

36882

EXHIBIT A



NE/SE 50s BIKEWAY PROJECT

Recommendation to Council

August 2011
City of Portland
Bureau of Transportation

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City of Portland
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*A special thanks
to the citizens advisory committee
for their commitment to developing this project*

NE/SE 50s BIKEWAY PROJECT

Recommendation to Council



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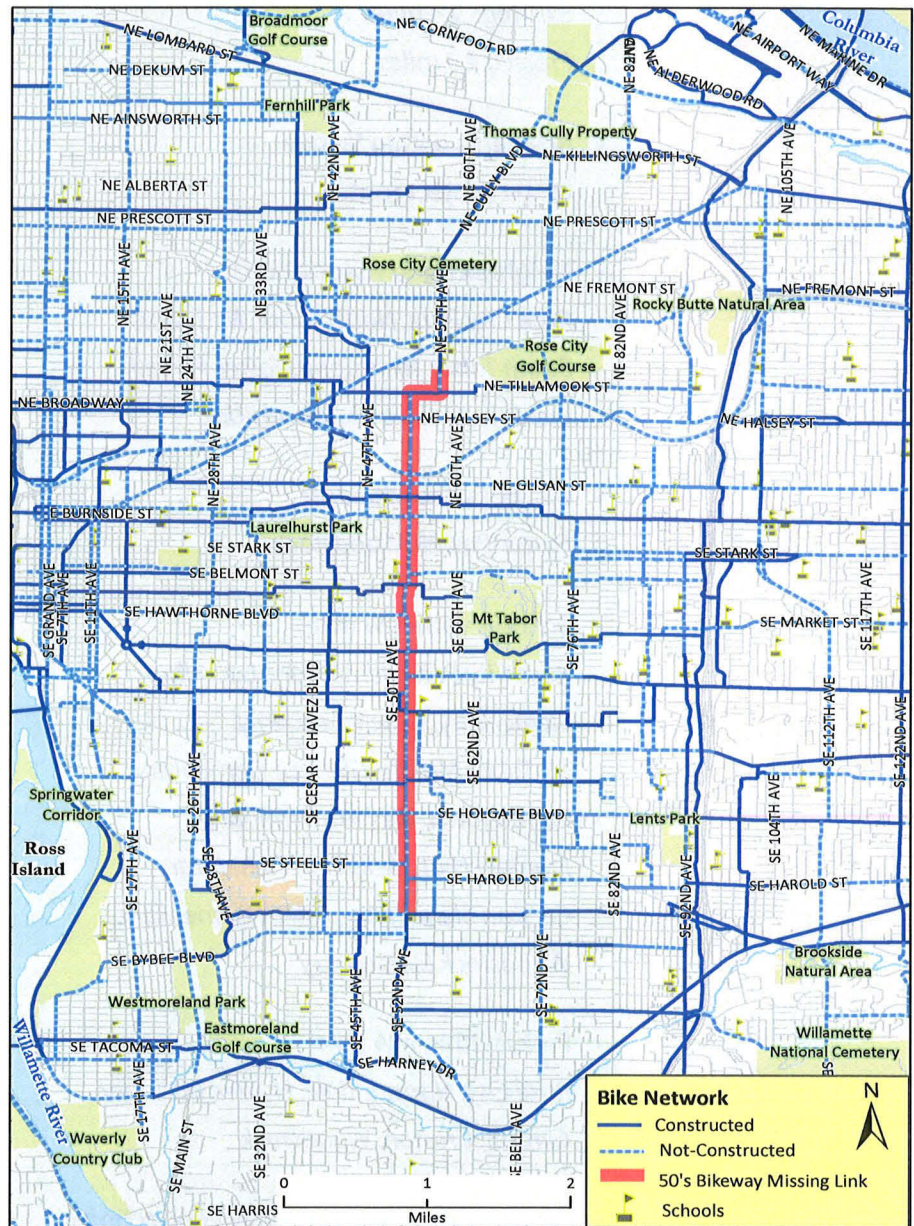
INTRODUCTION

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In 2010, City Council adopted the Portland Bicycle Plan for 2030, a comprehensive strategy for achieving the City's goal of making bicycling a critical component of the city's transportation system. A key element of the plan is to create a dense, interconnected network of safe, convenient bicycle routes through the City. The network is intended to make it possible to travel safely and conveniently by bicycle to schools, parks and commercial areas on low traffic streets with amenities, to encourage bicycle travel or, if necessary, higher volume streets with bicycle lanes. The NE/SE 50s Bikeway Project will implement a major piece of this network by allowing people to travel by bicycle from Woodstock Blvd in the south to NE Sandy Blvd in the north along a combination of bicycle lanes and low traffic neighborhood greenways.

The Portland Bicycle Plan for 2030 identified SE 52nd/NE 53rd/NE 57th Ave/NE Cully Blvd as a part of a 6.7 mile corridor that stretches from the City's southern boundary north to NE Columbia Blvd. Bicycle lanes are present south of SE Woodstock Blvd on SE 52nd Ave and north of NE 57th Ave at NE Thompson St, but the entire 4.3 mile middle section is missing. The NE/SE 50s Bikeway Project is a major opportunity to fill in this gap and interconnect the network, facilitating bicycle travel throughout northeast and southeast Portland.

In 2008, the Portland Bureau of Transportation, with the support of the Bicycle Advisory Committee and City Council, applied to Metro's Regional Flexible Funds Program and was awarded \$1.5 million in federal funds to plan, design and construct improvements to complete the 50s Bikeway.



The Missing Link:
The NE/SE 50s Bikeway Project fills a major gap in East Portland's bikeway network. (North-South)

NE/SE 50s Bikeway Index

- Overall bikeway length (miles): **6.7**
Existing: 2.4 miles
Project: 4.3 miles
- Residents within ¼ mile of the project route: **19,600**
- Neighborhood Associations: **8**
Rose City Park, North Tabor, Mt Tabor,
South Tabor, Richmond, Foster-Powell,
Creston-Kenilworth, Woodstock
- Business Associations: **2**
Foster-Powell, Woodstock
- Schools within ½ mile: **12**
Rose City Park Elementary, Laurelhurst
Elementary, Gately Academy,
Mt Tabor Middle, Glencoe Elementary,
Puddletown, Western Seminary,
Franklin High, Ackinson Elementary
Creston Elementary, Arleta Elementary,
Woodstock Elementary
- Parks within a ½ mile: **7**
Rose City, Normandale, Frazier, Mt Tabor,
Clinton, Creston, Woodstock
- Bicycle Master Plan bikeway connections: **15**
NE Tillamook-Hancock, NE Halsey,
NE Glisan, NE Everett-Davis, E Burnside,
SE Belmont, SE Salmon-Taylor,
SE Hawthorne, SE Lincoln, SE Division,
SE Clinton-Woodward, SE Gladstone-Center,
SE Holgate, SE Steele-Harold, SE Woodstock



PUBLIC INVOLVEMENT

PUBLIC INVOLVEMENT

Development of the project was guided by a Citizens Advisory Committee formed primarily from the eight neighborhood associations, two business associations and two district coalitions that span the 4.3 mile study area. The committee started its work in the summer of 2010, and twelve months, five committee meetings, two public open houses, and one group ride later, they developed and endorsed the recommendations contained in this document. Project staff attended an additional 31 neighborhood and business association meetings to solicit input on the various issues and solutions the project considered (see Appendix A). Throughout the process, the CAC, with input from the public, modified the original concepts by reducing the parking loss on SE 52nd Ave by reducing the width of the bike lanes and modifying the route to avoid parking loss along NE 57th Ave.

