavy generator of ridership should be identified that has an unrealistic distance to the standard, preferred far-side location. Before implementation, the mid-block location needs to be evaluated for pedestrians crossing the roadway. If little to no pedestrian traffic is expected to cross the roadway to utilize this location, then it may be considered. If this is not the case, then the location shall not be used without mitigating the crossing pedestrian traffic or locating the bus stop at the far-side location to force pedestrian traffic patterns to utilize conventional roadway crossing locations.





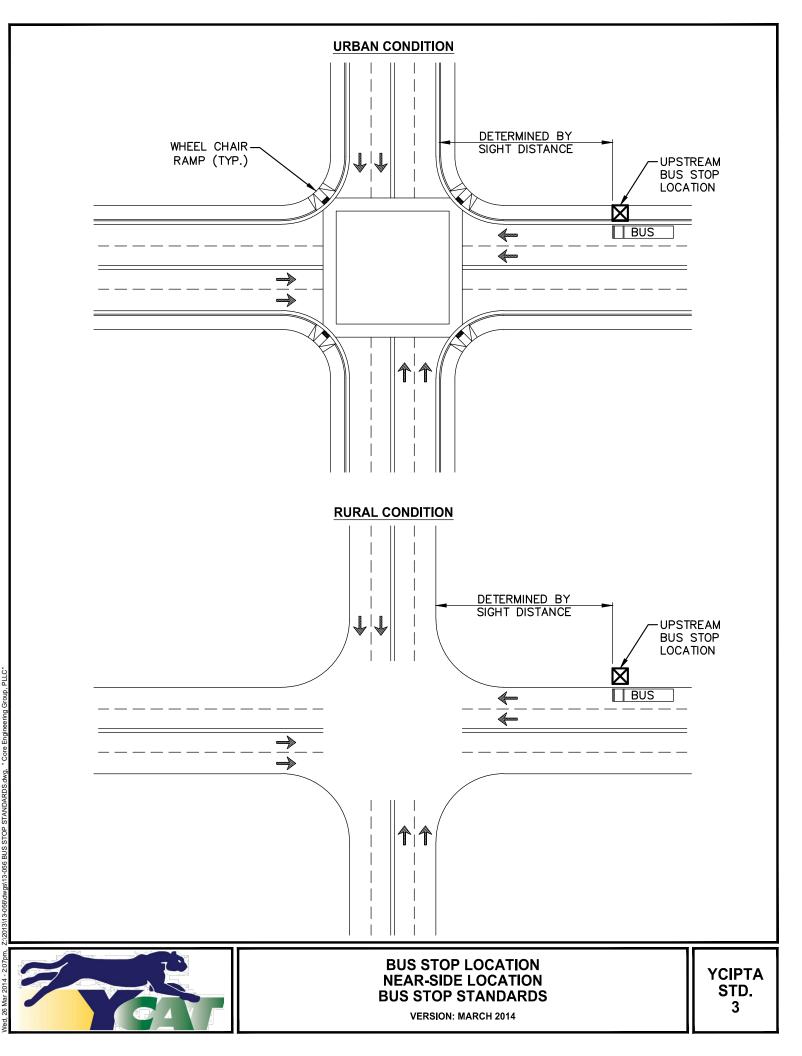
# Yuma County Intergovernmental Public Transportation Authority BUS STOP STANDARDS



<u>Near-Side Location</u>: (YCIPTA Standard No. 3) The near-side of an intersection location shall be discouraged unless extenuating circumstances dictate siting the bus stop at the near-side of the intersection. Safety and traffic flow at the proposed near-side location must meet or exceed the corresponding far-side location. The YCIPTA Transit Director and the engineer for the local jurisdiction shall concur that this is the most appropriate location given the unique situation, before a nearside location may be implemented. When appropriate, intersection sight distance shall conform to the local jurisdiction or the AASHTO standard, whichever is applicable. When the near-side of the intersection is being considered, locating bus stops in right turn lanes shall be discouraged so as not to hinder/conflict with this traffic movement.

Other unique locations may need to have different considerations than those presented. The crossing of rail traffic would be one of those considerations and is described below.

<u>Rail Crossing Intersection</u>: When a bus stop occurs at the intersection of a roadway and a rail crossing, the stop shall have a near-side location in relation to the rail crossing. This is to prevent the queuing of vehicular traffic across the tracks and in the potential path of an oncoming train. In this scenario, a far-side intersection location is not permitted without sufficient queuing distance for vehicles trailing the bus between the stopped location of the bus and the crossing arms of the rail crossing.



