

Memorandum

Date: October 5, 2011
To: Historic Review Board
From: Sara Javoronok
Subject: Bus Shelter in the Willamette Historic District

Background

The Historic Review Board reviewed a request by the City of West Linn's Public Works Department for a Bus shelter in the right-of-way at 1683 Willamette Falls Drive in front of the Willamette United Methodist Church on August 16, 2011. The Historic Review Board expressed concern with the appropriateness of the proposed shelter for the Willamette Historic District, recommended that the applicant incorporate additional features (ex. brackets, shingles, and filigree), and continued the project to the September 20, 2011 meeting.

Prior to this meeting, the Public Works Department withdrew their application citing budgetary constraints. The City is currently looking for feedback from the Historic Review Board on what characteristics it would like to see in a bus shelter in the Willamette Historic District. To assist in this discussion, staff is attaching or linking to information on the process for choosing the City's current bus shelters, bus shelters in historic districts, examples of existing bus shelters, and general guidelines for bus stops.

Discussion

Bus shelter placement

Due to low ridership numbers, TriMet has not placed many shelters in the City. To accommodate passengers, the City purchased three bus shelters in 2010. Attached are two memos describing some of the options that City Staff, the Transportation Advisory Board (TAB) and the City Council considered. Also attached are minutes from two TAB meetings where they discussed the proposed shelters.

The City chose a custom Brasco design for its shelters and various Brasco designed shelters are attached. Bus shelters are generally custom designed, but the various shelter images can provide an idea of other products and alternatives.

There are also additional guidelines for bus stops and shelters from TriMet. For example, an ADA landing pad must have a clear, level landing area of 5' x 8'. Stops should also have 7' of clearance for the height of the shelter. Additional information on these is available in TriMet's Bus Stops Guidelines at <http://trimet.org/pdfs/publications/bus-stop-guidelines.pdf>.

Other discussions on bus shelters and historic districts

Staff also searched for "bus shelters" on the National Trust for Historic Preservation's Forum-L Archive of its e-mail listserv and the past 10 months of the National Association of Preservation

Commission's NAPC-L listserv. The relevant messages are attached. Staff also searched the web for "historic district bus shelters" and a few examples are attached.

Some of the messages were from individuals or staff members looking for appropriate bus shelters for historic districts. The types of historic districts that these applied to varied from central business districts to residential neighborhoods. The architectural styles in these districts also varied from colonial residences to more modern neighborhoods. Some expressed a desire for the bus shelters to have a modern and simple appearance that would blend with the neighborhood while others sought a more historic appearance.

Other alternatives for incorporating historic elements

One alternative for the City to consider is custom etched glass. The City could have a custom etching pattern created for approximately \$1,000. Etching of the panels would cost approximately \$300. The pattern could be used on additional shelters. A TriMet page is attached describing how this has decreased vandalism.

Another alternative is for the shelter to include interpretive panels that discussed the historic district, the establishment of West Linn, or another related topic. These could be funded through a Certified Local Government (CLG) grant.

Recommendation

Staff is seeking direction from the Historic Review Board on the appearance of and design features on bus shelters in the Willamette Historic District. This information will aid the Public Works Department in submitting appropriate shelters for your consideration.

Memorandum

Date: August 11, 2009

To: Chris Jordan, City Manager

From: Chris Kerr, Acting Planning Director

Subject: Bus Shelters

Enhancing the appeal of the City's transit service has the ability to attract and increase ridership, mitigate roadway congestion, combat deteriorating air and water quality, reduce expenditures on roadway infrastructure and address a host of social, economic and environmental factors associated with failing to establish comprehensive transportation policy.

This memo is intended to provide a discussion of the process for constructing three new transit shelters in West Linn. It includes a list of recommended locations, construction and maintenance costs as well as a discussion of the City's and ODOT's permitting requirements.

TriMet's service to West Linn

West Linn is served by two bus routes operated by the Tri-County Metropolitan Transportation District of Oregon (TriMet); route 35 – Macadam/Greeley and route 154 – Willamette.

Route 35 originates at the TriMet transit center in Oregon City and serves communities on the west bank of the Willamette River. From West Linn, route 35 runs to downtown Portland where it crosses to the east bank of the Willamette River and continues north to the University of Portland. While it is not considered one of TriMet's frequent service routes, 35 operates with 13 minute headways between 6 and 8:30 a.m. on its inbound runs (Greely), and with 18 minute headways between 4 and 6 p.m. on its outbound runs (Macadam). The uni-directional frequency of this service during the peak hours suggests its function as a commuter service.

Route 154 is a shuttle route that originates at the Oregon City Transit Center and serves the area of south West Linn and Tualatin via Willamette Falls Dr., Ostman Rd. and Blankenship Rd. Route 154 runs on approximately one-hour headways between 6 a.m. and 6 p.m.

According to the 2008 TriMet Passenger Census for bus stops within the City of West Linn, there are three stops that receive an average of 20 or more boardings during the typical weekday, these stops are listed below in order of ridership:

Table 1 Boarding counts at most frequently boarded bus stops within the City of West Linn

Stop ID	Intersection	Daily Boardings (avg. weekday)
6309	Cedar Oak Dr. at Willamette Dr.	83
6306	Willamette Dr. at Burns St.	26
6340	Willamette Dr. at Willamette Falls Dr.	23

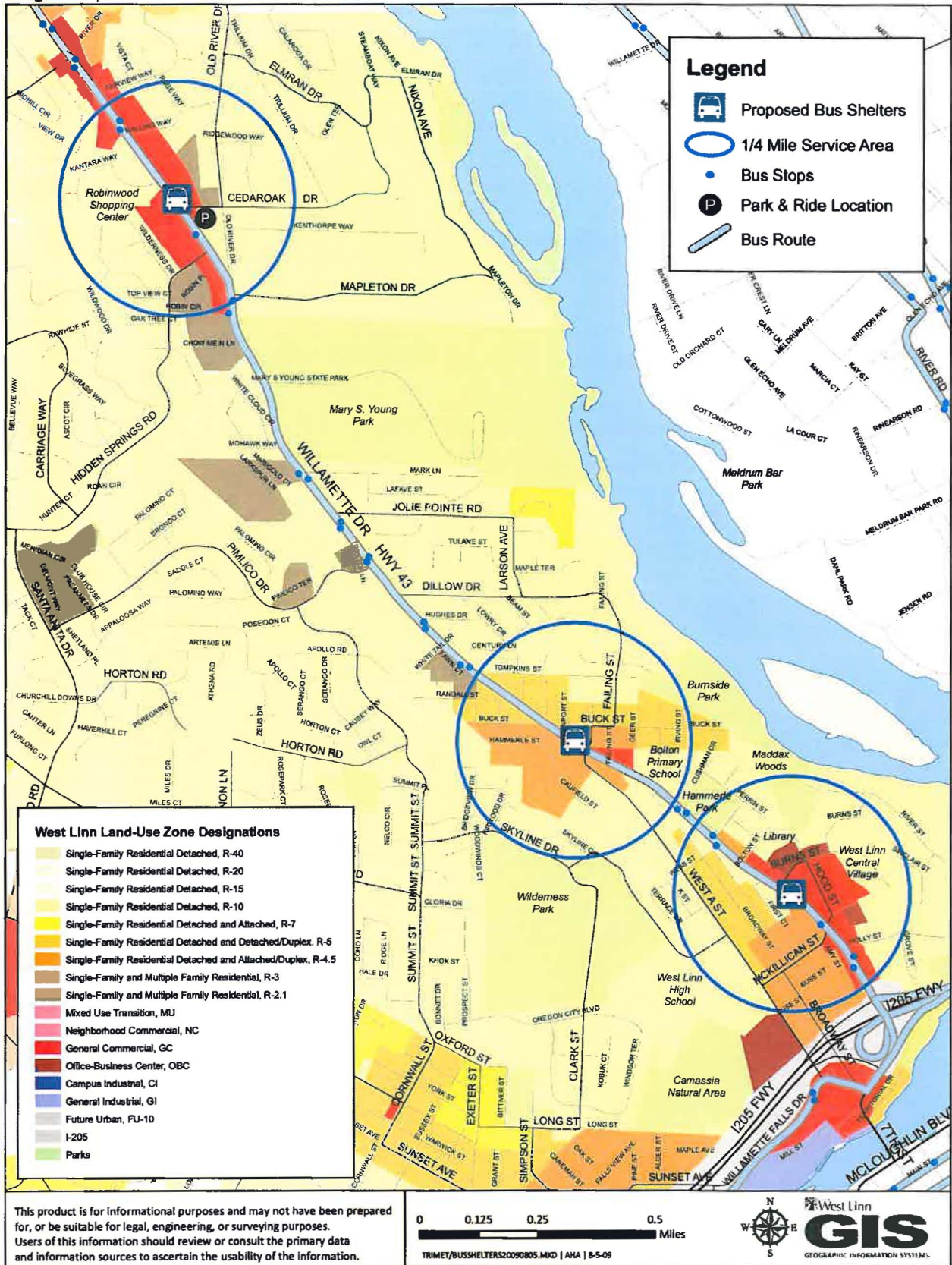
Source: Fall 2008 TriMet Passenger Census (2009)

Of the 52 bus stops within the City of West Linn, only 1 is sheltered. This shelter exists at the intersection of Willamette Dr. and Holly St. and receives the fourth greatest weekday boardings (18) of all bus stops in West Linn. The Holly St. stop has been adopted by the Bolton Neighborhood Association (through TriMet’s Adopt-a-Stop Program) who donates cleanup and maintenance at the site.

I. Recommended Shelter Locations

Staff used average daily boardings from the Fall 2008 passenger census at existing TriMet stops within the City of West Linn as the method for identifying recommended shelter locations in this memo. This method is consistent with TriMet’s method for identifying suitable shelter sites and allows the City to impart the greatest impact with the limited financial resources available. Staff made one slight departure from this method for identifying the third shelter site; because work on the OR 43 Arch Bridge has closed the City’s third most frequented bus stop, a temporary third site is presented. The memo discusses both the closed site and the temporary site to facilitate decision-making, however, the intent is to suggest placing a third shelter at the temporary site and then re-locating the shelter to the Willamette Dr./Willamette Falls Dr. (6340) stop when it is reopened.

Image 1 Proposed Shelter Sites



Because of the relatively low rate of bus ridership within West Linn, most stops do not meet TriMet warrants for placing bus shelters¹. Although TriMet funding is not available for amenities at these sites, the City of West Linn has realized a need for a local commitment and has identified funds in the FY 2009 budget that can be used to implement this project. The sustainability funding item in this budget has been specifically provided to encourage projects that contribute to the long-term viability of the City; such as enhancing the appeal and effectiveness of the City's transit system.

Image 2 looking northbound from the Cedar Oak/Willamette Dr. stop (6309)



Based upon ridership counts from TriMet's Fall 2008 Census, the recommended shelter sites are, 1) the inbound stop of route 35 at the intersection of Cedar Oak Dr. and Willamette Dr. (6309); 2) at the inbound stop of route 35 at the Central Village Shopping Center (6306), and 3) at the intersection of Willamette Dr. and Elliot St. (6312). The location of the proposed shelters is shown in Image 1 on the previous page.

Image 3 looking northbound from the Burns St. Stop (6306)



Stop 6309, at the intersection of Cedar Oak and Willamette Drive, receives the greatest number of boardings (83) during the average weekday. This stop is served by the inbound run of TriMet's route 35, and is the principal boarding

¹ Generally, daily boarding totals in excess of 50 are preferred for the placement of shelters, however, TriMet considers the following additional criteria when ridership figures do not support shelter installation: Infrequent service – minimum of 30 daily boardings on routes where peak headways are greater than 15 minutes; Lift usage – minimum of 15 weekday boardings and 4% lift usage; Proximity to senior housing and a minimum of 20 daily boardings; Shelters funded and maintained by others; Development of large new activity centers adjacent to transit stop where ridership is projected to meet criteria; Consolidated bus stops – combined ridership totals increase likelihood of shelter placement (Bus Stop Guidelines 2002 TriMet).

location for the West Linn Park and Ride. This stop is currently void of any transit amenities and occupies a fairly obstructed sidewalk on the east side of Willamette Dr. between Cedar Oak Dr. and the driveway to Kasch’s Garden Center.

The lack of a shelter at the Cedar Oak/Willamette Dr. park and ride stop is due in large part to the limited right-of-way available at this site. TriMet attempted to negotiate an agreement with the adjacent land owner approximately 10 years ago to locate a shelter at this site; however, concerns over liability prompted the owner to decline TriMet’s offer.