The first open house event was held on January 26, 2011 and was attended by more than 150 community members, generating more than 300 comments before, during and after the event. The second open house was held on June 29, 2011, with more than 120 attendees and more than 150 comments. In total, in excess of 18,000 notifications to project public meetings were mailed to residents and businesses along the route.

The project's web page on the Bureau of Transportation website ultimately grew to contain over 90 pages of content, covering all the technical data collected, design options developed, meeting summaries and public comments received. Over 19,000 hits were registered at the web page over the course of the project's development.

The recommendation was presented to each of the eight neighborhood associations, two business associations and two district coalitions for endorsement in the Spring of 2011. All of these organizations, except one, endorsed the recommendations as proposed. The Mt. Tabor Neighborhood Association voted to support the overall project with the exception of traffic diversion at SE 52nd Ave at SE Division St., where the vote of the association was notably divided as to the specific approach this Bikeway should take at the intersection of SE 52nd Ave and SE Division St.



Citizen Advisory Committee



Open House #1

NE/SE 50s Bikeway Public Involvement Index:

- Total public meetings: **41**
- Citizen Advisory Committee:
members: **17**
meetings: **5**
- Open house event #1
attendance: **154**
comments received: **309**
- Open house event #2
attendance: **121**
comments received: **134**
- Project website hits: **over 17,000**
- Neighborhood Associations in
support of recommendation: **7**
- District Coalitions
in support of recommendation: **2**
- Business Associations in support
of recommendation: **2**

3



PROJECT DEVELOPMENT

PROJECT DEVELOPMENT

The 50's bikeway corridor covers a wide range of neighborhoods and street characteristics to address in developing the bikeway. To arrive at its recommendation, the project team and Citizens Advisory Committee spent months collecting and analyzing data about the route.

Alignment

The general alignment of the 50's bikeway is similar to alignment developed as part of the 1996 Bicycle Master Plan. This alignment it takes advantage of a rare direct south-north route within a highly fragmented street network. The alignment also avoids climbing over Mt. Tabor and aligns well with a low volume crossing of Interstate 84.

SE Division St marks a significant change in the overall route. North of SE Division St, with certain exceptions, the streets used are consistent with a neighborhood greenway. All are local, residential streets which have relatively low traffic volumes and speeds. Major issues in this section focus largely on providing safe and convenient crossing of the major east-west streets, such as E Burnside St.

South of SE Division St, however, the only direct route is SE 52nd Ave, which carries relatively high traffic volumes and speeds as a collector street. Safe accommodation of bicycles requires the use of bike lanes, which requires removing on street parking from one side of the street. The project explored design options that would provide a wider bicycle facility on SE 52nd Ave, but that would require moving all of the parking from 52nd Ave and was not supported by a majority of the Citizens Advisory Committee. As an alternative, the project also explored using adjacent lower volume neighborhood streets. However, the discontinuous nature of the street network means cyclists would encounter confusing, out-of-direction detours to say on route, which discourages use.

The SE 52nd Ave alignment is most likely to serve the needs of most cyclists better than the alternatives. However, the project also recommends improvement of one of the parallel local street routes studied as a future implementation phase. Though longer, it does have the advantage of providing a nearly continuous local street environment, 'family friendly' alternative to bicycle lanes on SE 52nd Ave. This approach offers the best opportunity to provide bicycle facilities that accommodate the needs of the broadest range of cyclists. In particular, the large group of 'interested but concerned' cyclists which the Bicycle Plan identifies as a key demographic in achieving the plan's mode split goal.

The Recommended Alignments



Major Design Elements

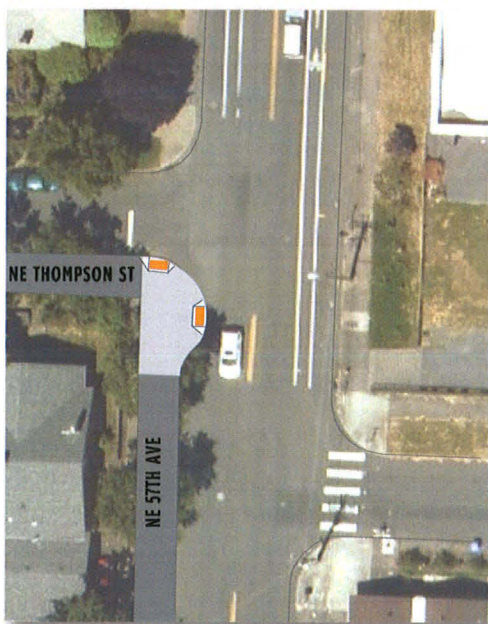
North of SE Division St



Sharrow pavement marking.

As noted above, most of the alignment north of SE Division St is currently well suited to its designation as a bikeway. Volumes and speeds are generally consistent with a neighborhood greenway, which is the preferred shared use environment for a bikeway. Many of the streets are relatively narrow which helps to calm traffic and reduce volumes, and low speeds allow bicycles and cars to mix together comfortably and safely.

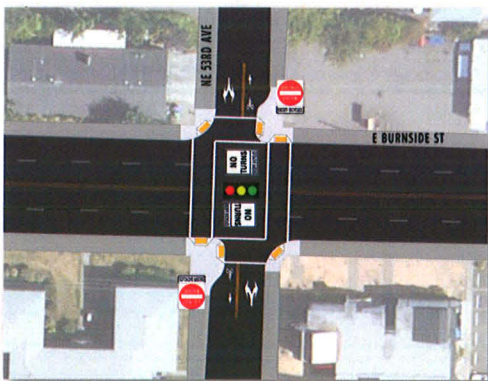
The primary recommendation for this section is to provide the major elements of other neighborhood greenways, pavement markings known as 'sharrows' to identify the route, wayfinding signage along the route to navigate the bicycle network easily. The project also recommends that once Portland Bureau of Transportation implementation guidelines are established, the new state law for reduced speed limits on bikeways (20 mph) be utilized throughout this portion of the overall route.



NE Thompson St/ SE 57th Ave

The exception is between E Burnside St and NE Glisan St, where elevated local street volumes (1,800 cars/day) on NE 53rd Ave present a problem to mixing bikes and cars safely. Analysis indicates that much of this problem is related to non-local traffic using this local street as a cut-through route to Emanuel Hospital and the I-84 overpass. To address the problem, the project recommends placing semi-diverters at the north and south legs of this intersection to prohibit both turn movements off of Burnside St and the through movement from the south.

Diversion always contains the potential for unintended consequences, primarily in the form of moving the cut-through traffic from one local street to another. The project, therefore, also recommends that the process developed by the city's Traffic Calming Program and approved by City Council be used to ensure these improvements support the project's goals and existing Transportation System Plan policy. The key element of this process is testing prior to implementation (see Appendix B). If excessive traffic is found to be diverted to adjacent local streets, additional mitigation measures will be tested. The recommendation to move forward with diversion was supported at a community meeting of the surrounding residents, who have seen the problem as a long standing neighborhood livability issue, and the North Tabor Neighborhood Association.



