

# **Belmont-Morrison Project Report & Recommendations**



**City of Portland  
Office of Transportation**

**February, 2000**

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## OVERVIEW & SUMMARY

The Belmont-Morrison Project originally started as a feasibility study of decoupling the Belmont-Morrison one-way couplet in SE Portland. Decoupling refers to the process of changing a one-way couplet back to two-way traffic flow. The project's primary design directive was to identify a new location for the transition between one-way and two-way traffic, currently located at 25<sup>th</sup> Ave., as far to the west, outside of the Buckman neighborhood as possible. The policy directives for decoupling are found in the Buckman Neighborhood Plan and the Transportation Element of the Comprehensive Plan.

The reason for studying decoupling was based on the premise that the function and capacity of the current couplet is inconsistent with transportation and land use policy related to the Belmont-Morrison corridor. The corridor is designated by City transportation policy as a Neighborhood Collector, which is intended to provide multi-modal connections to the regional transportation system primarily for local traffic. The corridor is also designated as a Main Street, intended to support neighborhood oriented commercial development. By providing capacity in excess of similarly designated streets in Portland, the couplet is viewed as detrimental to City policy objectives and neighborhood livability.

In the spring of 1999, the decouple study concluded that there are significant traffic capacity and on-street parking impacts associated with moving the couplet further to the west. As a result, the citizens advisory committee voted to recommend that the current couplet be retained. Instead, the committee also recommended that other, non-decouple, alternatives be studied to address the key issues identified by the project.

The development and analysis of non-decouple (traffic calming) options became the second phase of the project. The two key issues studied were vehicle and pedestrian safety associated with the transition between one-way and two-way traffic flow at the intersection of Belmont and 25<sup>th</sup> Ave., and speeding/pedestrian safety on Belmont between 12<sup>th</sup> and 25<sup>th</sup> Ave. After review of the available traffic calming options, staff and the committee voted to recommend two improvement projects for the corridor: a) reconstruction of the traffic island at the intersection of Belmont and 25<sup>th</sup> Ave. to improve traffic and pedestrian safety, and b) four curb extensions on Belmont St. to improve pedestrian crossing safety at transit stops.

# INTRODUCTION

## BACKGROUND AND PURPOSE

As a transportation facility, the Belmont-Morrison corridor serves as a major link for the neighborhoods of inner Southeast Portland to the Morrison Bridge, downtown, and the regional transportation system. The corridor also serves as the 'main street' for the Buckman and Sunnyside neighborhoods; the gateway and main access route into the neighborhoods and the many businesses that serve them.

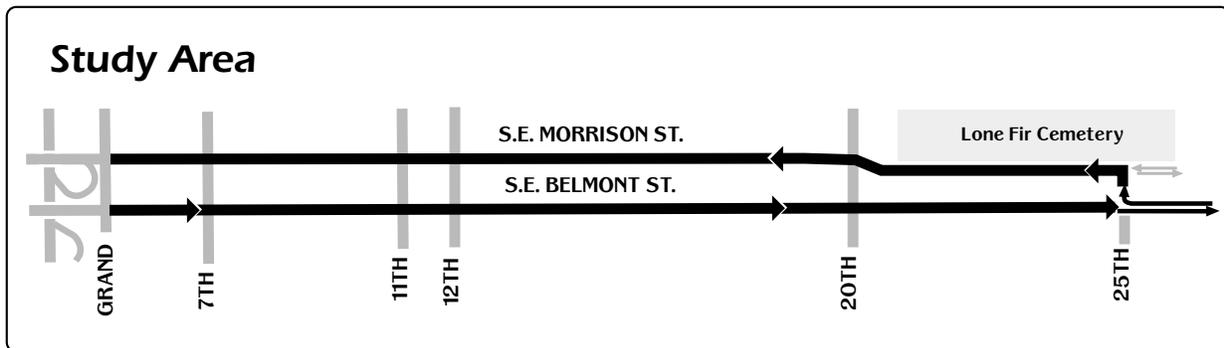
In the Buckman neighborhood, between the Morrison Bridge and 25<sup>th</sup> Ave., the corridor is a one-way couplet, with eastbound traffic on Belmont St. and westbound traffic on Morrison St. Couplets are a relatively cheap and easy way to add capacity to a grid street system. While popular with traffic engineers in the post WWII years to catch up with the growing demand for automobile travel, couplets are seen by many neighborhoods as throwing their main streets out of balance, whereby the streets' transportation function overshadows its land use function.

For many years the Buckman neighborhood has expressed concerns about how the Belmont-Morrison one-way couplet has affected the livability of their neighborhood. With its one-way traffic flow and four lanes of traffic capacity, compared to the two-way and two lanes on most other neighborhood collector streets in southeast Portland, the couplet is seen as providing traffic capacity out of proportion to its needs. This excess capacity is perceived to attract non-local traffic through the neighborhood and to encourage speeding. The heavy traffic volumes, one-way traffic flow and speeding in turn affects the ability of the corridor to serve local needs, making local access by pedestrians, transit users, bicyclists, as well as cars, more difficult, uncomfortable and unsafe.

The basic purpose of the Belmont-Morrison Project was to figure out how to re-design the corridor to better balance its function with the transportation and land use needs of the neighborhood. The answer to many has been apparent for some time- 'decouple' the streets. Decoupling simply means turning a one-way couplet back into two separate two-way streets, as the streets originally functioned.

At the request of the Buckman neighborhood and its neighborhood plan, the Portland Office of Transportation began development of a decouple plan for the Belmont-Morrison corridor in the spring of 1998. The scope of the planning process originally focused on studying the feasibility of decoupling. The two main issues were where to move the location where the couplet transitions between

one and two-way traffic flow, currently at 25<sup>th</sup> Ave., and how to classify the function of Morrison once it has been changed. As project development progressed, the scope was expanded to include consideration of other, non-decouple, alternatives to achieve the project's objectives. This later became known as phase II of the project.



**Study Area**

The primary study area includes the segment of the Belmont-Morrison couplet east of 12<sup>th</sup> Ave. where the residential portion of the Buckman neighborhood begins, out to 25<sup>th</sup> Ave. where the current couplet terminates. Because of the potential impacts of all alternatives to traffic patterns west of the primary study area, the study area boundary also included the area between Grand Ave. and 12<sup>th</sup> Ave.

**HISTORY**

Much has changed over the past hundred years to Belmont and Morrison streets. In the beginning, both streets were two-way. But over time, as the modes of travel changed, along with growth and changing land use patterns, the transportation function of each street changed as well.

