

SUN TRAN BUS STOP AMENITY POLICY

2024

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Introduction

The following document outlines a policy for determining how to allocate new bus shelters to stops across Sun Tran's and PAG RTA's diverse service area. Bus stop amenities, primarily shelters, are an important part of the customer experience. Shelters provide protection from the elements and comfortable places to sit while waiting for the bus. While it would be ideal for every stop across the service area to have high quality amenities, Sun Tran and Sun Shuttle are limited in the number of shelters they can install and maintain each year. This document provides a framework for determining where to place limited additional shelters in a way that benefits riders in an equitable manner.

Current Amenity Warrants

Sun Tran's current Transit Amenities Policy states "Bus shelters may be installed at stops where requested. The City uses a few different types and sizes of shelters, some of which are installed by a private advertising contractor."¹ Additionally, the policy states that stops with bus pullouts should include shelters to provide customers with safety and convenience. And finally, in the process for deciding on new transit shelters or other amenities, Sun Tran would reference the Title VI minority and low-income population maps to ensure that the distribution of transit amenities is equitable.

Inventory of Existing Shelters

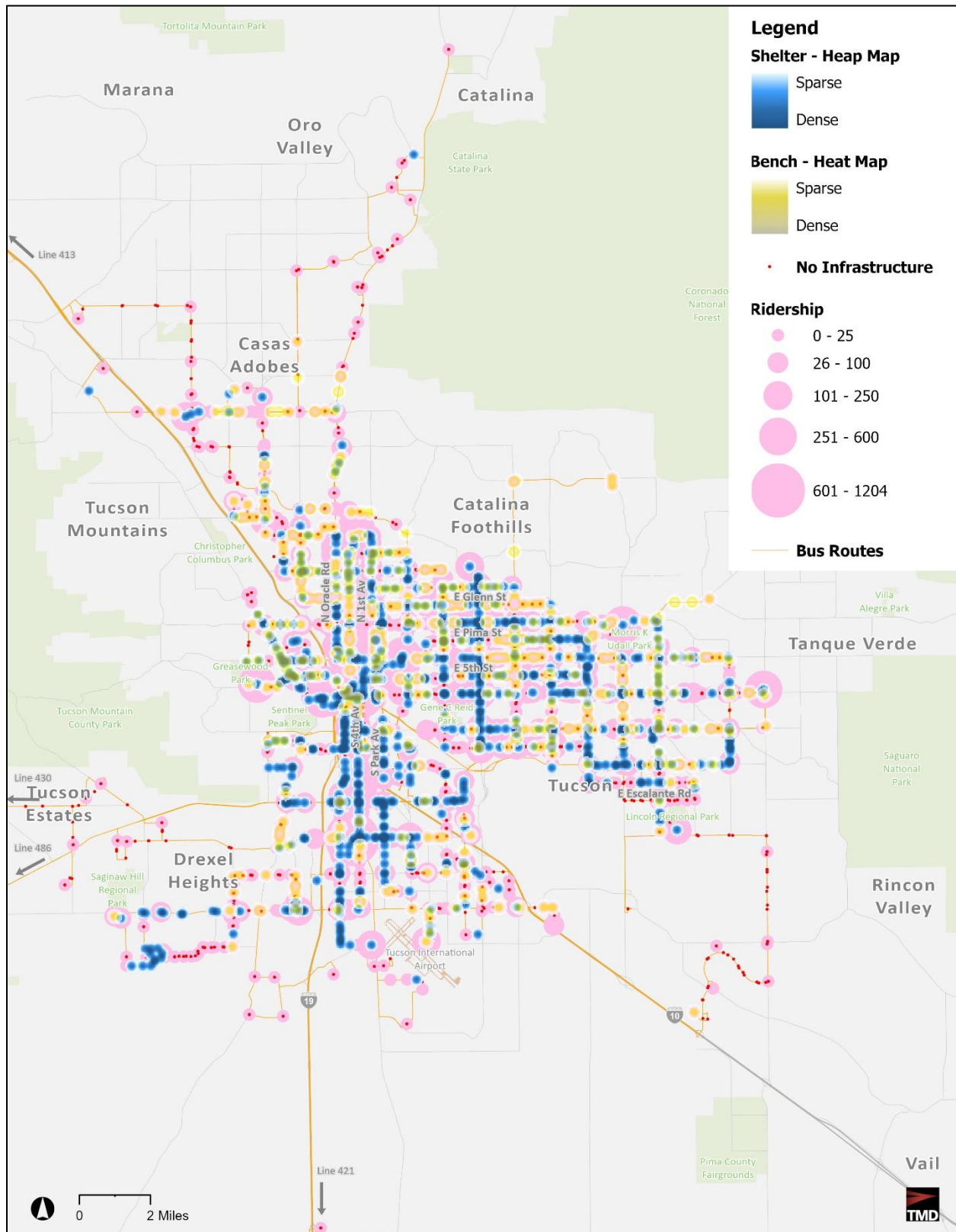
Sun Tran and PAG RTA currently provide robust coverage of amenities at stops throughout the service area. As of March 2024, Sun Tran has 2,128 active bus stops, of which 1,387 have benches and shelters, and 438 have benches only, meaning that over 85% of all stops have some level of amenities.

