



**DATE:** March 15, 2012  
**TO:** Bellevue Transportation Commission  
**FROM:** Kevin McDonald, AICP, Senior Transportation Planner, 452-4558  
[kmcdonald@bellevuewa.gov](mailto:kmcdonald@bellevuewa.gov)  
**SUBJECT:** Downtown Transportation Plan Update

## **INTRODUCTION**

The update to the Downtown Transportation Plan will address mobility issues and challenges and support Downtown growth forecasts looking out to 2030.

On March 8, 2012, staff reviewed preliminary project ideas for bicycle mobility within Downtown Bellevue. Please refer to Attachment 3 for a summary of the previously reviewed Downtown project ideas and Commission comments.

Continuing with the discussion of bicycle mobility on March 22, staff will review project ideas for improving connections to adjacent neighborhoods and regional facilities. Please bring to the meeting your color copy of the March 8 presentation which includes all of the bicycle facility project ideas— I will have a few extras just in case. Staff will discuss project ideas with the Commission and seek direction to proceed on refinements and evaluation.

## **PRELIMINARY BICYCLE FACILITY PROJECT IDEAS FOR DOWNTOWN CONNECTIONS**

The following is a brief summary of the intended roadway function and existing plans relative to bicyclist mobility along corridors to and from Downtown, and the preliminary staff ideas for bicycle facilities. Please refer to Attachment 2 for a more detailed description of the corridor and project ideas for bicycle mobility. The staff presentation on March 22 will have even more detail on these corridors.

### **Bicycle Corridors South of Downtown**

- Bellevue Way
  - Provides a secondary north/south bicycle corridor useful primarily to “fearless” bicycle commuters
  - Connection from Downtown to the Enatai/Norhtown Priority Bicycle Corridor on 108th Avenue SE
  - Preliminary bicycle facility project idea: Shared roadway facility on Bellevue Way between Main Street and 112th Avenue SE

- 108<sup>th</sup> Avenue SE
  - Provides the primary north/south bicycle corridor between Downtown and the I-90 Trail
  - Designated in the Pedestrian and Bicycle Transportation Plan as the Enatai/Northtown Primary Bicycle Corridor
  - Preliminary bicycle facility project idea: Shared roadway with wayfinding
- 114<sup>th</sup> Avenue NE
  - Provides the primary north/south bicycle route on the east edge of Downtown south of NE 6<sup>th</sup> St. Connects to the I-90 trail via SE 8<sup>th</sup> St to the bicycle lanes on 118<sup>th</sup> Ave SE and via 112<sup>th</sup> Avenue SE and Bellevue Way SE on the planned off-street path that would run on the east side of these streets
  - Designated in the Pedestrian and Bicycle Transportation Plan as both the Lake Washington Loop route and the Lake-to-Lake Trail route
  - Preliminary bicycle facility project idea: Bicycle lanes (currently marked with sharrows)

### **Bicycle Corridors North of Downtown**

- 100<sup>th</sup> Avenue NE
  - Provides a neighborhood and regional bicycle connection
  - Preliminary bicycle facility project idea: Shared roadway with wayfinding between NE 12th Street and NE 24th Street
- Bellevue Way
  - Provides a secondary north/south corridor useful primarily to “fearless” bicycle commuters
  - Preliminary bicycle facility project idea: Shared roadway
- 108<sup>th</sup> Avenue NE
  - Provides the primary north/south bicycle corridor between Downtown, north Bellevue neighborhoods, the SR-520 Trail, and Kirkland
  - Designated in the Pedestrian and Bicycle Transportation Plan as the Enatai/Northtown Primary Bicycle Corridor, connecting to NE 24<sup>th</sup> Street
  - Preliminary bicycle facility project idea: Shared roadway with wayfinding
- 112<sup>th</sup> Avenue NE
  - Provides the primary north/south bicycle corridor between Downtown, north Bellevue neighborhoods, the SR-520 Trail and Kirkland
  - Designated in the Pedestrian and Bicycle Transportation Plan as the Lake Washington Loop route
  - Preliminary bicycle facility project idea: Shared roadway with wayfinding

- 116<sup>th</sup> Avenue NE
  - Provides the primary north/south bicycle corridor on the east side of I-405, with connections to the SR-520 Trail via Northup Way and NE 24<sup>th</sup> Street, and access to the planned Hospital light rail station
  - Preliminary bicycle facility project idea: Bicycle lanes
- NE 24<sup>th</sup> Street
  - Provides a component of north/south bicycle corridor between Downtown and the SR-520 Trail, and points north
  - Designated in the Pedestrian and Bicycle Transportation Plan as the Enatai-Northtown Priority Bicycle Corridor
  - Preliminary bicycle facility project idea: Shared roadway with wayfinding

### **Bicycle Corridors West of Downtown**

- Main Street/Lake Washington Boulevard
  - Provides the primary bicycle connection between Downtown and SR-520 Trail via Lake Washington Boulevard
  - Designated in the Pedestrian and Bicycle Transportation Plan as the Lake-to-Lake Trail route
  - Preliminary bicycle facility project idea: Shared roadway with wayfinding
- NE 8<sup>th</sup> Street
  - Provides a secondary connection between Downtown and SR-520 Trail
  - Preliminary bicycle facility project idea: Shared roadway north side, bicycle lane south side

### **Bicycle Corridors East of Downtown**

- NE 4<sup>th</sup> Street Extension to 120<sup>th</sup> Avenue NE
  - Provides a bicycle link between Downtown and east Bellevue neighborhoods, and the planned bicycle lanes on 120<sup>th</sup> Avenue NE
  - Preliminary bicycle facility project idea: Bicycle lanes
- NE 6<sup>th</sup> Street Extension to 120<sup>th</sup> Avenue NE
  - Provides a bicycle link between Downtown and east Bellevue neighborhoods, the BNSF Trail corridor, and the planned bicycle lanes on 120<sup>th</sup> Avenue NE
  - Preliminary bicycle facility project idea: Off-street path, with BNSF trail connection
- NE 12<sup>th</sup> /15<sup>th</sup> Street Corridor
  - Provides the primary bicycle connection between Downtown Bellevue, Bel-Red and Overlake

- Designated in the Pedestrian and Bicycle Transportation Plan as the Downtown-Overlake Priority Bicycle Corridor
- Preliminary bicycle facility project idea: Off-street path between 112<sup>th</sup> Avenue NE and 120<sup>th</sup> Avenue NE

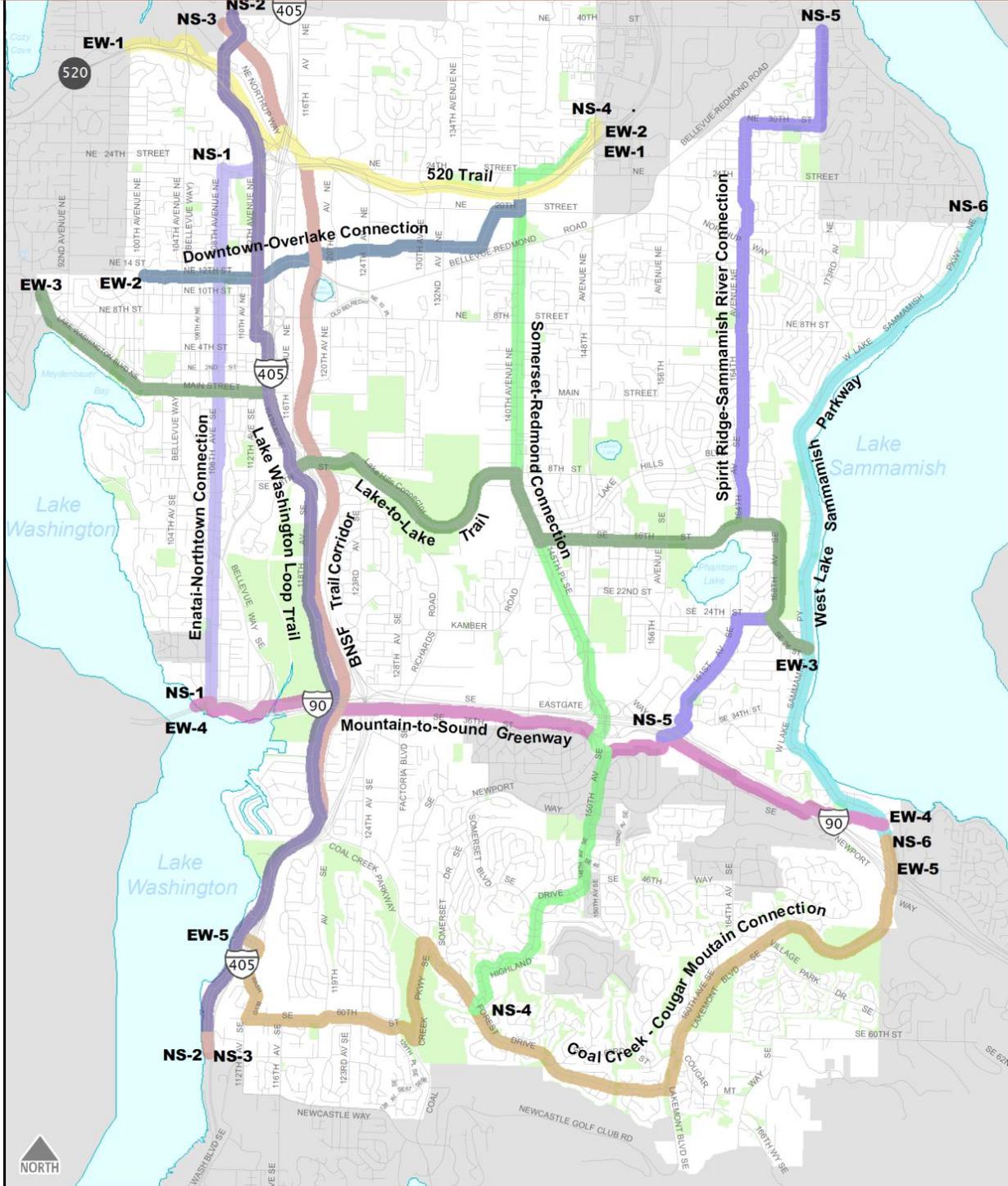
### **NEXT STEPS**

Refine and evaluate bicycle mobility project ideas and develop and discuss pedestrian mobility project ideas.

ATTACHMENT 1

Priority Bicycle Corridors

# 2009 PEDESTRIAN & BICYCLE TRANSPORTATION PLAN



## ATTACHMENT 2

### Bicycle Facility Projects: Preliminary Ideas Matrix

Downtown Bellevue North/South Bicycle Corridors			
Roadway	Planned Bicycle Facility	Preliminary Bicycle Facility Project Ideas	Early/Interim Improvements
100 <sup>th</sup> Av NE	<ul style="list-style-type: none"> <li>• Wide shoulder Main St. to NE 8<sup>th</sup> St.</li> <li>• Wide shoulder NE 8<sup>th</sup> St. to NE 24<sup>th</sup> St.</li> </ul>	Bicycle lanes from Main Street to NE 12 <sup>th</sup> St.	<ul style="list-style-type: none"> <li>• Shared lane markings</li> <li>• Bicycle route and/or wayfinding signage</li> </ul>
106 <sup>th</sup> Ave NE	No bicycle facilities planned	Shared roadway bicycle facility between Main St. and NE 12 <sup>th</sup> St	Bicycle route and/or wayfinding signage
108 <sup>th</sup> Ave NE	<b>Enatai-Northtown Connection</b> <ul style="list-style-type: none"> <li>• Bicycle lanes both sides</li> </ul>	<ul style="list-style-type: none"> <li>• Retain existing project description</li> <li>• Determine feasibility of bicycle lanes between NE 4<sup>th</sup> St. and NE 8<sup>th</sup> St.</li> </ul>	<ul style="list-style-type: none"> <li>• Shared lane markings</li> <li>• Bicycle route and/or wayfinding signage</li> </ul>
110 <sup>th</sup> Ave NE	No bicycle facilities planned	Shared roadway bicycle facility between Main St. and NE 12 <sup>th</sup> St.	Bicycle route and/or wayfinding signage
112 <sup>th</sup> Ave NE	<b>Lake Washington Loop</b> <ul style="list-style-type: none"> <li>• 5-foot bicycle lanes both sides from NE 6<sup>th</sup> St to NE 12<sup>th</sup> St.</li> <li>• Continuing bicycle lanes north of Downtown to Northup Way</li> </ul>	TBD	TBD
114 <sup>th</sup> Ave NE	<b>Lake Washington Loop</b> <ul style="list-style-type: none"> <li>• 5-foot bicycle lanes both sides from NE 6<sup>th</sup> St to SE 8<sup>th</sup> St.</li> </ul>	Retain existing project description	N/A