**Late 1800's**

In the late 1800's, Morrison St. was the commercial main street of the emerging city of East Portland. Its turn-of-century prominence can still be seen in the numerous older commercial and apartment buildings which still line its wide right-of-way from the river to 12<sup>th</sup> Ave. The Morrison Bridge, when opened in 1887, became the main link between the east and west sides of Portland. Belmont St., on the other hand, was a relatively quiet



SE 33rd and Belmont, circa 1890

OrHi 25630

residential street, characterized by mostly single family houses. The countryside practically began just east of 12<sup>th</sup> Ave.



SE 34th and Belmont, circa 1908 OrHi 54271

### **Streetcar Era**

In 1888, the first streetcar service to the eastside from downtown started, initiating an era of rapid growth for the eastside. The streetcar line helped create the new Buckman and Sunnyside neighborhoods as new development followed in the streetcar's wake. The streetcar ran from the Morrison Bridge up Morrison St to 28<sup>th</sup> Ave., where it transitioned over to Belmont St. and out to 34<sup>th</sup> Ave. This helped reinforce Morrison St. west of 20<sup>th</sup> Ave. as the area's main commercial corridor, and Belmont St. east of 28<sup>th</sup> Ave. as the area's new

main street. Now both streets served commercial districts and carried more traffic as a result.

### **Automobile Era**

During the 1920's and 30's, as more and more eastside residents started to shift from riding the streetcar to driving cars, Belmont became a busier street. This is because Belmont St., rather than Morrison St., was now the more direct automobile route between the river and the expanding neighborhoods to the east. During the early 1940's, Belmont was widened from 36 ft. to 44 ft. to handle the increasing volume of traffic, which further reinforced Belmont as the main transportation connection to the east. Belmont's land use character, between 12<sup>th</sup> and 25<sup>th</sup> Ave., also started shifted gradually away from single family residential to multi-family residential.



Morrison Bridge, Mid 1960s OrHi 46514

After World War II, transportation planning for the Portland region assumed huge increases in automobile travel between downtown and the surrounding neighborhoods. To

accommodate this expected increase in traffic volumes, an ambitious expansion of arterial and highway capacity was proposed throughout the city. Among the many projects proposed was a new freeway along 39<sup>th</sup> Ave. To help connect this freeway to downtown, the Belmont-Morrison one-way couplet was proposed as well. The one-way couplet was a relatively low cost method of increasing capacity within the existing street system. The Belmont-Morrison couplet was just one of many couplet projects proposed during this time for the

same reason, many of which have since been constructed (Broadway St.-Weidler St., Interstate Ave.-Vancouver Ave., and Hawthorne Blvd. west of 12<sup>th</sup> Ave. for example).

In 1959, the Morrison Bridge was reconstructed as part of an effort to expand vehicle capacity and improve connections to downtown. The bridge's east end was redesigned to connect with the proposed Belmont-Morrison one-way couplet, which was constructed shortly thereafter. Instead of connecting to 39<sup>th</sup> Ave. as planned, the couplet followed the former streetcar line out to 25<sup>th</sup> Ave. where it ends today.

### **1970's – 90's**

Since the 1950's, when the Belmont-Morrison one-way couplet was conceived and constructed, the City's transportation planning priorities have changed significantly. Our priorities are now more focused on balancing regional mobility with neighborhood livability. Our policies are also now aimed more at creating a multi-modal transportation system whereby increased system capacity is to be shared among all the modes of travel. Transportation policy now envisions a more local, transit oriented functional emphasis for Belmont and Morrison streets between 12<sup>th</sup> and 25<sup>th</sup> Ave. that supports its continued development as a main street to the Buckman and Sunnyside neighborhoods.

## **POLICY BACKGROUND**

### **Buckman Neighborhood Plan**

As early as the 1970's, there have been concerns within the Buckman neighborhood regarding how the one-way couplet affects livability. The existing couplet, because it provides more capacity compared to similar inner Neighborhood Collector streets in inner Southeast Portland, is perceived to encourage large volumes of non-local traffic and speeding through the neighborhood. As a result, the pedestrian and commercial environment along both streets has been degraded.

The Buckman Neighborhood Plan, adopted by City Council in 1991, provides a land use vision for the neighborhood through its zoning and land use policies. Consistent with the main street design type, the plan encourages neighborhood oriented commercial redevelopment along most of the corridor. Storefront commercial redevelopment is particularly encouraged in the vicinity of 20<sup>th</sup> Ave., which is currently mostly underdeveloped.

To support the neighborhood plan's land use vision, the plan includes a supporting transportation policy that specifically encourages the City to study the feasibility of decoupling Belmont and Morrison streets. Transportation Objective 5.7 states:

Consider traffic operation changes on SE Belmont to ensure that it functions as a pedestrian friendly, neighborhood shopping street. Consider changing the Belmont/Morrison couple to two-way streets as far west as possible to reduce traffic volume and speed, and enhance the neighborhood character.

### **Transportation Element of the Comprehensive Plan**

Specific policy language requesting the decouple project can also be found in the City's Transportation Element of the Comprehensive Plan. Southeast District Policy 13 states:

The intent of the City is to decouple Belmont/Morrison between 12<sup>th</sup> and 25<sup>th</sup>. During project development, the following policy and design decisions will be made: reclassification of Morrison Street to a Local Service Street and a Minor Transit Street, or Transit Preferential Street, and the location of the transition from the couplet to a two-way street.

The Transportation Element also designates all City streets as to their intended transportation function by mode of travel. The Belmont-Morrison couplet has multiple designations, indicating its intended multi-modal function. These designations include: Neighborhood Collector, Major City Transit Street, City Walkway, and Minor Truck Street.

### **Region 2040 Plan**

The Region 2040 Plan provides a basic framework for long range land use and transportation planning in the Portland metropolitan region. Within the plan, Belmont St., between 12<sup>th</sup> and 50<sup>th</sup> Ave. is designated as a Main Street. Main Streets are intended to be primarily pedestrian, transit and bicycle oriented streets that support neighborhood oriented commercial development and medium density residential development. Other designated Main Streets in southeast Portland include Hawthorne Blvd., Division St., Milwaukie Ave., Burnside St., Glisan St. and Sandy Blvd.

# DECOUPLE PROJECT (PHASE I)

In the spring of 1998, the Office of Transportation initiated the Belmont-Morrison Decouple Project. The basic purpose of the project was to carry out the policy mandates of the Buckman Neighborhood Plan and Southeast District Policy 13 of the Transportation Element of the Comprehensive Plan. The primary purpose of the project was to a) identify the new location of the transition point between one-way and two-way traffic flow, and b) determine the need for reclassifying Morrison Street to a Local Service Street and/or Transit Preferential Street. Funding for the project was provided by the Office of Transportation's Capitol Improvement Program (CIP).

