



Exhibit 1

City of Glendale, Beeline

Bus Stop Improvement Program

Final Report
May 2024

moore
& associates



1. Table of Contents

Section 1 Executive Summary	1
Section 2 Current Bus Stop Amenities.....	2
Section 3 Summary of Community Input.....	30
Rider survey summary	30
Focus group summary	38
Section 4 Amenity Catalogue	39
Seating.....	40
Shade Structures/Shelters.....	45
Trees	51
Mobile Phone Charging Stations	53
Ticket Vending Machines/Mobile Ticketing	54
WiFi	55
Section 5 Bus stop improvement recommendations.....	56

Section 1 | Executive Summary

In July 2023, the City of Glendale selected Moore & Associates, Inc. to prepare a Bus Stop Improvement Program. This project included five complementary tasks. First, an inventory of bus stop amenities located at 339 unique Glendale Beeline bus stops (a total of 469 bus stops across ten routes). Such amenities include signage, lighting, seating, shelters, shade structures, trash receptacles, and bike racks. Second, update the City's existing bus stop database. Third, conduct a multilingual rider survey, as well as host two focus groups. Fourth, compile a catalogue of commercially available bus stop amenities including current pricing estimates in a "kit of parts". Fifth, bus stop improvement and maintenance recommendations to ensure all Glendale Beeline bus stop amenities are kept clean; free of debris, graffiti and vandalism; and maintained to their useful lives.

Simply put, the bus stop serves as the figurative "front door" for a community's public transit service. Its visibility, condition, amenities, and perceived safety impact not only transit customer satisfaction, but also the overall community's perception of the Glendale Beeline. Beyond the basic functionality of the bus stop are considerations regarding appearance, available amenities, and accessibility.

City-provided bus stop inventory database guided the assessment of the 469 Beeline bus stops. Moore & Associates utilized this database to inventory current conditions at each stop as well as identify potential deficiencies. Among the amenities assessed were a pedestrian landing pad, paved waiting area, bus stop pole and signage, red curbing (to support safe bus berthing), overall stop landscaping, pedestrian path of travel, and trip or obstruction hazards.

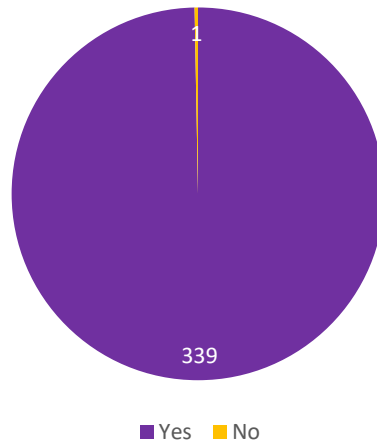
Moore & Associates conducted in-person assessments of each Beeline bus stop across several weeks. At least two photographs were taken of each stop/location, and the data collected was used to update the master bus stop matrix.

Moore & Associates created an MS Excel-based data collection matrix to document the conditions observed at each bus stop. In addition to the items noted above, the bus stop matrix includes the Glendale Beeline numeric stop identifiers, a description of the location (i.e., cross-streets), and geo-coordinates. A minimum of two photographs were taken of each bus stop which are included in the Appendix of this report.

Section 2 | Current Bus Stop Amenities

Of the 339 bus stops evaluated, one (1) does not have Glendale Beeline signage.

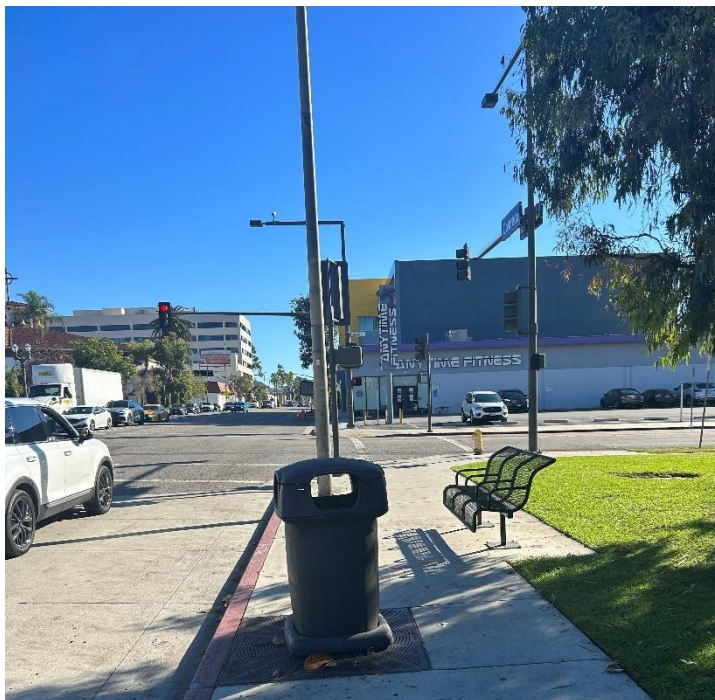
Beeline Signage



Stop without Glendale Beeline signage:

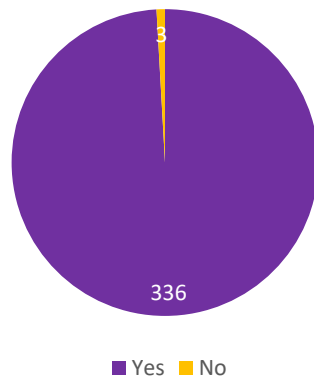
1. Stop ID 344, COLORADO at LOUISE

Bus stop without Glendale Beeline signage: Stop ID 344, COLORADO at LOUISE



Of the 339 unique bus stops evaluated, 336 do not have real time bus information.

Real Time Bus Information



Bus stops with real time bus information:

Stop ID 161, CENTRAL AT AMERICANA



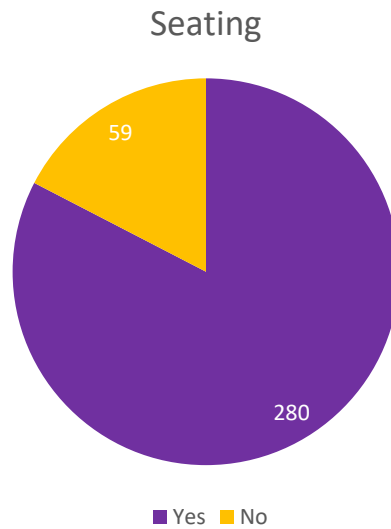
Stop ID 164, CENTRAL AT COLORADO



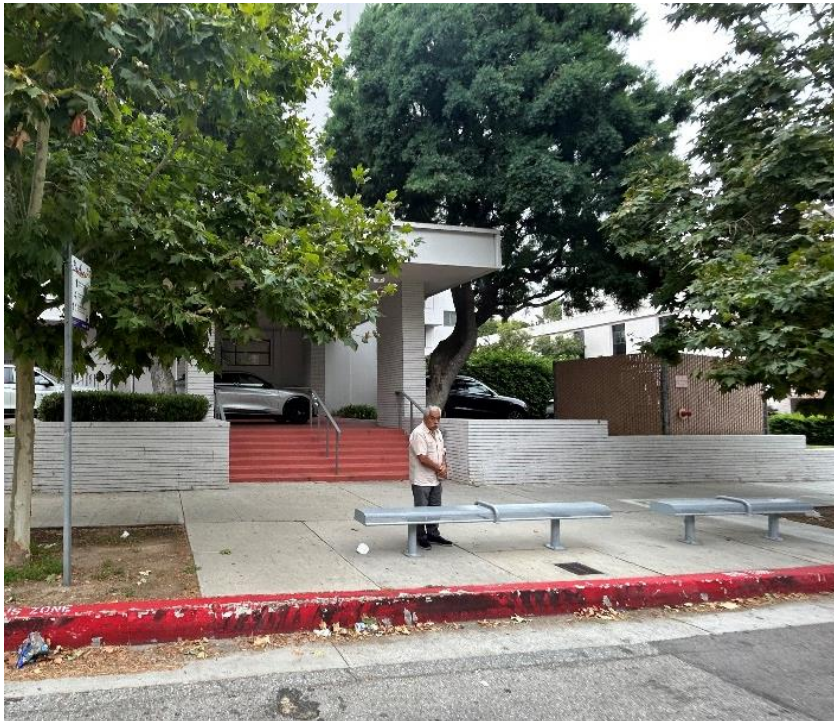
Bus stops with real time bus information: Stop ID 280, BROADWAY AT GLENDALE



Of the 339 bus stops, 59 stops do not have seating.



Bus stop with seating: Stop ID 131, CENTRAL AT LAUREL



Bus stop with seating: Stop ID 156, BRAND AT BROADWAY



Bus stop with seating: Stop ID 302, CHEVY CHASE AT BROADWAY



Bus stop without seating: Stop ID 242, VERDUGO AT FERN



Bus stop without seating: Stop ID 444, LA CRESCENTA AT MONTROSE



Bus stop without seating: Stop ID 343, COLORADO AT CARR PARK



Integrated wall seating: Stop ID 334, COLORADO AT CHEVY CHASE

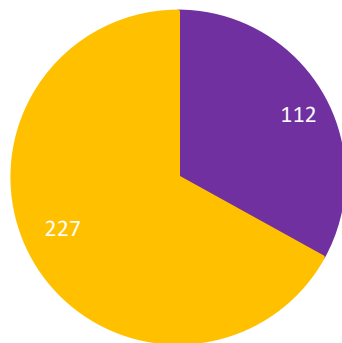


Integrated wall seating: Stop ID 206, GLENDALE AT BROADWAY



Of the 339 bus stops, 112 bus stops have shelters and 227 do not.

