



Program Evaluation and Audit

Passenger Shelter Costs

December 22, 2006

INTRODUCTION

Background

Metro Transit has approximately 18,000 bus stops. The number of passengers utilizing these stops is examined on a periodic basis. Based on the level of usage, determinations are made as to whether or not a passenger shelter is warranted on the site and if so, what type of amenities should be included, where applicable (see Appendix B). Metro Transit completed such a re-examination in 2005.

Currently, Metro Transit has approximately 897 shelters throughout the metropolitan area. The shelters vary in type, size and amenities, as will be discussed further on in this report.

Metro Transit has approximately 850 standard shelters that are classified as either type C, D, or E, as shown in table 1.

Table 1. Shelter Types

Type	Description	Bid Cost Regular	Bid Cost Specialty
Type A	19' X 6' with doors and windshields	N/A	N/A
Type C	12' X 6' with doors and windshields	\$3,092	\$8,195
Type D	8' X 3 ½ ' with no windshields	\$2,067	N/A
Type E	12' X 3 ½ ' with no windshields	\$2,637	\$7,795

Metro Transit also has specialty shelters. There are 34 specialty type C and E shelters, and there are 13 custom designed shelters at locations with significant passenger usage. The remaining specialty shelters are part of Transit Centers which may be part of park and ride lots and, in most instances, also include driver layover areas and restrooms.

The costs of Metro Transit passenger shelters have been described by local media as being excessive. As a result of the media reports, the Metropolitan Council’s Regional Administrator requested a review of passenger shelter costs.

Assurances

This review was conducted in conformance with *Government Auditing Standards* and the *Standards for the Professional Practice of Internal Auditing* of the Institute of Internal Auditors. Findings are reported to auditee, senior management, the Regional Administrator and the Audit Committee of the Council.

Purpose

This audit will evaluate the costs and processes associated with the development and placement of Metro Transit passenger shelters throughout the region.

Scope

This audit included:

- Examining the actual costs of passenger shelters from calendar year 2002 through 2005,
- Reviewing the processes used in determining the needs for the different types of shelters, and
- Evaluating how Metro Transit passenger shelters compare to shelters in other parts of the country.

The Riverview Corridor project was used for an in depth look at the processes and the costs

Methodology

To gain an understanding of the shelter development costs and processes, the following methods of inquiry were used:

- Documentation that was recently released to the media on shelter costs was reviewed,
- Purchase orders for passenger shelters were analyzed,
- PeopleSoft financial information was reviewed,
- Project files were examined,
- Key Metro Transit personnel were interviewed,
- Data from 20 other transit organizations on shelter costs was collected and reviewed for possible comparisons with Metro Transit.

Based on the information collected, an analysis was performed on the passenger shelter design process and costs.

OBSERVATIONS

Passenger shelters are part of the overall Metro Transit transportation service planning process.

Metro Transit conducts studies on a regular basis to assess transit development needs. The goal of all transit development is to build ridership by keeping the customer's needs in mind. Metro Transit customer surveys have found that the preboarding experience is important to the customer. Surveys also show that a significant number of Metro Transit customers have at least one car available to them. In essence, single-occupancy vehicles are the competition with a transit ride for many commuters. To ensure a pleasant ridership experience for these customers, Metro Transit prioritizes providing safe, and in some instances well lit and heated passenger shelters. Metro Transit believes it is important for the customer to have some of the basic comforts of their vehicle when riding transit.

Metro Transit periodically reassesses the need for passenger shelters throughout the system. Metro Transit completed a study of passenger shelter needs in 2005. As a result of this study, over 100 sites were found to no longer fit the criteria for a shelter, while 100 sites that didn't meet criteria previously did so now. Metro Transit moved shelters to meet the recalibrated need. A number of these shelters were more than 20 years old. Additional shelters were put out for bid in the spring of 2006 in order to replace those that were no longer usable.

Major development projects such as the Riverview Corridor and the Bottineau Boulevard BRT projects involved significant improvements to passenger facilities. These projects required several years of planning, meeting with community groups, negotiating joint powers agreements with local governments, submitting federal and state funding requests, and cooperating with private property owners in the affected areas. Table 2 shows the timeline and activities for the Riverview Corridor demonstrating how a successful project requires a collaborative effort with significant involvement from public and private interests.