## Public Involvement

A citizens advisory committee consisting of 12 members was formed of representatives from the Buckman Neighborhood Association, Sunnyside Neighborhood Association, Belmont Business Association, the Central Eastside Industrial District, as well as interested residents and business owners within the study area. Between April of 1998 and May of 1999, seven meetings of the committee were held before a recommendation was reached. During this period, the Buckman Neighborhood Association was briefed three times on the progress of the project.

Wider public involvement from the community surrounding the Belmont-Morrison corridor was solicited through a survey mailed to approximately 3,500 households and businesses and an open house event in April of 1999. Invitations to the open house were mailed out to approximately 6,500 households and businesses in the neighborhood surrounding the study area. Information about the project was also communicated through articles in the *SE Examiner* and *Oregonian* newspapers.

## Process

The project development process was broken out into four phases. To help with technical analysis, DKS Associates was contracted to provide traffic engineering services. The goal of the initial phase was to establish specific design objectives for the project. During this phase data collection and analysis of existing conditions was performed along with the mailing and tabulation of a transportation survey to area residents and businesses. Based on the objectives established, the second phase developed three alternatives for the location of the transition from one-way to two-way traffic flow. The third phase was dedicated to evaluating the alternatives. The open house event was held toward the end of this phase. The final phase

was dedicated to the selection of a preferred alternative and any design refinement needed.

In support of the project, a technical advisory committee was also formed to provide guidance from other City and regional agencies. Staff from the Portland Office of Transportation, Bureau of Planning and Fire Bureau, as well Tri-Met, were represented. The Technical Advisory Committee met on three separate occasions over the duration of the project.

## **OBJECTIVES**

Defining the project's objectives was an important first step in the process. The list of objectives was used to guide the entire process, from the collection of data, through the development of alternatives, and most importantly, in their role as evaluation criteria when it came time to judge the relative merits of each alternative. The list was developed by drawing upon the policies noted above, as well as input from the citizens advisory committee.

### **Transportation Objectives:**

- Reduce traffic speeds along Belmont and Morrison.
- Improve the pedestrian environment.
- Avoid diversion of traffic to adjacent residential streets.
- Enhance bicycle access.
- Maintain on-street parking.
- Minimize impacts to transit travel times.
- Enhance the aesthetics of both streets.
- Improve safety for all modes.

### **Land Use Objectives:**

- Support neighborhood oriented commercial development and access.
- Support the land use goals of the Buckman Neighborhood Plan.

## TRANSPORTATION SURVEY

In late April of 1998, a transportation survey was mailed to approximately 3,600 households and businesses in the area surrounding the Belmont-Morrison corridor. The survey was designed to gauge public opinion about how the corridor was being used, what issues are and are not priorities within the neighborhood, and to introduce the concept of decoupling to the community. A total of 652 surveys were returned for a response rate of 18% (see Appendix B for complete survey results). Key findings from the survey include:

- When asked how to rate the function of the corridor, between 12<sup>th</sup> and 25<sup>th</sup> Aves. (the one-way couplet segment) and east of 25<sup>th</sup> Ave. (the two-way segment) 24% of the respondents said they were not satisfied and would like to see change along the 12<sup>th</sup> to 25<sup>th</sup> segment, compared to 16% for the east of 25<sup>th</sup> Ave. segment. 38% were generally satisfied or not sure about change for the 12<sup>th</sup> to 25<sup>th</sup> segment, compared to 49% for the east of 25<sup>th</sup> Ave. segment.
- When asked to rate a series of traffic issues on a scale from 1 (unsatisfactory) to 5 (satisfactory), the three issues with the highest unsatisfactory rating were traffic volume, traffic speed, and pedestrian safety. The same three issues were ranked as the highest priorities.
- When asked what they thought about the concept of decoupling Belmont and Morrison streets, 42% thought it is a 'bad idea', 30% a 'good idea', and 28% were not sure.

## EXISTING CONDITIONS

To also help identify issues and develop a technical understanding of how the Belmont-Morrison couplet currently functions, an analysis of the corridor's existing transportation system conditions was prepared. A summary of key findings is listed below (see Appendix A, Chapter 2 for complete report):

- **Traffic volumes:**  
The current combined daily traffic volume on the Belmont-Morrison couplet west of 12<sup>th</sup> Ave. is approximately 24,000, and 17,750 east of 12<sup>th</sup> Ave. The volume drops to approximately 11,300 east of 25<sup>th</sup> Ave. In the year 2015, the total couplet volume east of 12<sup>th</sup> Ave. is expected to be approximately 27,600, an increase of approximately 15%.

- **Street Design:**

Within the primary study area, 12<sup>th</sup> Ave. to 25<sup>th</sup> Ave., both Belmont and Morrison streets have two travel lanes with parking on both sides. However, while Morrison Street is 36 ft., allowing two 11 ft. travel lanes, Belmont is 44 ft. wide, creating two 14 ft. travel lanes, which are excessively wide for a collector street.

- **Origins and Destinations:**

Currently, in the PM peak hour, a large majority (75%) of the trips along the corridor are local trips destined for the Buckman, Sunnyside or Mt. Tabor neighborhoods. By the year 2015, the travel forecasting model indicates that the percent of non-local trips destined for areas east of Mt. Tabor grows from 1% to 20%. This is assumed to be primarily due to congestion on the regional freeway system (Banfield). Most other east-west arterials in southeast Portland also experience this increase in through traffic.

- **Intersection Capacity/Performance:**

The level-of-service at key intersections along the corridor is generally 'C' or better during the peak periods, better than most collector streets in southeast Portland (on a scale of 'A' to 'F' where 'F' is over-capacity, 'D' is the City's minimum standard for performance). The worst intersection is Morrison/7<sup>th</sup> Ave. in the AM peak hour with a level-of-service of 'D'.

- **Traffic Speeds:**

The 85<sup>th</sup> percentile speed on Morrison at 17<sup>th</sup> Ave. is 34 mph, while Belmont at 17<sup>th</sup> Ave. is 37 mph. The 85<sup>th</sup> percentile speed is a standard traffic engineering measure of speed, indicating the speed at or below which 85% of traffic is moving. The speed limit along both streets is 30 mph. Speeds which exceed the 85<sup>th</sup> percentile by 5 mph or more are considered relatively high. The 85<sup>th</sup> percentile speed on Belmont east of 20<sup>th</sup> Ave. was measured at 39 mph.