E Burnside St/ SE 53rd Ave

Many of the east-west arterial crossings are not signalized or are without improvements to enhance safety and reduce delay. The street with the highest traffic volumes is E Burnside St which is four lanes wide. Providing a safe crossing of this intersection requires installation of a traffic signal. At the other non-signalized intersections, SE Lincoln St, SE Hawthorne Blvd, SE Belmont St and SE Stark St, the project recommends curb extensions and/or median refuge islands to improve safety and reduce delay. These will also improve crossing safety and comfort for pedestrians.

Several of the arterial crossings also meet the City's criteria for bicycle boxes to enhance safety related to right turning vehicles. These locations are NE Halsey St, NE Glisan St and SE Division St.

Major Design Elements

South of SE Division St/ Direct Route

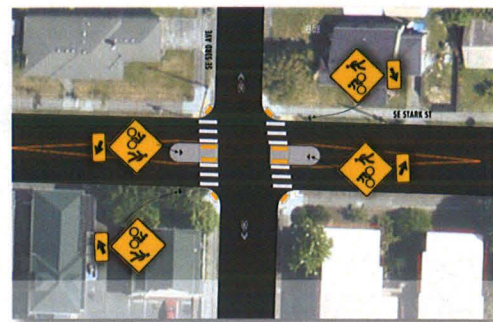
South of SE Division St, SE 52nd Ave is one of the few direct north-south travel routes, thus carrying relatively high traffic volumes. Traffic volumes increase from 6,500 at SE Division St to over 13,000 cars/day at SE Woodstock Blvd. Traffic speeds also increase significantly, with 85th percentile speed 6 to 7 miles/hour above the posted 30 mph speed limit. The adjacent land uses are still predominantly residential, but with several small commercial nodes (SE Foster Rd to SE Powell Blvd, and around SE Holgate Blvd, SE Steele St and SE Woodstock Blvd).

North of SE Division St, 52nd Ave is a 36' wide local street, yet the street carries more than 2,500 cars a day. This volume is well in excess of the preferred volume for a local street, as well as what is acceptable for a Neighborhood Greenway. Analysis indicates that the traffic is predominately non-local, using the traffic signal at SE 52nd Ave and SE Division St to enter into the neighborhood and cut-through to SE Lincoln St (another City Bikeway) to avoid the signalized intersections at SE 50th Ave and SE Division St and SE 60th Ave and SE Division St.

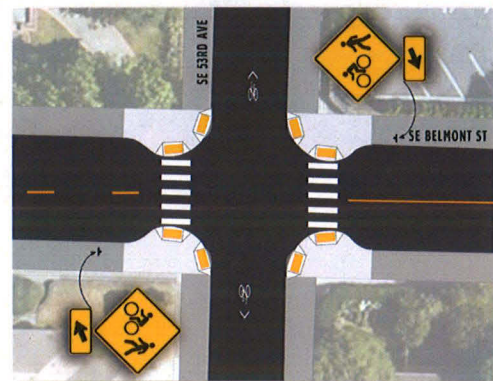
The project recommends that the volumes between SE Division St and SE Lincoln St be reduced to function more closely with its classification as a Local Service Street through the placement of a regulatory diverter at SE 52nd Ave and SE Division St which would prohibit northbound movements on to SE 52nd Ave. This location would use signage ('Do Not Enter') as opposed to a physical barrier in order to preserve access for the #71 bus.

Diversion at this location has proven to be controversial with adjacent street residents. Three public meetings were held specifically to discuss diversion at SE 52nd Ave and SE Division St with a wide range of public opinion demonstrated from the adjacent residents. While strongly supporting the overall project, the Mt Tabor Neighborhood Association voted at the June 15th meeting 56 to 55 against the diverter.

A key concern with pursuing diversion at this location is the potential for some diverted non-local traffic to end up on adjacent streets, particularly SE 51st Ave and SE 53rd Ave. While possible, like most diversion projects, the project team's analysis is that it is not probable in significant quantities. To safeguard against this possibility, the project also recommends testing the proposed devices to ensure effectiveness prior to final implementation (see Appendix B).



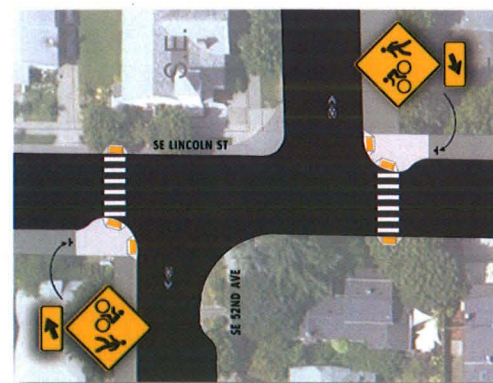
SE Stark St/ SE 53rd Ave



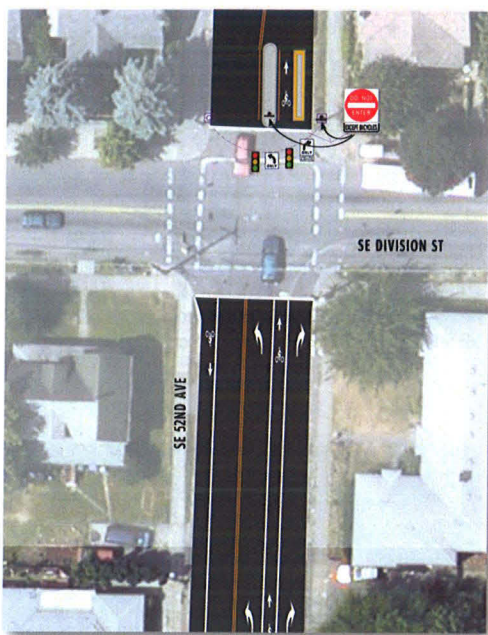
SE Belmont St/ SE 53rd Ave



Hawthorne Blvd/ SE 53rd Ave



SE Lincoln St/ SE 53rd Ave

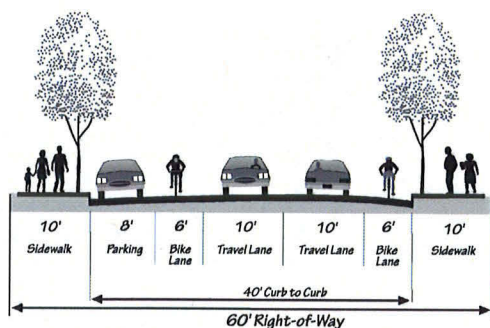


SE Division St/52nd Ave

To accommodate bicycles on SE 52nd Ave south of SE Division St all the way to SE Woodstock Blvd, the major design issues are essentially the reverse of the section north of SE Division St. All the major street intersections, SE Powell Blvd, SE Foster Rd, SE Holgate Blvd and SE Steele St, are signalized to allow for safe and convenient bicycle crossing. It's the spaces in-between crossings that need to be re-balanced to safely accommodate bicycles.

The project recommends striping 6 ft wide bicycle lanes from SE Division St to SE Woodstock Blvd. The space for this within the street's 40 ft curb-to-curb right-of-way would come from the removal of on-street parking along the east side of the street and narrowing of the two travel lanes from 12 ft to 10 ft.

On-street parking loss is the major trade-off with this element of the project. Approximately 200 spaces would be removed from SE 52nd Ave. The significance of this loss is tempered by analysis that shows much of the existing parking supply is currently underutilized (see Appendix C). All of the existing demand surveyed over two time periods last year indicates that the current demand can be accommodated within the remaining parking supply on just the west side of the street. Retaining parking on the west side was chosen over the east side because both the supply and demand were found to be higher.