Table 2. Riverview Corridor Timeline of Activities

May 1998	Phase 1 Riverview Corridor Study Complete Prepared by Ramsey County Regional Railroad Authority with assistance by: Metropolitan Council Metro Transit City of St Paul MN DOT
May 1999	Ramsey County Regional Railroad Authority authorized use of state and federal funds in the amount of \$1,875,000 for transit improvements including :\$ 21,000 Bus shelters along West 7 th /Fort Road 196,000 Upgrade bus shelters along West 7 th 248,000 Upgrade bus shelters along East 7 th 210,000 Lighting at bus stops along West 7 th 70,000 Lighting at bus stops along East 7 th 280,000 Kiosks at bus stops along East and West 7 th 960,000 Shelters at two downtown St. Paul locations
2000	\$44,000,000 grant from the state to develop bus rapid transit from Mall of America to Maplewood Mall
December 2000	Metropolitan Council allocates \$2,100,000 for a Riverview Corridor busway.
July 2001	City of St. Paul Parks Department refused to approve shelter for Rice Park. Funds were reallocated to add additional shelters between downtown St. Paul and Maplewood Mall
January 2002	Joint powers agreement between Metropolitan Council and City of St. Paul to perform activities related to Riverview Corridor
February 2002	Legislature rescinds \$40,000,000 of the grant leaving a residual \$6,100,000
Winter 2002	City of St. Paul, Metro Transit and consultant begin bus station planning.
2003	Draft of bus station plan. Meetings with neighborhood councils. Public hearings held. Station planning included public participation
October 2004	Joint Powers agreement between Metropolitan Council and City of St. Paul for Riverview Corridor. Scope changed from BRT to limited stop bus routes. Station Areas changed to Traditional Neighborhood Nodes. Centerpiece of agreement is concept of transit oriented development.

Program Evaluation and Audit found evidence documenting significant, detailed public input for each project that was reviewed. As with any capital improvement involving public organizations, there are opportunities for public response with any or all of the various governmental units involved in the projects.

The Riverview Corridor transit improvements and route changes have nearly doubled the number of passenger boardings from downtown St. Paul to the Mall of America. For the Riverview Corridor, the planning and development paved the way for increased ridership.

By contrast, the Bottineau Boulevard development is a response to increased ridership and the needs of newer Metro Transit customers.

The planning process for the passenger shelter at the Hennepin County Government Center included a study of the people waiting for buses at that site. The study found that commuters did not group together and preferred to have distance between themselves. As a result, the passenger shelter was designed to be longer and narrower than typical shelters. Heaters were placed a few feet apart. Since the shelter was completed, it has been noted that the passengers now group together in the shelter under the heaters in extremely cold weather.

Most of the new specialty shelters incorporate security cameras. As part of the transit oriented development property owners have offered to allow cameras to be mounted on their buildings and to assist in providing surveillance for the site.

New stations are being wired to allow for future use with TVMs and validators to facilitate faster, easier boarding for passengers.

In Minneapolis the city now requires that new developments include passenger shelters in their building plans if they intend to utilize transit for their employees and customers. Many downtown businesses have their own passenger shelters that they constructed to integrate with their buildings.

Metro Transit has procured manufactured passenger shelters through a competitive bid process.

The majority of all Metro Transit passenger shelters are manufactured Type C, D, or E shelters. These are competitively bid. The costs of these shelters range from \$2,067 to \$3,092, as shown in Table 1. They are installed by Metro Transit maintenance staff.

The cost for the shelters is less in 2006 than it was in 2004. The shelters are barrel roofed shelters which may include windscreens, vandal resistant glass, a bench and a schedule holder. Depending on the location and usage these shelters may include lighting and heating. Additional costs for these shelters may include \$300 for site designs required by the cities of Minneapolis and Saint Paul, \$2,900 for ADA pads if needed, and electrical costs for lights and heat, where applicable.