- **Accident History:**

Two intersections within the corridor are listed on the City's high accident location list, Morrison/6<sup>th</sup> Ave. and Belmont/11<sup>th</sup> Ave. Both are outside the primary study area.

- **Transit:**

Ridership on the #15 Mt. Tabor bus is among the top ten routes in the region. Transit serves a particularly large percentage of trips within the study area.

▪ **Pedestrian:**

While the sidewalk system is complete and inter-connected within the study area, there are only two signalized (protected) pedestrian crossings in the study area, 12<sup>th</sup> Ave. and 20<sup>th</sup> Ave. Crossings at unsignalized intersections are difficult due to the excessive width of the street, traffic volumes and traffic speeds.

▪ **Bicycle:**

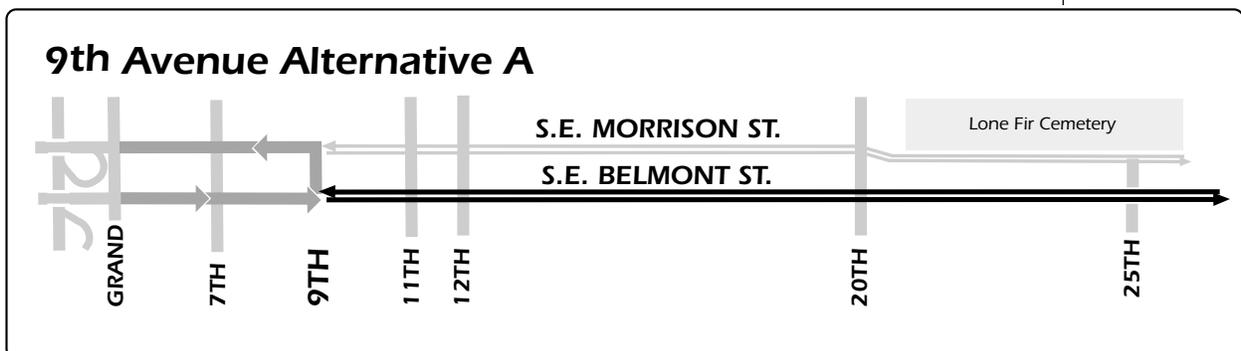
The corridor is not designated as a Bicycle Route in the City's Bicycle Master Plan and there are no specific facilities for bicycles along the corridor. Two bicycle routes, SE Ankeny St. to the north and SE Salmon St. to the south serve as east-west routes adjacent to the study area.

**ALTERNATIVES DEVELOPMENT**

There were two basic design elements to the development of the decouple alternatives. The first was the location of where the transition point from the one-way couplet to two-way traffic flow, currently at 25<sup>th</sup> Ave., is to be moved. The citizen advisory committee established as a design criteria that the transition point be moved as far to the west as possible. The other design element was the actual engineering design of the transition point itself. Instead of options which required significant amounts of new right-of-way, the committee agreed to limit the design options to only those which use primarily existing right-of-way, similar to how the current 25<sup>th</sup> Ave. transition is designed. As for location of the transition point, three alternatives were eventually selected for further analysis.

**Alternative A: 9<sup>th</sup> Ave.**

The primary reason this location was chosen was that it pushes the couplet entirely outside of the residential portion of the neighborhood, which begins at 12<sup>th</sup> Ave. Of the options west of 12<sup>th</sup> Ave., those that were closer to the Grand-King couplet were

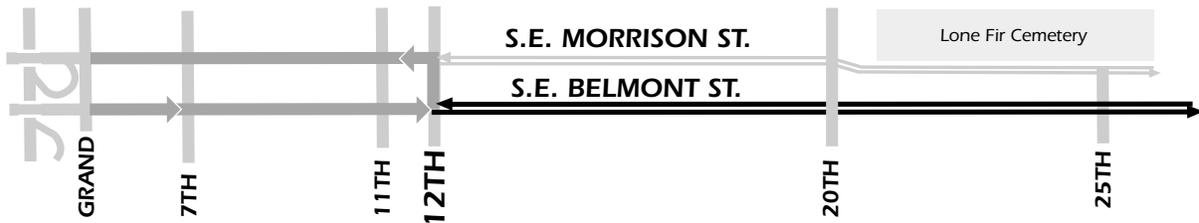


rejected because of the high potential for failure due to capacity problems. 9<sup>th</sup> Ave. was ultimately chosen because of its spacing between 7<sup>th</sup> Ave. and 11<sup>th</sup> Ave., the two nearest signalized cross streets.

**Alternative B: 12<sup>th</sup> Ave.**

This alternative was seen as a logical location to evaluate because of its probability for successful operation given existing conditions; 12<sup>th</sup> Ave. is currently one-way in the northbound direction and signalized. 12<sup>th</sup> Ave. also lies at the edge of both the residential portion of the neighborhood and the industrial district, minimizing the direct impacts of the transition to each.

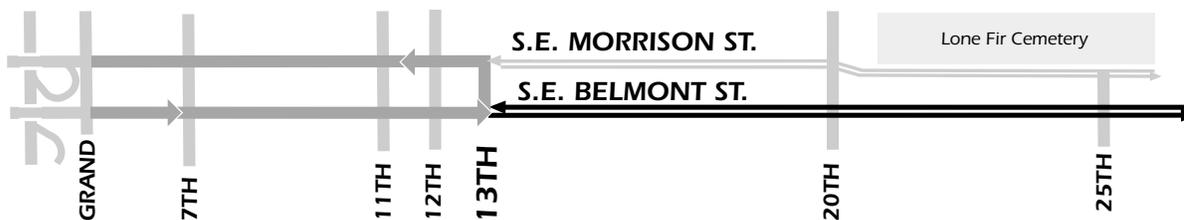
**12th Avenue Alternative B**



**Alternative C: 13<sup>th</sup> Ave.**

While still in the residential portion of the neighborhood, this alternative was selected primarily on its assumed ability to operate successfully. Similar to the current 25<sup>th</sup> Ave. location, 13<sup>th</sup> Ave. is a local street which intersects Morrison from the south, but not the north. Because there are only three legs to this intersection, instead of four, there are fewer turn movements to accommodate and thus more overall intersection capacity available to accommodate the transition of westbound Belmont traffic to westbound Morrison.

**13th Avenue Alternative C**



## **ALTERNATIVES EVALUATION**

The three decouple alternatives were evaluated for performance, using the objectives established earlier in the process as evaluation criteria. For comparison purposes a 'no-build' alternative was also used. This alternative assumed no change to the existing Belmont and Morrison one-way couplet within the study area.