SE 52nd Ave: SE Division St to SE Woodstock Blvd

While bicycle lanes will provide a significant benefit to the functionality of the 50s Bikeway south of SE Division St, additional traffic calming would be of great benefit to not only the bikeway, but to neighborhood livability as well. A major policy constraint is the street's designation as an Emergency Response Route in the Transportation System Plan, which precludes use of devices like speed bumps. The addition of bicycle lanes should provide some help by narrowing the travel lanes from 12 ft to 10 ft., while also improving the visibility for crossing pedestrians.

Signal timing changes at SE Foster Rd and SE Powell Blvd are intended to reinforce use of 50th Ave as the collector route between SE Division St and SE Foster Rd, instead of 52nd Ave north of SE Powell Blvd, which is designated as a Local Service Street.

Two additional conditional measures are recommended specifically to provide traffic calming along this important section of the route. First, the project recommends lowering the speed limit from 30 mph to 25 mph, subject to the approval of the State of Oregon Speed Control Board. Second, pending approval of a new 'fire friendly' experimental speed bump design, currently under testing, the project recommends that this tool be made available to SE 52nd Ave between SE Division St and SE Woodstock Blvd.

A unique section of the southern segment is between SE Powell Blvd and SE Foster Rd where SE 52nd Ave is classified as a Major City Traffic Street. This accounts for its connections to these two major arterials also classified

as Major City Traffic Streets. The high volume of turn movements through this section requires special attention to reducing conflicts with bicyclists. The existing presence of turn lanes along the entire segment means there is no on-street parking to be lost via the inclusion of bicycle lanes. The cross-section width, however, precludes use of wider bicycle lanes. To remedy this situation, the project recommends removing the turn lanes at the two minor street intersections, SE Lafayette St and SE Rhone St to allow sufficient space for the 6 ft bicycle lane. The project also recommends coloring the bicycle lanes green for the entire segment and installing a bicycle box at the south leg of the SE Powell Blvd intersection to better highlight the potential for conflicts with motor vehicles.

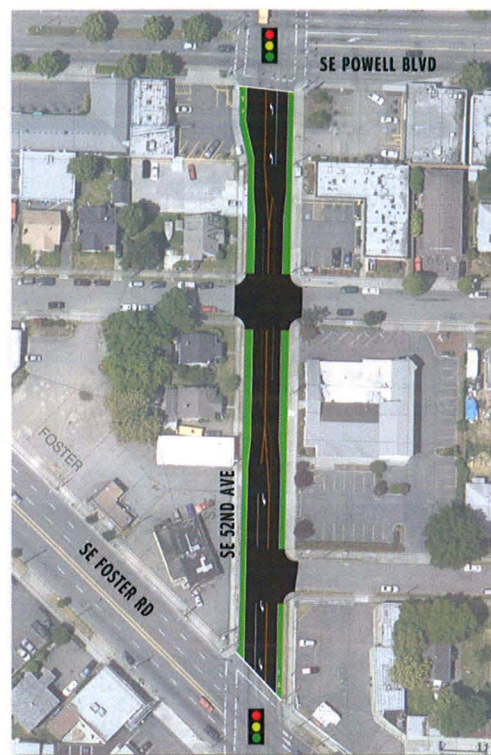
South of SE Division St/ Neighborhood Route

A significant element of the overall recommendation is to provide, in addition to bicycle lanes on SE 52nd Ave south of SE Division St, a separate parallel local street facility. The primary intent of this is to provide an option for the 'interested but concerned' cyclists. Safety is a paramount concern of this large segment of Portland's existing and potential bicycling community. Standard width bicycle lanes on high traffic volume and speed arterials are often not considered a comfortable enough environment to make bicycling a viable mode choice.

To serve this population's needs, the project recommends a parallel route east of SE 52nd Ave between SE Woodward St and SE Woodstock Blvd. While the connections are non-direct, given the character of the surrounding street network, it utilizes a series of low traffic volume and speed streets to provide a more family friendly alternative to SE 52nd Ave.

The alignment starts at SE Woodward St, using an existing east-west bikeway to connect to SE 54th Ave. The route continues south along SE 54th Ave until it jogs east to SE 56th Ave at SE Bush St to align with and take advantage of an existing crossing improvement at SE Foster Rd. At SE Boise St, the route is forced east again to SE 58th Ave where the street network finally offers a relatively straight connection to SE Woodstock Blvd via SE 58th Ave and SE 57th Ave. Existing bicycle lanes on SE Woodstock Blvd allow for the connection back to SE 52nd Ave and destinations to the south.

Similar to many of project's northern segments, development of a functional bikeway focuses mainly on safety and convenience at key major street crossings. The most significant of these is SE Powell Blvd at SE 54th Ave. This high volume crossing also serves as an important pedestrian crossing for Franklin High School students. Though currently improved with a median refuge island, crossings at this location are still difficult due to the volume and speed of traffic, and poor sight distance caused by landscaping. The project recommends signaling this crossing, subject to the approval of the Oregon Department of Transportation.



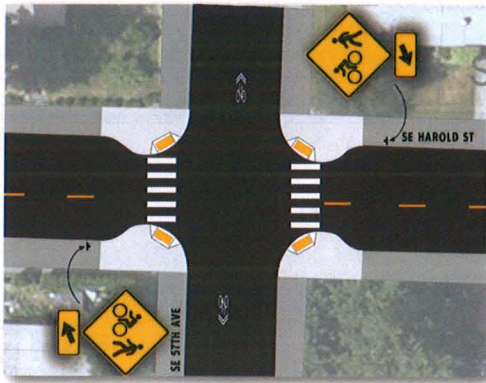
SE 52nd Ave: Powell Blvd to Foster Rd



SE Woodward St/52nd Ave



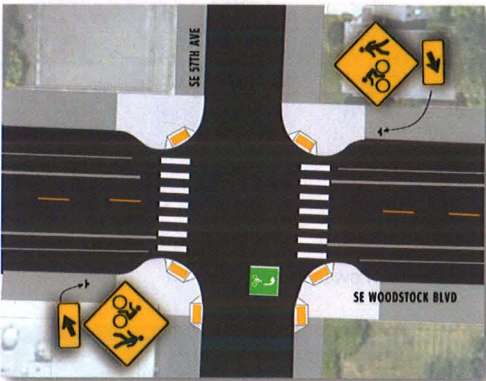
SE Holgate Blvd/58th Ave



SE Harold St/57th Ave

Other crossings recommended for improvement include SE Holgate Blvd (median refuge island), SE Harold St (curb extensions) and SE Woodstock Blvd (curb extensions). All these safety improvements would benefit pedestrians as well as bicyclists.

Along the rest of the route, the project recommends using 'sharrow' pavement markings and destination signage to help guide cyclists along the route's alignment, as well as speed bumps in certain segments and the new speed limit law for bikeways to reduce traffic speeds.



SE Woodstock Blvd/57th Ave

Other crossings recommended for improvement include SE Holgate Blvd (median refuge island), SE Harold St (curb extensions) and SE Woodstock Blvd (curb extensions). All these safety improvements would benefit pedestrians as well as bicyclists.