Downtown Bellevue East/West Bicycle Corridors			
Roadway	Planned Bicycle Facility	Preliminary Bicycle Facility Project Ideas	Early/Interim Improvements
<b>Main Street</b>	<p><b>Lake-to-Lake Trail</b></p> <ul style="list-style-type: none"> <li>• Wide shoulder on both sides from 100<sup>th</sup> Ave NE to Bellevue Way</li> <li>• 5 foot bicycle lane on north side from Bellevue Way to 116<sup>th</sup> Ave NE</li> <li>• 10-14 foot path on south side from Bellevue Way to 116<sup>th</sup> Ave NE</li> </ul>	<ul style="list-style-type: none"> <li>• Shared roadway 100<sup>th</sup> Ave NE to Bellevue Way</li> <li>• Bicycle lanes both sides from Bellevue Way to 116<sup>th</sup> Ave NE</li> <li>• 10-14 foot path south side from 110<sup>th</sup> Ave NE to 114<sup>th</sup> Ave NE, branching at 112<sup>th</sup> Ave NE to 114<sup>th</sup> Ave NE</li> </ul>	Bicycle route and/or wayfinding signage
<b>NE 1<sup>st</sup> St./ NE 2<sup>nd</sup> St.</b>	Wide outside lane on both sides from 102 <sup>nd</sup> Ave NE to 114 <sup>th</sup> Ave NE	Shared roadway bicycle facility between 100 <sup>th</sup> Ave NE and 114 <sup>th</sup> Ave NE	<ul style="list-style-type: none"> <li>• Bicycle route and/or wayfinding signage</li> <li>• Shared lane markings</li> </ul>
<b>NE 6<sup>th</sup> St. Pedestrian Corridor</b>	<ul style="list-style-type: none"> <li>• Implement Pedestrian Corridor Bellevue Way to 110<sup>th</sup> Ave NE</li> <li>• 10-14 foot path on south side of NE 6<sup>th</sup> St. extension across I-405 from 112<sup>th</sup> Ave NE to 116<sup>th</sup> Ave NE</li> </ul>	<ul style="list-style-type: none"> <li>• Pedestrian Corridor bicycle facilities - TBD</li> <li>• 10-14 foot path on south side of NE 6<sup>th</sup> St. extension from 112<sup>th</sup> Ave NE to 120<sup>th</sup> Ave NE</li> </ul>	Wayfinding signage on NE 6 <sup>th</sup> St. Pedestrian Corridor
<b>NE 10<sup>th</sup> St.</b>	No bicycle facilities planned	Shared roadway bicycle facility between 100 <sup>th</sup> Ave. NE and 116 <sup>th</sup> Ave. NE	Bicycle route and/or wayfinding signage
<b>NE 12<sup>th</sup> St.</b>	<p><b>Downtown-Overlake Connection</b></p> <ul style="list-style-type: none"> <li>• 10-14 foot wide shared path north side 100<sup>th</sup> Ave NE to 112<sup>th</sup> Ave NE</li> <li>• Bicycle lane south side 102<sup>nd</sup> Ave NE to 112<sup>th</sup> Ave NE</li> </ul>	Retain existing plan. Modify O-101-N to include short segment of shared-roadway bicycle facility. Connect on the east to the new shared path.	Bicycle route and/or wayfinding signage

Bicycle Corridors South of Downtown			
Roadway Corridor	Planned Bicycle Facility	Preliminary Bicycle Facility Project Ideas	Early/Interim Improvements
<b>Bellevue Way</b>	Wide outside lanes on Bellevue Way between Main Street and 108 <sup>th</sup> Avenue SE, bicycle lanes 108 <sup>th</sup> Ave SE to 112 <sup>th</sup> Ave SE	Shared roadway bicycle facility between Main St. and 112 <sup>th</sup> Avenue SE, provide a connection to the planned off-street path on the west side of 112 <sup>th</sup> Avenue SE	Bicycle route and/or wayfinding signage
<b>108<sup>th</sup> Avenue SE</b>	<b>Enatai-Northtown Connection</b> <ul style="list-style-type: none"> <li>• 5-foot bicycle lane both sides from Bellevue Way to SE 34<sup>th</sup> St.</li> <li>• Wide shoulder both sides SE 16<sup>th</sup> St</li> <li>• Wide outside lane on Bellevue Way</li> </ul>	<ul style="list-style-type: none"> <li>• Shared roadway bicycle facility (where there are no bicycle lanes) between Main St. and the I-90 Trail at SE 34<sup>th</sup> St.</li> <li>• Shared roadway on alternate (steep hill avoidance) southbound route using SE 16<sup>th</sup> St., Bellevue Way and 104<sup>th</sup> Ave SE. per existing plans</li> </ul>	<ul style="list-style-type: none"> <li>• Bicycle route and/or wayfinding signage</li> <li>• Shared lane markings</li> </ul>
<b>114<sup>th</sup> Ave NE</b>	<b>Lake Washington Loop</b> <b>Lake-to-Lake Trail</b> 5-foot bicycle lanes both sides from NE 6 <sup>th</sup> St to SE 8 <sup>th</sup> St.	Retain existing project description	N/A

Bicycle Corridors North of Downtown			
Roadway Corridor	Planned Bicycle Facility	Preliminary Bicycle Facility Project Ideas	Early/Interim Improvements
100 <sup>th</sup> Avenue NE/ 108 <sup>th</sup> Ave NE/ NE 24 <sup>th</sup> St	<b>Enatai-Northtown Connection</b> <ul style="list-style-type: none"> <li>• Wide bicycle shoulder on 100<sup>th</sup> Avenue NE</li> <li>• Wide bicycle shoulder on 108<sup>th</sup> Avenue NE</li> <li>• Wide bicycle shoulder on NE 24<sup>th</sup> Street</li> </ul>	Shared roadway bicycle facility on 100 <sup>th</sup> Ave NE, 108 <sup>th</sup> Ave SE. and NE 24 <sup>th</sup> Street	Wayfinding
Bellevue Way	<ul style="list-style-type: none"> <li>• Bicycle lanes both sides north of NE 24<sup>th</sup> Street</li> <li>• Bicycle lanes both sides from NE 12<sup>th</sup> Street to NE 24<sup>th</sup> Street</li> </ul>	<ul style="list-style-type: none"> <li>• Provide alternate N/S bicycle connections on 100<sup>th</sup> Ave NE, 108<sup>th</sup> Ave NE, and 112<sup>th</sup> Ave NE</li> <li>• Wide outside climbing lane southbound from SR-520 to NE 24<sup>th</sup> Street</li> </ul>	N/A
112 <sup>th</sup> Avenue NE	<b>Lake Washington Loop</b> <ul style="list-style-type: none"> <li>• Bicycle lanes both sides north of NE 12<sup>th</sup> Street</li> </ul>	Retain existing project description	<ul style="list-style-type: none"> <li>• Bicycle route and/or wayfinding signage</li> <li>• Lake Washington Loop route wayfinding signage</li> </ul>
116 <sup>th</sup> Avenue NE	Bicycle lanes both sides north of Main Street to Northup Way	Retain existing project description	Bicycle route and/or wayfinding signage

Bicycle Corridors West of Downtown			
Roadway Corridor	Planned Bicycle Facility	Preliminary Bicycle Facility Project Ideas	Early/Interim Improvements
Lake Washington Boulevard	<b>Lake to Lake Trail</b> Wide shoulders for bicycles both sides	Retain existing project description	Bicycle route and/or wayfinding signage
NE 8 <sup>th</sup> Street	<ul style="list-style-type: none"> <li>Bicycle lane south side west of 96<sup>th</sup> Ave NE to city limits</li> <li>Bicycle shoulder on north side west of 96<sup>th</sup> Ave NE to city limits</li> </ul>	<ul style="list-style-type: none"> <li>Retain existing project descriptions</li> <li>Extend planned bicycle facility types to connect with the planned bicycle facilities on 100<sup>th</sup> Avenue NE</li> </ul>	Bicycle route and/or wayfinding signage
Bicycle Corridors East of Downtown			
Roadway Corridor	Planned Bicycle Facility	Preliminary Bicycle Facility Project Ideas	Early/Interim Improvements
NE 4 <sup>th</sup> St. Extension	Bicycle lanes both sides between 116 <sup>th</sup> Ave NE and 120 <sup>th</sup> Ave NE when NE 4 <sup>th</sup> St is extended	Retain existing project description	N/A
NE 6 <sup>th</sup> St. Extension	10-14 foot off street path when NE 6 <sup>th</sup> St is extended to 120 <sup>th</sup> Ave NE, connection to BNSF Trail	Retain existing project description	N/A
NE 12 <sup>th</sup> /NE 15 <sup>th</sup> St.	<b>Downtown-Overlake Connection</b> <ul style="list-style-type: none"> <li>O-108-N. Off-street path on north side</li> <li>B-218-S. Bicycle lane south side west of 120<sup>th</sup> Ave NE</li> </ul>	<ul style="list-style-type: none"> <li>Modify O-108-N per current NE 12<sup>th</sup> St design and NE 15<sup>th</sup>/16<sup>th</sup> St corridor plan</li> <li>Terminate B-218-S at 112<sup>th</sup> Ave NE – bicycle lanes do not continue across bridge</li> </ul>	N/A

**ATTACHMENT 3**

**Bicycle Facility Project Ideas Reviewed with Transportation Commission on March 8, 2012**

<b>Downtown Bicycle Mobility Project Ideas</b>						
<b>Street Corridor</b>	<b>Function of bicycle corridor</b>	<b>Existing Plan</b>	<b>Preliminary Project Idea from Staff</b>	<b>Interim or early Implementation Ideas</b>	<b>Transportation Commission Comments</b>	<b>Next Steps</b>
<b>DOWNTOWN INTERNAL EAST/WEST AND NORTH/SOUTH BICYCLE CORRIDORS</b>						
<b>100<sup>th</sup> Ave NE</b>	Primary north/south corridor on the west side of Downtown  Access to Meydenbauer Park	<b>B-209 E/W:</b> Wide shoulder Main St to NE 8 <sup>th</sup> St.  <b>B-202-E/W:</b> Wide shoulder NE 8 <sup>th</sup> St to NE 24 <sup>th</sup> St	Bicycle lanes both sides Main St. to NE 12 <sup>th</sup> St., continuing as a shared roadway facility to the north	Sharrows  Bicycle route and/or wayfinding signage	Concur  Explore using 99 <sup>th</sup> Ave NE as a parallel alternative between NE 1 <sup>st</sup> St and NE 8 <sup>th</sup> St.	Determine feasibility of bicycle lanes  Report on 99 <sup>th</sup> Ave NE alternate route  MOE evaluation
<b>106<sup>th</sup> Ave NE</b>	Secondary north/south corridor	None	Shared roadway bicycle facility between Main St and NE 12 <sup>th</sup> St.	Bicycle route and/or wayfinding signage	Concur	MOE evaluation
<b>108<sup>th</sup> Ave NE</b>	Primary north/south corridor  Access to transit center  Connections to neighborhoods and I-90 and SR 520	<b>Enatai-Norhttown Priority Bicycle Corridor</b>  <b>B-125 E/W:</b> Bicycle lanes both sides	Retain <b>B-125 E/W</b>	Sharrows  Bicycle route and/or wayfinding signage	Concur  Determine feasibility of bicycle lanes between NE 4 <sup>th</sup> St and NE 8 <sup>th</sup> St – maybe use sharrows in this segment	Determine feasibility of bicycle lanes    MOE evaluation

<b>Downtown Bicycle Mobility Project Ideas</b>						
<b>Street Corridor</b>	<b>Function of bicycle corridor</b>	<b>Existing Plan</b>	<b>Preliminary Project Idea from Staff</b>	<b>Interim or early Implementation Ideas</b>	<b>Transportation Commission Comments</b>	<b>Next Steps</b>
<b>110<sup>th</sup> Ave NE</b>	Secondary north/south corridor Access to light rail station	None	Shared roadway bicycle facility between Main St and NE 12 <sup>th</sup> St.	Bicycle route and/or wayfinding signage	Concur	MOE evaluation
<b>112<sup>th</sup> Ave NE</b>	Primary north/south corridor Connections to SR 520 and I-90	<b>Lake Washington Loop route</b> <b>B-126 E/W:</b> Bicycle lanes both sides NE 6 <sup>th</sup> St to NE 12 <sup>th</sup> St	Requires further analysis of the Lake Washington Loop route	Pending corridor analysis	Pending corridor analysis	Develop alternative approaches for Lake Washington Loop Route, report to Commission
<b>114<sup>th</sup> Ave NE</b>	Primary N/S corridor Connections to I-90 Access to light rail station	<b>Lake Washington Loop route</b> <b>Lake to Lake Trail route</b> <b>B-127 E/W:</b> Bicycle lanes both sides from SE 8 <sup>th</sup> St to NE 6 <sup>th</sup> St	Retain <b>B-127 E/W</b>		Concur	MOE evaluation

<b>Downtown Bicycle Mobility Project Ideas</b>						
<b>Street Corridor</b>	<b>Function of bicycle corridor</b>	<b>Existing Plan</b>	<b>Preliminary Project Idea from Staff</b>	<b>Interim or early Implementation Ideas</b>	<b>Transportation Commission Comments</b>	<b>Next Steps</b>
<b>Main Street</b>	<p>Primary east/west bicycle corridor on south side of Downtown</p> <p>Access to planned light rail station at 112<sup>th</sup> Ave SE</p> <p>Access to Meydenbauer Park</p>	<p><b>Lake to Lake Trail route</b></p> <p><b>B-201 N/S:</b> Wide shoulders both sides 100<sup>th</sup> Ave NE to Bellevue Way</p> <p><b>B-129 N:</b> Bicycle lane north side Bellevue Way to 116<sup>th</sup> Ave NE</p> <p><b>O-121 S:</b> Multi-purpose path south side from Bellevue Way to 116<sup>th</sup> Ave NE</p>	<p>Shared roadway bicycle facility between 100<sup>th</sup> Ave NE and Bellevue Way</p> <p>Bicycle lanes both sides Bellevue Way to 116<sup>th</sup> Ave NE, may require special lane markings for left turns at 116<sup>th</sup> Ave NE</p> <p>Multi-purpose path south side from 110<sup>th</sup> Ave NE to 116<sup>th</sup> Ave NE, branching at 112<sup>th</sup> Ave NE to 114<sup>th</sup> Ave NE</p>	Bicycle route and/or wayfinding signage	Concur	MOE evaluation
<b>NE 2<sup>nd</sup> St</b>	<p>Secondary E/W route</p> <p>Access to Downtown Park</p>	<p><b>B-401 N/S:</b> Wide outside lanes both sides 102<sup>nd</sup> Ave NE to 114<sup>th</sup> Ave NE</p>	<p>Shared roadway bicycle facility between 100<sup>th</sup> Ave NE and 114<sup>th</sup> Ave NE</p>	<p>Sharrows west of Bellevue Way, east of 112<sup>th</sup> Ave NE</p> <p>Bicycle route and/or wayfinding signage</p>	Concur	MOE evaluation