Shelter



Has shelter Has no shelter

Bus stop with shelter: Stop ID 425, SAN FERNANDO AT CHEVY CHASE



Bus stop with shelter: Stop ID 101, BRAND AT BROADWAY



Bus stop with shelter: Stop ID 476, CENTRAL AT LEXINGTON



Bus stop with shelter: Stop ID 175, FOOTHILL AT BRIGGS



Bus stop with shelter: Stop ID 117, CENTRAL AT COLORADO



Bus stop with shelter: Stop ID 203, FOOTHILL AT ROSEMONT



Bus stop with shelter: Stop ID 169, BROADWAY AT JACKSON



Bus stop with shelter and shade: Stop ID 432, SAN FERNANDO AT PACIFIC



Bus stop without shade: Stop ID 285, CHEVY CHASE AT BRAND



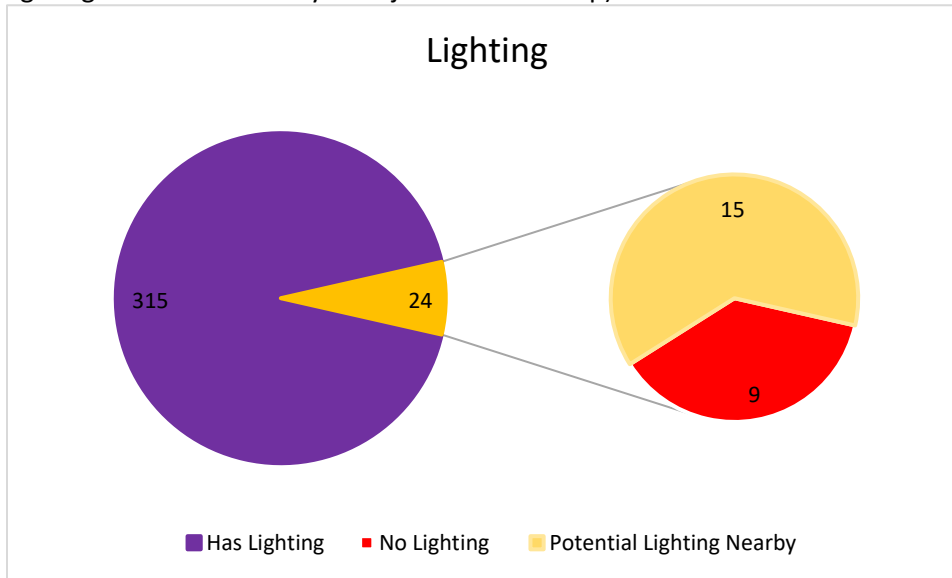
Bus stop without shelter but potential shade from building: Stop ID 352, BROADWAY AT SINCLAIR



Bus stop with no shelter but potential shade: Stop ID 123, CENTRAL AT MILFORD



Of the 339 bus stops, 24 bus stops do not include lighting. Of these, 15 have lighting nearby (defined as lighting within 100 ft away or adjacent to bus stop).



Bus stop with lighting: Stop ID 159, BRAND AT MILFORD



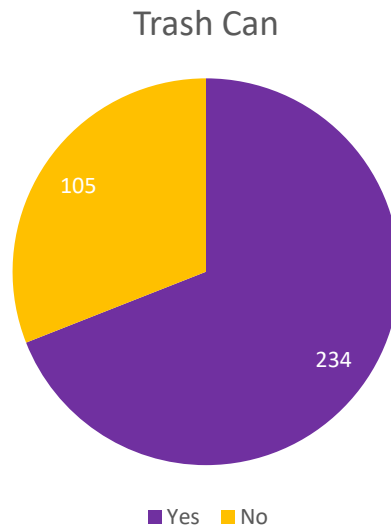
Bus stop without lighting: Stop ID 411, FLOWER AT DAVIS



Bus stop without lighting: Stop ID 394, STOCKER AT PACIFIC



105 bus stops do not have a trash receptacle present at or near the bus stop.



Bus stop with a trash can: Stop ID 1305, MAIN NB/MARKET NS

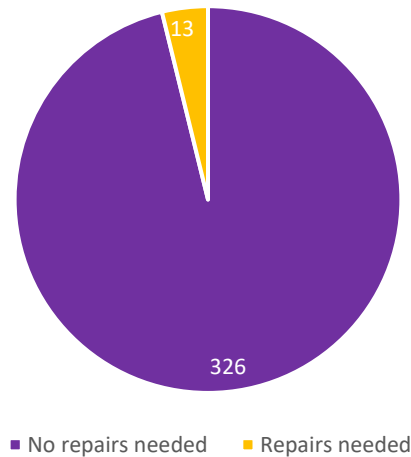


Bus stop with no trash can: Stop ID 416, GRANDVIEW AT AIRWAY



Of the 339 bus stops, we identified 13 stops which warrant repair to the pedestrian landing pad and/or sidewalk connecting to the bus stop.

Sidewalk/concrete or pedestrian pad repairs



Repair sidewalk/concrete/or pedestrian pad:

1. Stop ID 121, CENTRAL AT LOS FELIZ
2. Stop ID 120, CENTRAL AT LOMITA
3. Stop ID 151, CENTRAL AT LOS FELIZ
4. Stop ID 210, GLENDALE AT LEXINGTON
5. Stop ID 220, HONOLULU AT ORANGEDALE
6. Stop ID 225, LA CRESCENTA AT MARY
7. Stop ID 184, FOOTHILL AT GOULD
8. Stop ID 259, FOOTHILL AT RINETTI
9. Stop ID 179, FOOTHILL AT COMMONWEALTH
10. Stop ID 278, BROADWAY AT CEDAR
11. Stop ID 302, CHEVY CHASE AT BROADWAY
12. Stop ID 338, COLORADO AT EVERTT
13. Stop ID 459, SAN FERNANDO AT BRAND

Bus stop warranting concrete repair: Stop ID 338, COLORADO AT EVERETT



Bus stop warranting concrete repair: Stop ID 225, LA CRESCENTA AT MARY

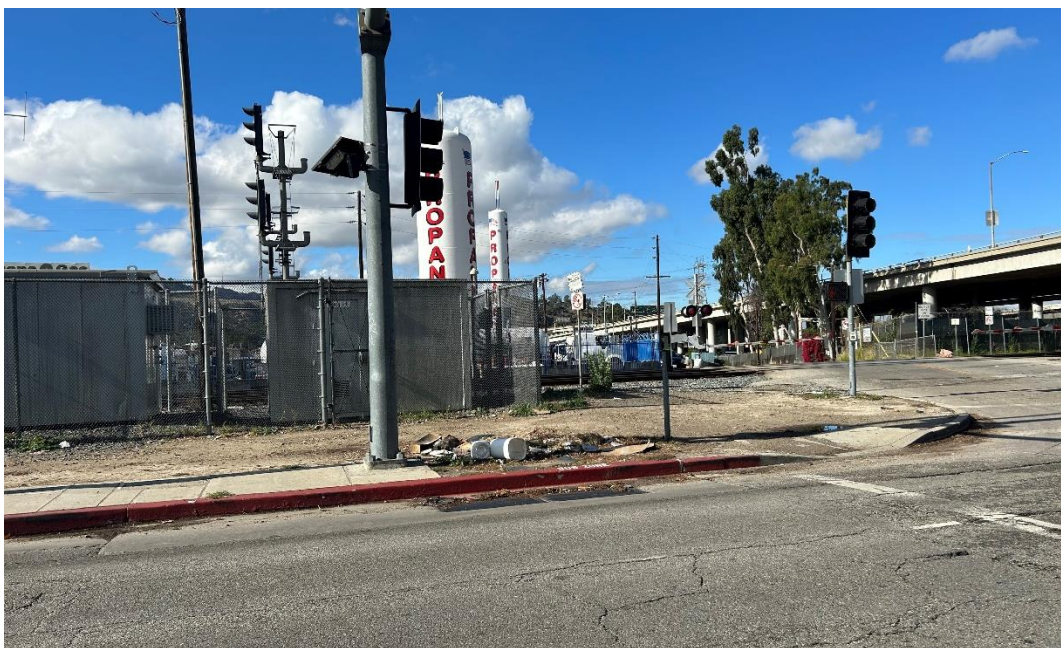


Of the 339 bus stops, one stop had a non-connecting landing area to the sidewalk. Same Stop require immediate general clean up.