APPENDIX A

APPENDIX A PUBLIC MEETING LOG

Aug 11, 2010	Citizens Advisory Committee Meeting #1
Aug 18, 2010	Mt Tabor Neighborhood Association #1
Sept 14, 2010	Portland Bicycle Advisory Comm. #1
Sept 29, 2010	Citizens Advisory Committee Meeting #2
Oct 11, 2010	Richmond Neighborhood Assoc. #1
Oct 12, 2010	Foster Business Assoc. #1
Oct 12, 2010	Creston Kenillworth Neighborhood Assoc. #1
Oct 12, 2010	Woodstock Business Assoc. #1
Oct 16, 2010	CAC Group Ride
Oct 19, 2010	North Tabor Neighborhood Assoc. #1
Oct 21, 2010	South Tabor Neighborhood Assoc. #1
Nov 1, 2010	SE Uplift District Coalition #1
Nov 3, 2010	Woodstock Neighborhood Assoc #1
Nov 8, 2010	Foster/Powell Neighborhood Assoc. #1
Nov 15, 2010	Citizens Advisory Committee Mtg #3
Nov 17, 2010	Mt Tabor Neighborhood Assoc. #2
Jan 26, 2011	Open House #1
Feb 22, 2011	Citizens Advisory Committee Mtg #4
Mar 6, 2011	Glencoe PTA
Mar 16, 2011	Mt Tabor Neighborhood Assoc. #3
Mar 17, 2011	Rose City Neighborhood Assoc
Mar 22, 2011	North Tabor Neighborhood Assoc. #2
Mar 23, 2011	Foster Business Assoc. #2
April 6, 2011	Woodstock Neighborhood Assoc. #2
April 12, 2011	Woodstock Business Assoc. #2
April 26, 2011	Burnside-Glisan traffic calming meeting
May 2, 2011	Central NE Neighbors
May 5, 2011	Division-Lincoln traffic calming meeting #1
May 9, 2011	Richmond Neighborhood Association #2
May 10, 2011	Creston Kenilworth Neighborhood Assoc. #2
May 17, 2011	North Tabor Neighborhood Association #2
May 18, 2011	Mt Tabor Neighborhood Association informal
May 19, 2011	South Tabor Neighborhood Association #2
May 24, 2011	Citizens Advisory Committee Mtg #5
June 6, 2011	SEUL District Coalition #2
June 8, 2011	Division-Lincoln traffic calming meeting #2
June 13, 2011	Foster Powell Neighborhood Assoc. #2
June 13, 2011	Richmond Neighborhood Assoc. #3
June 14, 2011	Portland Bicycle Advisory Comm. #2
June 15, 2011	Mt Tabor Neighborhood Association #2
June 29, 2011	Open House #2



APPENDIX B PROCESS FOR DIVERSION

Purpose

The project recommends pursuing the installation of semi-diverters at two locations that will restrict certain traffic movements. The locations are NE 53rd Ave at E Burnside St and SE 52nd Ave at Division St. The intent of these devices is to reduce existing traffic volumes on the bikeway in order to allow for a safer bicycling environment by allowing the streets to function more closely with their traffic classifications as Local Service Streets. Analysis performed by the project indicates that the excessive traffic volumes are primarily related to non-local cut-through traffic. The intent is also that the non-local traffic is diverted to the appropriate adjacent collector street.

Policy

Both street segments are designated as Local Service Traffic Streets and City Bikeways in the Transportation System Plan. Between Division and Lincoln St, 52nd Ave, is also classified as a Transit Access Street.

Objectives

The project established the following objectives for addressing excessive traffic volumes related to cut-through traffic at both locations:

- Reduce non-local traffic volumes.
Improve the safety and functionality of the bikeway and neighborhood livability.
- Balance the reduction of non-local traffic volumes with the need to minimize impacts to the surrounding neighborhood.
Do not move the problem to another local street and minimize impacts to local access.
- Minimize impacts to emergency response vehicles and transit service.

Recommended Process

In order to ensure that the above objectives are addressed adequately, the project recommends that proposed devices be tested at each location prior to final installation. The process described below is based largely, but not entirely, on the one adopted by City Council in 1992 as part of the Neighborhood Traffic Management Program for Local Service Streets (NTMP). A major component of that process is testing and the associated evaluation tool, the 'impact threshold curve'. This is the safeguard against unacceptable levels of traffic diversion to adjacent Local Service Traffic Streets, the primary potential unintended impact of these types of projects. The impact threshold curve establishes the acceptable volume of additional traffic on adjacent streets that could result from the test.

TEST PROCESS - E BURNSIDE STREET**INITIAL PHASE**

1). Semi diverters: north-south 53 rd /Burnside	
2). Stop signs (north-south) on adjacent streets <ul style="list-style-type: none"> ▪ 52nd Ave/Burnside-Glisan ▪ 55th Ave/ Burnside-Glisan 	
3). Speed bumps <ul style="list-style-type: none"> ▪ 52nd Ave/Burnside-Glisan ▪ 55th Ave/ Burnside-Glisan 	Optional; contingent on petition support of adjacent residents (50% or greater)

4 MONTH CHECK-IN PHASE

A). Data collection	Speed/volumes counts: 52 nd , 53 rd , 55 th , Burnside, and review of signal operations/queuing.
B). Evaluation: If volumes on 52 nd Ave and 55 th Ave are below the impact threshold curve*: ➔ No changes to the test	<i>For more information on impact threshold curve see:</i> http://www.portlandonline.com/transportation/index.cfm?a=85375&c=35934
If volumes on 52 nd Ave and 55 th Ave are near or exceed the impact threshold curve ↓	
Consider additional mitigation tools, including speed bumps, diverters or other traffic calming options	
C). Public meeting to review the results and discuss next steps	

8 MONTH/ FINAL EVALUATION PHASE

A). Data collection	Speed/volumes counts 52 nd , 53 rd , 55 th , Burnside, and review of signal operations/queuing.
B). Evaluation: If volumes are below the impact threshold curve ➔ Test complete, proceed to construction	<i>For more information on impact threshold curve see:</i> http://www.portlandonline.com/transportation/index.cfm?a=85375&c=35934
If volumes on these streets exceed the impact threshold curve ↓	
Remove the regulatory diverter at 53 rd Ave/ Burnside and, if also tested, diverters at other locations	
C). Public meeting to review the results and discuss next steps	

July 2011 Revised

NE/SE 50s Bikeway Project

DRAFT Citizens Advisory Comm.

Design Concept

53rd Ave at E Burnside St
Restrict northbound and southbound
turn movements off of Burnside St

TESTING:
These changes will be tested and evaluated first
prior to final implementation, with additional
public involvement.

SE 52nd Ave at Division
Restrict northbound traffic
(except bus and bikes)

TESTING:
These changes will be tested and evaluated
prior to final implementation, with additional
public involvement.