Image 4 looking south from the Elliot St. stop (6312)



Stop **6306**, just south of the intersection of Willamette Dr. and Burns St. serves patrons traveling northbound on TriMet’s route 35 from the area adjacent the Central Village Shopping Center. This is the second most frequently boarded stop (26 boardings) within the City of West Linn during the average weekday. The site is outfitted with an ADA compliant TriMet pad and deluxe bench seat.

Table 1 shows that during the average Fall weekday in 2008, 23 passengers boarded at the Willamette Falls/Willamette Dr. stop (**6340**), making it the third most frequently boarded site within the City. However, due to weight restrictions placed on the West Linn/Oregon City Bridge, TriMet removed this stop and shelter in February with plans to replace it following bridge rehabilitation. City Planning Staff consulted with TriMet to identify a suitable location for a third shelter at a site with adequate ridership, sufficient sidewalk clearance and that would require minimal cost to develop.

The stop at Willamette Dr. and Elliot St. (**6312**) most appropriately fit these criteria. This stop has an average of 16 weekday boardings, is adjacent to a variety of transit supportive land uses, has sufficient sidewalk space and provides excellent pedestrian connectivity; the site also has a pre-existing bus pullout lane.

Image 5 Willamette Dr/Cedar Oak Dr; looking north, south, and site of previous stop (south of intersection) respectively



Willamette Dr. and Cedar Oak Dr. (6309)

The stop at Willamette Dr. and Cedar Oak Dr. (shown in Image 5 above) serves inbound trips of route 35 at the West Linn Park and Ride and receives nearly one-quarter (22 percent) of all TriMet boardings within the City of West Linn. This stop receives almost twice as many boardings during the average weekday than the next two most frequently boarded stops combined.

In addition to the West Linn Park and Ride at the Columbia Learning Academy, this stop receives transit patrons from the commercial and residential uses nearby. The Robinwood Shopping Center, the 7-11 convenience strip, and the residential neighborhoods immediately east and west, all contribute to the ridership at this site.

The topography of the site and adjacent right-of-way is mostly flat with increasing slopes east and west of Willamette Dr. (State Hwy 43). There are no areas of critical habitat, wetlands or easements within or near the proposed site.

Of significant concern is the limited right-of-way available at the stop. The relatively narrow and somewhat obstructed sidewalks and the availability of approximately only 2 feet of additional right-of-way outside of the sidewalk will more than likely mandate some form of easement agreement with West Linn Plaza, LLC (the land owner immediately adjacent the site) to secure the space necessary for a bus shelter. Recent correspondence with TriMet planners reveal that similar negotiations were pursued approximately 10 years ago, however, due to concerns of liability, the landowner declined TriMet's offer.

If private property negotiations were successful today, the site would require a new ADA pad behind or partially behind the existing sidewalk. To complicate matters, the layout of the existing site landscaping, signage and utilities leaves limited placement opportunities for a bus shelter; specifically problematic is the potential that a new shelter would have in obstructing clear view of the freestanding 7-11 and Señor Taco signs that are placed in the landscape area. Because this site meets TriMet warrants, TriMet has stated that if the City is able to successfully negotiate with the property owner to place a shelter at this site, TriMet would be willing to cover the cost of construction and maintenance for this shelter.

Because of concerns associated with the future level of service at the Cedar Oak and Willamette Dr. intersection² Staff examined the feasibility of multiple locations for this shelter; including, relocating the

² Technical Memorandum #1, of the OR 43 Concept Plan reveals concern over the future level of service (LOS) at this intersection and makes recommendations to reconfigure it as a 4-legged intersection with the driveway to the Robinwood Shopping Center as the east leg.

shelter to an existing TriMet pad south of the intersection. Consultation with TriMet planners revealed that while the old high-floor buses were able to deploy their ADA lift to grade, the newer low-floor buses require at least a short curb on which to deploy their ADA ramps. Relocating the stop to the old pad would require extending the existing curb and sidewalk approximately 30 feet south and essentially reconstructing the pad. While a stop at this site would eliminate the need for park and ride users to cross Cedar Oak Dr. to access the stop, TriMet tries to avoid stopping on the near side of signalized intersections because of the added delay to the service and to the intersection.

Staff recommends pursuing an agreement with West Linn Plaza, LLC to place a shelter near the northeast corner of the intersection. Careful shelter placement and design and new landscaping should mitigate any issues of blocked signage.

Image 6 Willamette Dr/Burns St – Central Village; looking north, existing bench and pad and looking south respectively



Willamette Dr. and Burns St. – Central Village Shopping Center (6306)

TriMet’s inbound stop at the Central Village Shopping Center (shown in image 6 above) receives 7 percent (26) of the daily boardings of all stops within West Linn. The Central Village Shopping Center, the West Linn Public Library, West Linn High School and the residential neighborhoods to the east and west all are likely contributors to ridership at this site.

This is perhaps the most well developed transit stop within West Linn and includes a deluxe TriMet bench, pole with route information and an ADA accessible pad. There are no physical barriers or improvements necessary to place a shelter at this site; the existing pad alleviates any concern of lateral clearance and provides ample room for shelter placement. No habitat or wetlands concerns exist in or near the site.

Relatively steep slopes east of the site and increasingly steep slopes west of the site may prove difficult for some pedestrians accessing the stop and may slow the rate of future ridership growth. However, the proximity to high density commercial and public uses should work in favor of net ridership gains over time.

There is an existing median which prevents turning movements into the shopping center from southbound traffic and left turns out of the shopping center driveway. This median also serves as an informal refuge island for pedestrians traveling into and out of the site. The City should examine the use of this facility to formally adopt strategies for its safe and effective use.

Image 7 Willamette Dr./Willamette Falls Dr. – looking northwest, east and view of pad, respectively



Willamette Dr. and Willamette Falls Dr. (6340)

The Willamette Dr./Willamette Falls Dr. stop (shown in Image 7 above) receives the third greatest boardings of all stops in West Linn due to its function as a transfer point between route 35 and route 154. Passengers traveling southbound on route 35 utilize this stop to continue their journey to the 10th Street/Willamette District area. There are no other significant land uses in the immediate vicinity that contribute to ridership at this site.

This stop however, is currently closed and is scheduled to remain closed until the Highway 43 Arch Bridge is reopened to bus traffic in approximately two years. The purpose for including this site in the recommendation is to provide support for a temporary third site (listed below as Alternate 3rd site: Willamette Dr./Elliot St.) in the interim.

Routes 35 and 154 are currently using the Abernathy Bridge to access the Oregon City Transit Center, which now serves as the temporary transfer point between the two routes. TriMet asserts that the stop at Willamette Dr./Willamette Falls Dr. will be reopened once rehabilitation of the bridge has been completed.

Image 8 Elliot St./Willamette Falls Dr. – looking south, south, and northeast respectively.



Alternate 3rd Site: Elliot St. and Willamette Dr. (6312)

The Elliot St./Willamette Falls Dr. stop (shown in Image 8 above) receives 15 boardings during the average weekday; the sixth most frequently boarded stop in West Linn. This stop is served by the

northbound run of route 35 and contains many pre-existing elements that make it an attractive option for shelter placement.

There is an existing bus pullout to facilitate efficient movement of automobiles through the site while busses are stopped to board passengers. The site is also within a half-mile of a range of land uses that contribute to bus ridership; from office and business to general commercial, multi-family and higher density single-family residential. The site has good pedestrian connectivity to the surrounding neighborhood as well as a 4-way signalized pedestrian crossing at the intersection of Elliot St. and Willamette Dr. The sidewalk along this eastern stretch of Willamette Dr. from the intersection to the bus stop is 8 feet wide; there are no other physical obstructions or improvements necessary to place a shelter at this site.

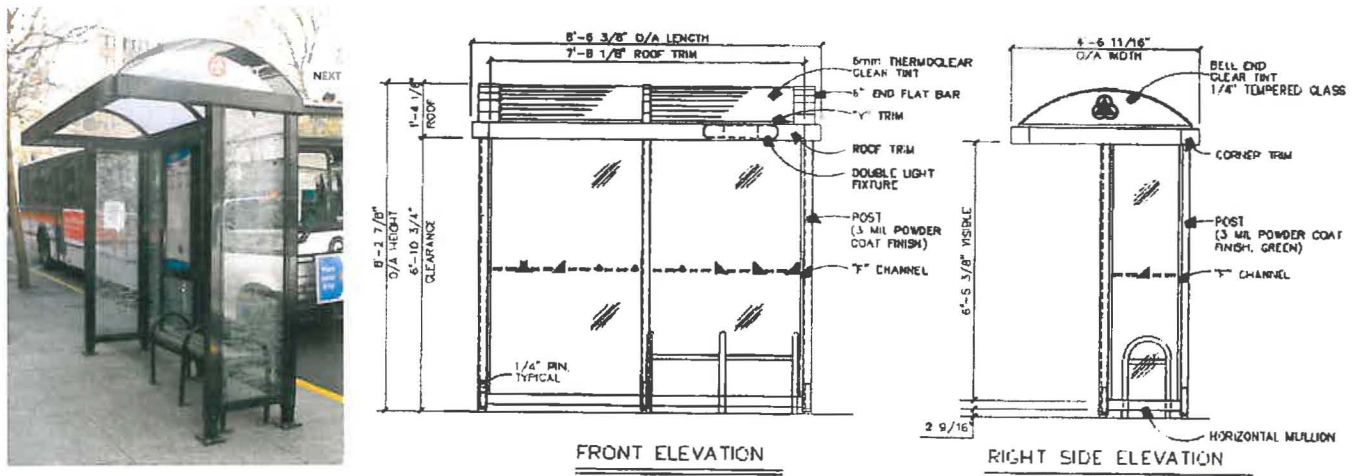
II. Construction and Maintenance Costs

It's important to point out that this evaluation of project development and maintenance costs is being conducted at the planning level; costs are based on numerous assumptions and are subject to change over time with varying economic and site conditions. Similarly, the cost for site amenities such as shelters, benches and waste receptacles varies drastically and therefore to budget for these elements they have been given conservatively high estimates where they are not specifically known.

Shelters

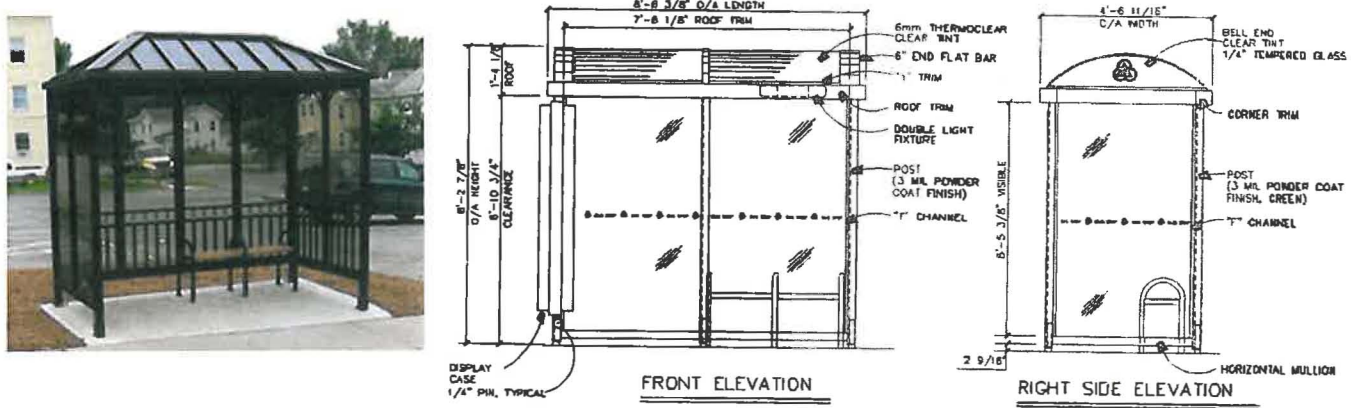
A number of shelter styles are presented below with their regard to; their suitability to each of the four sites recommended here; their relative weather protection capabilities; their cost; finish and color options; delivery time; and, their relative mobility. While there are certainly many more options available, the list below should provide a sample of the range of options that exist.