If Metro Transit selects a site that is on private property a simple contract is entered into with the property owner for five years at a cost of \$1. This contract is then subject to renewal every five years. If a shelter is removed the contracts call for restoring the site to its original condition.

Prior to 2005 the average site design costs were \$1900 per site but Metro Transit was able to convince both Minneapolis and St. Paul to accept site designs produced internally by Metro Transit staff utilizing standard software, rather than incurring the costs from an outside architect/designer, thereby reducing costs. Currently, new shelter sites are on the public right of way. These shelters are maintained by Metro Transit.

As a part of the Riverview Corridor project, Metro Transit purchased 34 specialty Type C and E shelters. The shelters are manufactured specialty style shelters. They are green with gable roofs with grill work, lighting and matching benches. The prices ranged from \$7,795 to \$8,815. These shelters were competitively bid on two occasions. The second

time they were bid, Metro Transit was able to procure these shelters for approximately \$600 less per shelter than the first time they were bid. All other costs for these shelters are similar to the standard manufactured shelter costs. The purchase and placement of these shelters was part of the Riverview Corridor plan. Initial plans called for bus stations. This specialty shelter design was selected after Metro Transit held several meetings with the neighborhood councils in Saint Paul. The shelters were not as costly as had been originally anticipated. The monies saved as a result of the lower than expected bids allowed Metro Transit to extend the placement of these shelters to the area east of downtown Saint Paul.

Overall, Metro Transit staff has successfully worked with local government units to decrease the costs associated with the manufactured shelters over time.

Program Evaluation and Audit surveyed 22 other transit organizations regarding their costs for standard pre-manufactured shelters. Eight organizations responded. Tri Met in Portland, Oregon averaged \$2,500 to \$3,200, compared to Metro Transit's costs of \$2,067 to \$3,092 per shelter. The others all had averages about \$3,000 per shelter. King County, Washington averaged \$6,400 per shelter and Eugene, Oregon averaged \$11,000 per shelter for custom-designed manufactured shelters. Eugene has replaced most of its pre-manufactured shelters with custom-designed pre-manufactured shelters at substantially more cost per shelter.

Custom designed passenger shelters often incorporate additional uses in addition to being a passenger facility.

Custom designed passenger shelters can be divided into a number of categories. Program Evaluation and Audit found three basic types of custom shelters:

1. Custom shelters for high usage sites.
2. Transit stations which may be used with bus rapid transit (BRT) or light rail.
3. Transit centers which may include shelter, restrooms, offices and park and ride.

The variety of custom shelters makes it difficult to segregate out the actual passenger facility cost from the overall facility cost. Table 3 identifies six custom designed shelters, the year constructed, additional amenities, and the overall construction costs. Appendix A includes pictures of them.

Table 3. Examples of Custom Shelters (6)

Facility Location	Amenities	Year Built	Construction Cost
Downtown Saint Paul	4 shelters, 2 sites, includes lighting and heat	1995	\$566,712 total \$142,000 each
Hennepin County Government Center	1 shelter, lighting and heat.	2000	\$226,669
University of Minnesota	4 shelters	2002	\$672,085 total \$168,000 average cost
Minnesota Life Shelter	Lighting, heat and security cameras. Planned as a station. May be modified to include ticket vending machine and validator.	2003	\$525,405
Uptown	Transit station and shelters on both sides of Hennepin, driver restroom and offices. Costs included widened Hennepin bridge, installation of traffic signal, two blocks of bus road and retaining wall.	2003	\$4,858,059

The MN Life shelter is an example of a case where the property owner, MN Life, had significant interest in having the shelter complement its building site. The shelter exterior materials are the same as the materials on the MN Life building and the dome on the shelter fits in with Minnesota State Capitol and Saint Paul Cathedral domes. MN Life as part of the bus shelter license agreement must provide written approval before the Council can modify the shelter. MN Life agreed to provide routine maintenance for the shelter including sweeping and picking up litter around the shelter and removing snow and ice. This shelter was built to address future station needs associated with either BRT or light rail and could be easily upgraded to become a BRT/LRT station when needed, without major redesign or rebuilding.