SE Division St to Woodstock Blvd
On-street parking removal on east side
of 52nd Ave to allow for bicycle lanes

North end connection from
NE Alameda to Hancock/
Tillamook Bikeway

NE 53rd- SE 52nd Ave: NE Thompson to SE Division
Reduce speed limit to 20 mph
per new State law for Bikeways

SE 52nd Ave: Division St to Woodstock Blvd
Reduce speed limit to 25 mph

Proposed Improvements

- Bicycle lanes, 6ft wide
- Bicycle lanes, 5ft wide, colored
- Sharrow pavement markings
- 1 Bike Box
- 2 Cross Bike
- 3 New signal/ pedestrian or HAWK
- 4 Bike detection for existing signal
- 5 Curb Extensions
- 6 Speed bumps
- 7 Median refuge
- 8 Diverter/ diversion-traffic calming
- 9 Off-set turn lanes
- 10 Active beacons
- 11 Signal timing change
- 12 Driveway closure
- 13 Intersection capacity improvement
- # Subject to further technical feasibility assessment
- # Subject to further public involvement
- Diversion/ Traffic calming
- Stop sign added
- Stop sign removed
- Designated Bikeway
- Recommended northern bikeway connection to NE Alameda St



TEST PROCESS- SE DIVISION STREET

36882

INITIAL PHASE

1). Regulatory diverter: 52nd Ave/Division	
2). Capacity improvements: 50 th / Division	Signal timing, right turn lane
3). Speed Bumps <ul style="list-style-type: none"> SE 51st Ave, 53rd Ave, and 54th Ave 	Optional; Contingent on petition support of adjacent residents (50% or greater)
4). Stop signs (north-south): <ul style="list-style-type: none"> 53rd Ave/Sherman 54th Ave/ Sherman 	

4 MONTH CHECK-IN PHASE

A). Data collection	Speed/volumes counts: 51 st , 52 nd , 53 rd , 54 th , Lincoln, Division, and review of signal operations/queuing.
B). Evaluation: If volumes on 51 st Ave, 53 rd Ave, 54 th Ave are below the impact threshold curve*: ➔ No changes to the test	Threshold volumes: +150 vehicles/ day For more information: http://www.portlandonline.com/transportation/index.cfm?a=85375&c=35934
If volumes on 51 st Ave, 53 rd Ave, 54 th Ave are near or exceed the impact threshold curve ↓	
Consider additional mitigation tools, including speed bumps, parking lane curb extensions, bike box at 50 th /Lincoln, additional diverters, or other traffic calming options	
C). Public meeting to review the results and discuss next steps	

8 MONTH/ FINAL EVALUATION PHASE

A). Data collection	Speed/volumes counts: 51 st , 52 nd , 53 rd , 54 th , Lincoln, Division, and review of signal operations/queuing.
B). Evaluation: If volumes on 51 st Ave, 53 rd Ave, 54 th Ave are below the impact threshold curve ➔ Test complete, proceed to construction	Threshold volumes: +150 vehicles/ day
If volumes on 51 st Ave, 53 rd Ave, 54 th Ave are near or exceed the impact threshold curve ↓	
Remove the regulatory diverter at 52 nd Ave/ Division and, if also tested, diverters at other locations	
C). Public meeting to review the results and discuss next steps	



APPENDIX C

PARKING SUPPLY AND UTILIZATION

SE 52ND AVE/ DIVISION ST TO WOODSTOCK BLVD

To assess the potential impacts of on-street parking removal related to installing bicycle lanes on SE 52nd Ave, between SE Division St and SE Woodstock Blvd, the project collected the following types of data:

- **Parking Inventory**

The total supply of on-street parking was measured as part of the utilization surveys noted below and a separate inventory performed in October. This inventory recorded the number of lineal feet of allowed parking, not-allowed parking (by type), driveways and presence of off-street parking by tax lot.

- **Parking Utilization**

Parking utilization surveys were performed during two different time periods, August and October, to measure the demand for on-street parking relative to the supply.

The August weekday dates were Thursday the 5th and Friday the 6th. The August weekend date was Saturday the 7th. The October weekday date was Wednesday the 20th. The October weekend date was Saturday the 16th.

For each weekday date, utilization was measured over four day time periods (7-8 AM, noon- 1 PM, 4-5 PM and 9-10 PM). For the August weekend date, there were two time periods (8-9 AM and 2-3 PM) measured, and four for the October date (7-8 AM, noon- 1 PM, 4-5 PM and 9-10 PM). During those time periods, the number of cars observed parked along each block face was recorded.

The following two tables summarize the data collected.

50s Bikeway Parking Utilization Survey/Weekday SE Division to SE Woodstock

WEST SIDE

	LF Parking	Spaces
DIVISION - IVON	170	9
IVON - CLINTON	200	10
CLINTON - WOODWARD	388	19
WOODWARD - TIBBETTS	230	12
TIBBETTS - FRANKLIN	353	18
FRANKLIN - BUSH	0	0
BUSH - GLADSTONE	412	21
GLADSTONE - BOISE	200	10
BOISE - CORA	186	9
CORA - HOLGATE	230	12
HOLGATE - LONG	464	23
LONG - RAYMOND	446	22
RAYMOND - MITCHELL	229	11
MITCHELL - STEELE	235	12
STEELE - INSLEY	268	13
INSLEY - HAROLD	190	10
HAROLD - ELLIS	183	9
ELLIS - REEDWAY	174	9
REEDWAY - RAMONA	166	8
RAMONA - KNIGHT	184	9
KNIGHT - WOODSTOCK	0	0

4908 245

Parking Spaces Utilized

August 2010				October 2010			
7-8 am	12-1 pm	4-5 pm	9-10 pm	7-8 am	12-1 pm	4-5 pm	9-10 pm
1	1	0	2	2	0	3	2
4	4	4	5	7	4	7	6
10	6	7	11	8	10	7	10
6	3	4	6	5	3	3	6
6	5	4	6	8	8	7	6
0	0	0	0	0	0	0	0
2	6	5	2	4	4	3	3
1	1	2	0	0	0	0	0
4	3	3	3	1	1	1	4
5	2	2	3	5	3	3	4
5	2	5	4	6	4	5	6
6	5	5	6	3	2	3	4
0	1	0	1	1	2	2	2
2	2	2	1	1	3	0	1
1	0	1	0	1	1	0	0
0	0	0	0	1	0	0	0
0	1	0	0	0	0	0	1
0	0	0	0	0	1	1	0
1	0	1	4	1	0	0	0
0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0

54 42 45 54 54 46 45 55

Percent of Total Block Supply Utilized

August 2010				October 2010			
7-8 am	12-1 pm	4-5 pm	9-10 pm	7-8 am	12-1 pm	4-5 pm	9-10 pm
12%	12%	0%	24%	24%	0%	35%	24%
40%	40%	40%	50%	70%	40%	70%	60%
52%	31%	36%	57%	41%	52%	36%	52%
52%	26%	35%	52%	43%	26%	26%	52%
34%	28%	23%	34%	45%	45%	40%	34%
10%	29%	24%	10%	19%	19%	15%	15%
10%	10%	20%	0%	0%	0%	0%	0%
43%	32%	32%	32%	11%	11%	11%	43%
43%	17%	17%	26%	43%	26%	26%	35%
22%	9%	22%	17%	26%	17%	22%	26%
27%	22%	22%	27%	13%	9%	13%	18%
0%	9%	0%	9%	9%	17%	17%	17%
17%	17%	17%	9%	9%	26%	0%	9%
7%	0%	7%	0%	7%	7%	0%	0%
0%	0%	0%	0%	11%	0%	0%	0%
0%	11%	0%	0%	0%	0%	0%	11%
0%	0%	0%	0%	0%	11%	11%	0%
12%	0%	12%	48%	12%	0%	0%	0%
0%	0%	0%	0%	0%	0%	0%	0%