2:\2013\13-056\dwgs\13-056 BUS STOP STANDARDS.dwg, " Core Engineering Group, PLLC'



#### IV. Bus Stop Location in Through Lane

It is common that buses will utilize the existing through lanes of roadways to stop and pick up passengers at bus stops. This situation needs to be addressed with a specific attention to the safety issues inherent with stopping in an active lane of traffic. There are some criteria that need to be met in order to allow this to occur. Some of the criteria differ in the case of the Urban Roadway and the Rural Roadway, however all fall under the Arizona Revised Statutes 28-873 (or California Law/Vehicle Code, Division 11, Chapter 9, Section 22500 for Imperial County Locations).

#### A. Number of Lanes

The number of lanes in the roadway proceeding in the same direction as the bus traffic is important to allow for continued progression of traffic by the other users of the roadway. In order to facilitate traffic, a minimum of 2 lanes in the same direction of the travel as the bus traffic is required.

In the situation where the roadway has a very low volume of through traffic, a bus stopping within a single lane of traffic may be allowed. This situation will only be allowed with vehicle peak hour volumes of 120 vehicles per hour, per lane, or less. A formal report or memorandum, drafted by the applicant, documenting the volume must be submitted to the jurisdictional authority. The concurrence by both the applicant and the jurisdiction that the report meets this criteria must be achieved. The traffic volumes may be reviewed periodically or upon implementation of new development to ensure that the bus stop location still meets this criteria.

# B. Speed of Traffic

The posted speed of traffic on the roadway with the bus stop must be within the appropriate limits noted below. The speed criteria is dependent upon the type of roadway on which the bus stops are located: urban or rural.

<u>Urban Roadway</u>: On an Urban Roadway, the posted or 85% speed limit must not exceed 40 miles per hour for a 2 lane roadway in the direction of travel or 45 miles per hour for a 3 lane roadway in the directional of travel.

<u>Rural Roadway:</u> On a Rural Roadway, the posted or 85% speed limit must not exceed 45 miles per hour for a 2 lane roadway in the direction of travel or 50 miles per hour for a 3 lane roadway in the directional of travel.

Bus stops are prohibited on state highways or state routes with posted speed limits of 55 miles per hour or greater.



# C. Driveways

The spacing between a bus stop and a driveway is dependent upon the access to a parcel or parcels serviced by a driveway with consideration given to sight distance. The treatment of this issue is dependent upon the type of roadway on which the bus stops are located: urban or rural.

<u>Urban Roadway</u>: (YCIPTA Standard No. 4) On an Urban Roadway, there are a three different cases to be considered. For this discussion these are designated as Case 1, Case 2 and Case 3.

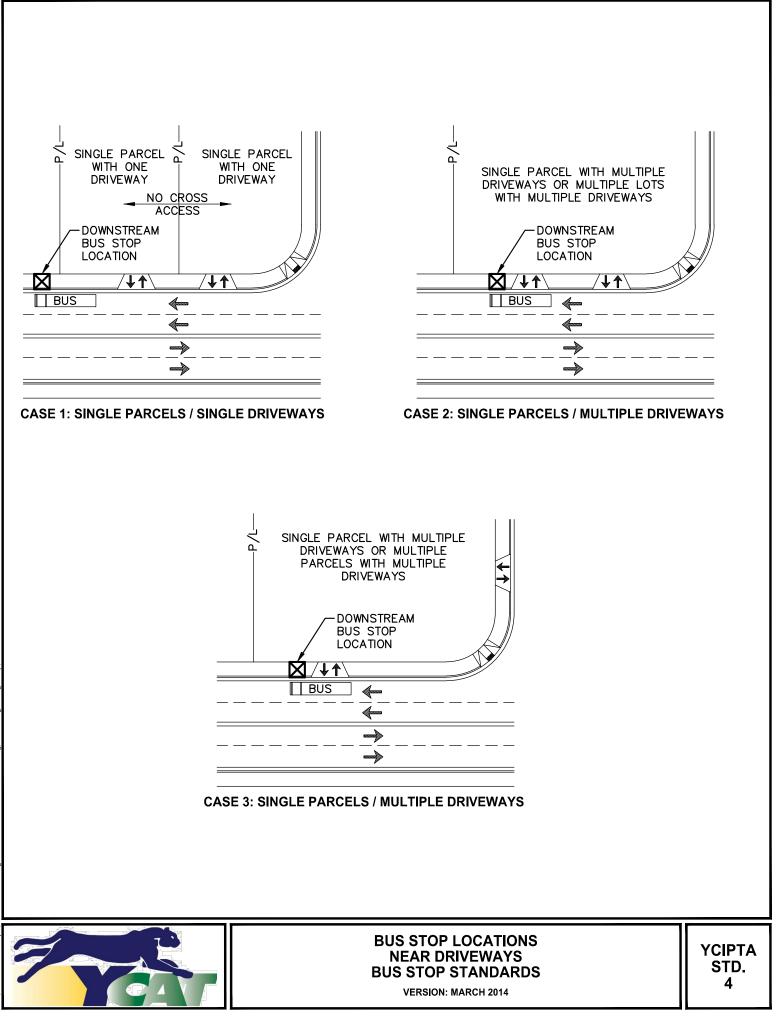
Case 1 is the condition where a parcel or parcels adjacent to the bus stop have only one driveway entrance servicing the parcel(s). Therefore, if this driveway is blocked, access to the parcel is prevented. This type of bus stop location will not be permitted.