In surveying other transit organizations, we found that there were many variables that impact the cost of custom shelters. Some costs, such as quality of construction and artistic beauty, cannot be easily captured. In Phoenix, \$160,000 was spent for the artistic design of four shelters to celebrate aviation. The resulting design includes roofs shaped like airplane wings with bird silhouettes in the structure’s profile.

Albany, Oregon estimated \$150,000 in costs for a rock and water feature to be installed as part of a transit bus and train station. In Wahoe County, Nevada, \$7,000,000 is being spent on two transit centers that will be in a park-like urban oasis, with climate-controlled waiting areas. The South Eastern Pennsylvania Transit Authority is spending \$200,000

for landscaping at its Frankford Transportation Center and \$549,217 for landscaping and streetscaping at its 69th street terminal. The City of Madison is considering adding custom shelters at \$70,000 per shelter to its buslines. Chester County, Pennsylvania spent \$800,000 to replace a custom shelter in 1999.

A precise comparison of the costs of custom shelters between Metro Transit and other agencies around the country is impossible, because all of the decisions about what and how to customize differ significantly among the agencies. However, on the surface, it appears that Metro Transit's shelter costs are generally lower than those of the other agencies we examined. It also appears that Metro Transit controls costs by using pre-fabricated shelters wherever possible and custom shelters only when needed to achieve goals in working with corporate, neighborhood and other local partners on a broader transit project.

Specialty shelter costs are reasonable when examined on a per passenger basis.

The initial investment in specialty shelters such as stations and transit centers appears to be reasonable when consideration is given to the number of users, the life of the facility and the original cost. Most of the passenger facilities have a life expectancy ranging from 12 to 35 years. A review of one of the shelters at the University of Minnesota (life expectancy 12 years) found the average cost to be 2.7 cents per passenger. Two custom shelters on Hennepin Avenue (life expectancy 12 years) in downtown Minneapolis average 3.26 cents per passenger. The MN Life shelter (life expectancy 25¹ years) costs 8.1 cents per passenger boarding. Most of these shelters have 1,000+ boardings per day. Since the transit centers often have multiple uses, it is difficult to identify a per passenger cost for them.

Manufactured shelters provide significant value for the initial investment.

Metro Transit has a life expectancy of 12 years for manufactured shelters. Their experience has found that with regular maintenance that these shelters in most instances have provided 20 years of use. With more sites with ADA compliant pads in place the overall cost for these shelters is averaging under \$3,200. Based on 40 passenger boardings a day over 12 years this equates to a cost of 1.8 cents per passenger.

Metro Transit passenger shelter processes are consistent with peer systems across the country.

Program Evaluation and Audit sought information from approximately 22 other transit systems in the U.S. and Canada. The majority of the systems were investing heavily in transit oriented development. Portland's system included criteria similar to that used by Metro Transit for determining passenger shelter needs. Most other locales had criteria for premanufactured shelter placement which generally was 25-50 boardings per day. The basic requirement for shelters at many locations includes good lighting for safety, vandal resistant glass, heat, and good visibility.

¹ Transit Accounting records all shelters at 12 years for depreciation purposes. Transit Engineering and Facilities department estimates a life expectancy of 25 years for this shelter.

MN Life Shelter is not recorded properly on asset depreciation schedule.

The MN Life shelter at 400 N. Robert St is not recorded on Metro Transit's asset depreciation schedule. This shelter had an initial cost of \$525,405. A review of the depreciation schedule for shelters and transit stations found that this structure was not being depreciated. Metro Transit accounting personnel said that they had not been advised that this was no longer a work in progress.

CONCLUSIONS

In order to attract and retain new transit riders, it is important to provide them with passenger facilities that are safe and that provide amenities to make their experience more pleasant, and more commensurate with single-vehicle travel. In addition, facilities that include TVMs and validators will shorten the route times for both light rail and BRT and provide further customer convenience.

When reviewing the costs of the passenger facilities it is necessary to look at the overall planned use for a facility to determine the appropriateness of the cost. The majority of all costs for the facilities are funded by either the State or Federal government. In order to receive funding, Metro Transit is required to provide justification for the plan and cost of each facility.