Image 9 Brasco no. 12 Cantilevered Shelter and Specifications



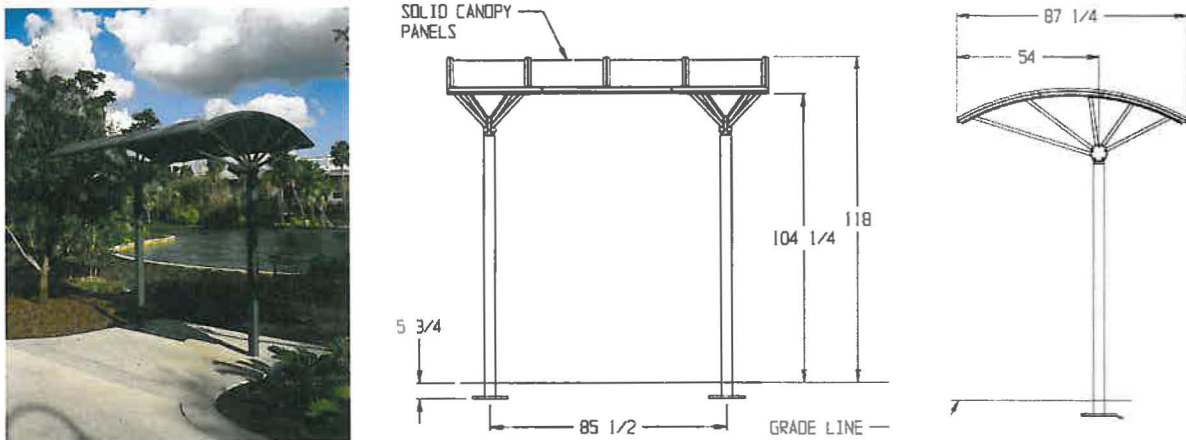
Brasco's no. 12 cantilevered shelter (shown in Image 9 above) was chosen because of its minimal footprint and ability to provide protection from wind and rain during mild to moderate weather events. Brasco's quote for the basic shelter and bench was **\$3,145** per shelter for an anodized finish and **\$3,875** per shelter for the powder coated finish (the powder coated finish being reportedly more durable). These prices do include shipping. Adding etched glass panels (as shown in the image above) adds approximately \$300 to the total shelter cost. Brasco estimates the delivery time to be approximately 8 to 10 weeks from the date of purchase depending on their work load.

Image 10 Brasco no. 22 with full side enclosure and specifications (ad display optional; hipped roof not shown)



Brasco supplied a quote for a second shelter that is more appropriately suited to sites with adequate pedestrian clearance. **Shelter no. 22** (shown in Image 10 above) has a standing seam hip roof with full length side panels to shelter patrons during more extreme weather events. Brasco's quote for the basic powder coated shelter and bench was **\$4,495** delivered. As with the previous Brasco shelter, adding etched glass panels would add an additional \$300 per shelter. Again, actual delivery time is dependent upon Brasco's workload, however; the City could expect to have the shelters on-site approximately 8 to 10 weeks from the date they are purchased.

Image 11 Kaleidoscope Shelter and Specifications



Landscapeforms provided a quote for a third shelter that is suitable for all of the sites proposed herein. The cantilevered design of the Kaleidoscope shelter (shown in Image 11 above) makes it suitable for pedestrian ways with limited lateral clearance. Landscapeforms' quote for this shelter was \$8,290 without a bench and \$9,730 with a 3-seat bench. \$800 has been added to this quote to budget for the cost of shipping each 1,500 pound unit. The total cost for this shelter with a 3-seat bench and shipping is **\$10,530**.

Image 12 Littlethorpe Rettendon Shelter



The Littlethorpe shelter pictured in Image 12 at left has been included to demonstrate the range of materials that are available for transit shelters. **Littlethorpe** is a company based out of the United Kingdom and uses forest steward council (FSC) certified woods for the construction of their shelters. The **Rettendon** shelter measures approximately 8 feet wide by 4 feet deep and has full length side panels to protect waiting passengers from a variety of weather events. This particular shelter would be suited to the Cedar Oak and Burns St. sites, however, does not provide the necessary sidewalk clearance at the Elliot St. location. The construction method and weight of these shelters make them relatively immobile. The price for these shelters including shipping is approximately **\$8,000-10,000**. The Company guarantees each shelter for 5 years and claims that with proper maintenance the shelters can last in excess of 50 years.

Image 13 Columbia Branford Shelter



The City could expect 10-12 weeks for the manufacture and delivery of the shelter if it decides to pursue this option.

The **Columbia Equipment Company** is an industrial manufacturing company based in Jamaica, NY. The company produces a range of shelter types and styles that are suited to numerous site applications. Columbia Equipment shelters are made from extruded aluminum and can be ordered with either an anodized or powder coated finish. These shelters can be designed to fit the architectural style of the neighborhood and are shipped in pre-glazed, prefabricated sections for easy installation. Columbia shelters are designed with longevity and durability in mind and incorporate features such as non-exposed hardware to discourage vandalism, and heavy gauge aluminum. The price estimates for the five Columbia shelters listed below do not include seating, a display frame or shipping. Columbia expects these items to add an additional \$2,100 to the cost of each shelter.

Image 14 Columbia Wallingford Shelter



As pictured in Image 13, Columbia's **Branford** shelter measures 4 feet by 10 feet at the base and has a slightly cantilevered roof. This shelter can be configured to fit all of the proposed sites in this memo. The prefabricated aluminum structure is easily assembled and relatively easy to relocate. With an anodized finish and 2.5" aluminum tubing Columbia's quote on this shelter was **\$11,000** per shelter.

Columbia's **Wallingford** shelter measures 5 feet deep by 10 feet wide. Due to its size, this shelter, shown in Image 14, is best suited to

sites with adequate pedestrian access (i.e. Burns St. and Cedar Oak Dr.). The roof design of this shelter makes it up to 5 feet taller than a standard barrel vault roof shelter and should be given consideration in relation to trees and utility lines. Columbia's quote for this shelter with 4" aluminum tubing and a powder coated finish was **\$21,000** per shelter.

Image 15 Columbia Ridgefield Park



Columbia's **Ridgefield Park**, image 15 at left, measures approximately 2.5 feet deep by 10 feet wide and has a 5 foot by 10 foot cantilevered roof. This shelter is suited for all of the proposed sites because of its relatively small footprint. The small footprint however, also means that weather protection is somewhat limited. With 2.5" aluminum tubing and an anodized finish, Columbia quoted a price of **\$10,000** for this shelter.

Image 16 Columbia Lower Grand



The **Lower Grand**, image 16, is another space conserving shelter design. Measuring approximately 2.5 feet deep by 10 feet wide with a 5 foot by 10 foot cantilevered barrel vault roof, this shelter is suitable for all of the sites proposed here. For sites with adequate sidewalk clearance the shelter can be configured with larger sidewalls to offer enhanced weather protection. Columbia quoted a price of **\$7,500** for this shelter with 2.5" aluminum tubing.

Image 17 Columbia Garden City



Pictured in image 17, the Columbia **Garden City** shelter measures 5 feet deep by 10 feet wide. This shelter could be configured with 2.5 foot wide sidewalls where pedestrian access is limited. Columbia quoted a price of **\$9,000** for this shelter.

Image 18 Duo-Gard Largo



Duo-Gard is another manufacturer that offers a wide range of bus shelters to meet individual site needs. The Largo model, pictured in image 18, is one of over 30 models offered by Duo-Gard and is suited to sites that have adequate pedestrian clearance. The same design character could be adapted to shelter configurations that occupy less sidewalk space.

Additional Site Furnishings

Waste receptacles range in price from a few hundred to thousands of dollars depending on the type of materials and finish used. Staff is recommending choosing a waste receptacle that can accommodate recyclables and that compliments the architectural character of the surrounding neighborhood while staying within the confines of the project budget. A number of litter/recycling receptacles are pictured in Image 19 to help visualize the various type of receptacles available. For this memo a figure of **\$1,000/site** is used as the estimate for this site amenity.

TriMet has agreed to supply the City with two Solar LED systems at no cost. If the City wishes to place a solar LED system at a third site they can expect to pay an additional **\$2,850**.

Consultation with TriMet Planning indicates that vandalism of shelters has declined since they began installing designed etched glass panels in many of their transit shelters. Preparation of the custom etching pattern costs \$1,000, after which the cost to etch panels is approximately **\$300** per shelter.

Image 19 Various Waste/Recycling Receptacles



According to the City's Transportation Services Supervisor, Sam Foxworthy, the City's current municipal waste contract obligates the contractor to service City owned facilities such as transit shelters at no additional cost. TriMet has stated that they are willing to work with West Linn for the replacement of broken glass at the shelters; all other maintenance however, would be the responsibility of the City of West Linn. TriMet Planning Staff asserts that these shelters would require maintenance approximately once a week.

Willamette Dr./Cedar Oak Dr. (6309)

The Willamette Dr./Cedar Oak stop receives significantly higher weekday boardings compared with other TriMet stops in West Linn. However, of the four recommended stops in this proposal this site is also the most difficult to develop.

There are two basic constraints to developing this site; both of which are tied to the width of the existing sidewalk. Because the sidewalk immediately adjacent the site is just over 5 feet wide and because the City's development ordinance requires 4 feet of unobstructed lateral clearance along all City sidewalks, this stop will require the construction of a new concrete pad to accommodate any type of transit shelter. Unfortunately, the lack of available public right-of-way at this site is limited to the extent that constructing a new pad will require negotiating with the adjacent property owner to acquire the additional space necessary (approximately 70 square feet). Because no discussion has yet taken place, this estimate does not include the cost that may be incurred to acquire the rights to 70 square feet of property.

Assuming negotiations with the property owner are successful, the site will require construction of a 6 foot by 11 foot (66 square feet) concrete pad on which to place the new shelter and a 2 foot by 2 foot (4 square feet) pad to place a waste receptacle. The City’s Public Works Department has agreed to construct the pad and estimates that the cost for concrete will be approximately \$4.00/square foot; equal to \$280.00 to construct the pad at this site.

Table 2 Development Estimate for Cedar Oak Dr./Willamette Dr. Stop

• Shelter (shelter cost plus shipping)	
○ Shelter	\$3,875 – \$23,500
• Waste Receptacle	\$1,000
• Pad Construction	\$280
• <u>Property Acquisition</u>	<u>unknown for easement (staff time to acquire)</u>
SITE 1 TOTAL	\$5,155 – \$24,780 + maintenance + acquisition

Willamette Dr/Burns St (6306)

The Willamette Dr./Burns St. stop is significantly less complicated to develop due to pre-existing site conditions; the site hosts a bench and a 5’ by 30’ concrete pad adjacent the existing sidewalk. Therefore, this site will incur no property acquisition or pad construction costs and will need only one shelter and waste receptacle.

Table 3 Development Estimate for Burns St./Willamette Dr. Stop

• Shelter (shelter cost plus shipping)	
○ Shelter	\$3,875 – \$23,500
• Waste Receptacle	\$1,000
• Pad Construction	\$0
• <u>Property Acquisition</u>	<u>\$0</u>
SITE 2 TOTAL	\$4,875 – \$24,500 + maintenance

Willamette Dr./Willamette Falls Dr. (6340)

The stop at Willamette Dr./Willamette Falls Dr. is also well suited for shelter placement. In fact, TriMet recently removed a shelter from this site only because of the closure of the Highway 43 Arch Bridge. A pre-existing pad measuring approximately 5' x 35' provides ample room for any of the above shelters including a waste receptacle. This stop is anticipated to be closed for the next two years while repairs are made to the Arch Bridge. The site is included in the analysis to facilitate decision-making for when service to the site is restored. This site requires no property acquisition or pad construction costs and will only need one shelter and waste receptacle.

Table 4 Development Estimate for Willamette Dr./Willamette Falls Dr. Stop

• Shelter (shelter cost plus shipping)	
○ Shelter	\$3,875 – \$23,500
• Waste Receptacle	\$1,000
• Pad Construction	\$0
• <u>Property Acquisition</u>	<u>\$0</u>
SITE 3 TOTAL	\$4,875 – \$24,500 + maintenance

Alternate site: Willamette Dr./Elliot St. (6312)

While ridership at this stop is lower than the three previously listed stops, this site was chosen for its suitability as a temporary shelter location because of adequate sidewalk width and connectivity, and the presence of a bus pullout. Staff is proposing that this site host a third shelter until service is restored to the Willamette Dr./Willamette Falls Dr. stop when the shelter would then be relocated to that site.

A cantilevered style shelter and waste receptacle would fit on the site and maintain the City's requirement for 4 feet of unobstructed lateral clearance. While, a portion of the shelter's canopy would encroach upon the 4 foot zone, the shelter can be designed to provide a minimum of 8 feet of vertical clearance; consistent with the City's development code. This site requires no property acquisition or pad construction costs and will need only a shelter and waste receptacle.