<b>Downtown Bicycle Mobility Project Ideas</b>						
<b>Street Corridor</b>	<b>Function of bicycle corridor</b>	<b>Existing Plan</b>	<b>Preliminary Project Idea from Staff</b>	<b>Interim or early Implementation Ideas</b>	<b>Transportation Commission Comments</b>	<b>Next Steps</b>
<b>NE 6<sup>th</sup> St</b>	Multimodal corridor through central Downtown Access to Bellevue Square Access to transit center and light rail station	<b>O-117:</b> Implement Pedestrian Corridor Bellevue Way to 110 <sup>th</sup> Ave NE	Develop specific design components for each segment of the corridor, including a non-motorized connection to NE 4 <sup>th</sup> Street/ Downtown Park	Pending corridor analysis	Pending corridor analysis	Develop project ideas for each segment of this multi-modal corridor, report to Commission
<b>NE 10<sup>th</sup> St</b>	Secondary east/west route	None	Shared roadway between 100 <sup>th</sup> Ave NE and 116 <sup>th</sup> Ave NE. May require special lane markings for left turns at 116 <sup>th</sup> Ave NE	Bicycle route and/or wayfinding signage	Concur	MOE evaluation
<b>NE 12<sup>th</sup> St</b>	Primary east/west bicycle route on the north side of Downtown	<b>Downtown-Overlake Connection</b> <b>O-101 N:</b> Multi-purpose path on north side 100 <sup>th</sup> Ave NE to 112 <sup>th</sup> Ave NE <b>B-118 S:</b> Bicycle lane south side 102 <sup>nd</sup> Ave NE to 112 <sup>th</sup> Ave NE	Retain <b>O-101 N</b> and <b>B-118 S</b> Provide a short segment of shared roadway between 102 <sup>nd</sup> Ave NE and Bellevue Way	Bicycle route and/or wayfinding signage	Concur	MOE evaluation



**DATE:** March 15, 2012  
**TO:** Bellevue Transportation Commission  
**FROM:** Kevin McDonald, AICP, Senior Transportation Planner, 452-4558  
[kmcdonald@bellevuewa.gov](mailto:kmcdonald@bellevuewa.gov)  
**SUBJECT:** Downtown Transportation Plan Update - Sharrows

### **INTRODUCTION**

At the March 8, 2012 meeting, Commissioners asked about the application of sharrow lane markings - sharrows. Sharrows are an addition to the bicycle facility "toolkit" that will be available for the Downtown Transportation Plan update.

Kurt Latt, a staff engineer in the Transportation Department prepared the informative materials that are attached to this memo. He oversaw the initial applications of sharrows in Bellevue, on 114<sup>th</sup> Avenue NE/SE and on 161<sup>st</sup> Avenue NE. For additional information on sharrows you may contact Kurt at 425-452-6020, or [klatt@bellevuewa.gov](mailto:klatt@bellevuewa.gov)

**Attachment 1.** Sharrows FAQ

**Attachment 2.** Use of Sharrows Status Report





## *Transportation Department*

# SHARROWS - FAQ

(SHARED LANE MARKINGS)

The City of Bellevue's Transportation Department is continuing to explore the application of a relatively new pavement marking treatment termed the "sharrow". This pavement marking treatment is gaining popularity across the country as a means of demarcating the travel lane of a roadway where shared use of the travel lane occurs with bicycles and improved messaging to both cyclists and motorists can be helpful. There are specific cases where sharrows can be a viable option to supporting bicycle use in a corridor and the City's Transportation Department is evaluating appropriate placement of these treatments. The following are answers to frequently asked questions:

### **FAQs**

Q. What are sharrows?

A. "Sharrows" are a type of pavement marking indicating a travel lane is shared by motorists and bicyclists. The sharrow consists of a white bicycle symbol with two white chevrons above it as depicted below.



Q. What do sharrows mean for bicyclists and drivers?

A. Sharrows can create improved conditions for bicycling, by clarifying where cyclists are expected to ride and reminding motorists to expect cyclists in the travel way. In the absence of bicycle lanes, motorists often pass too closely to cyclists, and cyclists feel compelled to ride closer to parked cars which can lead to conflicts in the “door zone”. By better positioning through the use of sharrows, motorists can provide additional space while passing and cyclists can better position themselves to avoid door swings and other potential hazards. Both motorists and cyclists can benefit from the mutual cooperation and awareness gained through the use of sharrows.

Q. Are the rules of the road as required under state and local laws different with sharrows.

A. No. Cyclists and motorists must still follow the typical traffic rules and regulations. The markings simply serve as a reminder of the existing rules.

Q. As a bicyclist, must I ride over the sharrow?

A. No. The markings simply indicate where bicyclists would be expected to ride under ordinary conditions. If bicyclists are turning left, passing other cyclists, or need to avoid road obstruction such as a pothole etc, they may position themselves away from the markings. Also, if cars are not parked along the curb, bicyclists may ride well to the right of the markings – but, cyclists should not weave in and out between parked cars.

Q. As a motorist, how should I drive on streets with sharrows?

A. If bicyclists are not present, drive in the travel lane as you normally would – your right hand tires may travel directly over the sharrow markings and is perfectly fine. If bicyclists are present, simply slow down and pass with care. When passing, be cautious of oncoming traffic and other surrounding conditions such as driveways. If traffic is heavy, please be patient and wait for a suitable gap in traffic before passing and allowing adequate space between you and the cyclist.

Q. Where has Bellevue installed sharrows?

A. Two projects have been completed as of Spring of 2012. In 2008, about a mile segment of 161<sup>st</sup> Ave SE between Eastgate Way and SE 24<sup>th</sup> St was completed. And in 2010, another mile segment of 114<sup>th</sup> Ave NE/SE between SE 8<sup>th</sup> St and NE 8<sup>th</sup> St was completed. At the time of these two projects, they were considered pilot projects since the sharrow was not officially approved as a traffic control device in the commonly accepted national standard of the Manual on Uniform Traffic Control Devices (MUTCD). Bellevue received approval from the Federal Highway Administration (FHWA) to implement the two projects as a trial under experimental status. Since that time, the sharrow has been used extensively across the country. It is now an accepted form of traffic control device described as a standard in the MUTCD and no longer requires experimentation status.

Q. Are there plans for any future installation of sharrows in the city?

A. At this time, the City's Transportation Department does not have any identified locations for future installation of sharrows. There are a variety of candidates being considered, some of which requested by the public. However, each candidate corridor must pass certain tests for appropriateness as determined by a qualified transportation professional as well as determining availability of funding, consistency with the City's Pedestrian and Bicycle Plan, community support and other considerations.



## Attachment 2

### City of Bellevue Use of Sharrows Status Report

Transportation Department  
March 14, 2012

The Shared Lane Marking, commonly referred to as a sharrow, is an allowable pavement marking treatment option in the latest edition of the Manual on Uniform Traffic Control Devices (MUTCD). The use of the sharrow marking has gained popularity across the country as an available treatment in the toolbox of the transportation professional. However, it should be acknowledged that sharrows are not intended to be an equal replacement treatment in substitution of a bike lane where one can reasonably and cost effectively be provided. Where constraints exist and conditions support their use, sharrows can be a viable option for enhancing bicycle activity in a corridor and fostering mutual cooperation between cyclist and motorist while sharing the travel way.

Some key functionality of the sharrow markings:

- Assist bicyclists with lateral positioning in a shared lane with on-street parallel parking in order to reduce the chance of a bicyclist's impacting the open door of a parked vehicle,
- Assist bicyclists with lateral positioning in lanes that are too narrow for a motor vehicle and a bicycle to travel side by side within the same traffic lane,
- Alert road users of the lateral location bicyclists are likely to occupy within the traveled way,
- Encourage safe passing of bicyclists by motorists, and
- Reduce the incidence of wrong-way bicycling.

\* This sharrow marking project is described in more detail in Attachment A

Two projects have been implemented within the city of Bellevue as of March 2012.

#### **161<sup>st</sup> Ave SE – Eastgate Way to SE 24<sup>th</sup> St**

In September 2008, the City's first sharrow project was implemented for the segment of 161<sup>st</sup> Ave SE between SE 24<sup>th</sup> St and Eastgate Way. This segment is part of the priority bicycle network (NS-5) identified in the Pedestrian and Bicycle Transportation Plan. For initial trial, it was determined that this segment would be a favorable candidate for sharrows due to several factors including: (i) constraints in the right-of-way, built sidewalk, on-street parking and native growth area limiting future widening to accommodate bike lanes; (ii) moderate traffic volumes – below 10,000 average daily trips (ADT) [major arterials and very low volume close-in streets are not practical

candidates for sharrows]; and, (iii) relatively active bicycle use in the corridor where motorists routinely see cyclists. This 0.8 mile segment was implemented by city crews at a cost of about \$10,000.

\*Public information flyer and door hanger for the 161<sup>st</sup> Ave SE sharrow project are included as Attachments B and C:

**114<sup>th</sup> Ave NE/SE – SE 8<sup>th</sup> St to 600 Block (south of NE 8<sup>th</sup> St)**

In August 2010, the City implemented its' second sharrow project for 114<sup>th</sup> Ave NE/SE running along I-405 between the NE 8<sup>th</sup> St trail link connecting at about the 600 block and SE 8<sup>th</sup> St. This segment is part of the Lake Washington Loop Trail (identified as priority corridor NS-2 in the Pedestrian and Bicycle Transportation Plan). It has moderate traffic volumes (below 10,000 ADT), and is very actively used by cyclists. With the constraint of I-405 on one side and a sidewalk on the other, further widening to accommodate bike lanes continuously over this corridor is impractical. An additional consideration in using sharrows on 114th was that it could help address sight line limitations near the overpass abutment for Main Street which can affect cyclist safety through that area. The sharrows were used to better position cyclists for improved visibility and safety. Over the southerly portion, the paved shoulder was wide enough to establish marked bike lanes and was included in the sharrow project. This 0.9 mile segment was implemented by contractor at a cost of around \$ 20,000.

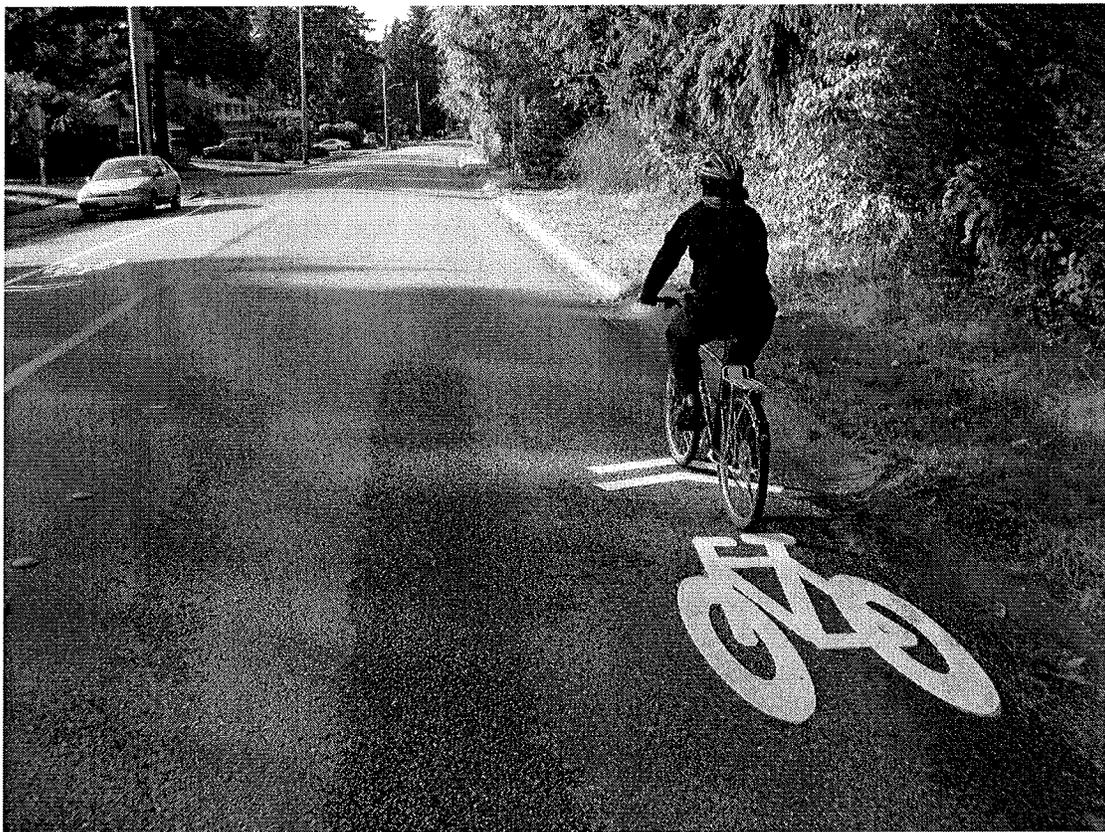
\*Public Information Flyer for 114<sup>th</sup> Ave NE/SE is included as Attachment D

New sharrow installations continue to be considered by the Transportation Department but currently there are no pending plans for implementation of a particular project. The City's Pedestrian and Bicycle Transportation Plan adopted by City Council in February 2009 provides the policy vision for improving certain key north/south and east/west corridors for bicycle use. The focus of considering any new installations will remain in those key corridors identified in the Plan as Bicycle Priority Corridors (see page 92 of Plan). Although, an effort taking place over the next year to update the City's Downtown Transportation Plan could modify and supersede some of the circumstances with the Bicycle Priority Corridors. In either case, there will be certain tests to consider consistency with City Plans and Policies, funding availability, completion of a logical segment and connectivity, constraints that preclude bike lanes, compliance with MUTCD and other standards and practices, and community and elected officials support amongst other considerations. Ultimately, sharrows can be a helpful tool to support and encourage bicycle use in a corridor but must be used for the appropriate condition and with discretion so as to not undermine the implementation of bike lanes and other forms of enhanced bicycle facilities which can feasibly be implemented.