Case 2 is the condition where a parcel or group of parcels have 2 or more means of access from the same roadway to the parcel(s). While the preference is to not block a driveway, this condition allows for the bus to block the second or downstream driveway for a short duration of time of up to one minute. Transfer bus stops are allowed to position a bus to block a downstream driveway.

Case 3 is similar to Case 2 except that the second means of access to the parcel or parcels is on another roadway instead of the same roadway the bus stop is located. While the preference is to not block a driveway, this condition allows for the bus to block the driveway for a short duration of time of up to one minute. Transfer bus stop locations are not permitted to block a driveway.

For all of the cases noted, the maximum number of expected buses that are anticipated at a location at one time shall be considered when reviewing a proposed location.

<u>Rural Roadway</u>: On a Rural Roadway, the preferred condition is to prevent a bus stopped at a bus stop location from blocking a driveway. In any case a driveway may be blocked if the subject driveway is an agricultural type, low use access.





# V. Bus Stop Pullout Criteria

Where bus stops cannot be safely operated in a through lane of traffic per the criteria above, a pullout must be provided. The pullout may be on a shoulder or constructed in a pocket specifically for the use as a bus stop pullout. As noted within section III.B, "Near-Side Location", a pullout within a right turn lane shall be discouraged, but may be approved at the discretion of the respective jurisdiction. Sight distance for bus stop pullouts shall be reviewed as appropriate.

# A. Number of Lanes

In order to facilitate traffic, a roadway with only 1 lane in the same direction of the travel as the bus route will require a bus stop pullout along the roadway, unless as discussed in Section IV.A.

B. Speed of Traffic

If posted speed of traffic on the roadway with the bus stop exceeds the appropriate limits noted in section IV.B, then a bus stop pullout will be required. The speed criteria is dependent upon the type of roadway on which the bus stops are located: urban or rural.

# C. Driveways

Bus stop pullouts shall not be located in the same location as a driveway. The tapering of the pullout may overlap the location of the driveway upon approval of the governing jurisdiction.



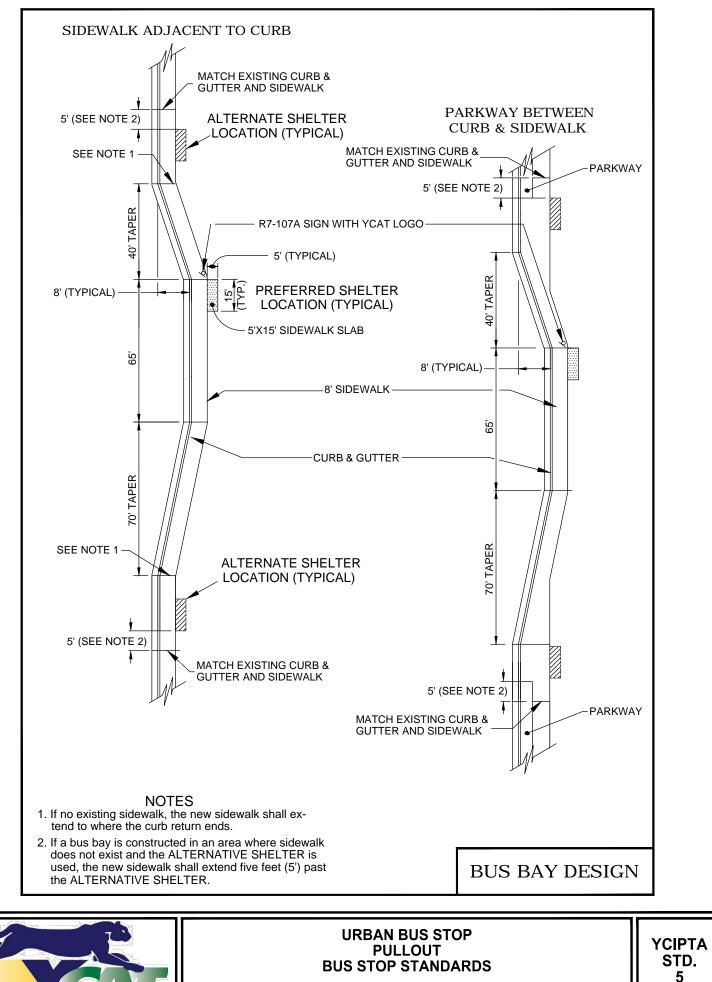
# D. Bus Stop Pullout Layouts

The bus stop pullout design is to be consistent as much as practical throughout the YCIPTA network. The following layouts are the standard designs for the described situations.