22% 17% 18% 22% 22% 19% 18% 22%

EAST SIDE

	LF Parking	Spaces
DIVISION - IVON	167	8
IVON - CLINTON	119	6
CLINTON - TAGGART	345	17
TAGGART - WOODWARD	0	0
WOODWARD - TIBBETTS	194	10
TIBBETTS - FRANKLIN	270	14
FRANKLIN - POWELL	120	6
POWELL - FRANCIS	0	0
FRANCIS - CENTER	120	6
CENTER - GLADSTONE	48	2
GLADSTONE - BOISE	211	11
BOISE - MALL	120	6
MALL - HOLGATE	115	6
HOLGATE - PARDEE	0	0
PARDEE - LONG	90	5
LONG - SCHILLER	313	16
SCHILLER - RAYMOND	278	14
RAYMOND - MITCHELL	350	18
MITCHELL - STEELE	165	8
STEELE - INSLEY	122	6
INSLEY - HAROLD	169	8
HAROLD - REEDWAY	283	14
REEDWAY - RAMONA	226	11
RAMONA - KNIGHT	208	10
KNIGHT - WOODSTOCK	0	0

4033 202

Parking Spaces Utilized

August 2010				October 2010			
7-8 am	12-1 pm	4-5 pm	9-10 pm	7-8 am	12-1 pm	4-5 pm	9-10 pm
1	1	1	1	1	3	2	2
3	4	3	3	5	2	1	3
7	6	8	9	11	5	10	11
0	0	0	0	0	0	6	0
3	2	1	2	2	1	1	0
3	5	4	4	3	3	4	3
2	3	4	2	4	4	4	4
0	0	0	0	0	0	0	0
2	1	1	1	0	0	0	0
0	1	0	0	0	1	0	1
0	1	1	1	1	1	1	0
2	1	1	1	0	1	2	1
2	2	0	0	1	2	1	0
0	0	0	0	0	0	0	0
2	0	0	2	4	0	2	1
3	2	4	5	3	0	0	3
0	0	0	0	0	2	0	2
0	1	1	0	0	0	0	0
0	3	1	2	0	1	3	0
0	0	0	0	0	2	1	0
0	0	0	2	1	1	2	1
1	1	1	1	1	1	0	0
0	0	0	0	0	0	0	0
0	0	2	1	0	0	1	0
0	0	0	0	0	0	0	0

31 34 33 37 37 30 35 32

Percent of Total Block Supply Utilized

August 2010				October 2010			
7-8 am	12-1 pm	4-5 pm	9-10 pm	7-8 am	12-1 pm	4-5 pm	9-10 pm
12%	12%	12%	12%	12%	36%	24%	24%
50%	67%	50%	50%	84%	34%	17%	50%
41%	35%	46%	52%	64%	29%	58%	64%
31%	21%	10%	21%	21%	10%	10%	0%
22%	37%	30%	30%	22%	22%	30%	22%
33%	50%	67%	33%	67%	67%	67%	67%
33%	17%	17%	17%	0%	0%	0%	0%
0%	42%	0%	0%	0%	42%	0%	42%
0%	9%	9%	9%	9%	9%	9%	0%
33%	17%	17%	17%	0%	17%	33%	17%
35%	35%	0%	0%	17%	35%	17%	0%
44%	0%	0%	44%	89%	0%	44%	22%
19%	13%	26%	32%	19%	0%	0%	19%
0%	0%	0%	0%	0%	14%	0%	14%
0%	6%	6%	0%	0%	0%	0%	0%
0%	36%	12%	24%	0%	12%	36%	0%
0%	0%	0%	0%	0%	33%	16%	0%
0%	0%	0%	24%	12%	12%	24%	12%
7%	7%	7%	7%	7%	7%	0%	0%
0%	0%	0%	0%	0%	0%	0%	0%
0%	0%	19%	10%	0%	0%	10%	0%

15% 17% 16% 18% 18% 15% 17% 16%

WEST + EAST TOTAL

8941 447

85 76 78 91 91 76 80 87

19% 17% 17% 20% 20% 17% 18% 19%

50s Bikeway Parking Utilization Survey/Weekend SE Division to SE Woodstock

WEST SIDE

	LF Parking	Spaces
DIVISION - IVON	170	9
IVON - CLINTON	200	10
CLINTON - WOODWARD	388	19
WOODWARD - TIBBETTS	230	12
TIBBETTS - FRANKLIN	353	18
FRANKLIN - BUSH	0	0
BUSH - GLADSTONE	412	21
GLADSTONE - BOISE	200	10
BOISE - CORA	186	9
CORA - HOLGATE	230	12
HOLGATE - LONG	464	23
LONG - RAYMOND	446	22
RAYMOND - MITCHELL	229	11
MITCHELL - STEELE	235	12
STEELE - INSLEY	268	13
INSLEY - HAROLD	190	10
HAROLD - ELLIS	183	9
ELLIS - REEDWAY	174	9
REEDWAY - RAMONA	166	8
RAMONA - KNIGHT	184	9
KNIGHT - WOODSTOCK	0	0

4908 245

Parking Spaces Utilized

August	
8-9 am	2-3 pm
2	1
7	5
10	9
5	3
6	4
0	0
1	4
0	0
5	2
4	5
5	5
6	5
4	4
4	7
1	0
0	0
1	0
0	0
1	0
0	0
0	0

62 54

October			
7-8 am	12-1 pm	4-5 pm	9-10 pm
2	2	1	2
6	5	4	5
12	8	8	10
5	4	4	5
5	3	8	5
0	0	0	0
2	2	2	2
1	1	0	0
4	4	3	4
4	4	4	4
8	5	6	7
6	5	5	4
1	0	1	1
2	8	0	1
1	1	1	1
0	0	0	0
0	0	0	1
0	0	0	0
2	2	1	1
0	0	0	0
0	0	0	0

61 54 48 53

Percent of Total Block Supply Utilized

August	
8-9 am	2-3 pm
24%	12%
70%	50%
52%	46%
43%	26%
34%	23%
5%	19%
0%	0%
54%	22%
35%	43%
22%	22%
27%	22%
35%	35%
34%	60%
7%	0%
0%	0%
11%	0%
0%	0%
12%	0%
0%	0%

25% 22%

October			
7-8 am	12-1 pm	4-5 pm	9-10 pm
24%	24%	12%	24%
60%	50%	40%	50%
62%	41%	41%	52%
43%	35%	35%	43%
28%	17%	45%	28%
10%	10%	10%	10%
10%	10%	0%	0%
43%	43%	32%	43%
35%	35%	35%	35%
34%	22%	26%	30%
27%	22%	22%	18%
9%	0%	9%	9%
17%	68%	0%	9%
7%	7%	7%	7%
0%	0%	0%	0%
0%	0%	0%	11%
0%	0%	0%	0%
24%	24%	12%	12%
0%	0%	0%	0%

25% 22% 20% 22%

EAST SIDE

	LF Parking	Spaces
DIVISION - IVON	167	8
IVON - CLINTON	119	6
CLINTON - TAGGART	345	17
TAGGART - WOODWARD	0	0
WOODWARD - TIBBETTS	194	10
TIBBETTS - FRANKLIN	270	14
FRANKLIN - POWELL	120	6
POWELL - FRANCIS	0	0
FRANCIS - CENTER	120	6
CENTER - GLADSTONE	48	2
GLADSTONE - BOISE	211	11
BOISE - MALL	120	6
MALL - HOLGATE	115	6
HOLGATE - PARDEE	0	0
PARDEE - LONG	90	5
LONG - SCHILLER	313	16
SCHILLER - RAYMOND	278	14
RAYMOND - MITCHELL	350	18
MITCHELL - STEELE	165	8
STEELE - INSLEY	122	6
INSLEY - HAROLD	169	8
HAROLD - REEDWAY	283	14
REEDWAY - RAMONA	226	11
RAMONA - KNIGHT	208	10
KNIGHT - WOODSTOCK	0	0