Of the 2,128 bus stops in the Sun Tran system, half of all boardings take place at just 138 stops, and only three are missing benches or shelters. Oracle/Grant (NE) and 6th Av/12th St (SW) with 177 and 90 average daily boardings respectively, have a bench but not a bus shelter while Oracle/Grant (NE) has neither a shelter or a bench.

Figure 1 shows the distribution of bus stop amenities across the service area overlaid with ridership data. There is a stark difference between the areas north and east of downtown which show in green which means they have both a shelter and a bench, compared to the area south of downtown which has far fewer stops with both amenities.

¹ [Appendix A - 2022 FTA Certifications.pdf \(suntran.com\)](#) Service Policy Pg. 37

Figure 1: Bus Stop Infrastructure Heat Map with Ridership



Peer Review

In order to help Sun Tran develop a bus stop amenity policy that reflects innovative industry best practices, TMD reviewed and collected Bus Stop Amenity policies and standards from peer agencies. Peers were identified using the *Urban Integrated National Transit Database* (Urban iNTD) tool, based on an agency-wide benchmarking level. Table 1 summarizes the standard number of daily boardings (unless noted otherwise) that justify the allocation of shelters and seating for the selected peers.

Table 1: Peer Agency Distribution of Transit Amenities Standards

Agency Name	Shelter	Seating	Notes
Sun Metro (El Paso, TX)	50+ boardings or 73+ points		Uses a point system to allocate amenities. Goal to have more than 20 percent of stops with shelter
City of Memphis MPO/MATA (Memphis, TN)	75+, under 75 recommended	75+, under 75 recommended	“Exact amenities that are appropriate for and can be supplied at each bus stop may vary due to both physical and financial constraints.” High Volume Stops are defined as stops with more than 75 daily boardings,
Embark (Oklahoma City, OK)	15+	10-15	
New Orleans RTA (New Orleans, LA)	15+	15+	Target 90% of stops with 250+ daily boardings will have real time information, wayfinding, and art/cultural references by 2027.
NCTD (Oceanside, CA)	30+ urban, 20+ suburban	20+ urban, 10+ suburban	Varies from rural, suburban, and urban setting (listed in that order)
NFTA (Buffalo, NY)	-	-	Does not specify specific ridership target. Amenities provided at stops with high ridership.
Fort Worth Transportation Authority (Fort Worth, TX)	50+	25+	Budget allocated for amenities, then rank stops by point system. Include as budget allows.
CAP Metro (Austin, TX)	Level 2: 15-50, Level 3: 50+	Level 1: 0-14, Level 2: 15+	Based on the determined level, amenities are either determined as being required, vital or optional. Level 3 and generally required.
Valley Metro (Pheonix, AZ)			Developed 5 levels of bus tops, each with different cost and amenity levels. Regional stops are prioritized over local stops.
Riverside Transit Agency	10+ Priority to 50+	5+	Based on high ridership and equitable distribution. A single jurisdiction cannot receive more than 15 percent of systemwide improvements.
Kansas City Area Transportation Authority	50+ local/25+ commuter 2 nd shelter: 150+	25+/10+	Separate standards for local and commuter service. Amenity placement and removal standards.