Of particular concern was the performance of each alternative in relation to the traffic operations criteria, such as intersection capacity and diversion. To evaluate the relative operational issues associated with each alternative, the data used was based on a 20 year forecast model of travel demand through the study area. Based on this information, traffic volumes on the Belmont-Morrison corridor were increased by approximately 12%, while north-south routes crossing the corridor were expected to increase by approximately 33% over the same 20 year time period.

The following matrix provides a summary of the findings on all the evaluation criteria. The complete alternatives evaluation analysis report can be found in Appendix A, Chapter 4. In review of the evaluation analysis, three findings formed the basis of the eventual recommendation.

### **System Capacity Impacts**

The amount of system capacity is directly related to two major evaluation criteria, discouraging through traffic and avoiding diversion of traffic onto other neighborhood streets. Too much capacity has the potential to encourage non-local traffic to use the corridor as an alternative route to the regional system. Insufficient capacity creates the potential for excessive congestion and diversion.

Analysis of future conditions under the no-build alternative indicates that even without any changes, the system will fail to provide adequate capacity at certain intersections during the peak periods. These capacity constraints can be mitigated to acceptable levels of performance through signal re-timing, demand management, and the most significantly, the addition of a center turn lane on 20<sup>th</sup> Ave. between Belmont and Morrison streets.

Each of the three decouple alternatives, by themselves, were also found to not provide adequate capacity to avoid excessive congestion during the peak periods. However, even with additional mitigation measures, as noted above, plus on-street parking removal to create new turn lanes, two of the three decouple alternatives still do not provide sufficient capacity to meet minimum level-of-service

## Alternatives Evaluation Summary Matrix

Evaluation Criteria	No-Build	Alternative A 9th Avenue	Alternative B 12th Avenue	Alternative B 13th Avenue
<b>Traffic Operations</b> <ul style="list-style-type: none"> <li>Volume Average Daily volume, 12th–20th Ave. (2015)</li> </ul>	Belmont: 15,900 Morrison: 11,750	Belmont: 19,300 Morrison: 5,350	Belmont: 22,200 Morrison: 4,700	Belmont: 22,950 Morrison: 4,700
<ul style="list-style-type: none"> <li>Over-capacity intersections Intersections with level-of-service 'E' or worse</li> </ul>	0	3	3	0
<ul style="list-style-type: none"> <li>Queuing at intersections % increase in cumulative length compared to No-Build</li> </ul>	–	AM: +560% PM: +150%	AM: +230% PM: +220%	AM: +160% PM: +120%
<ul style="list-style-type: none"> <li>Diversion # of cars diverted during PM peak period</li> </ul>	0	300	75	0
<ul style="list-style-type: none"> <li>Speed</li> </ul>	AM: 23 mph PM: 27 mph	AM: 22 mph PM: 20 mph	AM: 21 mph PM: 20 mph	AM: 21 mph PM: 16 mph
<ul style="list-style-type: none"> <li>Morrison</li> </ul>	AM: 20 mph PM: 19 mph	AM: 25 mph PM: 18 mph	AM: 23 mph PM: 18 mph	AM: 23 mph PM: 20 mph
<b>Transit Operations</b>	<ul style="list-style-type: none"> <li>Least impact to travel times due to congestion</li> </ul>	<ul style="list-style-type: none"> <li>Increased travel time due to congestion</li> <li>Greater difficulty moving in and out of stops</li> </ul>	<ul style="list-style-type: none"> <li>Same as Alt. A</li> </ul>	<ul style="list-style-type: none"> <li>Less travel time impact due to congestion than Alts. A or B</li> <li>Same as Alt. A</li> </ul>
<b>Bicycle Operations</b>	<ul style="list-style-type: none"> <li>Speeding makes bicycling unsafe</li> <li>One-way travel safer for bicycles</li> </ul>	<ul style="list-style-type: none"> <li>Reduced traffic speeds</li> <li>Two-way travel less safe for bicycles</li> </ul>	<ul style="list-style-type: none"> <li>Same as Alt. A</li> </ul>	<ul style="list-style-type: none"> <li>Same as Alt. A</li> </ul>
<b>On-Street Parking Supply</b> Loss of spaces	-23 spaces	-53 spaces	-58 spaces	-83 spaces
<b>Pedestrian Environment</b>	<ul style="list-style-type: none"> <li>Faster traffic speeds, less safe for pedestrians</li> <li>More gaps in traffic for crossing one-way streets at unsignalized intersections</li> </ul>	<ul style="list-style-type: none"> <li>Slower traffic speeds</li> <li>Fewer gaps in traffic crossing two-way streets</li> </ul>	<ul style="list-style-type: none"> <li>Same as Alt. A</li> <li>Same as Alt. A</li> </ul>	<ul style="list-style-type: none"> <li>Same as Alt. A</li> <li>Same as Alt. A</li> </ul>

<b>Evaluation Criteria</b>	<b>No-Build</b>	<b>Alternative A 9th Avenue</b>	<b>Alternative B 12th Avenue</b>	<b>Alternative B 13th Avenue</b>
<b>Land Use Impacts</b>	<ul style="list-style-type: none"> <li>• East-west access to properties separated, impairs business visibility</li> <li>• Most street capacity and on-street parking supply available for redevelopment</li> </ul>	<ul style="list-style-type: none"> <li>• East-west access on same street</li> <li>• Business visibility on Belmont improved, reduced on Morrison</li> <li>• Driveway access more difficult on Belmont, less on Morrison</li> <li>• Parking and volume impacts associated with transition zone outside of residential neighborhood</li> <li>• Significant potential for diversion of traffic on to adjacent streets during peak periods</li> </ul>	<ul style="list-style-type: none"> <li>• Same as Alt. A</li> <li>• Same as Alt. A</li> <li>• Same as Alt. A</li> <li>• Parking and volume impacts associated with transition zone at edge of residential neighborhood</li> <li>• Significant potential for diversion of traffic to adjacent streets during peak periods</li> </ul>	<ul style="list-style-type: none"> <li>• Same as Alt. A</li> <li>• Same as Alt. A</li> <li>• Same as Alt. A</li> <li>• Parking and volume impacts associated with transition zone within neighborhood, adjacent business impacts</li> <li>• No traffic diversion to adjacent streets anticipated</li> </ul>

standards and avoid traffic diversion. These decouple alternatives are Alternative A- 9<sup>th</sup> Ave. and Alternative B- 12<sup>th</sup> Ave. Excessive vehicle queuing at signalized intersections associated with each of these alternatives further compounds the impacts to system capacity. The anticipated result of inadequate capacity is the diversion of traffic from the Belmont-Morrison corridor to alternative routes, such as Stark St. or Salmon St. During the PM peak hour, the volume of traffic diverted is estimated at 300 vehicles for Alternative A- 9<sup>th</sup> Ave. and 75 vehicles for Alternative B- 12<sup>th</sup> Ave.