Bus stop with non-connecting landing area to sidewalk: Stop ID 434, SAN FERNANDO AT MILFORD

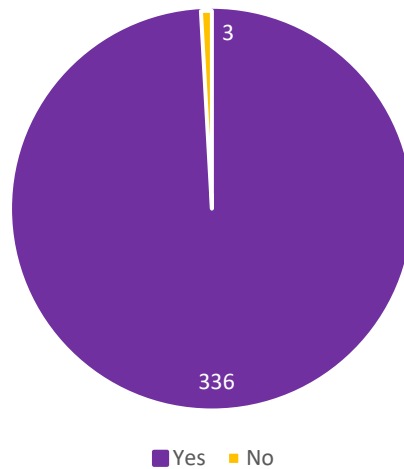


One bus stop requires general clean up: Stop ID 434, SAN FERNANDO AT MILFORD



Of the 339 bus stops, three bus stops do not currently include appropriate red curbing or designated bus lane in immediate proximity to the stop. One stop had a yellow curb and the other two stops had “no parking” or “no stopping any time” signage near the stop.

Red curb vs. No red curb



Bus stop with faded yellow curbing: Stop ID 219, HONOLULU AT OCEAN VIEW



Bus stop with no red curbing: Stop ID 212, GLENDALE AT MONTEREY



Bus stop with no red curbing: Stop ID 443, GLENDALE AT CALIFORNIA



Of the 339 bus stops, ten locations were deemed to require regular tree trimming. Regular trimming or maintenance of the trees and vegetation present at or near bus stops ensures full height clearance for buses pulling in and out of a bus stop. The bus stops identified either currently have branches overhanging the street or are positioned such they will likely overhang the adjoining roadway.

1. Stop ID 131, CENTRAL AT LAUREL
2. Stop ID 121, CENTRAL AT LOS FELIZ
3. Stop ID 218, HONOLULU AT MARKET
4. Stop ID 229, LA CRESCENTA AT PIEDMONT
5. Stop ID 225, LA CRESCENTA AT MARY
6. Stop ID 183, FOOTHILL AT CROWN
7. Stop ID 397, VICTORY AT WESTERN
8. Stop ID 381, SAN FERNANDO AT ALLEN
9. Stop ID 457, GLENDALE AT SAN FERNANDO
10. Stop ID 468, GLENDALE AT LOS FELIZ

Branches overhanging the street/bus zone: Stop ID 131, CENTRAL AT LAUREL



Branches overhanging the street/bus zone: Stop ID 218, HONOLULU AT MARKET



Large shade tree at bus stop has potential for branches to overhang the street/bus zone: Stop ID 397, VICTORY AT WESTERN



Of the 339 bus stops, 56 locations had vandalism present at the stop. Vandalism ranged from stickers on shelter and bus stop poles to heavy graffiti on trash cans and benches.

Vandalism on Beeline sign and info post: Stop ID 459, SAN FERNADNO AT BRAND



Vandalism on bench: Stop ID 327, STOCKER AT PACIFIC



Section 3 | Summary of Community Input

Rider survey summary

In Autumn 2023, the City of Glendale initiated a Bus Stop Improvement Plan project. The project included a variety of public engagement activities including a survey of current transit riders. This section presents an overview of the survey's objectives, methodology, and top-line results.

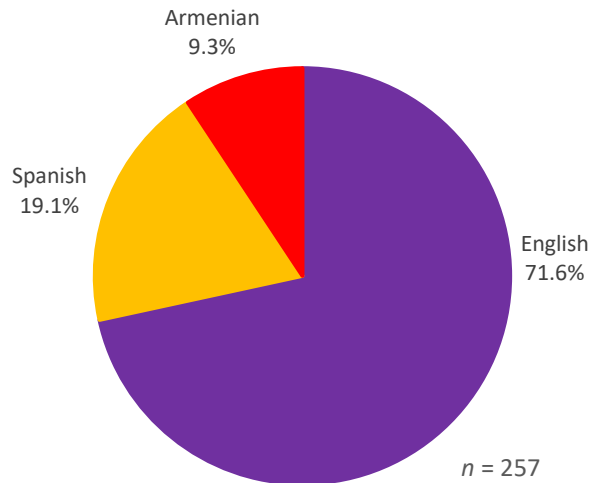
The survey sought to gather first-hand information from current riders of the City's Beeline fixed-route bus service in five areas: 1) typical travel behavior (i.e., most common route used, boarding point, frequency of use); 2) perceptions/opinions regarding current Beeline bus stop amenities (e.g., signage, shelters, benches, etc.); 3) desire for and preference regarding potential bus stop improvements (i.e., amenities as well as placement); 4) basic demographic information; and 5) impact which current as well as possible future bus stop amenities could have on the respondent's use of the Beeline service.

The survey also included a question regarding possible participation in a subsequent focus group discussion specific to potential bus stop improvements.

To encourage the broadest possible participation, the survey was conducted onboard Beeline buses across four service days as well as available online. In-field surveying was conducted Thursday, January 18; Friday, January 19; Saturday, January 20; and Tuesday, January 23, 2024. This approach to data collection encouraged participation by a broad spectrum of Beeline riders. Survey fielding covered all Beeline routes as well as day-parts. Further, the survey was available in English, Spanish, and Armenian.

In addition to offering a survey form to each person riding the Beeline during the four-day survey period, the team of trained surveyors was available to assist riders complete the 19-question survey upon request. Ultimately, a survey sample of 252 valid responses was achieved.

Survey language



The survey instrument was produced in English, Spanish, and Armenian. A draft of the Armenian version was submitted for review by bilingual City staff.

Twenty-eight percent of the survey participants elected to complete the survey in a language other than English. In contrast with other recent transit rider survey activities conducted by Moore & Associates, this is a significant percentage and underscores the importance of providing Beeline service (and bus stop) information in multiple languages.

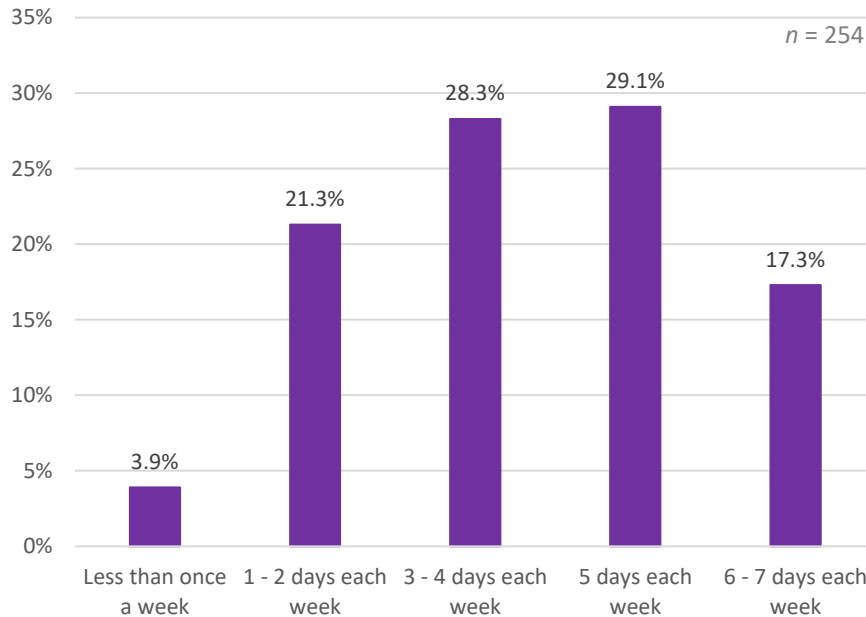
Question 1: What route are you riding now?

At the time of the survey fielding, the Beeline service network included 12 routes. The survey methodology focused on coverage, rather than individual route sample targets. While completed surveys were collected on each Beeline route, six routes garnered the greatest participation: Route 5 (54 surveys), Route 3 (35), Route 8 (30), Routes 4 and 6 (29 each), and Route 12 (21).

Question 2: At which stop do you normally board the bus?

At the time of the survey fielding, the Beeline route network included approximately 475 bus stops. While boarding activity was observed throughout the system, there were six “most common” boarding points for the pool of survey participants. They are (in hierarchal order) 1) Burbank Metrolink Station, 2) Broadway/Glendale, 3) Glendale Transportation Center, 4) Chevy Chase, 5) Pacific Park, and 6) Pacific/Riverdale.

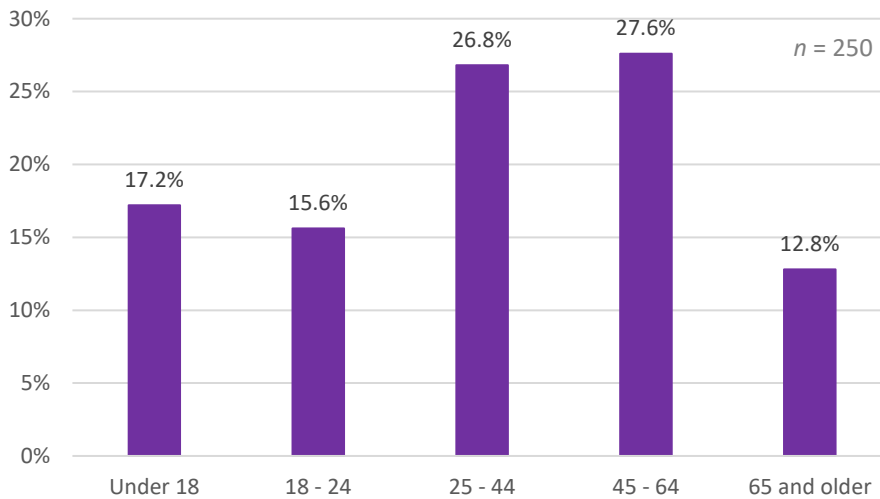
Question 3: In a typical week, how often do you ride the Beeline?