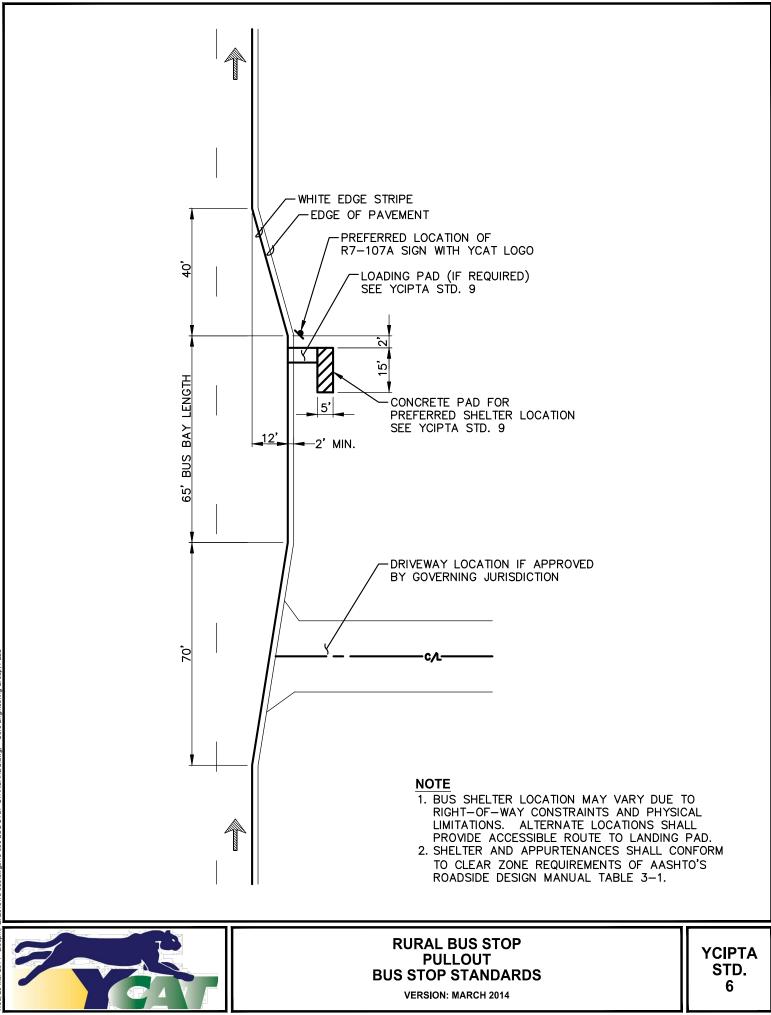
<u>Urban Roadway</u>: (YCIPTA Standard No. 5) For the Urban Roadway which has curb defining the edge of the roadway see the noted Standard. Proposed modifications to the mentioned standard shall be considered for incorporation into this document. The distances shown in the Standard are minimums. In instances where the adjacent through traffic lane does not have a width greater than 12 feet, the bay width of 8 feet shall be evaluated to determine if a greater width is required.