4033 202

Parking Spaces Utilized

August	
8-9 am	2-3 pm
2	2
4	2
7	6
0	0
2	2
4	4
2	3
0	0
2	2
1	0
0	1
1	0
0	0
4	0
0	0
0	0
1	1
0	0
0	0
0	0
1	1
0	1
1	0
0	0

33 33

October			
7-8 am	12-1 pm	4-5 pm	9-10 pm
2	0	0	1
3	4	4	4
11	7	9	8
0	0	0	0
1	1	0	1
2	3	4	5
3	2	5	3
0	0	0	0
0	2	3	0
1	2	0	1
0	0	1	1
0	2	2	1
2	1	1	0
0	0	0	0
5	2	2	4
2	0	2	2
0	0	0	0
2	4	1	0
0	5	1	1
0	0	0	0
1	0	0	1
1	0	0	3
0	0	0	1
0	0	2	0
0	1	0	0

36 36 37 37

Percent of Total Block Supply Utilized

August	
8-9 am	2-3 pm
24%	24%
67%	34%
41%	35%
21%	21%
30%	30%
33%	50%
33%	33%
42%	0%
0%	9%
17%	0%
0%	0%
89%	0%
0%	19%
7%	0%
6%	6%
0%	61%
0%	0%
0%	0%
7%	7%
0%	9%
10%	0%

16% 16%

October			
7-8 am	12-1 pm	4-5 pm	9-10 pm
24%	0%	0%	12%
50%	67%	67%	67%
64%	41%	52%	46%
10%	10%	0%	10%
15%	22%	30%	37%
50%	33%	83%	50%
0%	33%	50%	0%
42%	83%	0%	42%
0%	0%	9%	9%
0%	33%	33%	17%
35%	17%	17%	0%
111%	44%	44%	89%
13%	0%	13%	13%
0%	0%	0%	0%
11%	23%	6%	0%
0%	61%	12%	12%
0%	0%	0%	0%
12%	0%	0%	12%
7%	0%	0%	21%
0%	0%	0%	9%
0%	0%	19%	0%

18% 18% 18% 18%

WEST +EAST TOTAL

8941 447

95 87

97 90 85 90

21% 19%

22% 20% 19% 20%



APPENDIX D

APPENDIX D IMPLEMENTATION STRATEGY

Phase I: Construction as part of existing federal funding

Phase II: Construction pending additional funding

<i>Recommended Improvement</i>	<i>Location</i>	<i>Federal funding issues</i>	<i>Other Issues</i>	<i>Phase I</i>	<i>Phase II</i>
DIRECT ROUTE					
'Sharrow' pavement markings	NE Thompson to SE Division				
Destination signage	NE Thompson to SE Woodstock				
Reduce speed limit to 20 mph	NE Thompson to Division		(1)		
Curb extensions	NE 57 th / Thompson				
Cross-bike	NE 57 th / Thompson	(2)			
Bike Box	NE Halsey/53 rd Ave	(6)	yes		
Bike Box	NE Glisan/53 rd Ave	(6)	yes		
Semi-diverters	NE 53 rd and SE 53 rd / Burnside				
Signal	NE 53 rd / Burnside				
Median islands	SE Stark/ 53rd				
Cross-bike	SE Stark/ 53rd	(2)			
Curb extensions	SE Belmont/ 53rd				
Cross-bike	SE Belmont/ 53rd	(2)			
Curb extensions	SE Hawthorne/ 52 nd Ave				
Cross-bike	SE Hawthorne/ 52 nd Ave	(2)			
Curb extensions	SE Lincoln/ 52 nd Ave				
Cross-bike	SE Lincoln/ 52 nd Ave	(2)			
Bus accessible semi-diverter	SE Division-Lincoln/ 52 nd Ave				
Bike Box	SE Division/52 nd Ave	(6)	yes		
Addition of right hand turn lane at east approach	SE Division/50 th Ave				
6' Bicycle lanes	SE Division to Woodstock/ 52 nd Ave				
Crossing treatment	SE Woodward/ 52 nd Ave				
Speed bumps	SE Division-Powell/ 52 nd Ave		(3)		
Reduce speed limit to 25 mph	SE 52 nd Ave, Division to Woodstock		(4)		
Bicycle signal detection	SE Powell/ 52 nd Ave				
Signal timing	SE Powell/ 52 nd Ave				
Colored bicycle lanes	SE Powell-Foster/ 52 nd Ave		(5)		
Signal timing	SE Foster/ 52 nd Ave				
Driveway closure	SE Foster/ 52 nd Ave				
Bike Boxes	All other signalized intersections: Foster, Holgate, Woodstock	(7)	yes		

<i>Recommended Improvement</i>	<i>Location</i>	<i>Federal funding issues</i>	<i>Other Issues</i>	<i>Phase I</i>	<i>Phase II</i>
NEIGHBORHOOD ROUTE					
'Sharrow' pavement markings	SE Woodward to Woodstock				
Destination signage	SE Woodward to Woodstock				
Reduce speed limit to 20 mph	SE Woodward to Woodstock		(1)		
Signal	SE Powell/ 54th		(8)		
Speed bumps	SE 54 th / Powell to Bush				
Bicycle signal detection	SE Foster/ 56 th Ave				
Median island	SE Holgate/ 58 th Ave				
Off-set turn lanes	SE Holgate/ 58 th Ave				
Speed bumps	SE 58 th Ave/ Holgate to Harold				
Curb extensions	SE Harold/ 58 th Ave				
Cross-bike	SE Harold/ 58 th Ave	(2)			
Speed bumps	SE 57 th Ave/ Harold to Woodstock				
Curb extensions	SE Woodstock/ 57 th Ave				
Cross-bike	SE Woodstock/ 57 th Ave	(2)			
Bike Boxes	All signalized crossings	(7)	yes		

Notes:

- (1) Speed limit change: Pending passage of state legislation (HB3150) for bikeways (20 mph) and establishment of Portland Bureau of Transportation (PBOT) standards for implementation.
- (2) Cross bike: Not currently in Manual of Uniform Traffic Control Devices (MUTCD), therefore not eligible for federal funding. PBOT design criteria not yet established. Retain in recommendation pending approval of PBOT design criteria and available non-federal funds.
- (3) Speed bumps: Though currently not supported by the Fire Bureau, retain in project recommendation if pending testing fire friendly' speed bump design for Emergency Response routes is successful.
- (4) Speed limit change: contingent on Oregon Dept of Transportation approval (~1 year process).
- (5) Still requires formal approval of PBOT design exception.
- (6) Bike boxes: Current draft PBOT design criteria for installation support the locations identified. Use without the green paint is allowable under the MUTCD.
- (7) Bike boxes: Retain in recommendation for future re-evaluation if criteria are changed. Provide green paint to locations installed as part of Phase I upon approval through MUTCD.

Other Notes:

SE 52nd/Franklin: Shift existing on-street parking on East side, south of SE Franklin to west side/phase I.