Use of the Beeline fixed-route service is significant among survey participants.

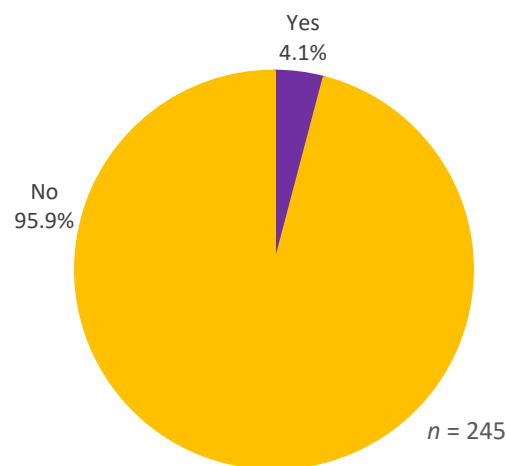
Nearly one-fifth of respondents indicated riding six or seven days/week. Approximately 75 percent ride at least three days/week. The consultant believes the data suggests at least two conclusions. First and foremost, the Beeline provides an important mobility option for a broad spectrum of Glendale residents. Second, although the survey did not include a question regarding vehicle ownership, the frequency of transit use data combined with rider age suggests a relatively high incidence of transit-dependency.

Question 4: Which of the following group includes your age?



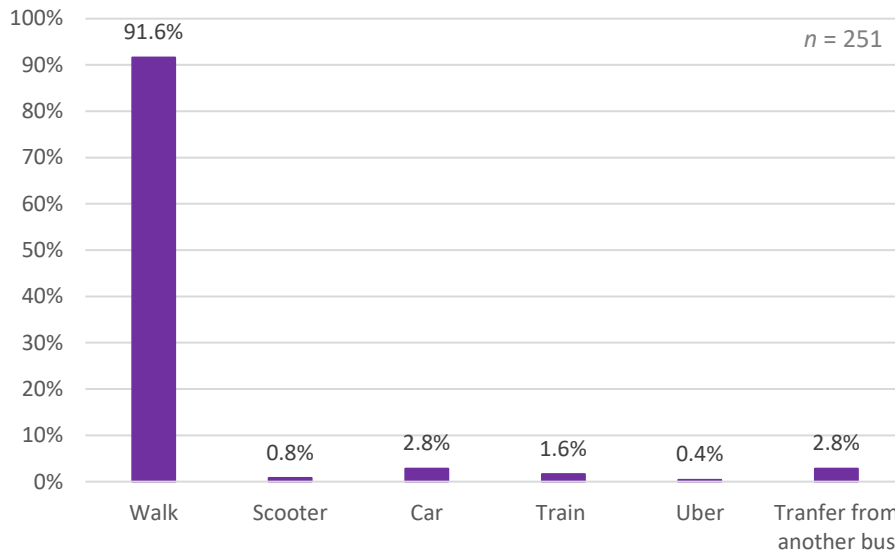
While survey participants included representation across a broad age spectrum, 54 percent reflect work-age adults (ages 25-64). Reflecting again on relative transit-dependency, persons within the broad age cohort of 25-64 years typically include vehicle owners and/or licensed drivers.

Question 5: When riding the Beeline, do you typically use a mobility device such as a wheelchair, scooter, or walker?



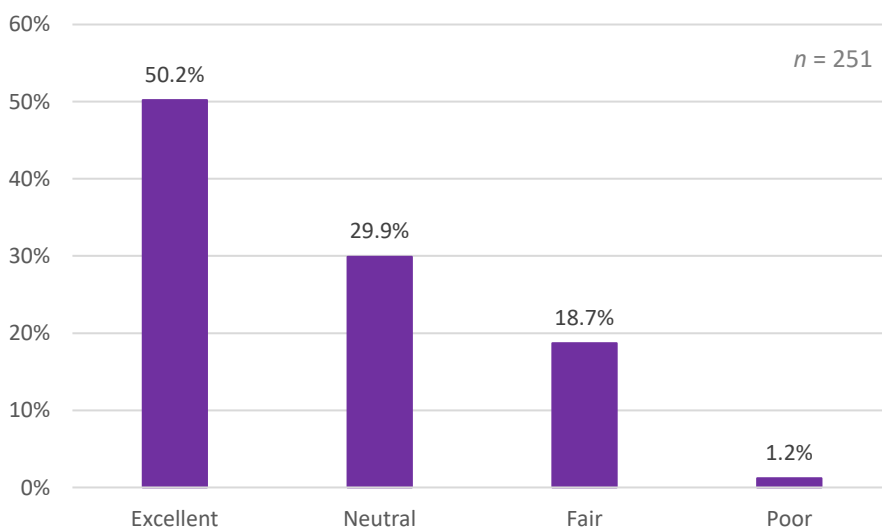
Less than five percent of the surveyed riders indicated use of a mobility device (most commonly a wheelchair) to complete the surveyed trip.

Question 6: How do you typically travel to the bus stop?



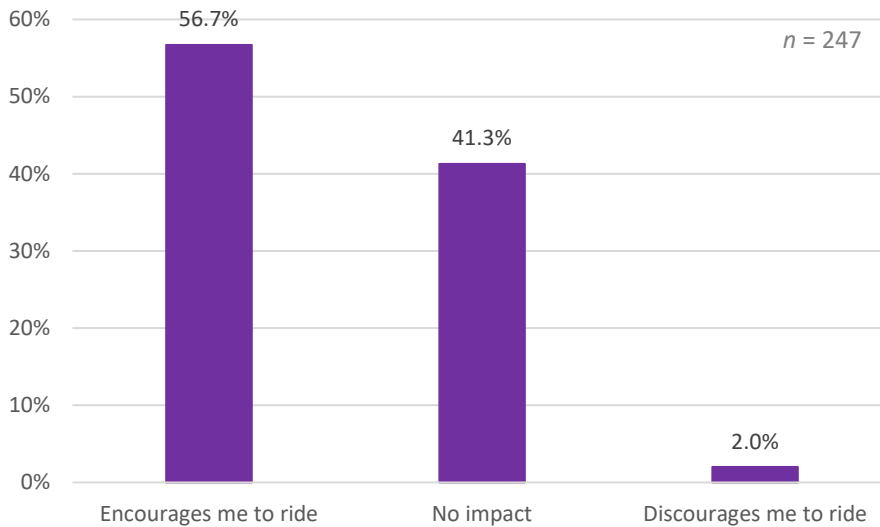
Nearly all (91.5 percent) of the surveyed riders indicated “walking” as a means of accessing their typical boarding point. This suggests easy and convenient access to Beeline bus stops as well as appropriate bus stop placement throughout the fixed-route service network exists. Less than three percent of the riders surveyed cited making a bus-to-bus transfer.

Question 7: How would you rate the signage currently in place at Beeline bus stops?



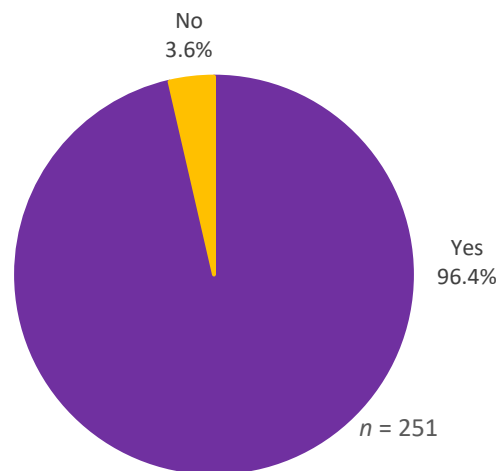
When asked for their perception of current Beeline bus stop signage, half responded “excellent.” Interestingly, another 30 percent indicated “neutral” (essentially no opinion).

Question 9: How does the availability and condition of bus stop amenities (such as benches and shelters) influence your use of the Beeline?



Beeline riders reported current bus stop amenities have a positive impact on selection of public transit as a mobility alternative. Nearly 60 percent cited “encouraged me to ride”. Perhaps more than anything, this supports the importance of the current Beeline Bus Stop Improvement Project.

Question 10: Do you feel safe waiting for the bus?



Nearly all survey respondents reported “feel safe” at current Beeline bus stops. Obviously, this is very favorable, especially when one considers the positive response (“encouraged me to ride”) revealed in Question 9.

With respect to perceived safety (while at bus stops), two improvement opportunities were revealed. First, concerns regarding the presence of “homeless” persons at or in proximity to current bus stops. Glendale is not alone in addressing this challenge. Recent market research conducted by Moore & Associates for Long Beach Transit and Golden Empire Transit (Bakersfield, CA) revealed very similar concerns regarding the presence of “homeless” persons and current bus rider propensity to continue to use public transit.