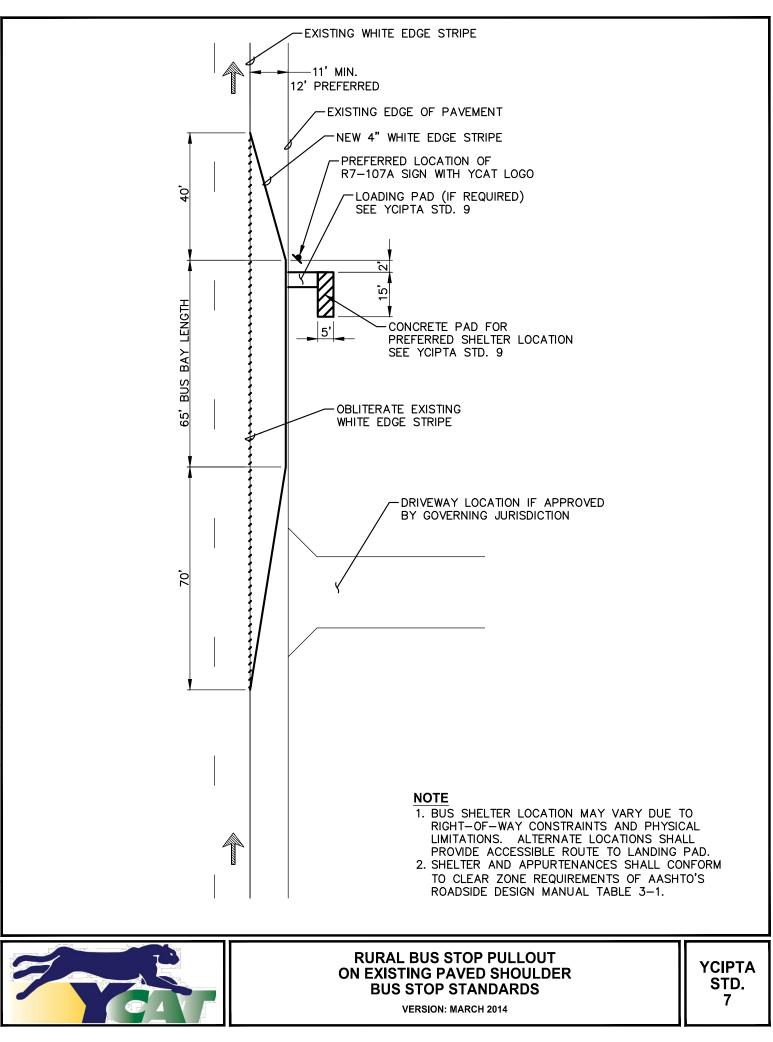
<u>Rural Roadway</u>: (YCIPTA Standard No. 6) The Rural Roadway typically has no curb defining the edge of roadway. The accompanying Standard shall be utilized for the construction of a bus stop pullout. The dimensions shown in the Standard are minimum distances.

Existing pavement: (YCIPTA Standard No. 7) In the condition where an existing roadway pavement is to be widened specifically for a bus stop pullout, the accompanying Standard is to be utilized. The method of obliteration of the existing edge line stripe is to be coordinated with the local jurisdiction.



VERSION: MARCH 2014







# VI. Signing

Consistent signing throughout the YCIPTA transit service area is important to ensure passengers can clearly identify a bus stop and drivers can identify the stops from the roadway. This reduces confusion for the communities.

#### A. Location

The location of the sign shall be immediately adjacent to the location of the landing pad or where a landing pad would be installed – see YCIPTA Standard No. 6 and 7 for preferred location.

#### B. Format

(YCIPTA Standard No. 8) The sign format shall match the Standard with the correct route references included and shall be as shown. Larger formats may be used when conditions dictate a greater presence.

#### C. Installation

The bottom of the lowest posted sign shall be installed seven feet above adjacent grade per the MUTCD. The sign shall be mounted on its own post or shared with other posts. A "No Parking" sign shall also be located either on the post or in the adjacent area subject to the approval of the jurisdictional authority. The signage associated with the bus stop shall not obstruct the clear zone visibility per MUTCD or change the shape of a regulatory sign by overlapping the outline of the regulatory sign.

Examples of shared sign installation include: mounting to light poles, power poles and regulatory sign posts with the express written permission of the pole owner. Signs shall not be installed on private property unless the bus stop is located on private property.





#### VII. Amenities

Each bus stop may have amenities for the use and comfort of the passengers.

#### A. Loading Pad

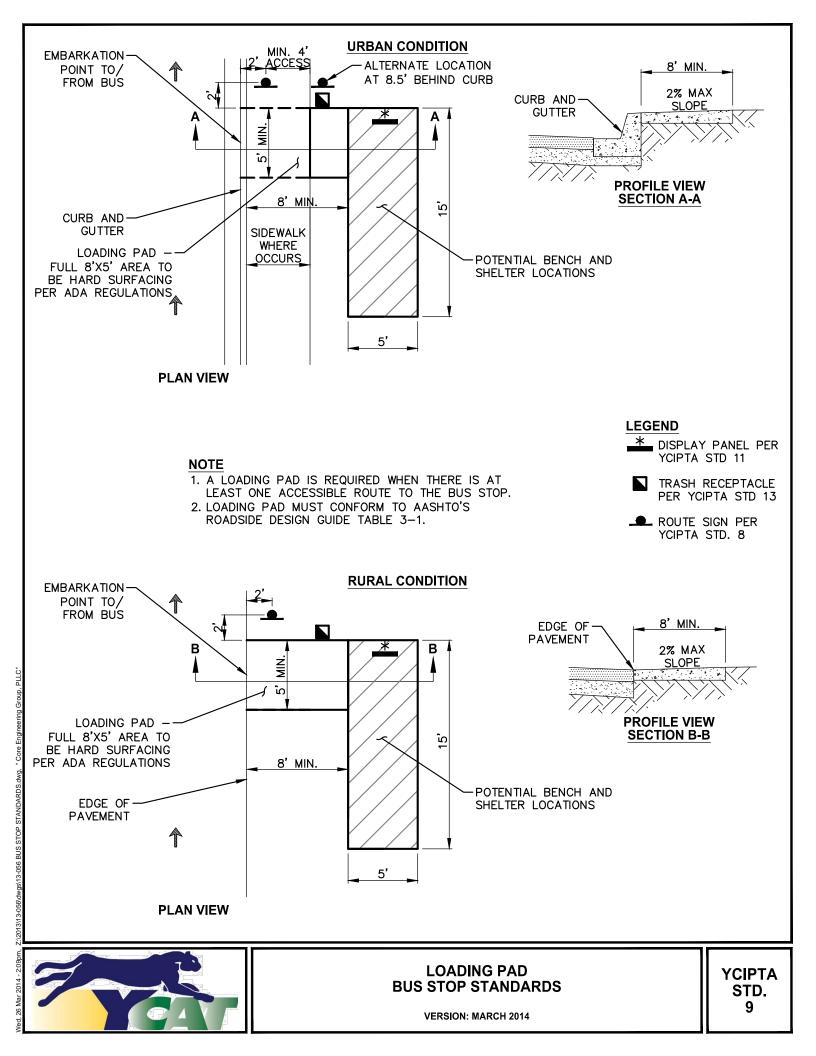
Titles II and III of the "American with Disabilities Act of 1990" (September 15, 2010) and the "2010 ADA Standards for Accessible Design" (ADA) require that a loading pad be provided for the loading and unloading of passengers with disabilities. All bus stop locations that have at least one compliant accessible route (ADA approved paved surface) to a destination shall have a loading pad. As an example, if a bus stop location is sited where an accessible route leads up to a destination, a loading pad is required. Conversely, if a bus stop location is sited where no accessible route serves it, a loading pad is not required per ADA.