Table 5 Development Estimate for Elliot St./Willamette Dr. Stop

• Shelter (shelter cost plus shipping)	
○ Shelter	\$3,875 – \$11,500
• Waste Receptacle	\$1,000
• Pad Construction	\$0
• <u>Property Acquisition</u>	<u>\$0</u>
SITE 4 TOTAL	\$4,875 – \$12,500 + maintenance

Total Project Development Cost

The total project cost listed below includes fixtures and construction costs only. The estimate does not include the staff time required for preparing and reviewing ODOT and City permits; constructing a concrete pad; erecting shelters; or, maintaining facilities – staff expects these costs to be minimal. Because they remain unknown, property acquisition costs are also absent from this estimate.

Table 6 Total Project Development Cost Estimate

1. Willamette Dr./Cedar Oak Dr.	\$5,155 – \$24,780 + acquisition cost
2. Willamette Dr./Burns St.	\$4,875 – \$24,500
3. Willamette Dr./Willamette Falls Dr.;	\$4,875 – \$24,500
<i>or,</i>	
3. Willamette Dr./Elliot St.	\$4,875 – \$12,500
TOTAL OF 3 SITES	\$14,905 – \$61,780 + ACQUISITION + MAINTENANCE

III. Permitting Requirements

West Linn’s Development Code requires permits for transit shelters placed in the City. In addition, because the shelters proposed here all lie within the Hwy 43 right-of-way, ODOT requires the City obtain a *miscellaneous permit for work performed in the right of way* prior to placing shelters. TriMet also conducts an informal review of the shelter plan prior to implementation. Each of these reviews may take place concurrently with one another and will not impact the final implementation date. Included below are some notable details regarding each of the three permit processes.

City of West Linn Class I Design Review

The purpose of Design Review guidelines are to establish a process and standards for the review of development proposals in order to conserve and enhance the appearance of the City and to promote functional, safe and innovative site development. Transit shelters are subject to the review provisions of the Class I Design Review.

An application for Design Review must be initiated by the property owner or the owner’s agent. Design Review applications must first complete a pre-application conference. Subsequently, the applicant will be required to submit;

1. A site analysis (per Section 55.110) only if the site is undeveloped;

2. A site plan (55.120);
3. Architectural drawings, including building envelopes and elevations (55.140), only if architectural work is proposed;
4. A narrative, based on the standards found in the City's CDC;
5. Responses to approval criteria of Section 55.090;
6. The required fee.

Class I Design Reviews are subject to the approval of the Planning Director. The City can expect this review to run concurrently with TriMet and ODOT reviews and should take approximately 4 to 6 weeks to complete.

ODOT Right-of-Way

The City will need to gain approval for an ODOT Miscellaneous permit for work in the public right-of-way. Upon determining the shelter locations, staff must prepare a plan sheet and then send to ODOT to begin the application process. ODOT's review is dependent upon the type and intensity of construction taking place in the ODOT right-of-way. The ODOT representative in charge of this process has informed staff that there will be no charge for this permit and that the review time will be minimal.

TriMet

TriMet does have an informal review process for transit shelters that is free and will take minimal time to complete due to the City's ongoing collaboration with the agency during this process.

Summary

Based upon the information provided above, the City should expect to be able to use transit shelters at the above-listed sites within 12 to 14 weeks from the time final decisions regarding style and location have been made. Permitting can run concurrently with the manufacture and delivery of the shelters. The City can also expect to exhaust its entire \$20,000 budget for the construction of one new concrete pad; three shelters; three waste receptacles; and, maintenance.

Two significant and yet unknown factors remain. The first is whether or not West Linn Plaza, LLC will be agreeable to offers from the City for placing a shelter at the Willamette Dr./Cedar Oak St. site. If the landowner does not wish to agree to a shelter at this site, additional time and expense will be incurred in evaluating other options. Second is the cost the City can expect to incur to maintain these facilities over the long-term.



Memorandum

TO: Transportation Advisory Board

FROM: Chris Kerr, Senior Planner

DATE: September 23, 2009

SUBJECT: Transit Shelters; More Options: 2-shelters v. 3-shelters. (MISC 09-06)

At the August 17, 2009, TAB meeting staff presented a proposal to develop three shelters at key transit stops in West Linn. This memo explores the relative effectiveness of reducing the number of sheltered bus stops from three down to two stops.

Why place fewer shelters?

Maximizing the effectiveness of any public transit program often requires decision-makers to determine an appropriate balance between providing widespread service and providing amenities that increase user comfort and safety. Installing the maximum number of shelters the budget allows will increase our ability to serve a larger share of the City's residents now. While on the other hand, placing fewer shelters within the same budget allows the City to create a more attractive and appealing total transit experience and therefore enhances our ability to attract new riders over the long-term. Reducing the number of sheltered bus stops from three to two locations provides an additional \$3,300 for the remaining sites. Because this project's \$20,000 budget places certain limitations on the number and quality of amenities offered at each of the proposed shelter sites, staff is providing a set of alternatives that allocate a larger share of funds to each of the proposed sites. These additional funds may allow the City to provide more and better landscaping, more durable site amenities, a more attractive overall transit experience and marketing aimed at attracting new riders to public transit.

Reduced maintenance. In addition, because higher quality materials such as; heavy gauge aluminum, steel, concrete and timber are more resistant to the erosive impacts caused by natural and man-made forces, they have the ability to reduce maintenance expenses over their lifetime.

Attract new riders. High quality amenities can also attract new riders to the public transit system because they help create an environment that is more visually appealing and that

engenders perceptions of user comfort and safety. A recent bus study conducted in the Washington, D.C. metropolitan area looked at the types of transit improvements that were desirable by both existing transit patrons as well as non-riders. The results from the survey indicate that there are significant differences between the most desired improvements for the two groups: Existing riders considered service-related improvements, such as more frequent buses, most important, while non-riders considered better information and improved amenities, such as better shelters, most important.

Enhanced aesthetic quality and comfort. Dedicating a larger share of funding for site landscaping and other similar aesthetic treatments can help to integrate the transit stop with the surrounding neighborhood and soften the visual impact from the newly erected structures. Additionally, enhanced landscaping can help to provide shade and cooling during warmer summer months. Landscaping at each of the proposed sites could take a number of forms and may include potted trees or shrubs, hanging baskets or improvements to existing site landscaping.

Temporary site. The argument to reduce the number of shelter locations from three to two sites is further supported by the original intent to use the Elliot Street stop as a temporary location until the stop at Willamette Drive and Willamette Falls Drive is reopened in approximately two years. The Elliot Street stop (which receives the sixth most boardings of all West Linn stops during the typical weekday) was included to maintain the original desire to place three shelters. The stop at Elliot Street is also within relatively close proximity (0.61 miles) to the proposed shelter at the Burns Street stop, which receives nearly forty percent more boardings during the typical weekday than the stop at Elliot Street.

Removing the option for a shelter at the Elliot Street stop does not come without its disadvantages. This stop serves a good mix of transit-supportive land uses and therefore has potential to attract new riders to the public transit system.

Comparing the Options

What exactly is the per site impact of reducing the number of transit shelters? This section responds to this question by first comparing the type of site amenities that may be realized under each budgeting scenario and then evaluating their effectiveness based on five criteria developed from goals identified in various City plans (i.e. Transportation System Plan, Comprehensive Plan, Imagine West Linn).

Generally, pursuing a three-shelter option is appealing for its ability to immediately serve a broader population of existing transit users. Allocating approximately \$6,700 per site would allow the City to place shelters at the first, second, and sixth most frequently boarded bus stops (Cedar Oak, Bolton Community Center and Elliot Street, respectively) within the City. This sixth place stop (Elliot Street) is served by a transit-supportive mix of commercial and residential uses that are likely to contribute to increased future transit use. Under a three-shelter scheme, the City would have the option of choosing between lower-priced (\$4,500 or less) shelters from either Brasco or Duo-Gard, a less expensive (\$1500 or less) waste receptacle that may accommodate recycling and also have approximately \$500 per site for miscellaneous aesthetic treatments, such as landscaping.

Table 1 Individual Shelter Characteristics

Shelter	Construct	Lifespan (years)	Cost (\$)	Shipping Cost (\$)	Sustainable	Unique	Universal	Effect at 2 sites	Effect at 3 sites
Brasco No. 22	Alum. 2"	15-20	4,500	Inc.	Yes		X	Would leave approx \$5k for other site improvements	Would exhaust budget
Duo-Gard	Alum. 2"	15-20	4,500	Inc.	Yes		X	Would leave approx \$5k for other site improvements	Would exhaust budget
Columbia Lower Grand	Alum. 2"	15-20	7,500	2,100	No	X		Exhaust budget	-
Columbia Ridgefield Park	Alum. 2"	15-20	10,000	2,100	No	X		Over budget	-
Littlethorpe	Wood (Piqua) 4"	50	8,500		Yes	X		Exhaust/over budget	-

Choosing a development scheme that includes only two shelters appeals to the City’s desire to enhance the attractiveness of the transit system and grow ridership over the long-term; at the expense of accommodating a greater number of riders in the short-term. In most instances, increasing the per site budget to \$10,000 provides a negligible improvement in shelter durability and maintenance expense. Columbia Equipment shelters which cost approximately \$4-5,000 more than their lower priced Brasco and Duo-Gard counterparts use essentially the same 2” extruded aluminum stock and offer the same anodized or powder-coated finishes. The life expectancy for all of these aluminum shelters is approximately 15-25 years. There are however, measurable durability gains with the Littlethorpe shelter. The company claims that this shelter, made of FSC certified hardwoods, has a typical lifespan of 50 years; the first 5 of which are covered under warranty. Therefore, the benefits associated with choosing a two-shelter scheme over a three-shelter scheme are largely aesthetic and environmentally-sensitive in nature.

A two-shelter scheme provides approximately \$10,000 for the development of each site. Under this scenario shelters would be located at the first and second most frequently boarded stops within the City (Cedar Oak and Bolton Community Center, respectively).

Under a two-shelter scheme there are two basic options the City could pursue:

Purchasing a lower-priced shelter, such as the Brasco or Duo-Gard (\$4,500 or less), and using the remaining funds on enhanced landscaping (up to \$2,000), site furniture (waste/recycling receptacles up to \$1,500) that accommodates recycling and marketing that is aimed at attracting new riders and making the system easier to use for all riders (\$2,000 or less/site or \$4,000 total);

Or,

Purchasing one of the higher-priced shelters, such as the Littlethorpe or Columbia Equipment Company (\$8,000 or less), a waste receptacle that may include recycling (up to \$1,500) and landscaping (\$500 or less).

Rating the alternatives. To make a fair comparison of the three options, staff prepared a matrix based on five criteria, key to the City's mission as it relates to this project. These five equally-weighted criteria were used to assess the relative benefit of each of the three locational options proposed. The criteria are; 1) the site's ability to attract new riders, 2) the site's environmental footprint, 3) the ability to serve a greater number of riders; 4) the site's complementarity to the surrounding neighborhood; and 5) the relative ease of using the site.

The three project options discussed above and briefly outlined below were placed in a matrix and then ranked from low to high based on that option's ability to address each of the five individual criteria. Where an option best addressed a particular criterion, that option ranked high and was given a value of 3; the option that next best addressed that particular criterion was ranked medium and was given a value of 2; similarly, the option that most inadequately addressed a particular criterion was given a rank of low and a value of 1. The criteria for each option were summed and used as the basis for determining which of the three options best addresses the overall project need.

Again, the three options proposed are:

- *Option 1 – Shelters at 2 sites using lower priced shelters: **Amenity Option***
 - *Brasco or Duo-Gard shelter (\$4500)*
 - *Landscapeforms receptacle (\$1500)*
 - *Extensive landscaping (\$2000)*
 - *Marketing (\$2000)*
 - *Approximate total site development cost = **\$10,000***

- *Option 2 – Shelters at 2 sites using higher priced shelters: **Aesthetic/Sustainable Option***
 - *Littlethorpe Rettendon shelter (\$8000)*
 - *Landscapeforms receptacle (\$1500)*
 - *Landscaping (\$500)*
 - *Approximate total site development cost = **\$10,000***

- *Option 3 – Shelters at 3 sites using lower priced shelters: **Broader Service Option***
 - *Brasco or Duo-Gard Shelter (\$4500)*
 - *Landscapeforms receptacle (\$1500)*
 - *Landscaping (\$700)*
 - *Approximate total site development cost = **\$6,700***

Table 2 Effectiveness Matrix

	Amenity Option 1	Aesthetic/Sustainability Option 2	Broader Service Option 3
Ability to attract new riders	High (3)	Med (2)	Low (1)
Environmental footprint	Med. (2)	High (3)	Low (1)
Distribution of service	Med. (2)	Low (1)	High (3)
Complementarity to surrounding neighborhood	Med. (2)	High (3)	Low (1)
Ease of passenger use	High (3)	Low (1)	Med. (2)
Total	12	10	7

Table 2 above reveals the ability of each of the three options to address each of the five effectiveness criteria. Option 1 (Amenity) received the highest total score based on staff's equally weighted scoring system as it is anticipated that this option has the greatest ability to attract new riders and has the greatest ease of passenger use due to its marketing component. Option 1 also responds well to environmental concerns because these aluminum shelters are made with 100 percent recycled aluminum. While the same shelters are proposed under the three-shelter option, the additional shelter and the resources required to make that shelter is what contributed to Option 3's low rank in the "Environmental Footprint" category. Extensive landscaping helps to increase the aesthetic appeal of these sites and integrate them with the surrounding neighborhoods; however not quite as well as a more attractive shelter with reduced landscaping – thus the score of Medium.