Among the tactics which California transit providers have adopted are new seating/benches which discourage lying thereon as well as increased patrols by public safety officers as well as community organizations. A second improvement opportunity identified the Beeline bus stop located between JPL and La Canada, which some riders perceive as being “dangerous”.

Question 11: Is there a particular Beeline bus stop you believe needs improvement?

When asked if there is a particular bus stop perceived as needing improvement, nearly 20 percent indicated “yes”.

As a follow up/corollary to the previous question, several existing Beeline bus stops were identified. These include 1) Hoover/Pacific, 2) Brand/Colorado, 3) Broad/Broadway, 4) Chevy Chase/Central, 5) Colorado/Columbus, and 6) Crestmont/Verdugo (cited by multiple riders).

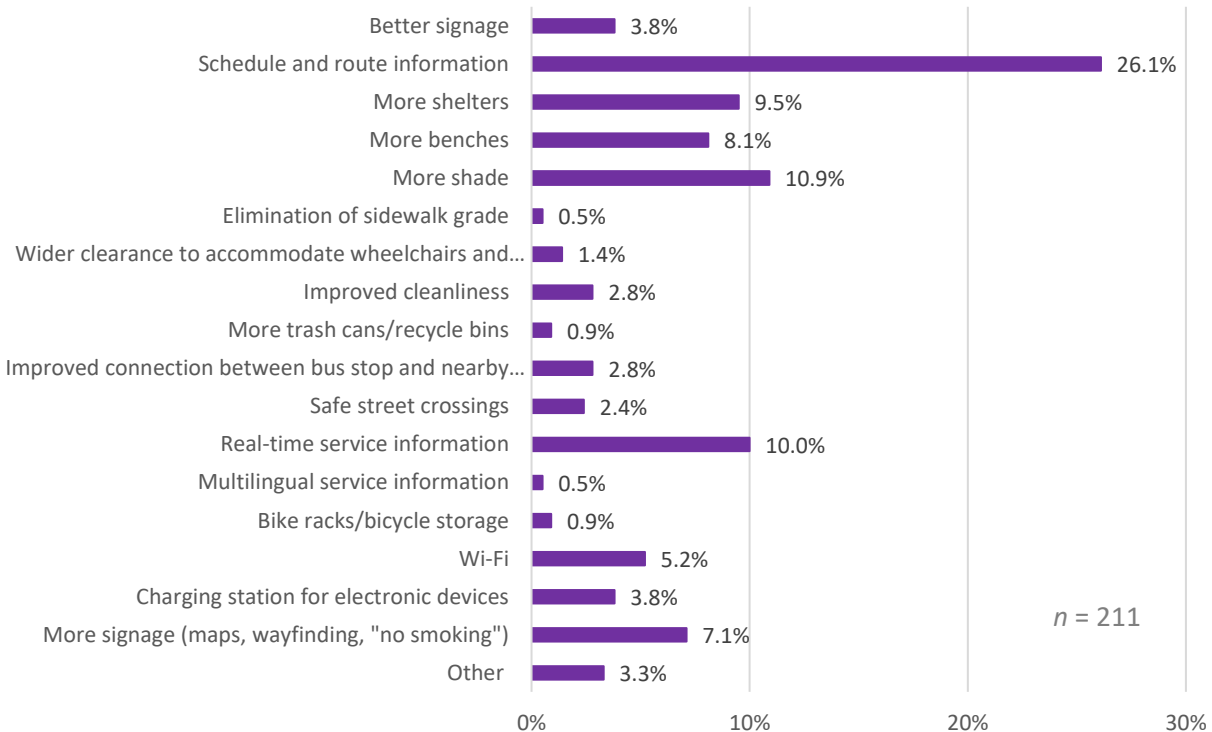
The “most desired” bus stop improvement is installation of more bus shelters and benches.

Question 12: Do you feel current Beeline bus stops are too close to one another or too far apart?

With respect to placement/spacing of current Beeline bus stops, 88 percent indicated being satisfied. The balance was almost evenly split between “too close” and “too far apart”.

Among survey respondents citing either “too close” or “too far apart”, several improvement opportunities were identified. Moore & Associates believes at least two warrant consideration: 1) Broadway/Brand and 2) Route 33 (add stops on Ocean View north of I-210).

Question 13: In general, what bus stop improvement would you like to see introduced?



Another key question pertains to “most preferred” bus stop improvement. Six responses stand out (in hierarchal order): 1) Improved availability of schedule and/or route information (at individual bus stops) (54 responses), 2) more shade (23), 3) real-time service information (21), 4) more shelters (19), 5) more benches (17), and 6) more signage (15).

Other	Frequency
Coordination with Metrolink schedules. Having your bus drivers aware that is train 204 is slightly late, they can wait up to 5 mins for 204	1
Drug free	1
Everything	1
Extended run time each day	1
Let passengers on bus when it's raining during driver's breaks.	1
More accurate tracking app like Transit.	1
Raise height of benches	1

Question 14: Would you be interested in participating in the focus groups?

The survey concluded with an invitation for participation in an upcoming focus group to discuss potential Beeline bus stop improvements. Slightly more than one-quarter indicated a willingness to participate.

Focus group summary

Survey participants were invited to indicate their interest in participating in a focus group to further discuss potential bus stop improvements. Respondents who indicated interest were contacted and invited to attend a session on March 20, 2024. The focus group was held at the Glendale Public Works building, which is served by public transit.

Six community members attended. The consultant team introduced the project and potential bus stop improvements. After this briefing, community members were invited to share their opinions.

Participants expressed concern for cars and delivery trucks blocking bus zones along stops on Honolulu and Market, as well as trash cans blocking bus stops at Verdugo and Crestmont. One participant would like to see benches or shade installed at the Flower and Grandview stop.

When asked what potential bus stop improvements they were like to see, solar lighting, benches, and real-time bus tracking were noted. Participants would like to see improved coordination between the GPS on the buses and the bus tracking app.

Key takeaways from the rider survey and the focus group include a desire for 1) predictive arrival app; 2) improved lighting; 3) more benches, shelters, and shading; and 4) posting schedule information at individual bus stops.

Section 4 | Amenity Catalogue

In preparing this section, consultant staff identified and evaluated a wide array of potential bus stop amenities. In doing so, we embraced several selection criteria including 1) products that would complement the existing Glendale Beeline service network, 2) products that are currently available for purchase (in contrast to items which may only be in the design or development stage), 3) amenities perceived as being of greatest potential benefit to Beeline customers (taking in to account feedback received via the customer survey and focus group discussions), 4) ease of installation and maintenance, and 5) cost and budgetary realities.

Based on discussions with City transit staff, the City's bus stop improvement strategy can be summed up as the "Three S's": signage, seating, shade. Up-to-date and appropriate signage at every Beeline bus stop is paramount. First, a clearly identified bus stop supports efficient operations, customer safety, and service promotion. Second, availability of sufficient shade at bus stops has become a key consideration across the last year for every public transit provider in the greater Los Angeles area. City staff has indicated a preference for natural shading (i.e., trees) wherever practical. Third, transit riders have related the importance of having some form of seating at bus stops. Several Beeline routes operate on 30-minute frequency, translating to potential wait-time for the next bus. Glendale often experiences hot summers further underscoring the importance of adequate seating and shading. Lastly, similar to other American communities, Glendale has experienced an appreciable "aging in place" trend which further confirms the importance of the proposed amenities.

Seating

1. <https://simmeseat.com/>
 - a. Six available styles:
 - i. Standard Simme-Seat (with pole) SS1



- ii. Standard Simme-Seat (with divider) SS1



- iii. Single Simme-Seat (with pole) SS2



iv. Single Simme-Seat (with divider) SS2



v. Off-set Base Simme-Seat (with pole) SS3



vi. Off-Set Base Simme-Seat (with divider) SS3



- b. The manufacturer describes Simme-Seats as virtually indestructible, easy to install, and maintenance-free.
 - c. The Simme-Seat is manufactured with plate steel, then sandblasted and powder coated with a durable paint. The perforated seats minimize graffiti and allow moisture run-off.
 - d. The seats can be customized to fit specific needs through a variety of configurations and colors. Simme-Seats can be ordered with or without the poles and/or dividers and are available in over 150 colors.
 - e. Simme-Seats are rated to hold up to 500 lbs. per seat and withstand winds up to 162 miles per hour.
 - f. Pricing: Standard pricing on all options is \$700 for the base only. To add on a pole or divider is an additional \$190. Price discounts are available depending on the quantity ordered (with the first price break at 24 units).
2. Belson Outdoors - located in the US
 - a. <https://www.belson.com/Oakley-Collection-Outdoor-Benches>
 - b. Benches are constructed of durable 1/8" x 2" slatted steel that is graffiti-resistant and deters vandalism. Flat bar steel is smooth and sturdy providing a comfortable seating option.
 - c. **M4-BCH:** 4' length (48" x 34" x 24") - \$1,118.00
 - d. **M5-BCH:** 5' length (60" x 34" x 24") - \$1,217.00
 - e. **M6-BCH:** 6' length (72" x 34" x 24") - \$1,283.00
 - f. **M6-BCH-ARM:** 6' length with center arm (72" x 34" x 24") - \$1,381.00
 - g. Benches are made to order and require a 4- to 6-week lead time.
 - h. Benches are available in green, brown, black, textured black, and silver.
 - i. All benches include predrilled tabs on legs and an anchoring kit.