(YCIPTA Standard No. 9) The loading pad shall be at a minimum 5 feet wide and 8 feet from the door of the bus to the end of the pad. The pad shall be constructed of materials suitable for ADA surface such as Portland cement concrete and asphaltic concrete. The pad may be part of the street sidewalk or other adequate pavement surfaces present. The slopes of the loading pad shall have a maximum slope of 2%.

# B. Benches, Shelters and Trash Receptacles

The use of benches, shelters and trash receptacles are encouraged but not required. The bus stops with higher ridership during the summer months shall be considered for the installation of shelters. When present, the aforementioned bus stop appurtenances (or similar items) shall conform to AASHTO's Roadside Design Guide Table 3-1 "Clear Zone Distance", while also taking into consideration an appropriate location for rider visibility and sun exposure effects.

(YCIPTA Standard Nos. 10 - 13) Benches, shelters, and trash receptacles shall be located to maintain a 5-foot wide path for pedestrian traffic crossing the bus stop location. These items shall have a breakaway bolted or similar base installation and shall be located to prevent excessive routing around said items, however no specific orientation is required. Any installed items shall be located a minimum of 2 feet behind the vertical curb. Should no vertical curb be present, specific care shall be taken to locate items to not interfere with the operation of the bus and other traffic. Note that the aforementioned shelter's color shall conform to paint code RAL1019 per YCIPTA policy.





#### VIII. Jurisdictions

The intention of this document is that the standards will apply to the full YCIPTA service area, however there are a few agencies that have their own standards and requirements.

<u>Arizona Department of Transportation (ADOT)</u>: Any roadway facilities within the ADOT system will need to meet the ADOT encroachment permit criteria. ADOT Policy and Procedure ENG-2.01 Bus Stop Encroachment Permit, most current version, shall govern the encroachment permit application process.</u>

<u>Imperial County Transportation Commission (ICTC)</u>: The service to the Imperial County area utilizes the existing bus stop locations from ICTC for the Imperial Valley Transit operations. These standards do not apply to ICTC stops.

<u>Bureau of Indian Affairs (BIA)</u>: Many of the roadways on the tribal reservations are owned and managed by the BIA. These standards will be applied to the proposed bus stops on the BIA roadways, however the BIA may comment and revise the criteria. Application shall be made through the local tribal offices.

<u>California Department of Transportation (Caltrans)</u>: Any roadway facilities within the Caltrans system will need to meet the Caltrans encroachment permit criteria. Caltrans Manual for Encroachment Permits on California State Highways, most current version, shall govern the encroachment permit application process – see: <u>http://www.dot.ca.gov/hq/traffops/developserv/permits/</u>. This process is permitted under the California Streets and Highways Code, Sections 660 to 734.

<u>Imperial County</u>: The service to areas of Imperial County that do not have ICTC bus stops will need to meet the County of Imperial Department of Public Works Encroachment Permit Application Package, most current version.