Option 2 (Aesthetic/Sustainability) earned the second highest effectiveness score of the three proposed options. Option 2 best addresses issues of sustainability due to the inclusion of the Littlethorpe Shelter in this category; with its 50 year lifespan and FSC certified hardwoods, this option consumes the fewest natural resources of all shelters in this study. Option 2 also ranks highest in the "Complementarity to the surrounding neighborhood" category because of the increased number of shelter and site furniture styles and materials available at this price point. Option 2 scores low in "Distribution of Service" because there are fewer shelters compared with Option 3 and because no funds are allocated to marketing as with Option 1. Even considering the ridership generating benefits of aesthetically appealing transit environments, it is believed that marketing (as in Option 1) can have a greater impact on attracting new riders to public transit and thus the reason for Option 2's Medium ranking in its "Ability to attract new riders."

Option 3 (Broader Service) earned the lowest effectiveness score of all of the proposed options. Compared with the two other options, Option 3 suffers from a lack of resources for marketing the service as well as a lack of resources for making the site appealing to new riders. Relative to Options 1 and 2, Option 3 also lacks in its ability to integrate with the surrounding neighborhood. Option 3 ranked highest in its ability to serve a broad population of existing public transit users because of the increased number of shelter locations. Finally, compared with Option 2, Option 3 is easier to use because more shelters

will serve a larger population and can reduce the walking distance required to access a sheltered transit stop.

It is important to keep in mind that the criteria used to assess the relative effectiveness of each of these three options were weighted equally. In reality, certain of these criterion may have a higher priority or greater significance compared with other criteria. For example, because the stated intent of this program is to provide transit amenities that attract riders to the public transit system, the criterion that rates each option's ability to attract riders may account for a larger share of points than other less significant criteria and may subsequently have a scoring system that reflects this priority (i.e. low = 2, medium = 4, and high = 6).

Recommendation. Based on the assumptions described above and the relative effectiveness of each of these options to promote the project's intent, staff recommends pursuing an option similar to that as outlined in Option 2; purchasing a lower priced shelter for two sites and allocating a larger share of the project budget to site landscaping and marketing.

**Transportation Advisory Board
Meeting Minutes
Wednesday, October 28, 2009**

Members Present: Chairperson David Newell; Vice-Chairperson, Tim B. Collins; Riad Alharithi; Eric Gakstatter; Joyce Jackson; David Rittenhouse; Eric Underwood

Members Absent: None

Guests: Cherilyn Ronningen; Mia Clark; Marianne Miller; Midge Pierce; Kevin Bryck

Staff: Chris Kerr, Senior Planner; Boris Piatski, Civil Engineer; Shaun Rohret, Associate Engineer; Dennis Wright, Engineering Manager

1. Call to Order and Introductions

Chairperson Newell called the meeting to order at 6pm.

2. Approve September minutes

Riad Alharithi made a motion to accept the September minutes, Joyce Jackson seconded, motion passed unanimously.

3. Hwy. 43 Transit Shelters Update from Chris Kerr, Planning Dept.

Chris distributed photos and renderings of the proposed transit shelters. Since the presentation by Zach Pelz at the last TAB meeting, the Planning staff have presented information at Robinwood and Bolton neighborhood associations and have presented additional information to the City Council. Responses from the city and neighborhood associations have been positive. The next steps are for a formal design review, ODOT and Tri-Met permits, and to purchase the shelters. Easements or license agreements are being worked out. Amenities included in the budget for the shelters, anticipated maintenance, and deterrence of graffiti was discussed. The goal is to have at least two of the three shelters installed by the end of the year.

4. Staff Update on City Snow Operations Plan

Dennis Wright distributed a power point presentation outlining last year's snow storm response and preparations for this winter's storm response. The City has purchased a de-icer truck which can be used when the proper temperature range and conditions are present for the deicer to be effective. Communication enhancements from last year's emergency response have been incorporated into this year's operations plan. Currently the city uses Flashnews.net, dispatch services from LOCOM, Public Works and City Hall, emergency email network for 2000+ subscribers, and city website updates to get storm information out to residents. There are plans for enhanced telephone, web, and email services.

Discussion and/or suggestions:

- Year round snow route signage so that residents can become familiar with routes before a snow storm hits.
- Special attention to Sunset/Cornwall area signage.
- Snow route map and information published in the West Linn Tidings.

- Broadcast information on public access TV.
- Publish the story about all the work that city workers perform in maintaining streets and services and keeping the city moving during storms.
- Link on front of city website to information and maps.
- Send information out with utility bills.
- City policy for parking on streets and snow routes during snow plowing.
- Salamo Road blockage/closure caused when vehicles are stopped to put snow chains on.
- Print informational flyers for school kids to take home.

5. Rain Gardens and Green Streets by Boris Piatski and Shaun Rohret

The city's Environmental Services division takes care of maintenance, inspections, and technical assistance related to the stormwater system and preservation of stormwater quality in the city. Rain gardens are one of the tools used for stormwater management for treating the water and for retention. The city is in the second year having public rain gardens. Rain gardens are a way of complying with DEQ requirements for impervious surfaces. Runoff from impervious areas is reduced and water is treated by the plants and is filtrated as it runs through the rain garden bio swale. Although the developer may build the rain garden in the right-of-way, the city maintains all rain gardens in the public right-of-way.

Green Streets, made of pervious pavement, are currently not allowed in the right-of-way in West Linn since they require special maintenance and special street vacuums that the city does not have. They may be allowed for private driveways and parking lots.

6. Continuing Project Updates

- Street tree information – David plans to have information for the next meeting.
- Traffic study, 12th Street/Willamette Falls Dr signal – Dennis Wright reported that the consultant has submitted his report showing that a signal could be warranted, but would involve changing 8th Ave to a one-way from 10th to 12th and a number of other things would need to come together before a signal could be approved.
- Eric Gakstatter spoke regarding traffic issues at Erickson Primary School related to access onto Rosemont Road and Hidden Springs Road. Pedestrian pathways, traffic lights and congestion in that area, and grants and funding for bicycle lanes and sidewalks were discussed.
- Eric Underwood volunteered to represent the TAB on the Parks Department's Trails Master Plan committee.
- Dennis spoke on the Falls View Ave. parking issues. Narrow streets and a couple apartment complexes make parking difficult. The Sunset Neighborhood Association will likely support designating Hemlock Street as a one-way street and organizing parking on sections of the street. It would then be brought before the City Council.

7. Next month meeting

Due to the Thanksgiving holiday, the November board meeting had been rescheduled to November 18. Since the board will attend the Sustainability Summit on the 17th, the board agreed to cancel the November board meeting, and tentatively planned to meet for a few minutes directly after the Sustainability Summit.

8. Adjournment

Chairperson Newel adjourned the meeting at 7:15pm

**Transportation Advisory Board
Meeting Minutes
Wednesday, September 23, 2009**

Members Present: Chairperson David Newell; Vice-Chairperson, Tim B. Collins;
Riad Alharithi; Joyce Jackson; David Rittenhouse

Members Absent: Eric Gakstatter; Eric Underwood

Guests: Cynthia Thompson, Wilsonville SMART Director
Carol Yates, Resident

Staff: Dennis Wright, Engineering Manager; Zach Pelz, Planner

1. Call to Order and Introductions

Chairperson Newell called the meeting to order at 6:07pm.

2. Approve August minutes

Alharithi made a motion to accept the August minutes with correction to item one, Rittenhouse seconded, motion passed unanimously.

3. Hwy. 43 Transit Shelter Project information from Chris Kerr and Zach Pelz

Zach provided "Transit Shelters: More Options: 2-shelters v. 3-shelters" memo to the board. He reviewed three options developed by the Planning Department for bus shelters on Willamette Dr. The Council had directed staff to develop a plan for three shelters. Goals used in comparison criteria come from goals the City has identified in the Transportation System Plan, Comprehensive Plan, and others. Zach asked for the board's preference of an option to pursue, and for recommendations refining that option.

Members generally favored three shelters with fewer amenities and aesthetics, rather than two shelters with more amenities and aesthetics.

Rittenhouse made a motion that the bus shelter at Cedar Oak is high priority and staff should pursue right-of-way for a shelter at that location. Alharithi seconded, motion passed unanimously.

Members generally agreed that the Planning Department should pursue discussion with the developer regarding a shelter near the Library and Bolton Community Center.

4. Presentation by Cynthia Thompson from Wilsonville SMART Transit System

Cynthia described the beginnings of SMART and evolution to today's SMART. She discussed SMART projections for ridership, funding options, and innovation for the future. Discussion followed of various funding, route and partnership ideas. Cynthia described some obstacles SMART and other transit providers encountered and some innovative transit ideas.

5. Old Business - Dennis covered street issues from the August meeting:

- Sam Foxworthy has arranged for striping on Hidden Springs and Santa Anita where room exists for bike lanes.
- Parking on 8th Avenue – procedures for eliminating parking. Dennis Wright will try to have information from Sam Foxworthy for the October meeting.
- Study for traffic lights at 12th and Willamette. Preliminary results show it will not warrant lights for about 10 years. The Consultant will add to the study, looking at changing 8th Ave. to a one-way from 10th St. to 12th St., directing Willamette Market place traffic through the 12th St. traffic light onto Willamette Falls Dr. Dennis will present the information when the study is done.

6. New Business

Jackson provided a handout from the International Society on Arboriculture, on methods to reduce sidewalk damage from tree roots, for members to review.

Rittenhouse announced TAB members are invited to the League of West Linn Neighborhoods meeting. They will discuss transportation issues at the monthly meeting on Saturday, 10am, at PacWest Bank at the Willamette Market Place.

7. October tentative agenda items

- Presentation by Engineering staff, Boris Piatski and Shaun Rohret, on Rain Gardens
- Information from Mike Perkins on Street Trees
- Staff update on city snow operations plan

8. Adjournment

Alharithi motioned to adjourn, Rittenhouse seconded, the motion passed unanimously, the meeting was adjourned at 8:17pm.



Transit Shelters

[Home](#) > [Products](#) > [Shelters & Structures](#) > [Transit Shelters](#)

Brasco International builds shelters in several model types – or to your specifications – using 2.5, 3, 4 inch or custom aluminum extrusions with a variety of roof styles, finishes and colors. Brasco shelters are made with sustainable materials such as 100% recycled aluminum, 100% recycled high density polyethylene and our anodized or **custom powder coat finishes** which produce zero (0) VOC's while providing a color-fast finish.

Our roof options include:

- Dome
- Barrel Vault
- Peaked

[Download
Bus Shelter Form](#) ▶

These roof styles are available on any of our shelters and also come in a wide variety of materials and colors. Brasco shelters are shipped in prefabricated, pre-glazed wall sections and completed roof modules for ease of installation with standard tools. Most shelters can be installed in one to two hours.