Key Findings

Investment in stop improvements has become increasingly recognized as a tool to enhance the customer experience at a relatively small cost. Transit agencies most commonly base criteria for bus stop amenity placement on daily passenger boardings. The reason behind this lies in aiming to prioritize benefiting greater volumes of passengers. Common additional consideration is given to stops that are at major transfer locations and near activity centers, senior housing, and social and medical facilities. Less common, more specific considerations include the rate of wheelchair lift usage, hourly passenger boardings, and bicycle passenger service.

Some agencies establish guiding principles as a starting point to shaping policy. Predetermining guiding factors such as geography, service types, and budget allow for efficient policy building.

- Riverside Transit Agency has defined priorities in allocating resources based on high ridership and equitable geographic distribution across jurisdictions.
- Kansas City KCATA and Valley Metro have developed separately amenity placement standards for local service and commuter/regional service.
- Fort Worth Transportation Authority has determined amenity installation based on an allocated budget. Stops are prioritized based on a point system and amenities installed as much as the set budget allows.

All peer agency policies list the thresholds needed for a bus stop to warrant a shelter. However, few policies provide details on how amenity distribution should be prioritized among qualified stops. For example, if a system has funding for 25 new shelters but has 300 stops that exceed the daily boarding threshold for a shelter, nothing in the policy states how the agency should approach distributing the 25 new shelters across the 300 stops that qualify.

- Valley Metro's distribution of amenities policy can address this through the potential for "additional points". Among stops meeting the qualifying threshold standard for amenity placement, priority will be organized by the greatest additional points.
- Riverside Transit Authority amenity policy is based on ridership and equitable distribution. Stops meeting the qualifying threshold standard for amenity placement are then prioritized by highest boarding activity by jurisdiction.
- Fort Worth Transportation Authority prioritizes stops meeting the qualifying threshold standard for amenity installation using a distinguished point system to rank eligible stops.
- Sun Metro, Memphis MATA, FFTA in Fort Worth and Capital Metro in Austin have also developed a points system and a rubric to rank and identify bus stops that qualify for additional transit amenities. Rubrics usually include an equity indicator, a ridership indicator, and an access indicator, among others.

Allocation Policy for Bus Stop Shelters

After completing a peer review of similar transit agencies and their bus stop amenity policies, the following policy is recommended. The goal of the policy is to ensure equitable distribution of amenities based on stops with the highest ridership throughout the Tucson Region. This policy provides a balance between ridership and equity by basing the distribution on average daily boardings and then applying equity weight factors to the base value. In order to justify the investment in installing and maintaining a new shelter, stops are recommended to meet **minimum usage levels of at least 12 boardings a day** for a

shelter. This averages one passenger per hour during peak travel hours of 6 am to 6 pm. The following steps outline the approach for determining which stops should be the next to receive shelters.

Step 1: Identify Annual Shelter Allocation

The first step is to determine how many shelters are available to be purchased based on next year’s budget.

Step 2: Determine Shelter Allocation by Ward

The next step is to determine how those shelters get distributed in a way that is geographically equitable. Each ward will be given a percentage of the total allocation of bus shelters based on their share of total system ridership.

Table 2 shows the current distribution of shelters by Ward within the City of Tucson as well as the percentage of riders within each Ward that board at a stop with a shelter. These numbers and percentages exclude the three major transit centers and Sun Link stops. For the most part, riders are well-covered with shelters, with over 80% of riders boarding at a location with an existing shelter, with the exception of Ward 3.