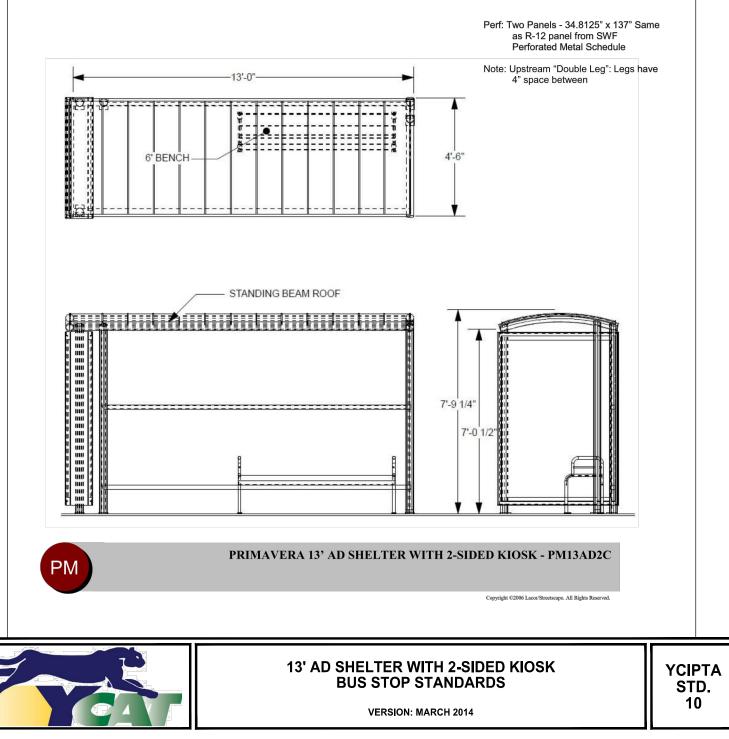
22233 N. 23<sup>rd</sup> Ave. • Phoenix, Arizona 85027 • Phone: 602-371-3110 • Fax: 623-492-0343 • www.lacorstreetscape.com •



Primavera

Transit passenger shelter with kiosk, constructed of bent steel pipe and 16-gauge, 42% perforated vertical steel screens rivet-fastened to C-channel frames, allowing for cooling air circulation. Utilizes a shade screen fixed along the back of the shelter.

- · Coating: Oven-baked powder coating, color as requested.
- Size: 13' long x 4' 6" deep x 7' 9-1/4" tall (7' 1/2" to lowest point of roof).
- Frame: 3-1/2" O.D. standard pipe, coped, welded.
- Anchoring: 1/2" anchor bolts through welded steel footing plate.
- Roof: Standing-seam steel roof.
- Logo Panel: Plexiglass panel with vinyl decal.
- · Lighting: Optional incandescent, fluorescent or solar systems available.
- Kiosk holds three backlit, 4'x6' posters in glass-front enclosures with tamper-proof fasteners.





22233 N. 23<sup>rd</sup> Ave. • Phoenix, Arizona 85027
Phone: 602-371-3110 • Fax: 623-492-0343
www.lacorstreetscape.com

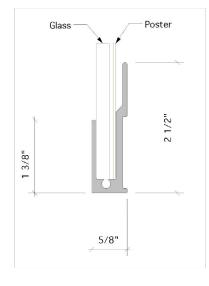


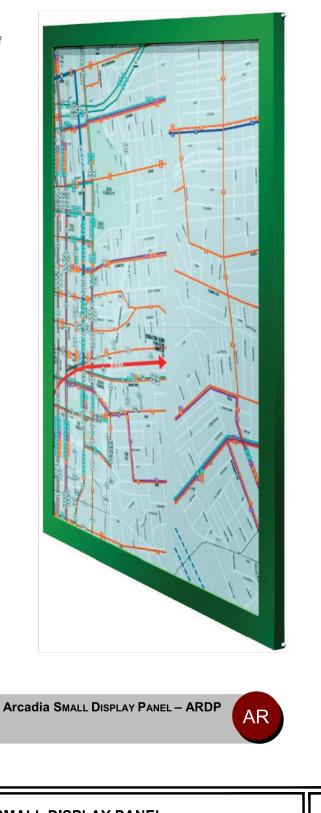
. . . . .

Small Advertising or information display panel constructed of extruded aluminum frame with polycarbonate or safety glass front.

Access to the display materials is via one removable side of the frame, held in place with tamper-resistant hardware.

Color and dimensions as requested.







Copyright ©2006 Lacor/Streetscape. All Rights Reserved.