View Our Work



TS-100

[Click to Enlarge](#) >



TS-101

[Click to Enlarge](#) >



TS-102

[Click to Enlarge](#) >



Shelters & Structures

- Advertising & Map Displays
- Custom Design & Fabrication
- Walkways & Entrance Canopies
- Security & Attendant Shelters
- ATM, TVM & Vending Shelters



Solar/LED Lighting Solutions



Shopping Cart Corrals

TS-103

[Click to Enlarge >](#)



TS-104

[Click to Enlarge >](#)



TS-105

[Click to Enlarge >](#)



TS-106

[Click to Enlarge >](#)



TS-107

[Click to Enlarge >](#)



TS-108

[Click to Enlarge >](#)



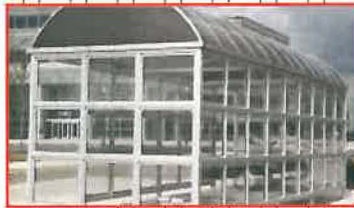
TS-109

[Click to Enlarge >](#)



TS-110

[Click to Enlarge >](#)



TS-111

[Click to Enlarge >](#)



TS-112

[Click to Enlarge >](#)



TS-113

[Click to Enlarge >](#)



TS-114

[Click to Enlarge >](#)



TS-115

[Click to Enlarge >](#)



TS-116

[Click to Enlarge >](#)



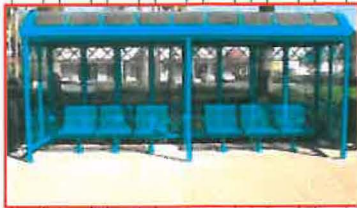
TS-117

[Click to Enlarge >](#)



TS-118

[Click to Enlarge >](#)



TS-119

[Click to Enlarge >](#)



TS-120

[Click to Enlarge >](#)



TS-121

[Click to Enlarge >](#)



TS-124

[Click to Enlarge >](#)



TS-127

[Click to Enlarge >](#)



TS-130

[Click to Enlarge >](#)



TS-133

[Click to Enlarge >](#)



TS-136

[Click to Enlarge >](#)

TS-122

[Click to Enlarge >](#)



TS-125

[Click to Enlarge >](#)



TS-128

[Click to Enlarge >](#)



TS-131

[Click to Enlarge >](#)



TS-134

[Click to Enlarge >](#)



TS-137

[Click to Enlarge >](#)

TS-123

[Click to Enlarge >](#)



TS-126

[Click to Enlarge >](#)



TS-129

[Click to Enlarge >](#)



TS-132

[Click to Enlarge >](#)



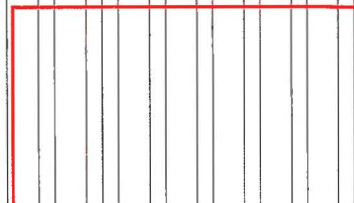
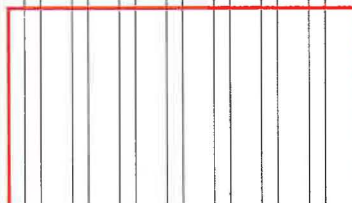
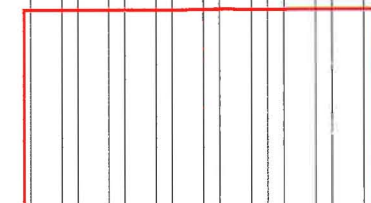
TS-135

[Click to Enlarge >](#)



TS-138

[Click to Enlarge >](#)





TS-139

[Click to Enlarge >](#)



TS-140

[Click to Enlarge >](#)



TS-141

[Click to Enlarge >](#)



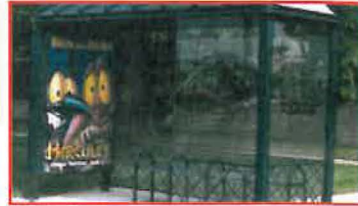
TS-142

[Click to Enlarge >](#)



TS-143

[Click to Enlarge >](#)



TS-144

[Click to Enlarge >](#)



TS-145

[Click to Enlarge >](#)



TS-146

[Click to Enlarge >](#)



TS-147

[Click to Enlarge >](#)



TS-148

[Click to Enlarge >](#)



TS-149

[Click to Enlarge >](#)



TS-150

[Click to Enlarge >](#)

About *Brasco*

OUR MISSION STATEMENT: The mission of Brasco International is to develop and produce innovative, superior quality and value added solutions, while maintaining the philosophy of "Green with a Purpose". Our top priority is people who are empowered and committed to excellence. Sustainable materials and alternative energy are core to our product ...

[Read More >](#)

Featured Project



[Click to view Project Showcase >](#)

◆◆◆ Contact Us Today!

We offer custom solutions and tailor each to your needs. To have a custom quote for your project, please click on the link below and fill out the form.

[Contact Us](#)

Javoronok, Sara

From: NAPC Member Listserv [NAPC-L@LISTSERV.UGA.EDU] on behalf of Laura Lavernia [laura@RIVERSIDEAVONDALE.ORG]
Sent: Thursday, September 08, 2011 11:11 AM
To: NAPC-L@LISTSERV.UGA.EDU
Subject: [NAPC-L] new bus shelters in historic districts

Greetings all,

Our local transportation authority is proposing to replace the bus shelters in our historic district with new, more “modern” bus shelters with mesh paneling (black or copper colors). Our neighborhood organization is arguing, for a historic district, an appropriate shelter design should fade into the background and be as unobtrusive as possible (be all black or dark bronze colored), and should have glass panels so that, if placed in front of a home, it would not block the view of a primary elevation.

We would be interested to hear if anyone has approved shelters for historic districts recently, what design considerations you took into account, and what your finished shelter selection was. Did you approve no paneling? Glass paneling?

Thank you in advance for your responses.

Best regards,

Laura Lavernia
Preservation & Education Coordinator
Riverside Avondale Preservation
2623 Herschel Street
Jacksonville, FL 32204
www.riversideavondale.org

P: (904) 389 – 2449

F: (904) 389 – 0431



Helping people protect, enhance and enjoy the places that matter to them

[ABOUT US](#) | [RESOURCES](#) | [TAKE ACTION](#) | [ISSUES](#) | [TRAVEL & SITES](#) | [SUPPORT US](#)

[Email](#) [Share](#) [Print](#) [RSS](#) **Font: A / A+ / A++**

Forum-L Archive

Bus Shelters (23874)

Posted by Jennifer Tucker [jtucker@memphis.magibox.net] | Posted on June 17, 2001

I am a Historic Preservation Planner for the local historic zoning commission in Memphis and the issue of bus shelters has come up in some of our locally regulated historic districts. So far, our transit authority has worked with us and removed an ultra-modern bus shelter they had constructed on the sidewalk of a c.1900 neighborhood. They said they'd consider a more appropriate style (as bus riders now have no shelter at that location) if our office could provide them with some reasonably affordable examples. I have looked at a variety of catalogs from companies who might carry such an item but have had no luck so far. How have other communities dealt with this issue? Are there somewhat compatible bus shelters available on the market? If so, who has them? We would need styles that would fit a variety of eras - from turn-of-the-century to post WWII. Any advice or information would be much appreciated.

[Email](#) [Share](#) [Print](#) [RSS](#) **Font: A / A+ / A++**

National Trust Forum

- [Newsroom](#)
- [Library](#)
- [Forum Journal](#)
- [Live Chats](#)
- [Case Studies](#)
- [Forum-L Archive](#)
- [Member Resources](#)
- [Preservation Career Center](#)
- [Stay Informed](#)
- [Contact Us](#)

Other Professional Resources

- [Statewide & Local Partners](#)
- [National Trust Main Street Center](#)
- [Preservation Books](#)

Make a Donation

Support our historic sites, regional offices and work with communities by making a tax deductible gift today.

[Give Now](#)

Who We Are

- [History](#)
- [Our Departments](#)
- [Regional Offices](#)
- [Trustees, Advisors and Staff](#)
- [Partners](#)

Membership and Support

- [Become a Member](#)
- [Renew](#)
- [Monthly Giving](#)
- [Donate](#)
- [Gift Membership](#)
- [About Membership](#)
- [Advertise](#)

How to Get in Touch

- [Facebook](#)
- [Flickr](#)
- [Twitter](#)
- [Contact Us](#)

Helping people protect, enhance and enjoy the places that matter to them

1785 Massachusetts Ave. NW, Washington, DC 20036-2117
P 202.588.6000 T 800.944.6847 F 202.588.6038

[Terms of Use](#) | [Privacy](#)

© 2011 National Trust for Historic Preservation. All Rights Reserved.

A member of the International National Trusts Organisation (INTO)



Helping people protect, enhance and enjoy the places that matter to them

[ABOUT US](#) | [RESOURCES](#) | [TAKE ACTION](#) | [ISSUES](#) | [TRAVEL & SITES](#) | [SUPPORT US](#) |

[Email](#) [Share](#) [Print](#) [RSS](#) [Font: A / A+ / A++](#)

Forum-L Archive

Bus Shelters (24795)

Posted by Stephen Stowell [Sstowell@ci.lowell.ma.us] | Posted on January 25, 2002

Looking for examples of bus stop shelters in urban historic areas that people are familiar with that they feel are functionally and historically appropriate. Photos, website links, specifications, source materials, critiques, etc. would all be appreciated. Thanks!

----- Lowell, MA - One of the National Trust for Historic Preservation's Dozen Distinctive Destinations for 2000

Stephen Stowell Administrator Lowell Historic Board JFK Civic Center 50 Arcand Drive Lowell, MA 01852 (978) 970-4270/970-4262 fax Sstowell@ci.lowell.ma.us

[Email](#) [Share](#) [Print](#) [RSS](#) [Font: A / A+ / A++](#)

National Trust Forum

- [Newsroom](#)
- [Library](#)
- [Forum Journal](#)
- [Live Chats](#)
- [Case Studies](#)
- [Forum-L Archive](#)
- [Member Resources](#)
- [Preservation Career Center](#)
- [Stay Informed](#)
- [Contact Us](#)

Other Professional Resources

- [Statewide & Local Partners](#)
- [National Trust Main Street Center](#)
- [Preservation Books](#)



Who We Are

- [History](#)
- [Our Departments](#)
- [Regional Offices](#)
- [Trustees, Advisors and Staff](#)
- [Partners](#)

Membership and Support

- [Become a Member](#)
- [Renew](#)
- [Monthly Giving](#)
- [Donate](#)
- [Gift Membership](#)
- [About Membership](#)
- [Advertise](#)

How to Get in Touch

- [Facebook](#)
- [Flickr](#)
- [Twitter](#)
- [Contact Us](#)

Helping people protect, enhance and enjoy the places that matter to them

1785 Massachusetts Ave. NW, Washington, DC 20036-2117
P 202.588.6000 T 800.944.6847 F 202.588.6038

[Terms of Use](#) | [Privacy](#)

© 2011 National Trust for Historic Preservation. All Rights Reserved.
A member of the International National Trusts Organisation (INTO)



Helping people protect, enhance and enjoy the places that matter to them

[ABOUT US](#) | [RESOURCES](#) | [TAKE ACTION](#) | [ISSUES](#) | [TRAVEL & SITES](#) | [SUPPORT US](#) |

[Email](#) [Share](#) [Print](#) [RSS](#) [Font: A / A+ / A++](#)

Forum-L Archive

Bus Shelters (23910)

Posted by Bruce Kriviskey [bruce.kriviskey@co.fairfax.va.us] | Posted on June 17, 2001

Hi All,

This is a building. Hire an architect. This would be a great opportunity for a design competition for local design professionals. You probably won't find what you are looking for in a catalog. Also, what's wrong with good contemporary design—design that understands and respects its surroundings without faking it? The last thing that preservationists should be promoting is an architectural fib. You probably didn't even have buses back in 1900. Why not bring back the streetcars?

Bruce M. Kriviskey, FAICP/AIA

Senior Planner/County Historic Preservation Planner County of Fairfax, Virginia, Department of Planning and Zoning

[Email](#) [Share](#) [Print](#) [RSS](#) [Font: A / A+ / A++](#)

National Trust Forum

- [Newsroom](#)
- [Library](#)
- [Forum Journal](#)
- [Live Chats](#)
- [Case Studies](#)
- [Forum-L Archive](#)
- [Member Resources](#)
- [Preservation Career Center](#)
- [Stay Informed](#)
- [Contact Us](#)

Other Professional Resources

- [Statewide & Local Partners](#)
- [National Trust Main Street Center](#)
- [Preservation Books](#)



Who We Are

- [History](#)
- [Our Departments](#)
- [Regional Offices](#)
- [Trustees, Advisors and Staff](#)
- [Partners](#)

Membership and Support

- [Become a Member](#)
- [Renew](#)
- [Monthly Giving](#)
- [Donate](#)
- [Gift Membership](#)
- [About Membership](#)
- [Advertise](#)

How to Get in Touch

- [Facebook](#)
- [Flickr](#)
- [Twitter](#)
- [Contact Us](#)

Helping people protect, enhance and enjoy the places that matter to them

1785 Massachusetts Ave. NW, Washington, DC 20036-2117
P 202.588.6000 T 800.944.6847 F 202.588.6038

[Terms of Use](#) | [Privacy](#)

© 2011 National Trust for Historic Preservation. All Rights Reserved.

A member of the [International National Trusts Organisation \(INTO\)](#)



Helping people protect, enhance and enjoy the places that matter to them

[ABOUT US](#) | [RESOURCES](#) | [TAKE ACTION](#) | [ISSUES](#) | [TRAVEL & SITES](#) | [SUPPORT US](#) |

[Email](#) [Share](#) [Print](#) [RSS](#) [Font: A / A+ / A++](#)

Forum-L Archive

Bus Stop Passenger Shelters

Posted by Rhonda Baker, RBaker@ci.grand-rapids.mi.us | Posted on July 15, 2009

I have two designs for bus shelters that have been used in our historic districts. If you would like to see them please give me your email address so that I may send you the elevations.