Table 2: Current Shelter Distribution by Ward

Ward	Avg. Weekday Boardings	Percent of City of Tucson Boardings ²	Total Number of Stops	Percent of Total Stops	Current Number of Shelters	Percent of Stops with Shelters	Percent of Riders with Shelters
Ward 1	3,400	10.0%	228	13.5%	125	54.8%	81.2%
Ward 2	3,559	10.4%	209	12.4%	100	47.8%	86.7%
Ward 3	8,590	25.1%	336	19.9%	168	50.0%	76.7%
Ward 4	2,615	7.7%	180	10.6%	87	48.3%	84.7%
Ward 5	5,490	16.1%	335	19.8%	175	52.2%	81.7%
Ward 6	10,514	30.8%	403	23.8%	241	59.8%	84.8%

Based on these findings, a proposed shelter allocation was derived for each Ward, shown in

Table 3. This allocation is roughly proportional to the percentage of boardings that take place within each Ward, rounded up or down to the nearest 5%. Ward 5 and 6 are slightly disproportional, giving slightly more shelters to Ward 5 which is under-represented in terms of stops and riders with shelters compared to Ward 6.

Table 3: Proposed Allocation by Ward for New Shelters

Ward	Percent of City of Tucson Boardings ²	Number of Stops with 12+ Boardings/Day w/out Shelter	Shelter Allocation
Ward 1	10.0%	20	10%
Ward 2	10.4%	11	10%
Ward 3	25.1%	55	25%
Ward 4	7.7%	13	10%
Ward 5	16.1%	22	20%
Ward 6	30.8%	39	25%

A similar methodology can be applied to stops within PAG RTA’s jurisdiction, as shown in Table 4 and Table 5.

Table 4: Current Shelter Distribution by County Jurisdiction

Jurisdiction	Avg. Weekday Boardings	Percent of System Boardings	Total Number of Stops	Percent of Total Stops	Current Number of Shelters	Percent of Stops with Shelters	Percent of Riders with Shelters
County	2,294	55.9%	264	70.8%	78	29.5%	71.5%
Catalina	6	0.1%	1	0.3%	0	0.0%	0.0%
Marana	240	5.8%	18	4.8%	7	38.9%	80.8%
Oro Valley	37	0.9%	28	7.5%	2	7.1%	35.1%
Pascua Yaqui	338	8.2%	16	4.3%	12	75.0%	72.5%
Sahuarita	31	0.8%	4	1.1%	0	0.0%	0.0%
South Tucson	968	23.6%	29	7.8%	17	58.6%	79.9%
Tohono O’Odham	194	4.7%	13	3.5%	2	15.4%	61.9%