SMALL DISPLAY PANEL BUS STOP STANDARDS YCIPTA STD. 11

VERSION: MARCH 2014



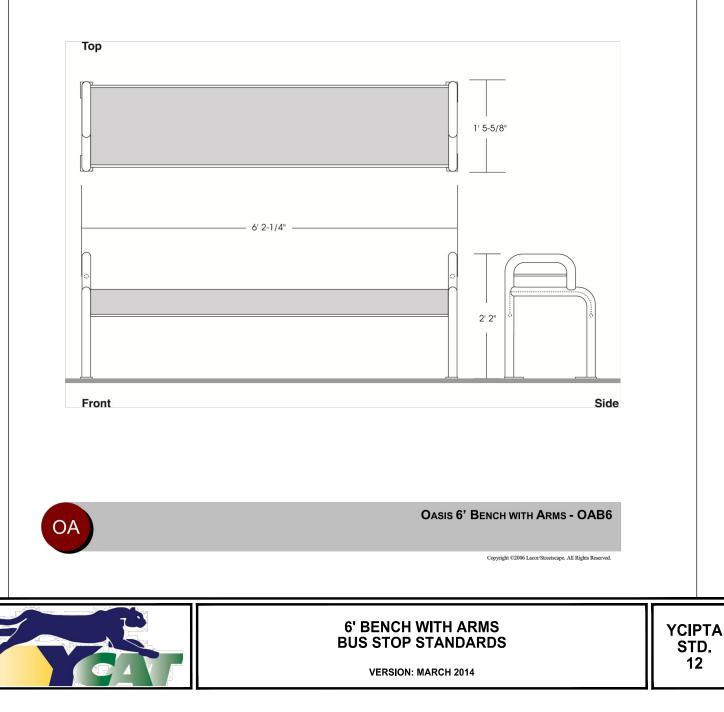
22233 N. 23<sup>rd</sup> Ave. • Phoenix, Arizona 85027 • Phone: 602-371-3110 • Fax: 623-492-0343 • www.lacorstreetscape.com •



Oasis

Backless bench with arms constructed of 10-gauge perforated steel and pin-fastened welded pipe.

- Coating: Oven-baked powder coating. Color as requested.
- Size: OAB5: 5' 2-1/4" long x 1' 5-5/8" deep x 2' 2" tall.
- Size: OAB6: 6' 2-1/4" long x 1' 5-5/8" deep x 2' 2" tall.
- Frame: 1-5/8" x .120 tube, coped, welded.
- Anchoring: 1/2" anchor bolts through welded steel footing plate.
- Bolt-on disks or vandal bars are available to prevent sleeping.





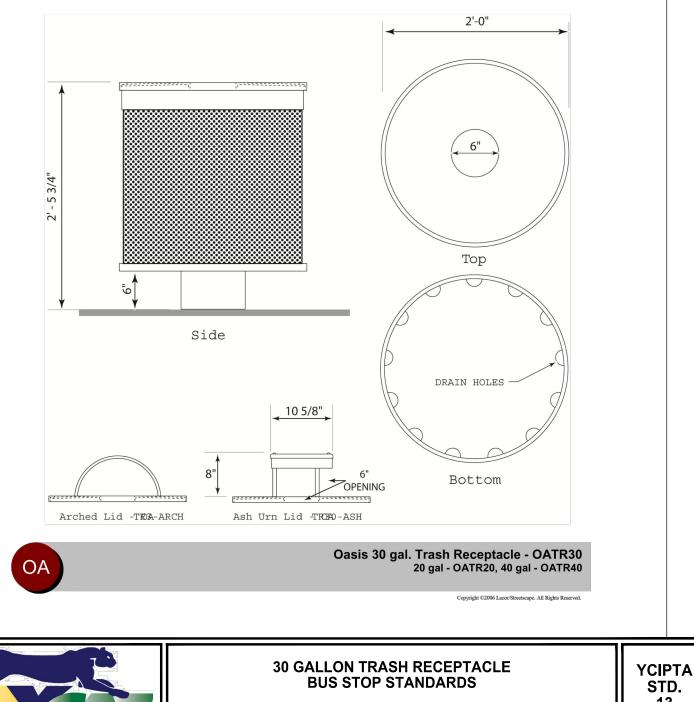
22233 N. 23<sup>rd</sup> Ave. • Phoenix, Arizona 85027 • Phone: 602-371-3110 • Fax: 623-492-0343 • www.lacorstreetscape.com •



Oasis

Trash receptacle constructed of perforated steel with pin-fastened pipe pedestal. Includes steel lid secured with vandalresistant hardware.

- Coating: Oven-baked powder coating. Color as requested.
- Size: OATR30 (30 Gallon) 2' wide x 2' 5-3/4" high.
- Size: OATR20 (20 Gallon) 1' 7" wide x 2' 5-3/4" high.
- Size: OATR40 (40 Gallon) 2' wide x 2' 9-3/4" high.
- Anchoring: One 1/2" anchor bolt through bottom of pedestal. Shelter side-mounting available with some shelter/ receptacle combinations.
- Ash-urn, Arched and Domed lid options available.



VERSION: MARCH 2014

STD.

13