Program Evaluation and Audit found that Metro Transit has effective processes in place for planning and developing passenger shelters. Projects include plans for public input, consultation and partnership with other jurisdictions, ridership studies, and construction cost analysis. In this way, Metro Transit is able to prioritize where shelters are needed and what types of amenities are appropriate and cost-effective. Given the recent publicity, Metro Transit may be well served to inform the public about its various facilities and how the facilities fit into the overall transportation plans for the region.

RECOMMENDATIONS

1. ***The status of the MN Life shelter should be changed from a work in progress to a completed building and be appropriately depreciated.***

Review of Metro Transit's asset depreciation schedule found that the MN Life shelter was not included. The MN Life shelter was completed in 2004. Engineering and Facilities should have notified Accounting Services of the completion of the project so that it would be properly recorded as an asset.

Management Response: *The status of the MN Life shelter has been corrected. Depreciation is accurate going back to the 2004 construction completion date. Staff are currently updating the Engineering Procedures manual. Notifying the Finance Division of a facility construction completion date is to be included as part of the standard procedures.*

2. ***METRO TRANSIT may want to consider providing more information about passenger shelters, bus stations and transit centers on its website.***

PEA found that it was difficult to distinguish between the various types of transit passenger facilities. In order to facilitate better communication regarding transit developments Metro Transit may want to utilize its website to identify the various types of facilities. Currently their website has a section entitled "What's New" that has a subsection "Improving Transit". Information on various corridor projects is included in "What's New". This may be the place to inform the public about how its planning processes work, what criteria is used to determine the type of transit facility and what construction considerations need to be made to handle heavy usage of the facility.

Management Response: *Staff are currently seeking to add shelter locations on line in the Trip Planner. Such shelter information is intended to be available to the public and to the TIC Representatives, showing bus stops that currently have associated passenger waiting shelters.*

The Engineering Division internal web site, currently being developed, is to provide information on new shelter/bus station/transit center locations, and the criteria/guidelines used to determine placement of new shelters.

Appendix A





University of MN



Minnesota Life



Specialty Shelter



Uptown Transit Center

PASSENGER SHELTER PLACEMENTS

WHAT ARE PASSENGER SHELTERS?

Passenger Shelters are open or enclosed structures used by bus or rail passengers while waiting for their next trip. Standard shelters refers to facilities that are purchased and installed in large quantities and share common features such as dimension, material and appearance. Custom shelters are often unique to a specific location and are of varying dimensions, materials, finishes, and appearances.

APPLICATION

Passenger Shelter Placements is a required component of the siting, design and construction of new facilities, including: park & rides, shelters/stations, transit centers, and layover facilities and encompasses easements, leases, purchases and condemnation.

PURPOSE

To set forth a fair and consistent process for determining when a standard or custom shelter is warranted at bus or rail stop location. Also to determine what involvement Metro Transit is willing to provide in terms of financial and staff resources in the design, construction and maintenance of these shelters.

BACKGROUND

Passenger shelters are an essential part of the overall transit system. These facilities provide a covered and often heated area for passengers to wait until their next planned trip. Upkeep and ongoing maintenance of these facilities is both critical and resource intensive. The intent of these guidelines is to ensure that these limited resources activities are an important component of siting new facilities. The Metropolitan Council and Metro Transit have made a commitment to involve citizens, local governments and stakeholders in siting, design and construction of new facilities. The federal government also requires public involvement activities (including other state/local agencies) if federal funds are involved.

In addition to ensuring meaningful public involvement, communications between Metro Transit and the Metropolitan Council is to be clear and consistent. An emphasis on internal communications is to ensure that the Council and its operating agencies present a unified, consistent vision in its relationship with those outside the Council.

GUIDELINE FOR METRO TRANSIT STANDARD/CUSTOM SHELTERS INSTALLATION

At the onset of a new project, the Project Manager develops a Project Execution Plan identifying:

- a. Interested parties;
- b. Plan components;
- c. Entities (including outside consultants, if needed) responsible for the plan components; and
- d. Time lines for the plan components.

Project Manager identifies capital funding source(s) and secures approval from the Director of Maintenance for the additional operating cost to maintain all new shelters.