Overall, the technical evaluation of the decouple alternatives indicates that only the Alternative C- 13<sup>th</sup> Ave. would meet minimum traffic operations performance standards. Though this alternative is anticipated to perform at minimum City standards for intersection performance, without causing traffic diversion, it fails to meet the citizen advisory committee's design objective of moving the transition location entirely outside of residential portion of the neighborhood (the area east of 12<sup>th</sup> Ave.). The impacts associated with the transition zone would still affect residential and commercial land uses within the neighborhood.

### **On-Street Parking Impacts**

Three project objectives are related to the on-street parking supply ('maintain the supply of on-street parking', 'encourage neighborhood oriented commercial development' and 'improve access to businesses'). Overall, on-street parking is considered an important component in supporting the development of a 'main street' commercial and residential environment along the corridor, consistent with regional and local land use goals. On-street parking not only a key ingredient in providing vehicle access to study area residents and businesses, but also helps protect the pedestrian environment by buffering the sidewalk area from vehicular traffic.

As noted above, in order to provide sufficient capacity to meet performance standards under future traffic conditions, all of the alternatives require mitigation measures. Much of the mitigation is related to the need for additional turn lanes at congested intersections. The turn lanes come at the expense of adjacent on-street parking. All of the alternatives require the removal of approximately 23 spaces along 20<sup>th</sup> Ave. as it crosses the couplet.

Each of the decouple alternatives however, requires significant additional parking removal near the location of the transition between on-way and two-way traffic flow. Alternative A- 9<sup>th</sup> Ave. requires approximately 30 spaces removed in the vicinity of 9<sup>th</sup> Ave., Alternative B- 12<sup>th</sup> Ave. requires approximately 35 spaces removed in the vicinity of 12<sup>th</sup> Ave., while Alternative C- 13<sup>th</sup> Ave. requires the removal of approximately 60 spaces in the vicinity of 13<sup>th</sup> Ave. The parking removal in the vicinity 13<sup>th</sup> Ave. would have particularly significant impacts to existing residents, businesses and nearby redevelopment parcels.

### **Community Opinion**

In addition to the citizens advisory committee, the project relied upon two public outreach tools, the transportation survey conducted early in the process and the open house event near the end, to gage the Buckman community's opinion about the issues and options studied.

With over 650 surveys completed, the transportation survey provided a broad based understanding of the community opinion about the corridor. While the survey helped confirm the importance of the issues the project set out to address through decoupling, it also indicated a lack of strong support for the concept of decoupling as a means of addressing these issues. When asked of their initial opinion of decoupling, 42% of the respondents replied that it was a 'bad idea', compared to only 30% who felt it was a 'good idea'.

The survey, however, was only an initial gage of community's approval of decoupling. After the alternatives analysis was completed, the open house event in April of 1999 allowed participants from the community to get a more in depth understanding of the issues and tradeoffs involved with decoupling. Comments from the open house indicated that even after learning more about the decouple project, there is not a clear majority of community members that supports decoupling as the preferred means of addressing the issues identified (see Appendix C for complete list of comments). While agreeing with the issues that gave rise to the decouple project, most comments indicated that the tradeoffs associated with decoupling outweighed the benefits. Instead, the majority of the comments were in favor of pursuing traffic calming techniques to address the speeding and pedestrian safety issues identified by the project.

## **RECOMMENDATION**

Based on the results of the evaluation phase and comments received at the open house, the citizens advisory committee voted to endorse the following recommendations.

- Do not decouple Belmont and Morrison streets. At this point in time, the benefits of decoupling do not justify the associated impacts to the corridor's capacity and on-street parking. However, retain existing policies that promote decoupling for potential future use.
- Instead of decoupling, non-decouple, traffic calming options should be studied further to address a) safety issues at the existing transition location at Belmont/25<sup>th</sup> Ave./Morrison, and b) speed reduction on Belmont St., between 12<sup>th</sup> and 25<sup>th</sup> Ave.

The above recommendation was formally endorsed by the Buckman Neighborhood Association Board in June of 1999.

# **BELMONT-MORRISON PROJECT, PHASE II**

## **PURPOSE**

The purpose of the second phase was to carry forward the recommendations of the decouple study. Instead of decoupling, the project was to now consider traffic calming techniques as a means to address key issues identified in the first phase. The two key issues and design objectives of this phase were a) safety issues at the existing transition location at Belmont/25<sup>th</sup> Ave./Morrison, and b) speed reduction on Belmont St., between 12<sup>th</sup> and 25<sup>th</sup> Ave.

## **PROCESS**

Similar to the decouple project, a citizens advisory committee was used to guide the decision making process. A new committee was formed, including a number of members from the previous decouple project, as well as new members from the community. The committee met twice before reaching a recommendation in January of 2000.

## **25<sup>TH</sup> AVE. COUPLET TRANSITION**

A major complaint about the Belmont-Morrison couplet relates to the safety of the transition from one-way to two-way traffic flow at 25<sup>th</sup> Ave. This is a confusing and dangerous location for traffic traveling along Belmont in either the eastbound or westbound direction, particularly for drivers who are not familiar with the street. Much of the problem stems from a lack of awareness about the transition and last minute lane changes as traffic approaches the transition. This creates safety problems for not only drivers, but pedestrians who are trying to cross the street in vicinity of 25<sup>th</sup> Ave.