# ATTACHMENT A



## City of Bellevue Sharrows Project Pilot Study for 161<sup>st</sup> Ave SE



Prepared by: Kurt Latt, P.E., PTOE  
Senior Transportation Engineer  
Erica Piehler, Engineering Intern  
City of Bellevue, Transportation Department  
Bellevue, Wa. USA

March 11, 2009

FHWA Reference: 9-106 (E) – Shared-Lane Markings- Bellevue, WA (HOTO-1)

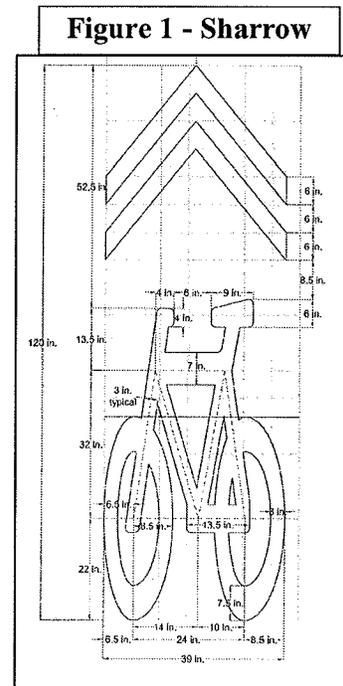
## Introduction

The City of Bellevue's Transportation Department initiated a pilot project in the Fall of 2008 to implement a relatively new type of pavement marking intended to promote and enhance safety for street system users, particularly bicyclists. Since pavement markings are considered to be traffic control devices and can have consequences in the behavior of system users affecting safety, the Federal Highway Administration (FHWA) must approve experimentation of devices not already incorporated in the Manual on Uniform Traffic Control Devices (MUTCD). The City of Bellevue sought and received approval to experiment with the new markings in the Summer of 2008 (See Appendix A). The following report describes the background, need, observations and findings associated with the use of the new pavement markings.

## Background and Project Need

The City of Bellevue, situated in the Puget Sound area of Washington State, has a resident population of approximately 120,000. The region has experienced significant growth in recent years and is characterized by a metropolitan urban environment which includes Seattle and numerous other neighboring cities combining to a population of nearly 3 million. With increased growth and the expected increases in congestion into the future, alternative modes of travel to the single occupant car must be considered when developing solutions for the mobility needs of the region. Taking initiatives to enhance the comfort, safety and use of bicycle facilities is a key role an agency can have in this endeavor.

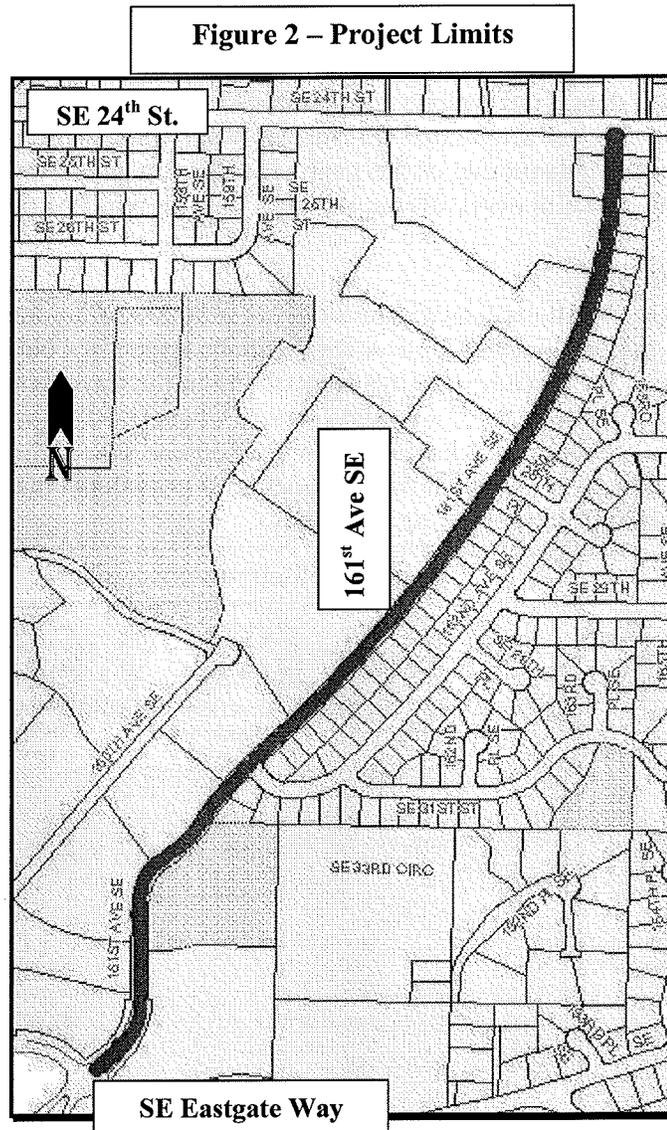
Incorporated in 1953, a good portion of Bellevue's street system is already built with sidewalk and curb adjoining developed land uses, thus limiting the extent of widening possible for many streets within the city. In most instances, retaining on-street parking and vehicle travel lanes is a necessity for the community and leaves little option for creating new accommodations of bicycle facilities. Other densely populated communities, such as San Francisco, have found similar constraints and have in recent years begun experimenting with a shared lane marking which can be applied within the confines of the existing travel way to promote the safety and use of the roadway as a bicycle route. With these early trials, Bellevue has joined in evaluating the effectiveness of the shared lane bicycle marking, termed "Sharrow". The Sharrow is a thermoplastic (or painted) white pavement marking showing a bicycle and chevrons as depicted in Figure 1. In general, the Sharrow describes the intended direction and riding placement for the bicyclists and also reminds motorists of the presence of bicyclists and the need to share the roadway under state law.



To further assist in planning for near and long term bicycling accommodations, Bellevue recently updated its Pedestrian and Bicycle Plan. Contained in this Plan is specific guidance on

where bicycle routes occur within the city and includes a listing of candidate projects to enhance and promote bicycle travel. In selecting a site for Bellevue's initial trial of the Sharrow, it was imperative that it be consistent with this planning tool which has had extensive involvement by the community. There are several key north/south and east/west corridors in the City's Pedestrian and Bicycle Plan which serve as major "trunk lines" for bicycle travel. It is from these key routes that the initial corridor for testing was selected.

Shown in Figure 2 below is the 161<sup>st</sup> Ave SE corridor between SE Eastgate Way and SE 24<sup>th</sup> St. Additional background on the selection of this corridor is provided in Appendix A as part of the initial request to experiment sent to the Federal Highway Administration in May 2008.



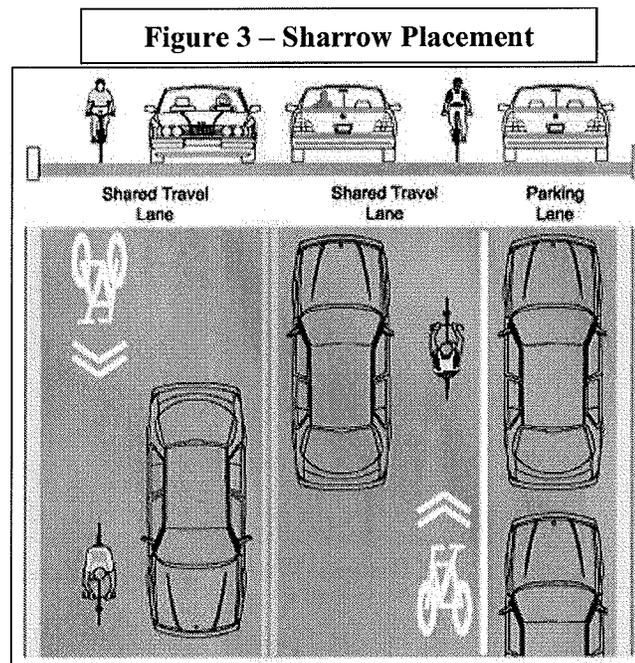
Bellevue's Transportation Department conducted a *before and after study* to consider the benefits and effectiveness of these markings and to further assist in future applications of this treatment. The findings of this evaluation follow:

## Before and After Study

Because the use of bicycle shared lane markings, or Sharrows, is not yet recognized by the state of Washington as an approved traffic control device, it is necessary that Bellevue conduct the experimentation of these markings in cooperation with the Federal Highway Administration. Under this guidance, and the City's interest in knowing the benefits of such a marking, a before and after study was conducted by City staff. The focus of the study was to evaluate the behavioral changes that might occur with the new shared lane markings. Unfortunately, due to the timing of implementation occurring in the fall months, some of the post implementation data is not entirely comparable to the pre-implementation period which occurred in late summer. It is intended that further observations will be made as weather improves in the spring and summer of this year. However, a general sense of performance can be gleaned from the data and observations gathered thus far which is described in this report.

### *Project Design/layout*

Several slight variations exist for the Sharrow symbol and layout used by other agencies to date. However, they all generally follow the symbolic layout of a bicycle and chevrons depicted in Figure 3. The placement of this symbol within the travel way is intended to align the bicyclist, in cases where parked cars exist, to ride where the door swing would not pose a hazard. The selected corridor in Bellevue has parking on one side of the street and no parking on the other side. This has offered a unique opportunity to evaluate the Sharrow on the same roadway with a parking and no-parking condition.



The Sharrow pavement markings were placed within the travel way at a spacing of 250 to 500 feet which is consistent with Bellevue's current standards for bicycle lane markings (see Appendix A - FHWA letter). The exact placement within the roadway was based on engineering judgment and marked in the field for the installation crews to follow. In general, placement of the Sharrow is about 11 feet from face of curb where parking exists. For the side with no parking, the Sharrow was placed about 3 feet out from the curb as measured from the center of symbol. This configuration allows much of the vehicle traffic with a wheel base of 6-7 feet to travel comfortably in the lane without running across the Sharrow marking (lane being generally 11 to 12 feet wide). Because maintenance of these markings is a consideration, placement to minimize wear from tires was also a consideration where it could be placed effectively and not compromise safety. The behavior of motorists and bicyclists arising from the placement of the Sharrows is described in the analysis that follows.

### *Observations and Analysis*

A fairly extensive data and observations effort was conducted as part of the City's evaluation of performance for the Sharrows. Tube counters were set in place to record motorized vehicle traffic both before and after the installation. Motorized vehicular speeds were obtained from the tube collection efforts. Video recordings were also made to record the behavior of bicyclists and motorists traveling in the corridor. As a verification check, the tube information on bicycle counts were compared against the video observations and found to be similar but the bicycle data described in this report reflects the observational recordings and not tube information due to its higher accuracy. Staff also had numerous conversations with users of the roadway to gain further perspective on the project.

Unfortunately, due to seasonal variations inherent with bicycle activity, it is challenging to fully judge at this time the effect of the project on bicycle use. The Before data collection effort was conducted under warm weather conditions in late August 2008 while the After data collection effort was conducted in cooler weather conditions in early November 2008. This progress report provides a preliminary look at the operation of the roadway with the new pavement markings and it is our intent to further evaluate the operations during more comparable weather conditions in Spring/Summer 2009.

Thus, the data and comparisons that follow should be considered with measured caution so as to not draw inappropriate conclusions of the Sharrow's affects.

**Motor Vehicular Traffic Volumes** - Motor vehicular traffic counts were taken within the project limits to determine if shifts in traffic might occur as a result of Bicycle Shared Lane Markings. Table 1 shows the daily and pm peak hour motorized traffic volumes conducted at a location about midpoint on the project. Relatively minor changes in motorized vehicular traffic occurred before and after the project.

Due to the September installation of the markings and time lapse between the Before and After data, it is believed that these relatively minor changes are not statistically significant. The After data's variations are more likely due to typical fluctuations in motorized traffic from

summer (Before data) to late fall(After data) rather than installation of the Bicycle Shared Lane Markings.

Table 1 - Motor Vehicular Traffic Volumes\*

	Before	After	Change
Weekday			
AM	144	133	-11
PM	230	203	-27
Daily	2065	1921	-144
Saturday			
AM	132	150	+18
PM	164	145	-19
Daily	1803	1632	-171
*AM and PM represent peak hour periods for two way motorized traffic. Daily represents average 24 hour two way motorized traffic.			

**Bicycle Volumes** - Bicycle activity was recorded for the before and after study periods. As noted earlier the before data reflects video observations taken in late August 2008 while the after data reflects video observations occurring in early November 2008. The video observations were generally taken during daylight hours from 8:00am to 6:00 pm and are summarized in Table 2.

Table 2 - Bicycle Volumes\*

	Before	After	Change
Weekday			
Daylight	56	8	-48
Saturday			
Daylight	N/A	14	N/A
* Daylight is generally 8:00 am to 6:00 pm for study period. Volume above indicates total bicyclists on roadway passing screenline in both directions. Note seasonal influence on data variation.			