Table 5: Proposed Allocation by County Jurisdiction for New Shelters

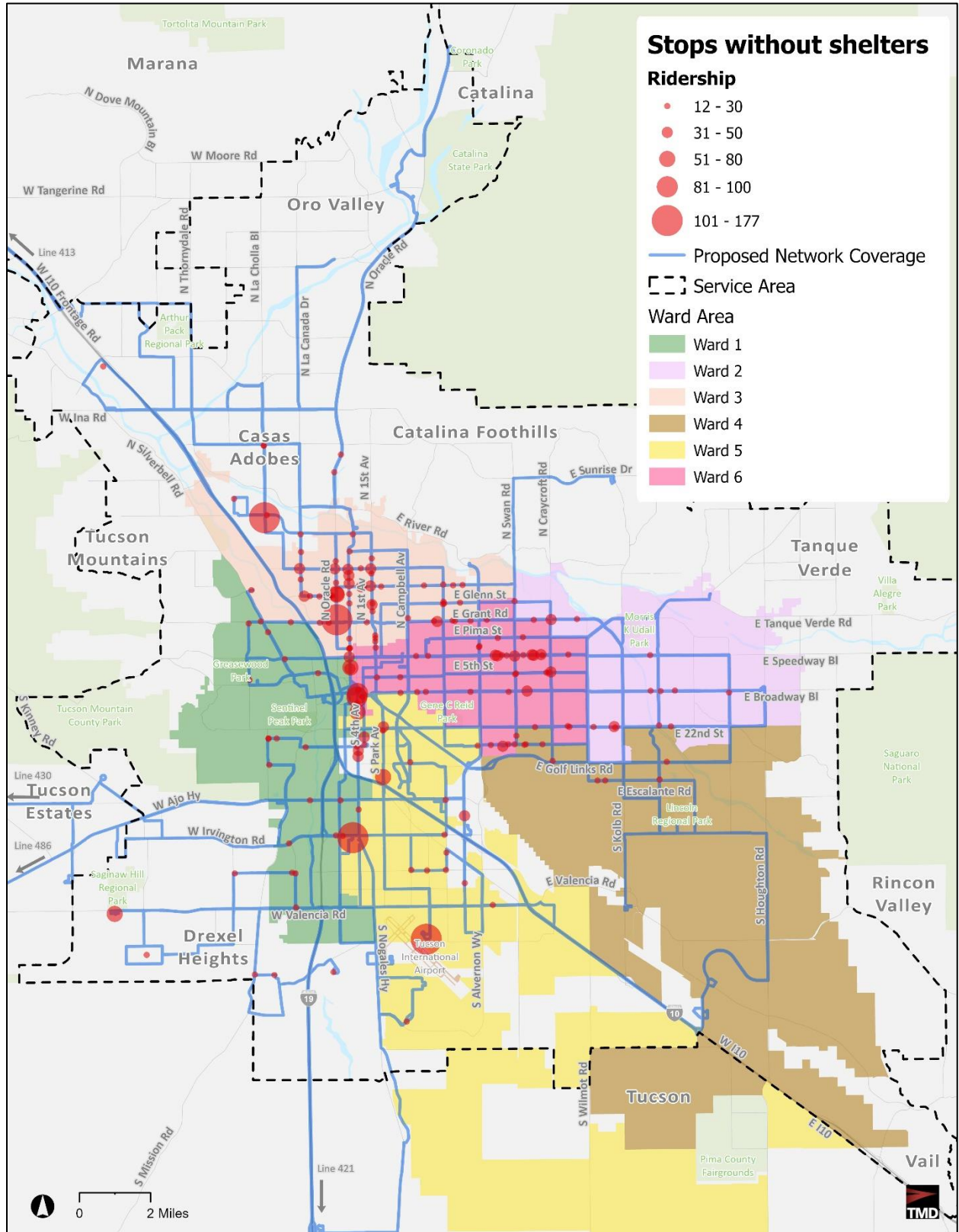
Jurisdiction	Percent of County Boardings ³	Number of Stops with 12+ Boardings/Day w/out Shelter	Shelter Allocation
County	55.9%	9	50%
Catalina	0.1%	0	0%
Marana	5.8%	1	5%
Oro Valley	0.9%	0	0%
Pascua Yaqui	8.2%	2	10%
Sahuarita	0.8%	1	5%
South Tucson	23.6%	5	25%
Tohono O’Odham	4.7%	2	5%

² Excludes the three major transit centers and Sun Link stops.

³ Excludes the three major transit centers and Sun Link stops.

The following map (Figure 2) shows where these gaps in bus stop amenities are by ward. The map only shows stops which have 12+ boardings which would make them qualify for stop amenities. It seems like the 2 wards with the highest concentration of stops to qualify for stop amenities are Wards 3 and 6.

Figure 2: Stops Without Shelters and 12+ Boardings



Step 3: Calculate Boardings by Stop ID

Using the most recent available APC data, calculate the daily average boardings for every stop in the Sun Tran System. Join this ridership data with the most recent bus stop inventory data.

Step 4: Weight Ridership Based on Priority Factors

While daily boarding activity is the primary factor determining bus shelter need, other factors should be considered as well. In order to account for these other factors but keep boarding activity as the primary criteria, boarding values at stops should be inflated by the following amounts:

- **Major transfer location** (50% increase) – transfer point between three or more routes or to a route that is part of the Frequent Transit Network.
- **Minor transfer location** (25% increase) – transfer point between any two routes.
- **Equity priority location** (25% increase) – stop is located in a minority and/or low-income census tract as defined by Sun Tran by their Title VI policy.
- **Key public service destination** (20% increase) – stop serves a key public service destination such as a library, social services, human services, or medical facility.

If a stop falls into multiple categories (e.g. is both a major transfer location and located in an equity priority area), the daily boardings should be inflated by the sum of the inflation factors (e.g. 75%).