Rhonda Baker
Historic Preservation Specialist
City Planning Department
616-456-3451
rbaker@grcity.us

[Email](#) [Share](#) [Print](#) [RSS](#) [Font: A / A+ / A++](#)

National Trust Forum

- [Newsroom](#)
- [Library](#)
- [Forum Journal](#)
- [Live Chats](#)
- [Case Studies](#)
- [Forum-L Archive](#)
- [Member Resources](#)
- [Preservation Career Center](#)
- [Stay Informed](#)
- [Contact Us](#)

Other Professional Resources

- [Statewide & Local Partners](#)
- [National Trust Main Street Center](#)
- [Preservation Books](#)

Make a Donation

Support our historic sites, regional offices and work with communities by making a tax deductible gift today.

[Give Now](#)

Who We Are

- [History](#)
- [Our Departments](#)
- [Regional Offices](#)
- [Trustees, Advisors and Staff](#)
- [Partners](#)

Membership and Support

- [Become a Member](#)
- [Renew](#)
- [Monthly Giving](#)
- [Donate](#)
- [Gift Membership](#)
- [About Membership](#)
- [Advertise](#)

How to Get in Touch

- [Facebook](#)
- [Flickr](#)
- [Twitter](#)
- [Contact Us](#)

Helping people protect, enhance and enjoy the places that matter to them

1785 Massachusetts Ave. NW, Washington, DC 20036-2117
P 202.588.6000 T 800.944.6847 F 202.588.6038

[Terms of Use](#) | [Privacy](#)

© 2011 National Trust for Historic Preservation. All Rights Reserved.

A member of the [International National Trusts Organisation \(INTO\)](#)

Javoronok, Sara

From: Baker, Rhonda [rbaker@grand-rapids.mi.us]
Sent: Wednesday, October 05, 2011 5:47 AM
To: Javoronok, Sara
Subject: RE: Bus Shelters?
Attachments: cherry Bus stop.jpg; 139 S DIVISION.JPG; Division Avenue Bus Shelter.pdf; Cherry Street Bus Shelter.pdf

Here you go. The smaller one with the wood posts is located at the end of a small commercial corridor located in a residential neighborhood. The other is located along Division Avenue, which is a main north/south artery through downtown.

Rhonda

From: Javoronok, Sara [<mailto:sjavoronok@westlinnoregon.gov>]
Sent: Tuesday, October 04, 2011 7:11 PM
To: Baker, Rhonda
Subject: Bus Shelters?

Hi Rhonda,

I was looking in the Forum-L archive for information about bus shelters in historic districts and came across a message you sent in 2009 about shelters in Grand Rapids. Could you please send me the elevations of the two that have been used in your historic districts?

Please let me know if you have any questions.

Thanks in advance!

Sara

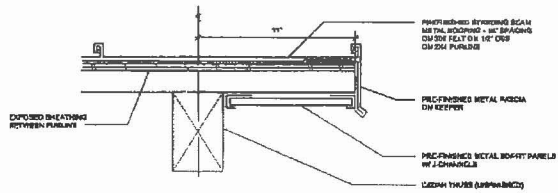
 Sara Javoronok
sjavoronok@westlinnoregon.gov
Associate Planner
22500 Salamo Rd
West Linn, OR 97068
P: (503) 722-5512
F: (503) 656-4106
Web: westlinnoregon.gov

West Linn Sustainability Please consider the impact on the environment before printing a paper copy of this email.

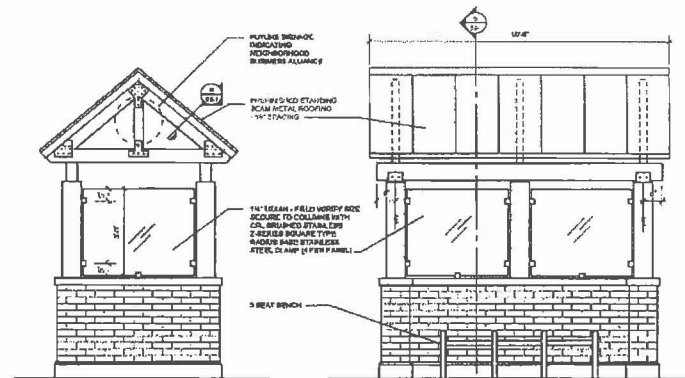
Public Records Law Disclosure This e-mail is subject to the State Retention Schedule and may be made available to the public.



HRB 10/18/2011 41

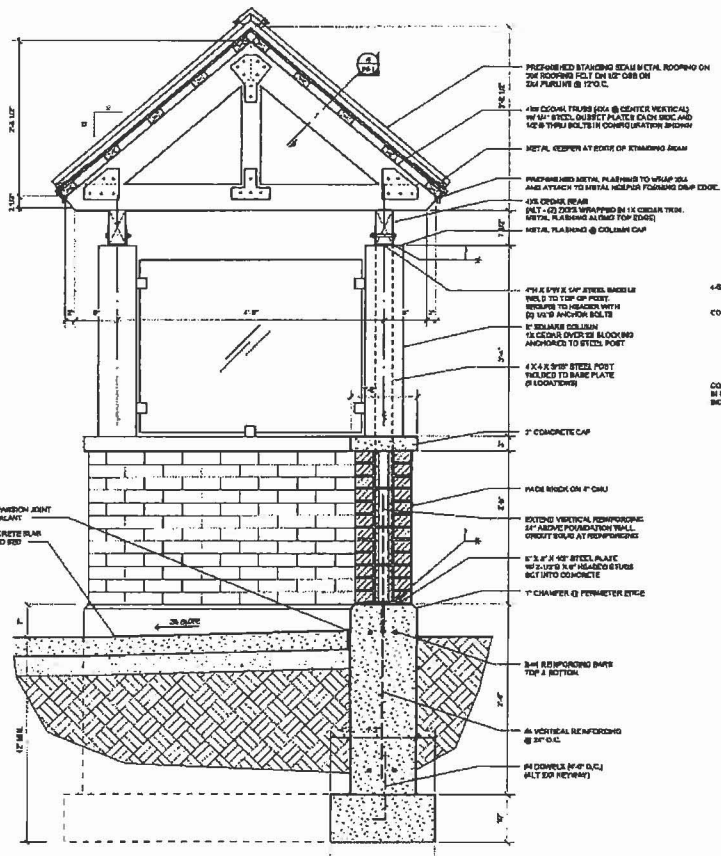


RAKE SECTION
Scale: 1/2" = 1'-0"

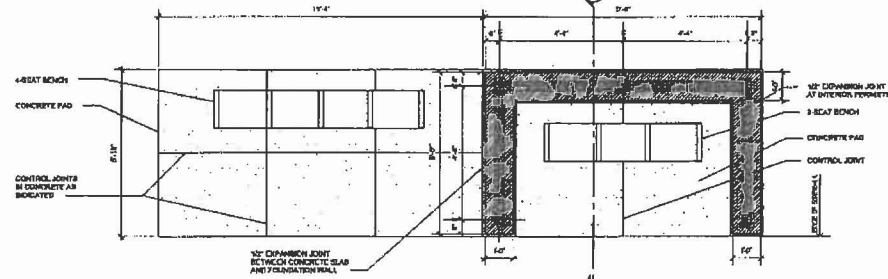


SIDE ELEVATION
Scale: 1/2" = 1'-0"

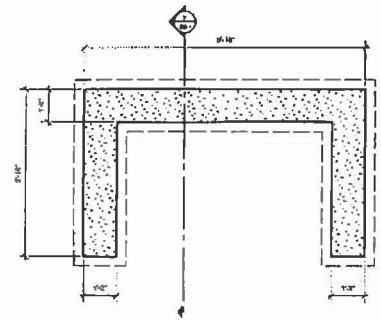
FRONT ELEVATION
Scale: 1/2" = 1'-0"



BUILDING SECTION
Scale: 1/4" = 1'-0"



FLOOR PLAN
Scale: 1/2" = 1'-0"



FOUNDATION PLAN
Scale: 1/2" = 1'-0"



SHEET TYPE

ILLUSTRATED BY:
SEARS ARCHITECTS | *Common Sense Sustainable Design*
1111 Cherry Street SE, Suite 200, Tallahassee, FL 32301-1111
www.searsarchitects.com | Tel: 904.209.1111

City of Coastal Bight
Coastal Bight Authority
Engineering Department
**RECONSTRUCTION
OF
STREET NAME
FROM STREET
TO
STREET**

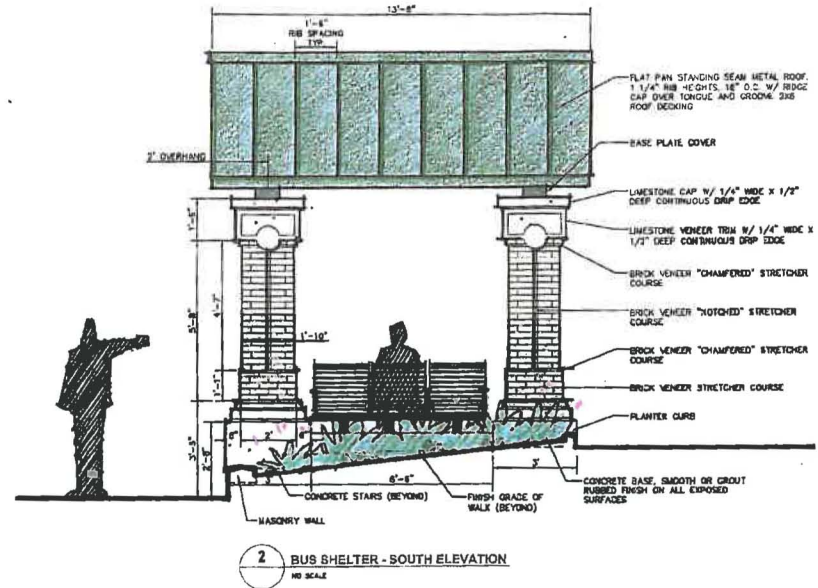
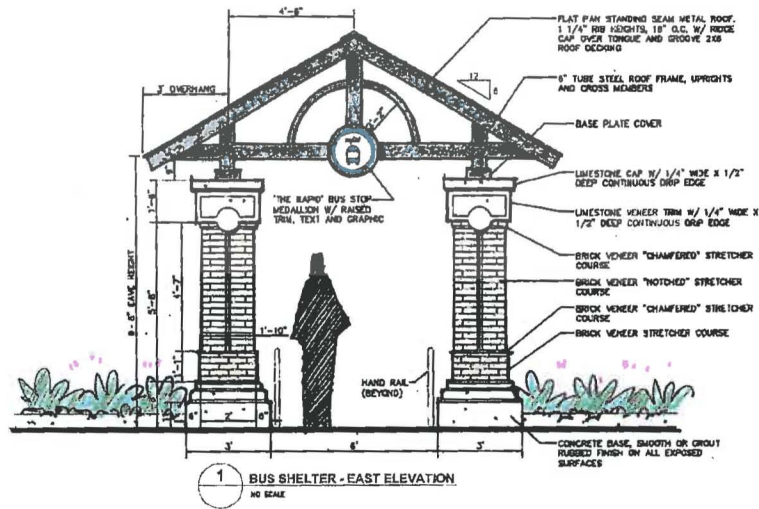
REV. NO.	CHERRY ST. BUS STOP	DATE	BY	CHKD. BY

Approved

Submitted By Applicant
At HPC mtg.

3-18-09

RB



Proposed Bus Shelter
Cherry Street Pocket Park
 City of Grand Rapids

OCBA
 O'BOYLE
 COWELL
 BLALOCK
 & Associates, Inc
 Kalamazoo, Grand Rapids

March 2009



Helping people protect, enhance and enjoy the places that matter to them

[ABOUT US](#) | [RESOURCES](#) | [TAKE ACTION](#) | [ISSUES](#) | [TRAVEL & SITES](#) | [SUPPORT US](#) |

[Email](#) [Share](#) [Print](#) [RSS](#) **Font: A / A+ / A++**

Forum-L Archive

Bus Stop Passenger Shelters

Posted by Janet Gapen, jgape@salisburync.gov | Posted on July 14, 2009

Salisbury Transit (City of Salisbury, NC) is gathering information on installing bus stop passenger shelters in our historic districts. The project will require local HPC review and Section 106 review since federal funds are involved.