The bicycle volumes in Table 2 reflect the number of bicyclists traveling in both directions across a single point located about midpoint on the project. For the weekday data, a series of days (Monday through Friday) were observed by video during daylight hours to arrive at an average weekday volume. No night-time observations were conducted, therefore, the total daily bicycle volume is likely slightly higher than presented here.

Before installation of the Sharrows there was an average of 56 bicyclist on a typical weekday and following installation there were an average of 8 bicyclists on a weekday (the Saturday data was only collected on one day following the installation). As might be expected, the cooler months data in November reflects fewer bicyclists on the roadway and it will be

necessary to revisit this during more warmer seasonal conditions to better compare against the Before data collection efforts.

**Motor Vehicular Travel Speeds -** The posted speed limit within the project limits is 25 mph. Travel speeds for motorized vehicles were recorded before and after installation of the Sharrows. Although some observation of speed can be made for motorized vehicles and bicyclists from the video recordings it is not readily quantifiable. Therefore, Table 3 below reflects only the speeds of motorized vehicles passing a tube collector gathering speeds in a traditional manner about midpoint in the project. The results in Table 3 reflect the commonly reported term 85<sup>th</sup> percentile speed (15% of motorists are traveling beyond this speed). These actual travel speeds are typical for the posted speed limit condition and no changes in travel speeds occurred with the project.

Table 3 – Motor Vehicular Speeds (mph) \*

Direction	Before		After		Change
	SB	NB	SB	NB	
Speed	31	32	31	32	0
*Speeds reflect 85 <sup>th</sup> percentile.					

**Bicycle Travel Speeds -** Gathering travel speeds for bicycles were initially attempted with tube recorders on the pavement but the data was not usable. Additional efforts to gather data on bicycle speeds will be made in the coming months.

**Road Area Usage Observations -** Prior to the installation of the Sharrows, a video camera was set up in the corridor to record observations of road users with a primary focus on the cyclist position within the roadway. The roadway was divided into five segmented areas for tracking purposes so that rider position in the roadway could be observed and compared for the before and after conditions. Figure 4 shows these segmented areas.

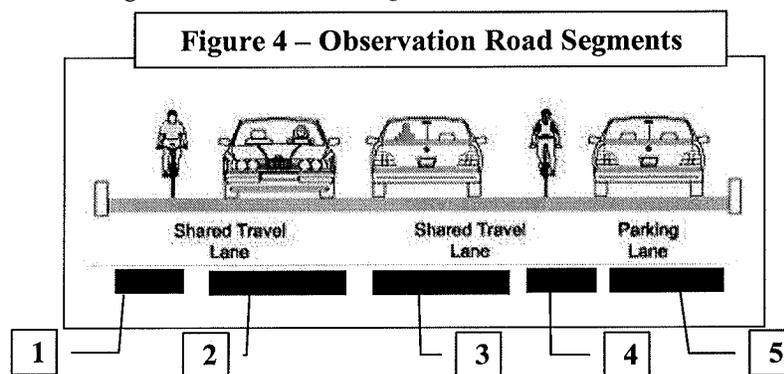


Table 4 describes the placement of cyclists within the roadway for the before and after condition. It is important to note that the designated parking lane in the northbound direction (right side of picture in Figure 4) is adjacent to single family homes and during most of the daylight hours parked vehicles are infrequent along the route, thus allowing bicycle use over much of the parking lane area.

Table 4 – Cyclist Position within Roadway

Road Areas*					
Study Period	Area 1	Area 2	Area 3	Area 4	Area 5
Before	39 (27%)	11 (8%)	3 (2%)	33 (23%)	57 (40%)
After	25 (36%)	2 (3%)	1 (1%)	12 (42%)	12(18%)

\* Before data was collected over 3 weekdays, Wednesday, Thursday and Friday during daylight hours. The After data includes all data collected over a Thursday through Tuesday period. A comparison of weekday vs. weekend for the after data was conducted and the general trend was similar.

As shown in Table 4, on a percentage basis, cyclists appear to be riding more so over the areas of the Sharrows increasing from 50% to 78% following their installation (areas 1 and 4). The percentage of bicyclists riding in the travel lanes went from 10% to 4% (areas 2 and 3) after implementation of the Sharrows. Further, cyclists riding in the parking lane also decreased from 40% to 18% after the Sharrow installation.

Although these results tend to reflect positive shifts in use and improvements in eliminating undesirable behaviors, caution must be exercised to not overstate the affect of the Sharrow in these circumstance. There remain some unintentional discrepancies between time periods of when the data was collected, i.e. weekday vs. weekend and summer weather vs. fall weather conditions. It is hoped some of this will be better normalized in future data collection efforts to have a more consistent comparison of before and after conditions. Additional observations will occur in the approaching months as well as another trial site being selected for implementation in 2009. This additional site will offer more opportunities to compare before and after conditions in Bellevue.

**Accident Review** – Accident history was reviewed within the project limits using Bellevue’s accident database which tracks recorded police reports for incidents occurring within the public right-of-way. Because accident occurrence often tends to be sporadic, it can be difficult to establish trends or contributing factors in very short timelines as we have for the follow-on time period of the Sharrows. Nonetheless, a 4-month period of review was conducted for before the installation and after the installation to verify there were no safety concerns with the application of Sharrows. The accident data, albeit limited, did not show any areas of concern. In fact, there have been no accidents in the 4 month timeline following the Sharrow project. While in the prior 4 month timeframe there were 2 accidents, neither of which were bicycle related. A review of a more extended period of time was also conducted for the corridor prior to the installation and no reoccurring trends or concerns arose. In the coming months, as a longer study period becomes available, an update of the accident review will be conducted.

**Anecdotal Observations** – Bellevue is fortunate to have the capacity to video tape conditions over an extended period of time and log the specific occurrences of bicyclist and motorists activity for later playback. With engineering staff viewing the selected log times, we were able to readily observe various behaviors in the roadway.

From the video recordings the following reflects a few of the observations made:

BEFORE:

- Bicyclists riding southbound in the northbound vehicle travel lane
- Young age bicyclists riding in middle of roadway
- Bicyclists riding on sidewalk
- Bicyclists riding on shoulder and swerving around parked vehicles
- Large groups of riders using entire vehicle lane
- Riders jumping back and forth between sidewalk and shoulder/roadway

AFTER:

- Fewer instances of riding around parked cars
- Fewer instances of wrong way direction riding
- Drivers more aware of cyclists on roadway as observed providing more buffer while passing
- Groups of riders tend to ride more single file than previously
- Cyclists providing more buffer/space to parked cars

Although, fewer bicyclists were observed following the Sharrow installation due to seasonal conditions, there is a sense from the observations that the Sharrow markings have improved safety for bicyclists by making motorists more aware of the corridor as a bike route and assisting in improving buffer spaces between cars and bicyclists. More observations will be made in the coming months to complement the work conducted thus far.

### *Other Candidate Sites and Next Steps*

As described in the City's application to experiment with Sharrows, two other candidate corridors are being considered for the next implementation stages. The likely candidate for the next Sharrow project will be further north of this initial pilot project along the same corridor alignment. The exact limits are yet to be determined but is generally described in the map in Appendix A. The Transportation Department anticipates implementing this next project in the summer of 2009.

## Findings and Conclusion

Bicycle shared lane markings, or Sharrows, are a relatively new treatment intended to raise driver awareness of the presence of cyclists within the roadway as well as help guide bicyclists in terms of desired rider placement to improve safety and operating conditions for all roadway users. Although the application of these markings has only been implemented by a handful of agencies across the country, many are finding that it is achieving the desired intention. Studies from other agencies are documenting the success of these markings and Bellevue's initial trial of Sharrows appear, thus far, to be very much in keeping with the experiences of these other agencies.

The application of Sharrows on a roadway with parking on one side and no-parking on the other has offered a unique perspective for observation of motorists and cyclist behavior. However, much of this behavior is difficult to fully quantify and staff in preparing this report has interjected some observations from viewing many hours of video tapings for the before and after conditions. General trends can be determined from the observations as well as identifying areas for improvement. Perhaps a closer spacing of the Sharrow markings or introduction of signing to compliment the corridor as a bike route may be considered in future assessments of this and other corridors. With more time and observation, additional conclusions can be made on the benefits and areas for improvement.

It is important to recognize, Sharrow markings are not intended to be a replacement of a bike lane where one can reasonably and cost effectively be provided. However, where constraints exist that limit the ability for additional road widening, the Sharrow can be a measured improvement over existing conditions as found in the early review of this project and other agencies' applications of the treatment.

In summary, the application of Sharrow markings are showing promising results and give rise to continuing this application on other roadways that are not feasible for widening. Early indications, primarily by way of numerous observations, are that it does promote the increased comfort and safety of cyclists while affirming to motorists the need to share the roadway with bicyclists under state law and reduce the friction between motorists and cyclists often experienced under shared travel lane facilities.

## APPENDIX A

- FHWA Request to Experiment Letter from City (May 30, 2008)
- FHWA Approval Letter to Experiment (June 13, 2008)
- Public informational flyer to surrounding community (September 2008)
- Bellevue Transportation Commission Memorandum on Sharrow Status (November 4, 2008)

City of  
Bellevue



Post Office Box 90012 • Bellevue, Washington • 98009 9012

May 30, 2008

Federal Highway Administration  
Office of Transportation Operations  
400 Seventh Street, SW, HOTO  
Washington, DC 20590

SUBJECT: Request for Permission to Experiment with Installation of Shared Lane Bicycle Markings (Sharrows)

To whom it may concern:

Pursuant to the Manual on Uniform Traffic Control Devices (MUTCD) Section 1A.10, the City of Bellevue requests permission to experiment with installation of pavement markings commonly referred to as Sharrows. The subject pavement markings are a combined bike and chevron symbol that delineates where both bicyclists and motorists will share a travel lane.

The following information outlines the project proposal and provides the information required in the MUTCD for Section 1A.10 Interpretations, Experimentations, Changes and Interim Approvals.

#### **A. Nature of the Problem:**

The City of Bellevue is a fast growing suburb with diverse land uses in employment, residential and commercial/retail areas. The resident population is about 120,000 with a daytime workforce exceeding 130,000. There exists many opportunities for non-motorized connecting trips both within the city and connections to neighboring cities.

Incorporated in 1953, Bellevue spent its first few decades building its transportation infrastructure with relatively little emphasis on providing designated bicycle lanes or pavement markings to support bicycle travel. This older infrastructure, with its built-out sidewalks and on-street parking on occasion, have limited the ability to retrofit and fully accommodate bicycle travel in certain corridors. In some instances, this older infrastructure precludes reconstructing sidewalk or making other street modifications to accommodate bicycle travel via a striped bicycle lane or facility.

In recent years, the City of Bellevue has made an increasing commitment to enhancing and promoting bicycle travel. Bellevue is currently updating its Pedestrian and Bicycle Plan which identifies many routes throughout the city to not only be inclusive of bicycle use but promote greater awareness and safety for bicyclists. This plan will also be the building block for funds allocation and roadway treatment options benefiting bicyclists.

The City of Bellevue currently utilizes traffic control devices such as bike signing and bicycle symbols for its bicycle lanes as allowable in the MUTCD. However, for certain older more

established streets it would be impractical to modify the street in a manner that would utilize the limited treatments in the current MUTCD. An alternative from the currently adopted bicycle treatment standards is clearly needed in certain street segments.

Some cities across the country have begun experimenting with various pavement marking treatments to improve safety and raise awareness of bicycle use in a corridor where standard bicycle lanes can not be provided. Based on trials currently in progress by other city's, the City of Bellevue's Transportation Department finds merit in considering a new pavement marking treatment, which is not available in the current MUTCD, in an effort to improve safety and operating conditions for bicyclists. This alternative treatment would be a shared lane bicycle marking legend commonly referred to as a Sharrow. It is our understanding that the Sharrow is being considered for the next edition of the MUTCD but that it may be considerably more time before it is adopted as a standard. Hence, this request for experimentation of the shared lane bicycle marking.

## **B. Description of Proposed Experiment:**

The City of Bellevue has identified three street segments within its jurisdiction which would be candidates for the Sharrow pavement marking treatment. The attached map in Figure 1 shows the location of the corridors and the approximate limits affected. Figure 2 depicts the Shared Lane Bicycle Marking or Sharrow.

The Sharrow pavement markings are proposed to be placed within the travel way at spacings of about 250 to 500 feet which is consistent with Bellevue's current standards for bicycle lane symbol markings. The placement within the roadway would vary depending on the presence of on-street parking, lane width and other factors.

An example of a possible Sharrow placement is depicted in Figure 3 where on-street parking exists. This is a conceptual layout and small deviations based on Engineering Judgment may occur when implemented. Placement of the Sharrow at 11 feet from face of curb, as depicted in figure 3, is consistent with other cities practices. This placement encourages bicyclists to ride outside the door swing of parked cars while reminding drivers that they are required by Washington state law to share the roadway with bicyclists.

Bellevue's Transportation Department intends to prepare project plans and specifications for use by a contractor to install the Sharrow pavement markings. It is our intent that the three street segments be implemented in three distinct yearly cycles giving an opportunity to review and assess the conditions of prior implementation efforts. This phasing sequence is described in more detail below.

## **C. Illustration of Shared Lane Bicycle Marking (Sharrow):**

See Figure 2 for an illustration of the Sharrow.