Model M6-BCH-ARM
with Center Arm



3. OCC outdoors – located in the US
 - a. <https://www.occoutdoors.com/8-foot-backless-bus-stop-bench-with-arm-rest.html>
 - b. This 8-foot-long bench is made from heavy-duty steel slats with curved arms. It features a zinc advantage super TGIC powder coated finish. Sturdy 1/8" thick by 2" wide galvanized slats are securely welded to one-inch schedule 40 pipe at the top and bottom of the seat. Arms and legs are constructed on 1-1/4" x 14-gauge square steel tubing.
 - c. **BLBen-V-AR-8:** height 17" x width 16" x length 8' - \$1,620.00
 - d. The bench is available in black, bronze, green, blue, silver grey, burgundy.
 - e. All benches arrive fully assembled and include pre-drilled mounting holes in the feet and anchoring hardware.



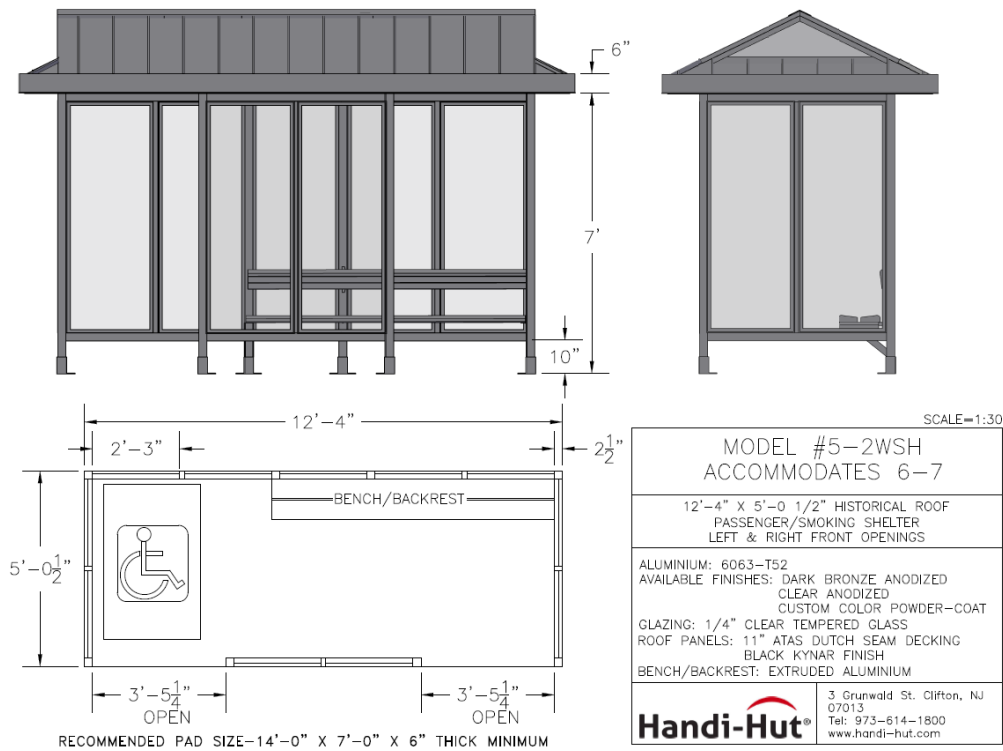
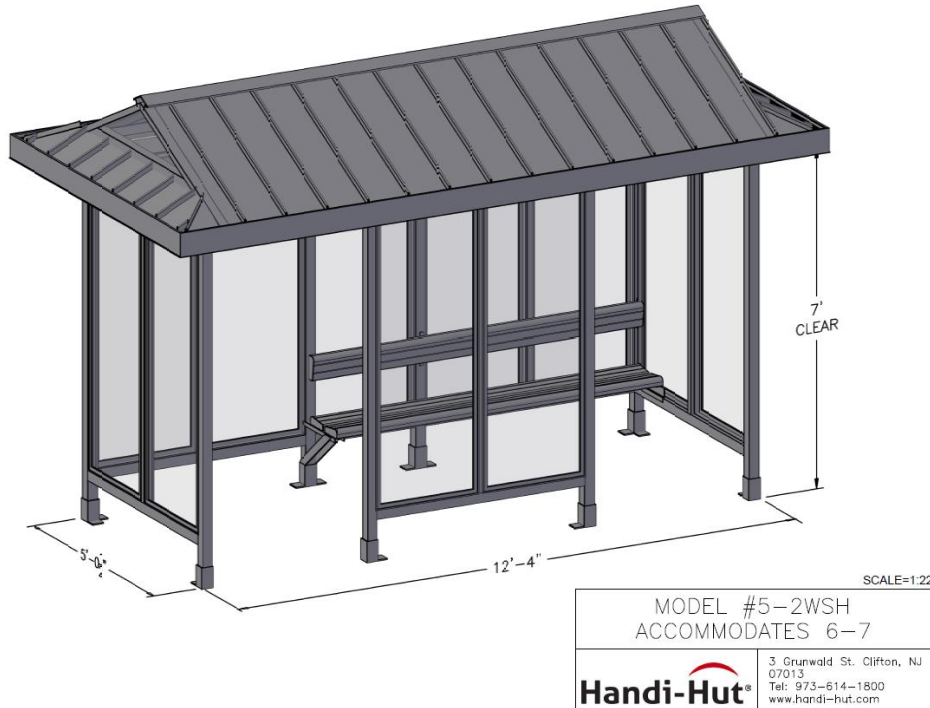
4. Pilot Rock – located in the US
- a. <https://www.pilotrock.com/series/benches/sign-bench-b400-series-contour-seat-your-custom-sign-is-the-backrest/>
 - b. Sign Bench - B400 Series Contour Seat; custom sign is the backrest.
 - c. Series B400 Sign Benches can be 4, 6 or 8 feet long.
 - d. Frame legs are 2-3/8" OD steel pipe. Powder coat frame finish available in tan, blue, black, red, brown, yellow, green, gray, and burgundy.
 - e. Model B400 is portable/surface mounted (anchor bolts are not included and requires use of the Model ANC3-4 Anchor Kit). Model B401 has embedded frame posts for a permanent installation.



Shade Structures/Shelters

1. Handi-Hut- Located in the US
 - a. 5 series: <https://www.handi-hut.com/products/transit-shelters/5-series/>
 - i. 5-2: 12'4"x5', fits 6-7 individuals, no windscreen
 - ii. 5-2WS: 12'4"x5', fits 6-7 individuals, has a windscreen
 - iii. 5-2SL: 12'4"x4', fits 6-7 individuals, no windscreen
 - b. Price: \$15,870 per unit (as of April 2024) Note: includes freight cost.
 - c. Available roof styles include Dome, Flat, Barrel, Sloped, Poly Hip, Poly Gable, Standing Seam Hip, Standing Seam Gable, and Historical
 - d. Aluminum Finishes
 - i. Clear Anodized
 - ii. Dark Bronze Anodized
 - e. Roof materials and colors:
 - i. 1/4" Twin Wall Polycarbonate (Barrel, Poly Gable, Poly Hip & Sloped)
 1. Clear; White; or Bronze Tinted
 - ii. Standing Seam Aluminum Decking (Standing Seam Hip, Standing Seam Gable and Historical)
 1. Black or Dove Gray
 - iii. Endurex 300 (Flat)
 1. Black or Silver
 - iv. 1/4" Translucent Acrylic (Dome)
 1. White or Bronze Tinted



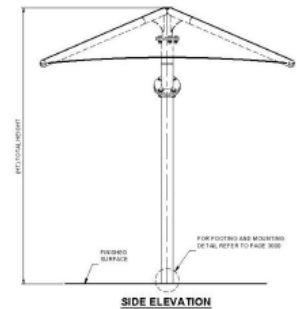
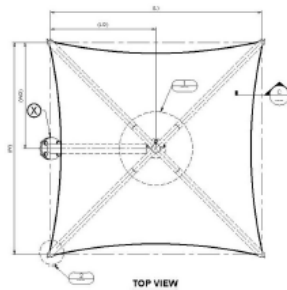
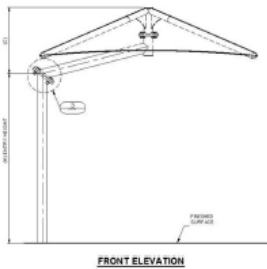


2. Brasco – located in the US
 - a. <https://www.brasco.com/products/bus-stop-shelters/eclipse/arched-2/>
 - b. 5-foot or 7-foot depth
 - c. Length: 8', 10', 12', 16', 20'
 - d. Solar lighting, advertising box, and display case available as add-ons.
 - e. Price: (as of April 2024)
 - i. \$17,750: 5' x 12' Eclipse Series Aluminum Structure; Three-Sided; Full Rear and Side Walls with an Open Front; Solar Lighting Package with Flexible Solar Panel, Batteries, Solar Controller, Vented Enclosure, and 6-Watt LED Light; Solar Powered Dual Slot USB Port Integrated into Column of Structure; bench additional \$800.
 - ii. \$16,600: 5' x 10' Eclipse Series Aluminum Structure; Three-Sided; Full Rear and Side Walls with an Open Front; Solar Lighting Package with Flexible Solar Panel, Batteries, Solar Controller, Vented Enclosure, and 6-Watt LED Light; Solar Powered Dual Slot USB Port Integrated into Column of Structure; bench additional \$800.
 - f. The Eclipse Series includes an arch or flat roof and features pocketed columns and a header to conceal hardware and provide structural integrity. It is available in either cantilevered or full-sided walls in a variety of wall glazing, all of which can be tailored with custom branding elements. Standard elements include powder coat painted finish and aluminum, acrylic, or structured polycarbonate roof glazing. All shelters are engineered to meet local wind, snow & seismic load requirements.
 - g. Powder-coat finish: 30 colors available.