As a starting point, we are looking for shelter designs that have been used in other local historic districts. If you have a recent installation to share, please forward the name of the company you purchased your bus stop passenger shelters from, and the type/model of the bus stop passenger shelters along with any other pertinent information.

Janet Gapen
Senior Planner - Community Planning Services
City of Salisbury, North Carolina
(704) 638-5230 phone (704) 638-8548 fax

[Email](#) [Share](#) [Print](#) [RSS](#) **Font: A / A+ / A++**

National Trust Forum

- [Newsroom](#)
- [Library](#)
- [Forum Journal](#)
- [Live Chats](#)
- [Case Studies](#)
- [Forum-L Archive](#)
- [Member Resources](#)
- [Preservation Career Center](#)
- [Stay Informed](#)
- [Contact Us](#)

Other Professional Resources

- [Statewide & Local Partners](#)
- [National Trust Main Street Center](#)
- [Preservation Books](#)



Who We Are

- [History](#)
- [Our Departments](#)
- [Regional Offices](#)
- [Trustees, Advisors and Staff](#)
- [Partners](#)

Membership and Support

- [Become a Member](#)
- [Renew](#)
- [Monthly Giving](#)
- [Donate](#)
- [Gift Membership](#)
- [About Membership](#)
- [Advertise](#)

How to Get in Touch

- [Facebook](#)
- [Flickr](#)
- [Twitter](#)
- [Contact Us](#)

Helping people protect, enhance and enjoy the places that matter to them

1785 Massachusetts Ave. NW, Washington, DC 20036-2117
P 202.588.6000 T 800.944.6847 F 202.588.6038

[Terms of Use](#) | [Privacy](#)

© 2011 National Trust for Historic Preservation. All Rights Reserved.
A member of the International National Trusts Organisation (INTO)



Helping people protect, enhance and enjoy the places that matter to them

Search input field with a blue search button

ABOUT US | RESOURCES | TAKE ACTION | ISSUES | TRAVEL & SITES | SUPPORT US

Email Share Print RSS Font: A / A+ / A++

Forum-L Archive

Bus Stop Passenger Shelters

Posted by Richard Layman, rlaymandc@yahoo.com | Posted on July 14, 2009

it's easier to look up the major companies (i.e., Adshel/Clear Channel; JCDecaux, etc.) and see their bus shelter (a/k/a "street furniture") images. E.g., Adshel's shelter used in Oakland, CA is what I would consider to be more compliant with historic districts. I advocated for the use of this shelter in DC.

However, most of the people in the various historic districts advocated for a "modern" shelter to show the difference between a structure constructed "today" vs. one that could have been constructed during particular periods of historic significance. And that's what we have in DC today. People didn't want one type of shelter for historic districts and another type elsewhere, even though the contractor (Adshel) was willing. See <http://www.flickr.com/photos/rlayman/3480113501/>

I am a fan of this type of shelter: <http://www.flickr.com/photos/rlayman/44691563/> called Helios, which was produced by a company that may now be owned by JCDecaux.

It's similar stylistically to the trolley/carriage waiting stations that Olmsted and Vaux designed for the grounds of the U.S. Capitol (I don't have an image).

Here is a blog entry (<http://urbanplacesandspaces.blogspot.com/2006/01/dc-bus-shelter-planning.html>) that I wrote in 2006 on this subject. The top image is the shelter structure used in Oakland, California.

Another blog entry of mine -- <http://urbanplacesandspaces.blogspot.com/2005/09/bus-shelters-revisited.html> discusses the publication on transit waiting environments from Kent State as well as an MAS exhibit on the 21st Century Streetscape, including street furniture.

The latter webpage is now only available through archive.org, here:

http://web.archive.org/web/20030924010445/http://www.mas.org/Resources/mas-web-98/intro4_f.html

Richard Layman
DC

Email Share Print RSS Font: A / A+ / A++

National Trust Forum

- Newsroom
- Library
- Forum Journal
- Live Chats
- Case Studies
- Forum-L Archive
- Member Resources
- Preservation Career Center
- Stay Informed
- Contact Us

Other Professional Resources

- Statewide & Local Partners
- National Trust Main Street Center
- Preservation Books



Who We Are

- History
- Our Departments
- Regional Offices
- Trustees, Advisors and Staff
- Partners

Membership and Support

- Become a Member
- Renew
- Monthly Giving
- Donate
- Gift Membership
- About Membership
- Advertise

How to Get in Touch

- Facebook
- Flickr
- Twitter
- Contact Us

Helping people protect, enhance and enjoy the places that matter to them

1785 Massachusetts Ave. NW, Washington, DC 20036-2117
P 202.588.6000 T 800.944.6847 F 202.588.6038

[Terms of Use](#) | [Privacy](#)

© 2011 National Trust for Historic Preservation. All Rights Reserved.



You aren't signed in [Sign In](#) [Help](#)

[Home](#) [The Tour](#) [Sign Up](#) [Explore](#) [Upload](#)

[Search](#)

[Favorite](#) [Actions](#) [Share](#) [Newer](#) [Older](#)



Bus shelter on Military Road NW in Rock Creek Park



By [rllayman](#)
Richard Layman + [Add Contact](#)

This photo was taken on [April 26, 2009](#) using a [Kodak EasyShare Z710 Zoom](#).

47 views

This photo belongs to

[rllayman's photostream](#) (24,541)



Tags

Eye-Fi

License

[All Rights Reserved](#)

Privacy

This photo is visible to everyone

Comments and faves



Add your comment here...

[Want to format your comment?](#)

[POST COMMENT](#)

You
[Explore](#)
[Help](#)

[Sign in](#) [Create Your Free Account](#)
[Places](#) [Last 7 Days](#) [This Month](#) [Popular Tags](#) [The Commons](#) [Creative Commons](#) [Search](#)
[Community Guidelines](#) [The Help Forum](#) [FAQ](#) [Sitemap](#) [Get Help](#)

[Flickr Blog](#) [About Flickr](#) [Jobs](#) [Terms of Use](#) [Your Privacy](#) [About Our Ads](#) [Copyright/IP Policy](#) [Yahoo! Safety](#) [Report Abuse](#)

[Deutsch](#) [English](#) [Español](#) [Français](#) [Italiano](#) [Português](#) [Tiếng Việt](#) [Bahasa Indonesia](#)
Copyright © 2011 Yahoo! Inc. All rights reserved.



You aren't signed in [Sign In](#) [Help](#)

[Home](#) [The Tour](#) [Sign Up](#) [Explore](#) [Upload](#)

[Search](#)

[Favorite](#) [Actions](#) [Share](#) [Newer](#) [Older](#)



Helios bus shelter in Berlin

Helios, Arno Bonanni, Wall City Design. Berlin, Germany.
Photo: Courtesy of Project for Public Spaces .

By [rllayman](#)
Richard Layman + [Add Contact](#)

This photo was taken on [September 19, 2005](#).

326 views 1 comment

This photo belongs to



Tags

[bus](#) [bus shelter](#) [transit](#)

License

[All Rights Reserved](#)

Privacy

This photo is visible to everyone

Comments and faves



[foto4berlin.de](#) (64 months ago)
Dear FLICKR-FRIEND,

PLEASE, add this cool picture to this special group!
www.flickr.com/groups/83335064@N00/

Thanks! Merci! Gracias und Danke aus Berlin!



Add your comment here...

[Want to format your comment?](#)

[POST COMMENT](#)

[Sign in](#) [Create Your Free Account](#)
[Places](#) [Last 7 Days](#) [This Month](#) [Popular Tags](#) [The Commons](#) [Creative Commons](#) [Search](#)
[Explore](#) [Community Guidelines](#) [The Help Forum](#) [FAQ](#) [Sitemap](#) [Get Help](#)
[Help](#)
[Flickr Blog](#) [About Flickr](#) [Jobs](#) [Terms of Use](#) [Your Privacy](#) [About Our Ads](#) [Copyright/IP Policy](#) [Yahoo! Safety](#) [Report Abuse](#)

[Deutsch](#) [English](#) [Español](#) [Français](#) [Italiano](#) [Português](#) [Tiếng Việt](#) [Bahasa Indonesia](#)
Copyright © 2011 Yahoo! Inc. All rights reserved.

Empty rectangular box for user input.

YOUR E-MAIL HERE

THE ARCHITECTS NEWSPAPER

HOME NEWS BLOG FABRIKATOR DIARY COMPETITIONS ARCHITECT'S LIBRARY JOBS ABOUT AN SUBSCRIBE ADVERTISE CONTACT AN
PAST ISSUES CURRENT ISSUES:

NEWS

08 14 2009

CATCH THE WAVE

San Francisco debuts solar-powered bus shelter design



THE UNDULATING, SOLAR-TOPPED CANOPY IS INSPIRED BY SEISMIC SHOCK WAVES. COURTESY LUNDBERG DESIGN

While many cities have been working to green their public transportation systems, rolling out hybrid buses, electric-vehicle fleets, and the like, San Francisco is one of the first to tackle that humdrum piece of transit street furniture: the bus shelter.

Mayor Gavin Newsom has cut the ribbon on the first of 1,200 new bus shelters the city plans to install over the next five years, and a third of them will be powered by solar arrays mounted on distinctive, wavelike canopies. The transparent, LED-lit unit, by local architecture firm Lundberg Design, was the winning entry in the San Francisco Municipal Transportation Agency's design competition for the shelters, which drew 35 submissions.



THE YELLOW-TOPPED SHELTERS, WITHOUT SOLAR UNITS IN THE CANOPY, ARE INTENDED FOR HISTORIC DISTRICTS IMAGES COURTESY LUNDBERG DESIGN

Taking its cue from the shape of seismic shock waves, the canopy is made of recycled, 40 percent post-industrial polycarbonate, with a ribbon of solar cells running down its center. The photovoltaic (PV) material supplies power to a LED arrival-time display and to a push-button loudspeaker for

LEARN
OCTOBER 27
 JAVITS CONVENTION CENTER
 Admission is FREE.
 THE NEW YORK 2009

ARCHITECTS & DESIGNERS BUILDING

WALK RIGHT IN NYC

Shop 35 Luxury Kitchen & Bath, Appliance, Tile & Stone, Carpet, Lighting & Furniture Showrooms.

visually impaired riders, with extra power being fed back into the grid. The architects were charged with designing a structure in three different sizes to suit a range of neighborhoods and inclines, so the 70 percent reclaimed steel frame uses a bolted assembly that references the city's bridges and can



Add a comment...

Comment

expand from two panels to four. Convex bench seats shed debris and moisture, while also discouraging patrons from reclining—perhaps while using the shelter's handy, integrated WiFi.



THE PV RIBBONS ARE EXPECTED TO FEED POWER BACK INTO THE CITY GRID

As the remaining units are rolled out over the coming years, the city and project sponsor Clear Channel—which is funding the fabrication of the new shelters in return for a share of the advertising revenue over the next 15 years—expect them to become not only a symbol of San Francisco's sustainable future, but also a model for public transit systems across the country. And at \$25,000 to \$30,000 each, they're also a model of what the right sponsor can do for a city's image.

Jennifer Krichels



HOME NEWS BLOG FABRIKATOR DIARY COMPETITIONS ARCHITECT'S LIBRARY JOBS ABOUT AN SUBSCRIBE ADVERTISE CONTACT AN PAST ISSUES CURRENT ISSUES EAST WEST MIDWEST

Copyright © 2003-2011 | The Architect's Newspaper, LLC | All rights reserved | [about us](#) | [contact us](#) | [privacy policy](#)
The Architect's Newspaper, LLC | 21 Murray Street | 5th Floor | New York, NY 10007 | tel: 212 966 0630





Home : About TriMet : Public Art Program : Bus Shelter Art

Email Tweet Share

Bus Shelter Art

TriMet reuses graffiti-laden glass bus shelter panels by sandblasting them into artwork that enhances communities, saves money and reduces waste.

Each year, about 750 panels are severely scratched by vandals. Replacement panels would cost TriMet about \$200 each.

Instead, the vandalized glass is removed, sandblasted with an artist-designed motif and then reinstalled where needed. Etching the glass by sandblasting removes the scratches and costs under \$20. This saves TriMet at least \$100,000 a year.



Sandblasting vandalized glass beautifies bus stops and deters further vandalism.

"This is an innovative solution to an expensive problem that underscores our commitment to keeping our amenities attractive," says TriMet General Manager Fred Hansen. "TriMet saves money and reduces waste by recycling the glass, and at the same time the community gains a piece of artwork."

A leaf pattern designed by Seattle artist Carolyn Law is currently being used in many TriMet bus shelter panels. The agency plans to request proposals from artists for future designs.

RELATED

Public art on TriMet's rail lines