Standard Shelter

1. A standard shelter location will meet a warrant of 25 boarding passengers per day in the suburbs and 40 boarding passengers per day in the Metro area. Heaters are occasionally installed in shelters with a warrant of 80 or more passenger boardings per day.
2. Project Manager identifies standard shelter site locations and determines the shelter type A, B, C, D or E based on number of passengers, City right of way constraints and proximity of other existing shelters.
3. Project Manager/Engineer Firm creates drawing for internal review and review by government agencies.
4. Project Manager coordinates the installation of the standard shelter.
5. All cost associated with the standard shelter including installation costs, maintenance, repair and utility costs are 100% Metro Transit's responsibility. Increasing operating costs to maintain the shelter requires approval by the Director of Maintenance prior to design.
6. All standard shelter designs will include specifications for route information holders that meet Shelter Display Standards.

Custom Shelter

1. A custom designed shelter location will meet a warrant of 100 boarding passengers per day. The following is the criteria for a custom shelter:
 - Part of a larger project such as a bus corridor
 - Transit Centers
 - Park and Ride lots owned and maintained by Metro Transit
 - Downtown Bus Stops

Appendix B

2. The project will have funds specifically designated for design and construction of a custom shelter.
3. The custom shelter design is required to meet Metro Transit's glass specifications.
4. All cost associated with the custom shelter including maintenance, repair and utility costs are 100% Metro Transit's responsibility. Increasing operating costs to maintain the shelter requires approval by the Director of Maintenance prior to design.
5. All custom shelter designs will include specifications for route information holders that meet Shelter Display Standards.

GUIDELINES FOR METRO TRANSIT STANDARD/CUSTOM SHELTERS NOT MEETING WARRANTS

Standard Shelter

1. When a request is made for a standard shelter at a bus stop not meeting warrant the request is not considered because of limited capital and operating funds. There are a number of bus stops that meet warrant and are awaiting a standard shelter installation.
2. When a Local Public Party (LPP) makes a request for a standard shelter, and warrants are not met, the LPP assumes all costs associated with maintenance and ownership of the standard shelter. Metro Transit will assist, if time and funds are available, by providing shelter specification, ADA guidelines for bus shelters, the names of shelter manufacturers, and general contractors familiar with concrete and electric installation.
3. When a LPP makes a request for a standard shelter, and warrants are not met but the LPP is willing and able to reimburse Metro Transit for the purchase and installation cost of a shelter and its amenities, a Financial Participation Agreement and/or Interagency Agreement will be agreed to and signed by both parties prior to design work. The LPP assumes repair and maintenance costs and ownership of the shelter unless otherwise noted in the Financial Participation or Interagency Agreement and prior approval by the Director of Maintenance for operating funds to maintain shelter.
4. When a request is made for a standard shelter at a bus stop not meeting warrant but is serving disabled persons, (group homes or work locations or senior citizen housing) the installation is determined on a case by case basis. Metro Transit will assume 100% of the purchase, installation, maintenance and repair costs. Increasing operating costs to maintain the shelter requires approval by the Director of Maintenance prior to installation.

Custom Shelter

1. When a LPP makes a request for a custom shelter, and warrants are not met, the LPP assumes all costs associated with repair and maintenance and ownership of the custom shelter. Metro Transit will assist, if time and funds are available, by providing shelter specifications, names of engineer and architectural firms familiar with custom shelter design, and ADA guidelines.
2. When a LPP makes a request for a custom design shelter and warrants are not met, but the LPP is willing and able to reimburse Metro Transit for design, construction, and amenities, a Financial Participation Agreement and/or Interagency Agreement will be agreed to and signed by both parties prior to design work. The LPP assumes repair and maintenance costs and ownership of the shelter unless otherwise noted in the Financial Participation or Interagency Agreement.

Appendix B

3. When a LPP makes a request for an upgrade to a custom shelter at a location that meets or exceeds standard shelter warrants but is less than a custom shelter warrant, the LPP assumes all design and construction costs. Metro Transit will assume utility, and maintenance costs providing the Director of Maintenance approves the increase in operating cost. The LPP will retain ownership of the custom shelter.