## **D. Supporting Data on Development and Use**

An increasing number of cities across the country have or are currently experimenting with shared lane bicycle markings on roadways. One study in particular, performed for the City of San Francisco (CA), demonstrated the shared lane bicycle markings had a positive impact on

motorist and bicyclist behavior, position and safety. The study also resulted in the adoption of the Sharrow pavement legend as an allowable marking treatment by the California Traffic Control Devices Committee.

In recent months, the City of Seattle (WA) located immediately west of the City of Bellevue has implemented approximately 12 miles of these pavement marking treatments with plans for additional coverage in the coming year. Thus far, the use of these markings have been well received by bicyclists and the community at large.

### **E. Patent and Copyright Statement**

The Shared Lane Bicycle Marking (Sharrow) as depicted in Figure 2 is not copyrighted. Cities including Denver (CO), Portland (OR), San Francisco (CA), Gainesville (FL), Cambridge (MA), Fort Collins (CO), Oakland (CA), Alexandria (VA), and Seattle (WA) have experimented with this marking, which would imply there is no patent protection for this symbol. The latest proposed revisions to the MUTCD have included this symbol as well which also support unrestricted (but guided) use of the symbol in the future assuming these revisions are maintained in later adopted versions of the MUTCD.

### **F. Time Period and Locations for Experimentation**

The City of Bellevue proposes to separate the three candidate corridors in timeline so the first street segment selected has the greatest opportunity for success and acceptance by the public. As shown in Figure 1, the first segment would be the 161<sup>st</sup> Ave SE corridor. This segment has two travel lanes with on-street parking which is striped on one side of the road. Bellevue's Transportation Department intends to implement this first segment this year with the other two street segments (i.e., Main Street and 164<sup>th</sup> Ave) considered for implementation following our assessment of the initial corridor's performance.

These streets were chosen with consideration given to the following factors:

- Selection of at least one key North/South and one key East/West corridor in the City's updated Pedestrian/Bicycle Citywide Plan
- Opportunities for use of a shared lane marking symbol where current street infrastructure is effectively built out and modification of the roadway section is impractical to include marked bike lanes
- Posted speed limit of 30 mph or less.
- Opportunity for evaluating a shared lane marking in conjunction with on-street parking
- Traffic volumes below 10,000 ADT.
- Relatively active bicycle use in corridor.

### **G. Research and Evaluation Plan**

The City of Bellevue Transportation Department will conduct the experiment placing the Sharrows on the aforementioned candidate streets and in the timeline expressed herein.

The planned monitoring and evaluation process is as follows:

1. The City of Bellevue will install Sharrows on 161<sup>st</sup> Ave SE within the limits shown on Figure 1.
2. Legends will be applied at a typical rate of 250 to 500 foot spacing depending on specific characteristics of the segment.
3. Signs specifically associated with the Sharrows will not be placed at each legend at this time in keeping with common practice of other agencies experimenting with the legends. However, an introductory or informational sign may be provided at beginning and end of the project limits. The sign colors and messaging, if used, would be consistent with allowable guidance already contained in the MUTCD.
4. Bicycle lane markings consistent with Bellevue's standard practices and depicted in Figures 4 and 5 will be pursued in several segments. There are portions of some streets which afford the ability of marking the travel way with a designated bike lane. This will be beneficial in observing driver and bicyclists behavior within the same corridor and under the two distinct pavement marking treatments.
5. Data collection will be conducted for time periods before and during the experimentation. Data will include traffic volumes, speed studies, and observations. The City's Transportation Department will video record at least one segment to include both directions of travel for later playback and observation of activity in the roadway. Observations of driver and bicyclists behavior will be noted and summarized.
6. Progress statements will be prepared as necessary to document the ongoing conditions of the experimentation. A final report will be prepared by Bellevue's Transportation Department and submitted to FHWA.

## **H. Application Restoration**

The City of Bellevue Transportation Department agrees to restore the affected areas within three months following the end of the time period of the experiment and terminate the experiment as required in Section 1A.10 if an unsafe condition develops. If the experiment appears successful, the City of Bellevue may apply Shared Lane Bicycle Markings (Sharrows) to additional streets in its bicycle network plan to test similar conditions. In addition, the City of Bellevue may further support the inclusion of these markings in the next edition of the MUTCD.

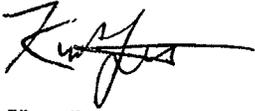
## **I. Progress Reports**

The City of Bellevue agrees to provide progress reports as necessary during the term of the experimentation. A final report will also be prepared and submitted to FHWA within 3 months following completion of the experimentation.

In closing, the goal of this project is to improve safety and operations for bicyclists where bicycle lanes are not feasible. The City of Bellevue intends to utilize shared lane bicycle markings (Sharrows) only after other possibilities that would allow marked bicycle lanes to occur have been explored.

We appreciate FHWA's review of this matter and if there are any questions, I can be reached at 425-452-6020 or email [klatt@bellevuewa.gov](mailto:klatt@bellevuewa.gov).

Sincerely,



Kurt Latt, P.E., PTOE  
Senior Transportation Engineer  
Bellevue Traffic Engineering Division

Attachments:

Figure 1 – Sharrow Bicycle Corridors

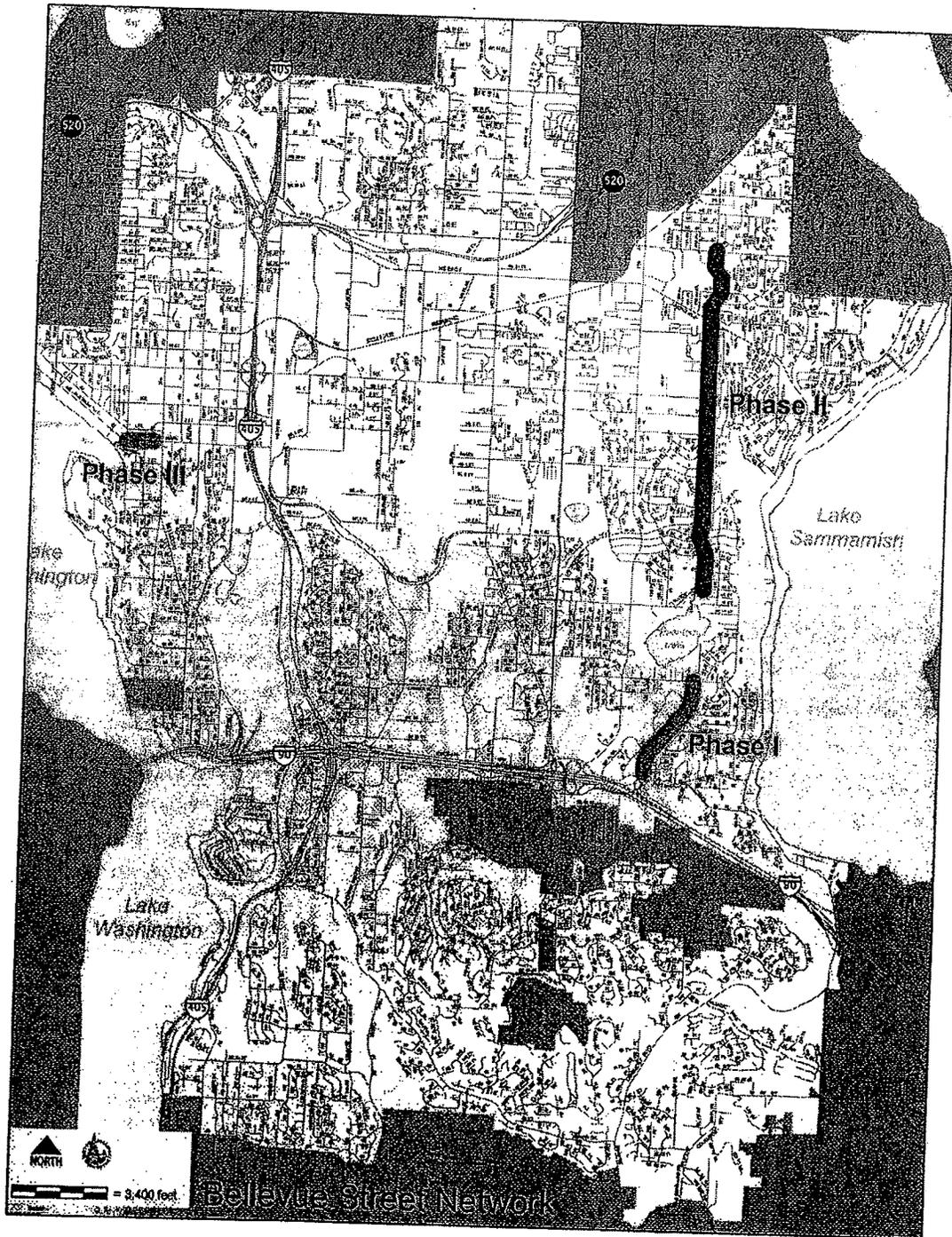
Figure 2 – Sharrow (Shared Lane Marking)

Figure 3 – Example Placement of Sharrows

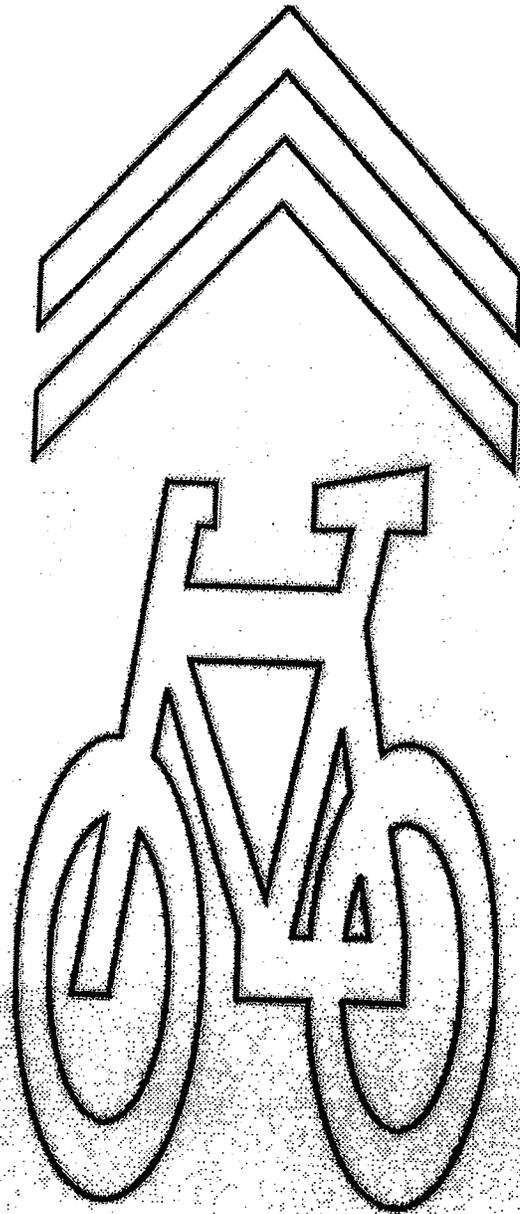
Figure 4 – Bellevue Standard Drawing TE-17 Bicycle Lane Channelization

Figure 5 – Bellevue Standard Drawing TE -20 Bike Lane Marking

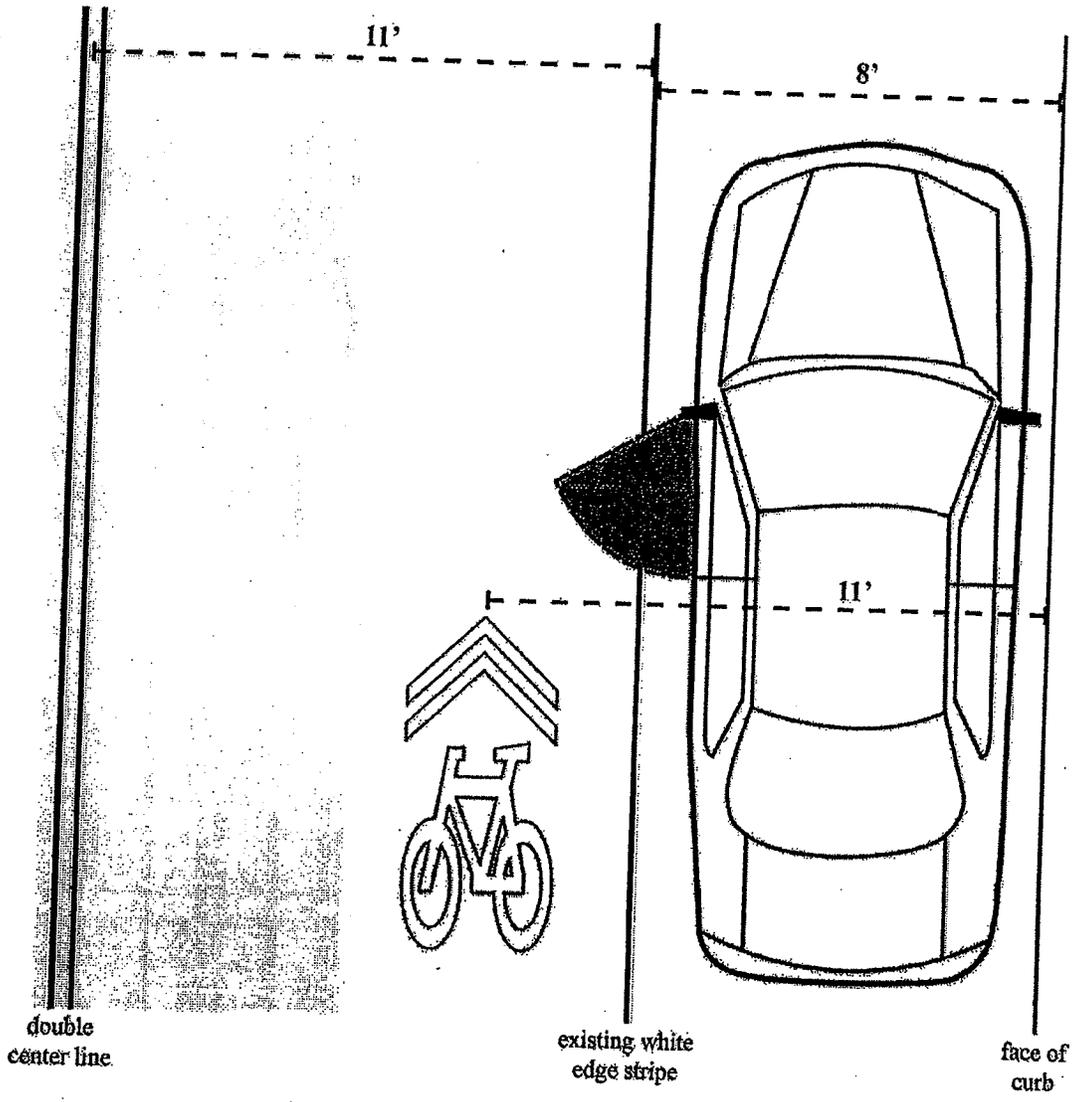
cc: Goran Sparrman, P.E., Director, City of Bellevue Transportation Department