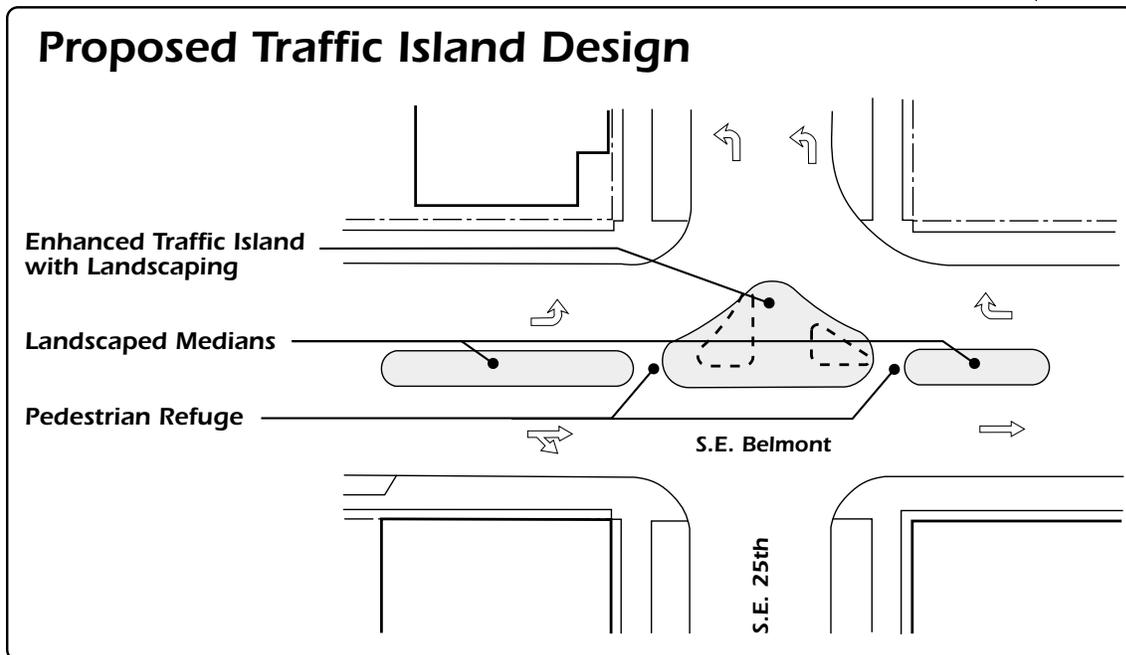
## **Options**

The most apparent solution to this problem was to redesign the traffic island that channels traffic through the transition zone. The current traffic island is relatively small and does not command as much attention to the transition as it could. Staff proposed a number of improvements to the island's design which are intended to improve the visibility, and therefore safety, of the transition zone, provide a better, safer place for pedestrian crossings, and improve the aesthetics of facility.

The proposed redesign of the traffic island includes:

- Increased size to enhance its visibility from a distance. This is achieved primarily through closing the through lane for 25<sup>th</sup> Ave. traffic south of Belmont and the addition of landscaping. The 25<sup>th</sup> Ave. through lane serves very few drivers and only complicates an already complicated, unsafe intersection. The landscaping will give the island greater presence on the street. Planted with street trees, there will be a more noticeable vertical element to the island.
- Pedestrian refuges designed into the east and west ends of the island to improve the ease and safety of crossing Belmont. By extending the east and west corners of the traffic island with medians, refuges can be built into the design that benefit pedestrians. The median will be extended to the east and west along Belmont to better channelize traffic as it goes through the transition zone and prevent dangerous last minute lane changes.
- Improved aesthetics through landscaping. The current traffic island serves only as a traffic control device, without any aesthetic value to the surrounding area. The landscaping should enhance the attractiveness of the streetscape.

In review of the issues associated with the 25<sup>th</sup> Ave. transition zone, the citizens advisory committee also expressed an interest in figuring out a way to reduce traffic volumes on 25<sup>th</sup> Ave. between Belmont



and Morrison. At issue is the cut-through traffic that uses 25<sup>th</sup> Ave., from eastbound Belmont, to reach Stark St. via 26<sup>th</sup> Ave. as it runs adjacent to Lone Fir Cemetery. This could be achieved by preventing the right turn from 25<sup>th</sup> Ave. to Morrison. However, origin and destination data collected for the project indicated that this movement was lighter than expected and would primarily affect only local access, not cut-through traffic.

### **SPEEDING ON BELMONT, 12<sup>TH</sup> TO 25<sup>TH</sup> AVE.**

Speeding on Belmont was a major issue identified by the first phase of the project. The results of the transportation survey showed traffic speed to be the highest rated 'unsatisfactory' issue within the study area, and a close second to traffic volume in terms of issue priority. The existing conditions data collected confirmed the magnitude of this problem. Over 75% of the traffic on Belmont St. exceeds the speed limit. The 85<sup>th</sup> percentile speed on Belmont at 17<sup>th</sup> Ave. is 7 mph above the speed limit of 30 mph, and 9 mph above the speed limit east of 20<sup>th</sup> Ave.

Much of the speeding problem can be directly attributed to the design of the street. Belmont is 44 ft. wide from curb to curb. This means its two travel lanes are approximately 14 ft. wide, roughly 3 – 4 ft. wider than the standard width for a collector street. Traffic tends to drive at the speed at which the street design will allow, thus the wider the street, the faster the speeds. Also, because the street is one-way, there is not the 'friction' of traffic traveling in the opposite direction to help slow speeds down.

Speeding in and of itself is not the key issue. Rather, it's the effect of speeding on pedestrian and traffic safety. High traffic speeds create an uncomfortable environment for pedestrians walking along the street. Worse is the effect of speeding on pedestrian crossing safety. There are only two traffic signals in the study area to protect pedestrians as they cross Belmont. Crossing the street in between the signals is dangerous because of the speeding and excessive crossing distance. Speeding also, of course, increases the chances for traffic accidents as cars move in and out driveways, park, or change lanes.

### **Options**

Because of the excessive width of the street, many of the options considered focused on trying to physically and visually narrow the roadway as means of controlling speeds. These options included: reconstruction of the street to move the curb in, angle parking,

painting narrower travel lanes or installing a bike lane, and use of curb extensions or medians to fill up the excessive right-of-way. Other options included speed bumps and additional traffic signals.

### **Evaluation**

The three most effective means of controlling traffic speeds are rebuilding a narrower street, more traffic signals, and speed bumps. Unfortunately, there are serious cost or policy implications with each of these options. Reconstruction of the street and additional traffic signals are cost prohibitive. The cost of rebuilding the street could be borne by redevelopment of adjacent properties, but would likely take many years to be completed. Establishing a series of synchronized traffic signals is another very effective means of controlling traffic speeds on one-way streets. This however, is a very expensive solution because of the number of new signals required. Experience in Portland over the years has shown speed bumps to be both effective and inexpensive in controlling traffic speeds. However, because Belmont is designated as an Emergency Response Route, City policy prevents their use.

Angle parking was considered as a means of using the increased width of the parking stalls to narrow the roadway and increase the supply of on-street parking. The problem with angle parking proved to be the inability to design an angle parking plan which preserved parallel parking on the opposite side. Without parking on both sides of the street (angle and parallel) the net gain parking was minimal and does not counterbalance safety concerns with angle parking on a high volume street such as Belmont. The lack of parking on the opposite side would degrade the adjacent pedestrian environment because of the missing buffer which on-street parking provides.