3. USA-Shade – Located in the US

- <https://www.usa-shade.com/products/arbor>
- A single-post pyramid cantilever structure in sizes ranging from 8' x 8' to 20' x 20'.
- Provides shade without column obstructions.
- Color options: <https://www.usa-shade.com/resources/colors>
- Price: \$7,846.65 (as of April 2024): Single Post Pyramid Cantilever 10' x 10' x 8'.



GENERAL NOTES

DESIGN LOADS

BUILDING CODE	CALIFORNIA BUILDING CODE 2022 (BASED ON IBC 2021)
LIVE LOADS	5 PSF
SNOW LOAD	5 PSF
WIND LOADS	115 MPH 3-Sec. Gust, RISK CATEGORY II & EXPOSURE C

*115 MPH ACCORDING TO THE BASIC WIND SPEED MAPS OF ASCE 7-16 IS EQUIVALENT TO THE ALLOWABLE STRESS DESIGN WIND SPEED OF 90 MPH ACCORDING TO ASCE 7-05 AND IBC 2021 EQ 16-17.

ESTIMATED STEEL WEIGHT

Total Structure Weight	530.52 lbs
Single Column Weight	141.6 lbs
Total Upper Frame Weight	488.9 lbs
Steel Sizes	HSS Ø5.00 SCH 40 (5.563 x 0.258)

TABLE OF DIMENSIONS

W	L	H	C	HT	CL	RL
10' 0"	10' 0"	8' 0"	3' 1"	11' 1"	0' 0"	6' 4"

REINFORCED CONCRETE NOTES

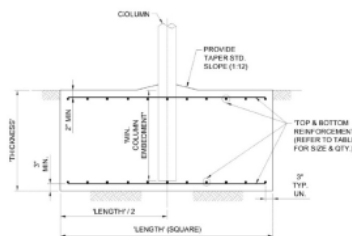
1. CONCRETE WORK SHALL BE EXECUTED IN ACCORDANCE WITH THE LATEST EDITION OF THE AMERICAN CONCRETE INSTITUTE SPECIFICATION FOR STRUCTURAL CONCRETE ACI 301 AND BUILDING CODE ACI 318. CONCRETE SPECIFICATIONS SHALL BE AS FOLLOWS:
 - * 28 DAY STRENGTH: 2500 PSI
 - * SLUMP: 3-5
 - * PORTLAND CEMENT SHALL CONFORM TO C-150
 - * AGGREGATE SHALL CONFORM TO ASTM C-33
2. ALL REINFORCEMENT STEEL SHALL CONFORM TO ASTM A-615 GRADE 60, AND SHALL BE DETAIL FABRICATED AND PLACED IN ACCORDANCE WITH THE LATEST ACI SPECIFICATION FOR STRUCTURAL CONCRETE ACI 301, ACI DETAILING MANUAL AND CRSI MANUAL OF STANDARD PRACTICE.
3. ALL ANCHOR BOLTS SET IN NEW CONCRETE (WHEN APPLICABLE) SHALL COMPLY WITH ASTM A-307, GRADE 35 (GALVANIZED).
4. ALL NON-SHRINK GROUT SHALL HAVE A MINIMUM 28 DAYS COMPRESSIVE STRENGTH OF 5000 PSI, AND SHALL COMPLY THE REQUIREMENTS OF ASTM C139, ASTM C939, ASTM C1090 ASTM C1107, WHEN APPLICABLE.
5. SOIL PARAMETERS FOR FOOTING ANALYSIS, TABLE 1806.2, CLASS = 5 - (1500/PSF)
6. FOR SPREAD FOOTING, EDGE OF COLUMN OR ANCHOR BOLTS MUST BE SET AT LEAST 12" FROM THE EDGE OF SPREAD FOOTING EDGE.
7. FOR DRILLED PIER, THE EDGE OF COLUMN MUST BE SET AT LEAST 3/4" FROM REBAR WITHIN DRILLED PIER.
8. SPREAD FOOTING ALLOWED TO BE ROTATED AS REQUIRED.

DIAMETER	DEPTH	VERTICAL REBAR		TIES		MIN. COLUMN EMBEDMENT (EMBED)	MIN. ANCHOR EMBEDMENT (REBAR & SURFACE)
(FT)	(FT)	QTY.	SIZE	QTY.	Ø LOOP (FT)	SIZE (IN)	(IN)
2.00	6.00	6.00	#8	11	1.50	#4	36
							19

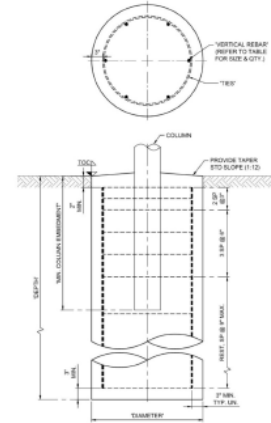
TABLE FOR SPREAD FOOTING								
LENGTH	THICKNESS	TOP AND BOTTOM REINFORCEMENT				MIN. COLUMN EMBEDMENT (EMBED)	MIN. ANCHOR EMBEDMENT (REOS. & SURFACE)	
(FT)	(FT)	QTY.	SIZE	SPACING (IN)		(IN)	(IN)	
5.00	3.00	7	#5	Q	9.00	O.G.E.W.	33	19

**NOT FOR
CONSTRUCTION
OR PERMITS**

NOTE: ADDITIONAL
INSTALLATION COSTS
FOR SPREAD FOOTING



SPREAD FOOTING TYPE
EMBEDDED
SCHEMATIC VIEW ONLY
REFER TO TABLE FOR VARIABLE DIMENSIONS



DRILLED PIER FOOTING TYPE
EMBEDDED
SCHEMATIC VIEW ONLY
REFER TO TABLE FOR VARIABLE DIMENSIONS & QTY



4. Shade Blade – Located in the US
 - a. http://www.outfrontjcdecaux.com/sunshade_blade/index.html
 - b. The ShadeBlade is a vertical shade structure that rotates and easily tracks the movement of the sun throughout the day. Its primary purpose is to create maximum useful shade for transit riders waiting at their bus stops. It provides an efficient and scalable solution for a systemwide rollout. It brings shade equity closer to reality. With its opaque design and smooth rotation system, it effectively blocks out direct sunlight and creates shade exactly where the passengers need it. The ShadeBlade can accommodate dozens of transit riders at a bus stop throughout the day. It works well alone and in conjunction with a traditional bus shelter and the built environment.
 - c. H ~9ft x W ~2ft
 - d. Ex. LADOT “La Sombrita.” Cost estimated from the article is \$10,000 each.
<https://www.bloomberg.com/news/articles/2023-05-25/the-most-hated-bus-stop-on-the-internet-doesn-t-deserve-your-scorn>



Trees

Well-chosen, strategically planted trees can provide much-needed shade from the blazing California sun. Based on discussions with the City's Arborist, a unit cost of \$1,000 for purchase and installation of a single tree should be considered for budgeting.

Shown below are examples of trees believed to be appropriate for the Glendale environment which would provide the desired shade at individual bus stops.