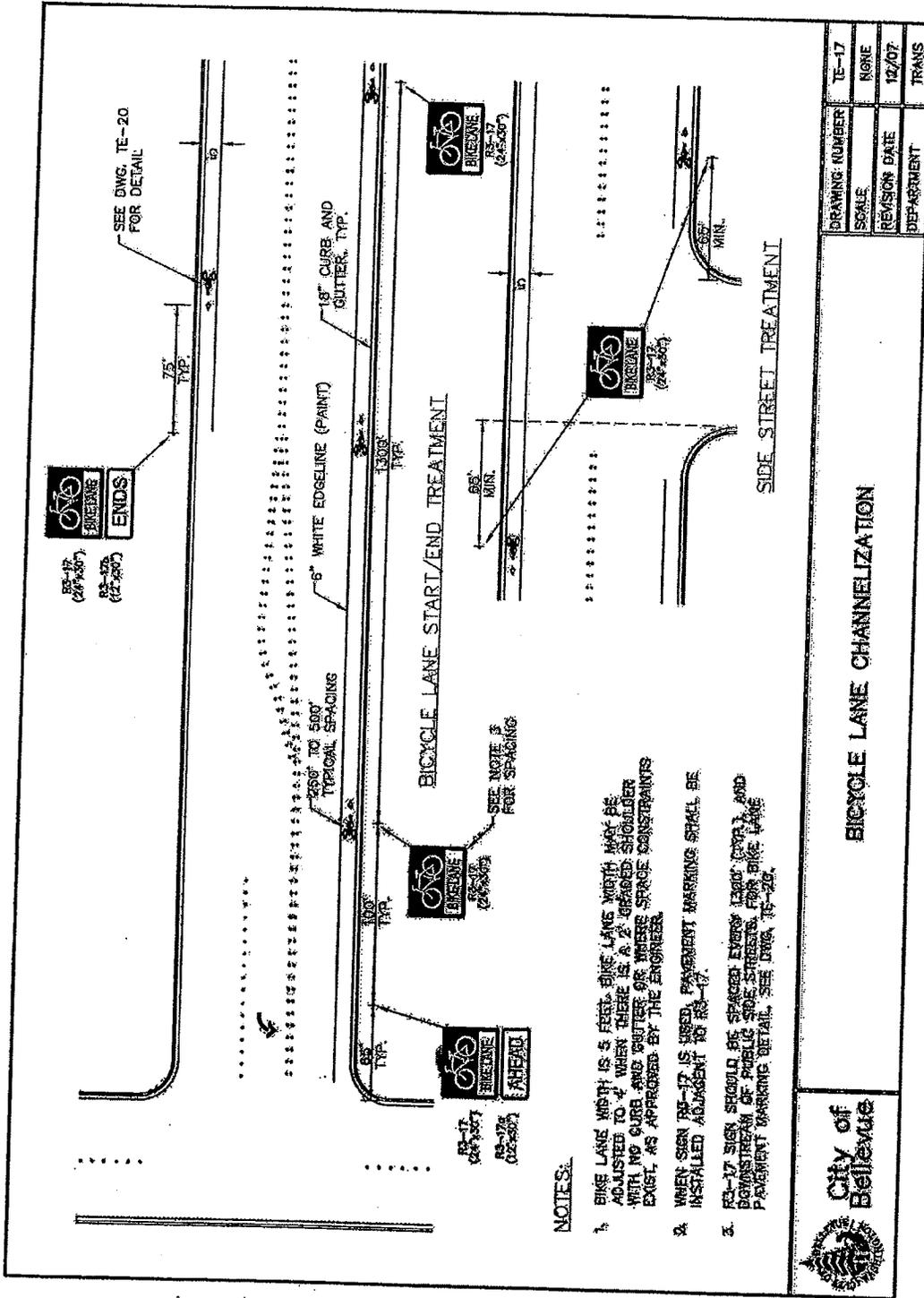
**Figure 1**  
Sharrow Bicycle Corridors



**Figure 2**  
Sharrow  
(Shared Lane Marking)



**Figure 3**  
 Example Placement of Sharrows

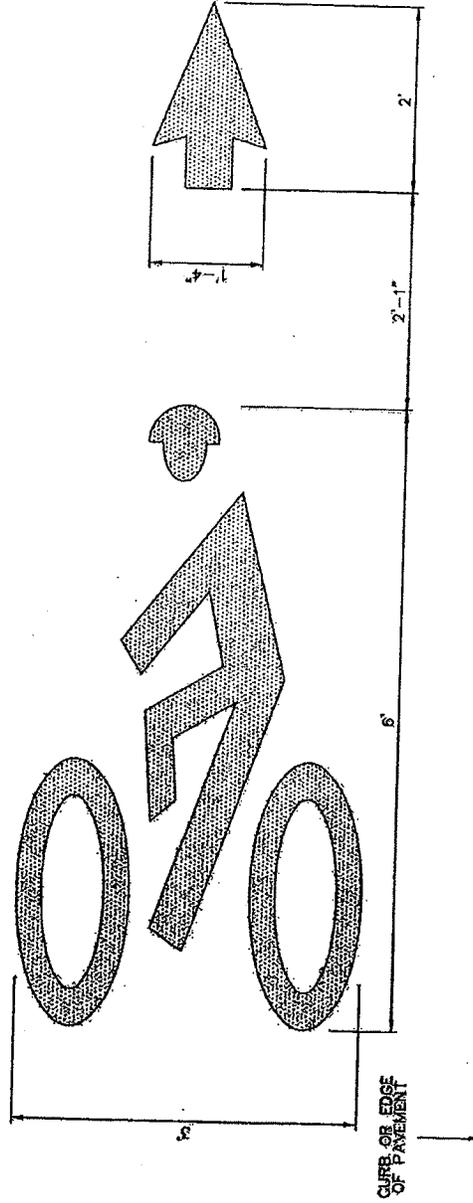


- NOTES:**
1. BIKE LANE WIDTH IS 5 FEET. BIKE LANE WIDTH MAY BE ADJUSTED TO 4' WHEN THERE IS A 2' TYPICAL SHOULDER WITH NO CURB AND GUTTER OR WHERE SPACE CONSTRAINTS EXIST, AS APPROVED BY THE ENGINEER.
  2. WHEN SIGN RS-17 IS USED, PAVEMENT MARKING SHALL BE INSTALLED ADJACENT TO RS-17.
  3. RS-17 SIGN SHOULD BE SPACED EVERY 1500' (CVL) AND DOWNSTREAM OF PUBLIC SIDE STREETS. FOR BIKE LANE PAVEMENT MARKING DETAIL, SEE DWG. TE-22.

**Figure 4**  
**Bellevue Typical Bike Lane Channelization**

**NOTES:**

1. BICYCLE LANE MATERIAL SHALL BE LOW PROFILE PREFORMED THERMOPLASTIC (90 MIL.).
2. DIMENSIONS: ADJUSTMENTS TO DIMENSIONS SHALL BE APPROVED BY THE ENGINEER.



 <b>City of Bellevue</b>	<b>BIKE LANE MARKING</b>			
	DRAWING NUMBER	TE-20	REVISION DATE	12/07
	SCALE	NONE	DEPARTMENT	TRANS

**Figure 5**  
Bellevue Bike Lane Markings



U.S. Department  
of Transportation  
**Federal Highway  
Administration**

1200 New Jersey Avenue, SE.  
Washington, DC 20590

June 13, 2008

In Reply Refer To: HOTO-1

Kurt Latt, P.E., PTOE  
Senior Transportation Engineer  
City of Bellevue  
Post Office Box 90012  
Bellevue, WA 98009-9012

Dear Mr. Latt:

Thank you for your May 30, 2008 letter requesting permission to experiment with shared-lane symbol pavement markings on three street segments in the City of Bellevue.

We have reviewed your request. Your request for experimentation is approved, and we look forward to receiving your quarterly progress reports and your final evaluation report at the end of the study period. For recordkeeping purposes, we have assigned the following official experimentation number and title: "9-106(E)—Shared-Lane Markings – Bellevue, WA." Please refer to this number in future correspondence.

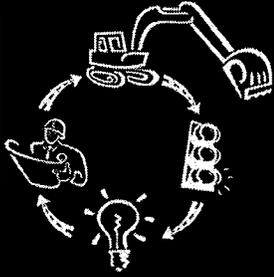
Thank you for your interest in improving the operational capability and traffic safety for bicyclists through the use of the shared-lane markings.

Sincerely yours,

/s/ *Hari Kalla*  
(for)

Robert Arnold  
Director, Office of Transportation  
Operations

**MOVING THE  
AMERICAN  
ECONOMY**



CONSTRUCTION

# Here's What's Happening

SEPTEMBER 2008

## COMING SOON to 161<sup>st</sup> Avenue SE: SHARROWS



**Sharrows** are pavement markings installed within travel lanes, alerting motorists they should expect to see and share the lane with bicyclists. In addition, sharrows help bicyclists position themselves in the lanes, in such a way that motorists are able to safely pass them.

The Transportation Department will begin a pilot project installing sharrows on 161<sup>st</sup> Avenue SE between SE 24<sup>th</sup> Street and Eastgate Way by the end of October, weather permitting. The markings, which include a bicycle leg-end with arrows at the top, will be placed every few hundred feet on the pavement. There will be no other striping, signing or parking changes.

Bellevue recognizes the importance of improving bicycle safety while maintaining on-street parking in certain areas. Sharrows offer a promising way of accomplishing this at a relatively low

cost. These markings have been successfully used in other cities across the country, including Seattle, and will be evaluated here in Bellevue over the next six months.

**For more information:** Contact Kurt Latt, senior transportation engineer, at 425-452-6020 or email [klatt@bellevuewa.gov](mailto:klatt@bellevuewa.gov).

### What do sharrows mean for bicyclists and drivers?

#### **Bicyclists:**

- Use the sharrow to guide where you ride within the lane – generally through the center of the sharrow when safe to do so.
- Remember not to ride too close to parked cars – watch for opening doors
- Be aware of your surroundings and follow the rules of the road

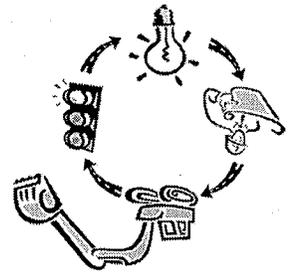
#### **Drivers:**

- Expect to see bicyclists on the street
- Remember to give bicyclists space when passing
- Be aware of your surroundings and follow the rules of the road



**Transportation** Solutions for You

**ECRWSS  
POSTAL CUSTOMER**

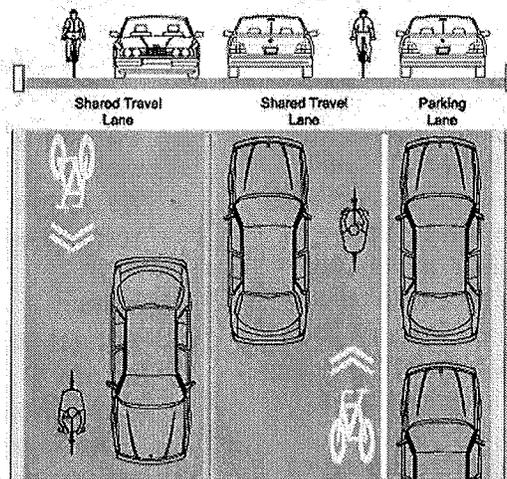


**Sharrows**  
161st Avenue SE

PRSR1 STD  
US Postage  
PAID  
Bellevue, WA  
Permit No. 61

City of Bellevue  
Transportation Department  
PO Box 90012  
450 110<sup>th</sup> Avenue NE  
Bellevue WA 98009-9012

**What will sharrows look like on 161<sup>st</sup> Avenue SE?**



Existing travel lanes and parking do not change  
(Heading north on 161<sup>st</sup>)

**Title VI Notice to the Public** It is the City of Bellevue's policy to assure that no person shall on the grounds of race, color, national origin or sex, as provided by Title VI of the Civil Rights Act of 1964, be excluded from participating in, be denied the benefits of, or be otherwise discriminated against under any of its federally funded programs and activities. Any person who believes his/her Title VI protection has been violated may file a complaint with the Title VI Coordinator. For Title VI complaint forms and advice, please contact the Title VI Coordinator at 425-452-4270.