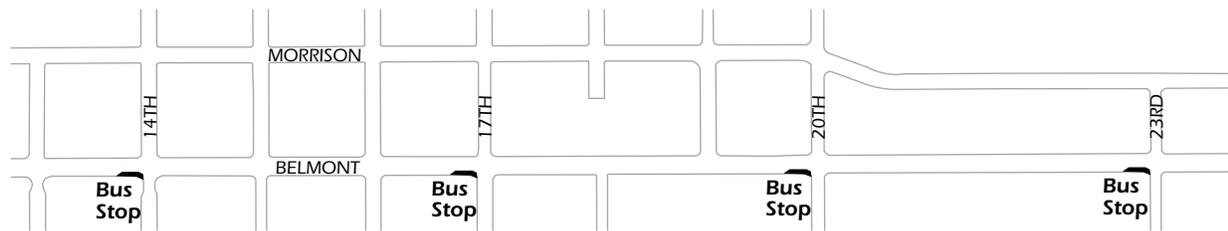
Methods to visually narrow the roadway were also considered, such as stripping in a bike lane on one side of Belmont. Though this would provide an added benefit to bicyclists traveling along Belmont, the lack of connections to other bicycle facilities at either end makes the lane of limited use. Regardless, there is little evidence that narrowing the roadway with stripping has a demonstrable effect on speeding.

The final two options, curb extensions and medians, were considered more for their ability to help mitigate the pedestrian safety problem associated with speeding, than the problem of speeding itself. Both devices primarily enhance pedestrian safety at unsignalized crossing by shortening the crossing distance. Medians and curb extensions also narrow the roadway, which helps reduce speeds, though because of their intermittent placement do not achieve significant speed reduction overall.

The problem with medians compared to curb extensions in the case of Belmont is that the medians, for traffic safety reasons, would require approximately 200 ft. no-passing zones leading up to the median, which would impact local access to parking and driveways. Further, medians are most appropriate for two-way streets, because they allow pedestrians to pay attention to one direction of travel at a time instead two opposite directions at once. As a result, the value of medians is considerably less on a one-way street.

Curb extensions, in addition to narrowing the crossing distance, have two additional benefits. The first is improved sight distances for pedestrian and drivers of each other. The second is the potential to increase the supply of on-street parking at transit stops. The logical location for a series of curb extensions is at transit stops, where the highest number of pedestrian crossings is expected. There are four transit stops along Belmont between 12<sup>th</sup> and 25<sup>th</sup> Ave. Currently, bus access to the stops is facilitated through bus zones, which do not permit parking. With curb extensions, the bus zone is eliminated. The bus pulls up adjacent to the curb extension, in the travel lane, for loading and unloading. The difference in length between a bus zone (60 – 80 ft.) and curb extensions (~40 ft.) allows up to 40 ft. for one to two spaces of parking to be returned to the street. The use of curb extensions at transit stops also supports Belmont’s designation as a Major City Transit Street.

### **Proposed Curb Extension Locations**



### **RECOMMENDATION**

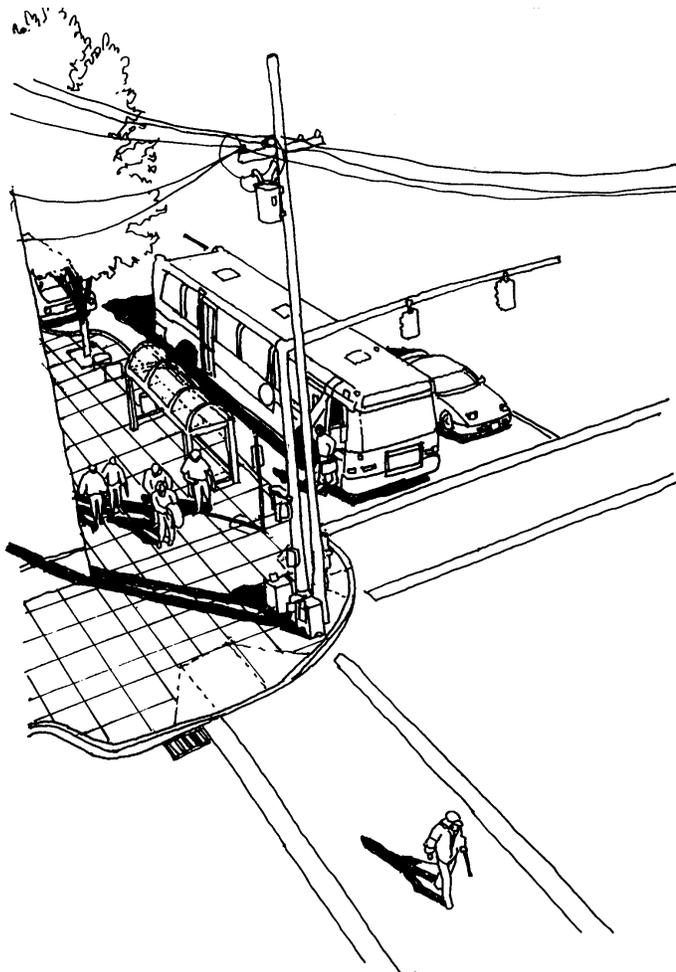
After reviewing the options and evaluation information for addressing the two project objectives, the citizens advisory committee voted to recommend the following projects for implementation:

- **25<sup>th</sup> Ave. Transition**  
Rebuild the traffic island at Belmont and 25<sup>th</sup> Ave. The island will be increased in size to improve its visibility to approaching traffic. Its visibility and attractiveness to the surrounding neighborhood

will be further enhanced through landscaping. The design will include pedestrian refuges on Belmont just east and west of 25<sup>th</sup> Ave. Northbound access from 25<sup>th</sup> Ave. south of Belmont will be closed as a result of this design.

▪ **Belmont, 12<sup>th</sup> – 25<sup>th</sup> Ave., Speeding**

Unfortunately, the project was not able to identify an acceptable traffic calming solution to directly address the issue of speeding on Belmont. Thus, the recommendation focuses on reducing the impact of speeding on pedestrian crossing safety through the use of curb extensions to shorten the crossing distance, improve sight distances, and enhance access to transit service. Four curb extensions are recommended, at each of the transit stops on Belmont within the study area, 14<sup>th</sup>, 17<sup>th</sup>, 20<sup>th</sup> and 23<sup>rd</sup> Ave. Priority of construction will be based on boarding activity at each stop (14<sup>th</sup>, 17<sup>th</sup>, 23<sup>rd</sup>, 20<sup>th</sup> Ave.).



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