- Brazilian Pepper Tree



- Jacaranda Tree



- Camphor Tree



- Texas Umbrella Tree



- Magnolia Tree



- Podocarpus Tree



- Mexican Sycamore Tree



- Fern Pine Tree



- Carrot Wood Tree



- Monterrey Oak Tree



Mobile Phone Charging Stations

1. Brasco – located in the US
 - a. <https://www.brasco.com/products/solar-powered-solutions/solar-usb-port/>
 - b. Pricing and sizing details provided upon quote



2. Kwikboost – located in the US
 - a. <https://kwikboost.com/shop/standard-floor-stand-mobile-charging-station/>
 - b. The manufacturer's flagship product is the Standard Floor Stand charging station, which is designed for high traffic environments. It charges eight devices simultaneously, all at full speed. With the addition of wireless charging ledge, it can charge 10 devices simultaneously. It includes a lifetime warranty and a one-year service plan.
 - c. 5V, 2.4A per port
 - d. Cable configuration: 3 Apple Lightning, 3 USB Type-C, 2 Micro
 - e. Unit dimensions: 18" x 48" x 15"; unit weight: 30 lbs.
 - f. Certified: MFi, USB, FCC
 - g. Pricing: \$499



Ticket Vending Machines/Mobile Ticketing

1. Olea Kiosks – located in the US
 - a. <https://www.olea.com/product/geneva-indoor-and-outdoor/>
 - b. Geneva Indoor and Outdoor
 - i. The Geneva Kiosk can be used both indoor and outdoor. It includes a flexible component cavity to accommodate the necessary technology and a 27" monitor.
 1. Payment devices can be positioned below the monitor or as side components.
 2. The component cavity can hold both a ticket printer and a receipt printer.
 3. The kiosk is serviced from the front to allow for easy maintenance and paper changes.
 - c. Price available upon request



2. LA Metro's Tap-to-Go
 - a. https://www.taptogo.net/articles/en_US/Website_content/TAP-App
 - b. TAP offers a small handheld fare loading device. It is operated by the vendor or location.
 - c. TAP App
 - i. Use a smartphone for contactless fare payment.
 - ii. Buy fare for 26 TAP transit systems (including BBB).
 - iii. Manage TAP account including Reduced Fare cards and LIFE discounts.
 - iv. Plan a trip.
 - v. View real-time bus and train arrivals.
 - vi. Available on the App Store and Google Play

3. Cubic – located in the US
 - a. <https://www.cubic.com/solutions/transportation/fare-collection-revenue-management#paragraph-tab-671-4>
 - b. UMO pass (mobile ticketing)
 - i. A fully-integrated electronic fare collection solution provided as a service that is purpose-built for online, real-time fare payment processing. Umo Pass offers online and mobile transit account management and fare product purchasing, as well as fare payment using a variety of fare media.
 - ii. Umo Pass collects and analyzes traveler boarding data and performs secure, real-time fare processing. It provides a rapid configuration of user interfaces and agency fare policy without the need for any new software development.
 - iii. The Umo Pass system is easy to set-up, scalable and versatile.

WiFi

1. SOOFA Digital
 - a. <https://soofadigital.com/research>
 - b. LA County has smart benches designed by SOOFA. According to Soofa's website, LA is one of the early adopters of this smart bench technology. (Soofa benches have been installed in Boston, Miami, and Berlin as well.) Its benches include mobile charging spots, real-time bus info and wifi.
 - c. Outfront/JCDecaux is in charge of designing the shelters.
<http://www.outfrontjcdecaux.com/>
2. Transit Wireless (BAI Communications) – located in the US
 - a. <https://transitwireless.com/our-services/transit-communications/>
 - b. Offers public wifi, private networks, and dedicated fiber for transit
 - c. Used by New York City Transit (NYCT)



Section 5 | Bus stop improvement recommendations

The purpose of this chapter is to provide a slate of recommended Glendale Beeline bus stop improvements on an individual bus stop (or location) basis.

The criteria for making these recommendations include 1) recent in-person assessment of each stop by project staff including having sufficient space to accommodate the proposed improvement; 2) field observations regarding recent boarding and alighting activity at individual bus stops; 3) discussions with City transit staff; 4) sensitivities as to property ownership, right-of-way, and potential impact on residences and commercial establishments within close proximity of the individual bus stop, and 5) anticipated benefit to transit customers.

The improvement and/or enhancement recommendations presented herein are divided into two broad categories. First, bus stop repairs as well as maintenance. Generally speaking, such activities are relatively low-cost and likely able to be completed in a relatively short period of time. Second, enhancements to bus stops. Locations identified for potential enhancement will require 1) purchase of appropriate amenities (e.g., bench, shelter, shade structure, etc.); 2) some engineering work to confirm site ownership, compliance with City codes, and confirm availability of the site to accommodate the proposed improvements; 3) availability of the desired amenities from the respective manufacturer/supplier; and 4) availability of sufficient funding.

At the time of this report's preparation, the Beeline service network included 339 unique bus stops. Most of these are "Beeline only" bus stops, with a small amount being shared stops with LA Metro. Generally speaking, bus stops within Glendale city limits are controlled by the City, while shared stops may be subject to multi-jurisdictional control considerations.

Of the 339 Beeline bus stops included within this Plan, all but one features appropriate/current Glendale Beeline bus stop signage. Some form of seating – concrete benches or metal benches – are present at all but 59 bus stops. Nearly one-third of current Beeline bus stops include a shelter.

As a matter of policy, every Beeline bus stop should include a metal pole capable of displaying Glendale Beeline bus stop signage. Further, every Beeline bus stop within Glendale city limits should feature appropriate red curbing. Installation and maintenance of red curbing at Beeline bus stops outside Glendale city limits would likely require securing appropriate permission/clearance from the host jurisdiction. For example, the unincorporated community of La Crescenta which lies within Los Angeles County.

The list of activities included within the "Repair and Maintenance" category include installation of bus stop signage; general clean-up; repair to sidewalk/concrete/pedestrian pad; installation of red "curbing"; and tree trimming. The second category (enhancements to bus stops) covers possible installation of



seating/benches, shelters, shade structure or trees, and other amenities intended to enhance the transit customer experience.

Phase 1: Near term repairs and maintenance

1. Add Beeline signage:

Stop ID 344, COLORADO at LOUISE

2. General clean up:

Stop ID 434, SAN FERNANDO AT MILFORD

3. Red curbing:

Stop ID 212, GLENDALE AT MONTEREY: no red curbing.

Stop ID 219, HONOLULU AT OCEAN VIEW: faded yellow curbing.

Stop ID 443, GLENDALE AT CALIFORNIA: no red curbing:

4. Conduct tree trimming:

Stop ID 131, CENTRAL AT LAUREL

Stop ID 121, CENTRAL AT LOS FELIZ

Stop ID 218, HONOLULU AT MARKET

Stop ID 229, LA CRESCENTA AT PIEDMONT

Stop ID 225, LA CRESCENTA AT MARY

Stop ID 183, FOOTHILL AT CROWN

Stop ID 397, VICTORY AT WESTERN

Stop ID 381, SAN FERNANDO AT ALLEN

Stop ID 457, GLENDALE AT SAN FERNANDO

Stop ID 468, GLENDALE AT LOS FELIZ

5. Repair sidewalk/concrete/or pedestrian pad:

Stop ID 121, CENTRAL AT LOS FELIZ

Stop ID 120, CENTRAL AT LOMITA

Stop ID 151, CENTRAL AT LOS FELIZ

Stop ID 210, GLENDALE AT LEXINGTON

Stop ID 220, HONOLULU AT ORANGEDALE

Stop ID 225, LA CRESCENTA AT MARY

Stop ID 184, FOOTHILL AT GOULD

Stop ID 259, FOOTHILL AT RINETTI

Stop ID 179, FOOTHILL AT COMMONWEALTH

Stop ID 278, BROADWAY AT CEDAR

Stop ID 302, CHEVY CHASE AT BROADWAY

Stop ID 338, COLORADO AT EVERTT



Stop ID 434, SAN FERNANDO AT MILFORD
Stop ID 459, SAN FERNANDO AT BRAND

Phase 2: Bus stop enhancements

In preparing the bus stop inventory and recommendations matrix, Moore & Associates evaluated each of the 339 unique bus stops in the Beeline system.

The matrix includes recommendations regarding shelters, benches, shade trees, and red curbing; including pricing estimates for these amenities where appropriate. Although not explicitly detailed in the bus stop matrix, we recommend installation of real-time information displays along Route 1. This route was selected given its historically higher ridership.

The matrix includes location-specific notes regarding proposed improvements. At locations where no improvement is recommended, the matrix includes the consultant's rationale (i.e., the presence of existing amenities, space limitations, concerns regarding property ownership, potential street view blockage, etc.).

With respect to bus shelters, Beeline bus stops currently feature a variety of shelter makes and models. In addition to "standard" transit shelters, there are three different custom-designed shelters along the Beeline route network. One example is frequently found at bus stops in the northern portion of the service area in Montrose and La Canada Flintridge. The other two are custom-designed concrete shelters chiefly found in the western portion of the service area along San Fernando and Glenoaks (Routes 7 and 12).

Balancing visual conformity, planning and placement, and infrastructure maintenance, the bus stop matrix includes recommendations for two types of "standard" bus shelters: 10 ft x 6 ft and 12 ft x 5 ft. Depending on space availability, historic bus stop activity, and existing amenities, the matrix includes recommendations as to shelter size and if the shelter should be installed with a new bench or over existing seating.

It is anticipated installation of the proposed bus stop improvements will require multiple years to complete. As such, the matrix includes cost estimates for the initial group (Phase I) improvement options.

Based on discussion with City staff, the consultant believes such enhancements can be accomplished using existing capital budget funding. That said, the cost estimates do not include any City staff time which may be required to address the recommendations (e.g., engineering, site preparation, permitting, etc.).