Step 5: Identify Stops for Shelters by Ward or Jurisdiction

Finally, sort stops by highest ridership within each Ward or Jurisdiction using the ridership values generated in Step 4. Next filter the list for bus stops that do not have a shelter and meet the 12 boardings a day requirement to qualify for bus stop shelters. Select the number of stops allocated to each Ward in Step 2. Finally, ensure that the selected bus stops have the necessary infrastructure requirements to receive a shelter.

Table 6 shows an example Step 5 analysis for Ward 2 based on a selection of the top 15 stops (actual analysis would consider all stops within the Ward). After applying the various ridership boosts, Grant/Craycroft (SE) and 22nd St/Carnegie Dr (NE) remain the top two locations for the ward’s next shelters. Applying the ridership weights bumps Pantano/22nd St (NE) up from 5th place to 4th place and Broadway/Pantano (NE) from 9th place to 5th place. It also makes Pantano/5th St eligible to receive a shelter by increasing its average daily boardings above the 12 boarding a day minimum. In the event of a tie (Grant/Sunny Dr (NW) and Broadway/Pantano (NE)), preference should be given to the stop with the highest number of base boardings (Grant/Sunny Dr (NW)).

Table 6: Example Ridership Prioritization Table for Ward 2

Stop Location	Current Boardings	Major Transfer (50%) ⁴	Minor Transfer (25%)	Equity Location (25%)	Key Destinations (20%)	Total Boost %	Weighted Value
Grant/Craycroft (SE)	34	Yes	No	No	Yes (TMC)	70%	57.8
22nd St/Carnegie Dr (NE)	31	No	No	Yes	Yes (Palo Verde High)	45%	45.0
Harrison/Broadway	23	Yes	No	No	No	50%	34.5

⁴ Based on current definition of Frequent Transit Network.

Stop Location	Current Boardings	Major Transfer (50%) ⁴	Minor Transfer (25%)	Equity Location (25%)	Key Destinations (20%)	Total Boost %	Weighted Value
Grant/Sunny Dr (NW)	21	No	No	No	No	0%	21.0
Pantano/22nd St(NE)	21	Yes	No	No	No	50%	31.5
Broadway/Sarnoff (NW)	16	No	No	Yes	No	25%	20.0
Broadway/River Oaks Apts (WB)	15	No	No	Yes	No	25%	18.8
Swan/Glenn (NE)	13	Yes	No	No	No	50%	19.5
22nd St/Sherwood Village Dr (NE)	12	No	No	No	No	0%	12.0
Broadway/Pantano (NE)	12	Yes	No	Yes	No	75%	21.0
Speedway/Grady (NE)	12	No	No	No	No	0%	12.0
Pantano/5th St	11	No	No	Yes	No	25%	13.8
Grant/Sahuara (NW)	11	No	No	No	No	0%	11.0
22nd St/Houghton (NW)	10	No	No	No	No	0%	10.0
Tanque Verde/Cmo Pio Decimo	10	No	No	No	No	0%	10.0

Bus Stop Amenity Considerations

The following additional factors should be considered when placing bus stop amenities.

Shelter Size

Shelter size is determined by analyzing the APC data for the specific stop. If the stop has more than five average boardings per trip, a large shelter is warranted, otherwise a regular shelter is warranted.

Minimum Stop Spacing Requirements

There may be some cases where bus stops close together both meet the ridership threshold warranting bus stop amenities. If the stop locations violate Sun Tran’s minimum stop spacing requirements as outlined in the Service Standards and Warrants document, amenities should not be placed at both locations.

Responding to Customer Requests

Requests for amenities should be tracked and recorded, but receiving an amenity request does not automatically guarantee receiving an amenity. City and County staff should direct the person making the request back to this policy.

Shelters Beyond the Policy

There may be cases where individual jurisdictions want to install bus stop amenities at stops that are not slated for amenities under this policy. These jurisdictions are within their rights to install and maintain their own shelters as long as they meet specifications required by Sun Tran. This will not affect that jurisdiction’s shelter allocation under the policy.

Site Feasibility

All new stop locations need to be accessible based on the Americans with Disabilities Act (ADA) guidelines. The critical path of travel for passengers at a bus stop is the connection between the landing area and the

sidewalk and bus shelters. The ADA requires that there be an accessible route between these points. Sidewalks and bus shelters shall be connected to the landing area by an accessible route. This requirement means that a clear, unobstructed, ADA-compliant path of travel must be provided. A 4-foot wide path is recommended, although the ADA requires a minimum 3-foot wide path, which can be used in extenuating circumstances.

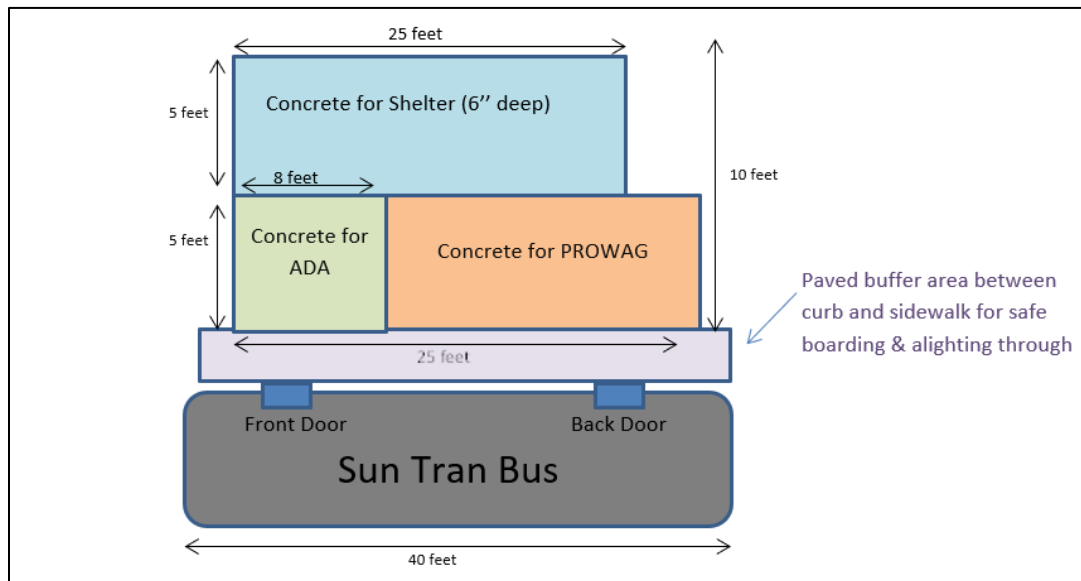
The ADA requires bus stop boarding and alighting areas at the front door landing area, and an accessible route between the landing area, sidewalk, and bus shelters. A clear zone at the first rear door is also encouraged.

If there is a variety of fleet types (e.g., bus lengths, number of doors), landing areas and clear zones should be laid out to accommodate the bus fleet in operation. Landing areas and clear zones should be free of driveways, curb ramps, and obstructions such as utility poles, hydrants, and other street furniture. It is recommended to design all stops with two door landing areas to accommodate the first two doors of all vehicles, regardless of vehicle length or model.

For the first door landing area, ADA guidelines require that a minimum width of 5 feet along the curb, and a minimum depth of 8 feet perpendicular to the curb, be provided at the landing area. The location of the landing area is primarily dependent on the location of the stop relative to the intersection, and secondarily, on the availability of sidewalk space to accommodate an ADA-compliant landing area. The first door landing area should begin one foot behind the bus stop pole.

See Figure 3 below for an example of ADA compliant landing areas.

Figure 3: Ideal Bus Stop Concrete Requirements



Replacing Shelters

For bus stop amenities that are reaching the end of their useful life, they should be treated in the bus stop inventory as if they do not have a shelter. This way, stops with higher ridership levels with outdated shelters will be prioritized for new shelters over stops with lower ridership. If the stop no longer meets the minimum boardings required to warrant a shelter, the shelter should not be replaced at that location.

Next Steps

Sun Tran should work to update the current bus stop inventory to include all necessary information to execute the policy (current boardings, designation as a major or minor transfer stop, designation as an equity priority area, and whether the stop serves key destinations). Once the bus stop inventory is up to date, Sun Tran should begin to prioritize stop locations for future shelter placement.