## MEMORANDUM

**TO:** Transportation Commission  
**FROM:** Kurt Latt, P.E., PTOE, Senior Transportation Engineer  
**DATE:** November 4, 2008  
**SUBJECT:** Bicycle Shared Lane Markings – *SHARROWS* Pilot Project

---

### Introduction

This memorandum provides a brief summary of a pilot project in Bellevue which installed bicycle shared lane markings, commonly referred to as Sharrows, on 161<sup>st</sup> Ave SE between SE 24<sup>th</sup> St and Eastgate Way SE. The picture below shows the recent Sharrow installation.



Sharrow Install in Bellevue  
Looking Southbound on 161<sup>st</sup> Ave SE

This project was initiated to provide additional options for raising awareness of bicycle use along certain corridors and improve the safety and operating conditions of designated bicycle routes. The Sharrow project recently implemented in September of this year is the first use of this type of pavement marking in Bellevue. Early observations of the Sharrows are promising which may lead to more use of these markings in other key bicycle routes. The background for Sharrow use, initial performance and possible future plans are further described in this memorandum.

### Background

Prompted by the update of the City's Pedestrian and Bicycle Plan and increasing interest to improve safety and operating conditions for bicycle travel throughout the city, staff have been exploring various options to expand upon its "toolbox" of traffic control devices. State, County, and City agencies are required to follow the practices outlined in the Manual On Uniform Traffic

**November 4, 2008**

Control Devices (MUTCD) when implementing features such as signs and pavement markings. Because the Sharrow is not yet an approved device in the MUTCD, the City of Bellevue sought and received permission from the Federal Highway Administration (FHWA) to perform a pilot project with the Sharrows. About a dozen cities across the country have also performed similar Sharrow projects which has made the approval process more streamlined than other exceptions to the MUTCD. Other agency experiences with the Sharrows are still being documented in many cases as it is a relatively new application and staff continues to research information as it becomes available. The attached letter to FHWA (May 30, 2008) better describes the background, placement of Sharrows, planned monitoring, and other aspects required within the standard format submission to FHWA.

### **Project Status**

The City's first Sharrow project was implemented for the segment of 161<sup>st</sup> Ave SE between SE 24<sup>th</sup> St and Eastgate Way SE in September 2008. The public outreach for the project included community flyer distribution (attached), door hangers, project listing in the city paper as well as numerous one-on-one conversations arising from the various field visits while designing the project.

As described in the letter to FHWA, this segment of 161<sup>st</sup> Ave SE was selected as a candidate site considering such factors as:

- consistency with the Ped/Bike Plan update and its key north/south, east/west corridors;
- constraints such as existing sidewalk, on-street parking, or native growth areas which would severely limit road widening in the future;
- traffic volumes which are not excessively high (below 10,000 ADT), yet sufficiently heavy to merit additional improvements. This essentially precludes Major Arterials and very low volume residential streets as candidates;
- relatively active bicycle use in corridor. It's important, particularly with the first use of the Sharrow, that the project be conducted on a roadway where drivers routinely see bicycle use.

With the above in mind, 161<sup>st</sup> Ave SE became a uniquely favorable candidate to observe the City's initial test for the Sharrow pavement marking. A key consideration was 161<sup>st</sup> Ave SE having on-street parking in the northbound direction only. This has allowed study of the Sharrow on the same roadway for a parking and non-parking condition. The Transportation Department has installed a temporary camera to video tape the "before" installation condition and is in the process of collecting the "after" condition observations and data.

One of the performance measures being considered is assessing the area being ridden by bicyclists within the travel way. With the "before" video taping, there were some bicyclists riding opposite direction to traffic or near parked car doors. The Sharrow depicts a type of chevron/arrow which should help reduce wrong way travel behaviors. The Sharrows are also placed in a manner that guides separation from the parked car doors swing to remind bicyclists of this potential hazard. In regards to the motorists, the Sharrow should remind drivers of the presence of bicyclists and to

**November 4, 2008**

encourage drivers to provide adequate separation while passing bicyclists. Additionally, online feedback from other agencies using Sharrows suggests the markings promote greater good will between drivers and bicyclists and reduce confrontational or adverse behaviors.

Research on other agencies using Sharrows as well as initial observations are encouraging so far. Some positive feedback has been provided by bicyclists as well as nearby residents which appreciate the City's recognition for the importance of maintaining parking in these neighborhoods while promoting bicycle safety.

It must be emphasized, however, in light of the initial positive findings, that the Sharrow should not be considered an easy remedy applicable to improving many of the shortcomings of the broader bicycle system. Like any traffic control device, it has an appropriate place and circumstance for use with limitations on its benefits. The Sharrow does not substitute for a five-foot wide marked bike lane, for instance, where one can reasonably be provided in a highly used bicycle route. Having the separation afforded by a bike lane in certain corridors is important for the integrity of the system and caution must be exercised by staff, elected officials and the community to not overstate the applicability or benefit of a shared lane marking such as the Sharrow.

### **Future Activities**

Having been in place for about one month, it is too early to fully ascertain the benefits or possible negative aspects associated with the Sharrow markings. Since we are entering the winter season, it will be necessary to continue the review into early Spring as bicycle activity increases to fully evaluate conditions. Following our assessment in the Spring, additional candidate street segments will be considered if found to be an appropriate application and beneficial to system users.

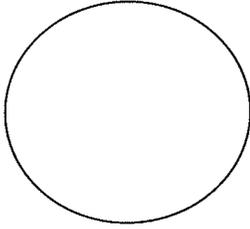
The next candidate segment being considered, as identified in the letter to FHWA, is 164<sup>th</sup> Ave NE between NE 24<sup>th</sup> St and SE 14<sup>th</sup> St. The actual implementation of the Sharrows within this corridor may include only a portion of the length depending on circumstances as the review moves forward. It is also possible as additional assessments, research, feedback and design work are conducted, other candidate segments might present a more favorable option to implement. The current target is to implement another Sharrow project during the summer of 2009 should the initial pilot project prove to be of benefit to system users.

### **Commission Action:**

No action is required at this time. This memorandum is provided as information for Transportation Commission's use. If you have any questions regarding the use of Sharrows, please contact me (Kurt Latt) at 425-452-6020 or by email at [klatt@bellevuewa.gov](mailto:klatt@bellevuewa.gov).



# ATTACHMENT B



## **COMING SOON to 161<sup>st</sup> Avenue SE: SHARROWS**

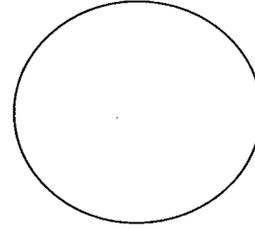
Sharrows are pavement markings installed within travel lanes, alerting motorists they should expect to see and share the lane with bicyclists. In addition, sharrows help bicyclists position themselves in the lanes, in such a way that motorists are able to safely pass them.



The Transportation Department will begin a pilot project installing sharrows on 161<sup>st</sup> Avenue SE between SE 24<sup>th</sup> Street and Eastgate Way by the end of October, weather permitting. The markings, which include a bicycle legend with arrows at the top, will be placed every few hundred feet on the pavement. There will be no other striping, signing or parking changes.

Bellevue recognizes the importance of improving bicycle safety while maintaining on-street parking in certain areas. Sharrows offer a promising way of accomplishing this at a relatively low cost. These markings have been successfully used in other cities across the country, including Seattle, and will be evaluated here in Bellevue over the next six months.

For more information contact Kurt Latt, senior transportation engineer at 425-452-6020 or email [klatt@bellevuewa.gov](mailto:klatt@bellevuewa.gov).



## **COMING SOON to 161<sup>st</sup> Avenue SE: SHARROWS**

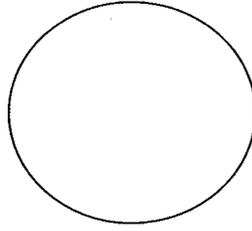
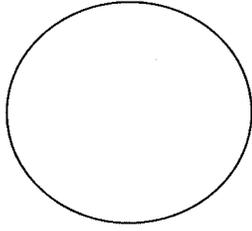
Sharrows are pavement markings installed within travel lanes, alerting motorists they should expect to see and share the lane with bicyclists. In addition, sharrows help bicyclists position themselves in the lanes, in such a way that motorists are able to safely pass them.



The Transportation Department will begin a pilot project installing sharrows on 161<sup>st</sup> Avenue SE between SE 24<sup>th</sup> Street and Eastgate Way by the end of October, weather permitting. The markings, which include a bicycle legend with arrows at the top, will be placed every few hundred feet on the pavement. There will be no other striping, signing or parking changes.

Bellevue recognizes the importance of improving bicycle safety while maintaining on-street parking in certain areas. Sharrows offer a promising way of accomplishing this at a relatively low cost. These markings have been successfully used in other cities across the country, including Seattle, and will be evaluated here in Bellevue over the next six months.

For more information contact Kurt Latt, senior transportation engineer at 425-452-6020 or email [klatt@bellevuewa.gov](mailto:klatt@bellevuewa.gov).



## What do sharrows mean for bicyclists and drivers?

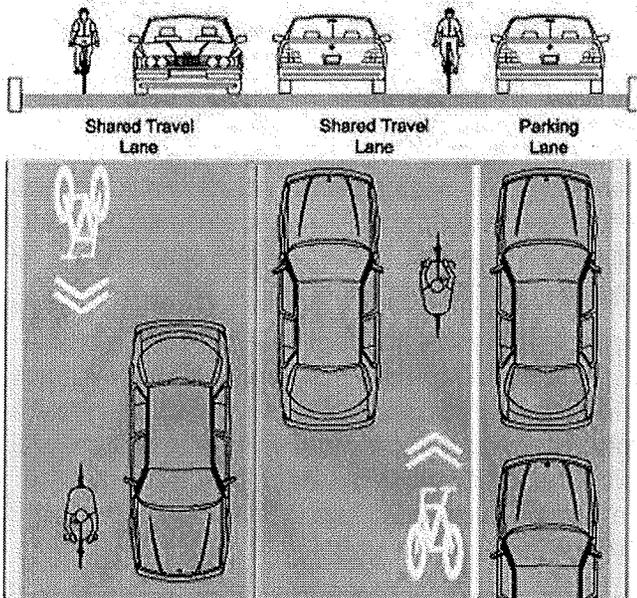
### Bicyclists:

- Use the sharrow to guide where you ride within the lane – generally through the center of the sharrow when safe to do so.
- Remember not to ride too close to parked cars – watch for opening doors
- Be aware of your surroundings and follow the rules of the road

### Drivers:

- Expect to see bicyclists on the street
- Remember to give bicyclists space when passing
- Be aware of your surroundings and follow the rules of the road

## What will sharrows look like on 161<sup>st</sup> Avenue SE?



Existing travel lanes and parking do not change  
(Heading north on 161<sup>st</sup>)

## What do sharrows mean for bicyclists and drivers?

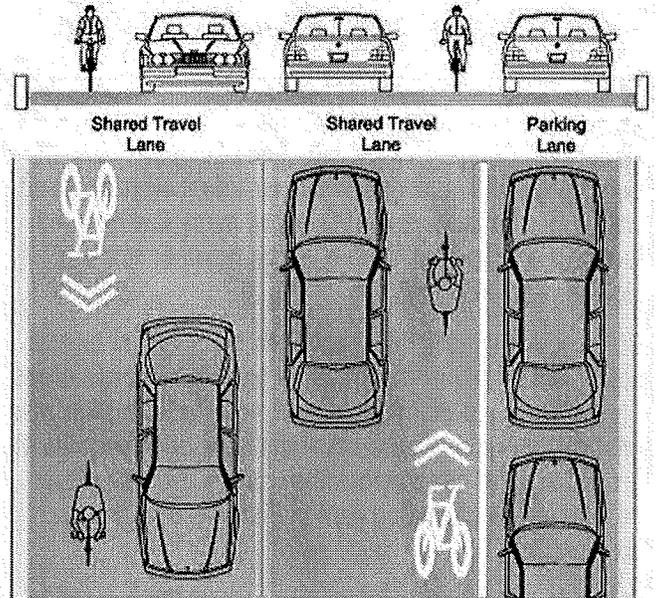
### Bicyclists:

- Use the sharrow to guide where you ride within the lane – generally through the center of the sharrow when safe to do so.
- Remember not to ride too close to parked cars – watch for opening doors
- Be aware of your surroundings and follow the rules of the road

### Drivers:

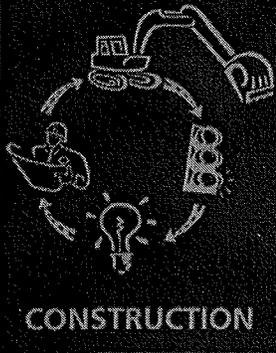
- Expect to see bicyclists on the street
- Remember to give bicyclists space when passing
- Be aware of your surroundings and follow the rules of the road

## What will sharrows look like on 161<sup>st</sup> Avenue SE?



Existing travel lanes and parking do not change  
(Heading north on 161<sup>st</sup>)

ATTACHMENT C



## Here's What's Happening

SEPTEMBER 2008

# COMING SOON to 161<sup>st</sup> Avenue SE: SHARROWS



**Sharrows** are pavement markings installed within travel lanes, alerting motorists they should expect to see and share the lane with bicyclists. In addition, sharrows help bicyclists position themselves in the lanes, in such a way that motorists are able to safely pass them.

The Transportation Department will begin a pilot project installing sharrows on 161<sup>st</sup> Avenue SE between SE 24<sup>th</sup> Street and Eastgate Way by the end of October, weather permitting. The markings, which include a bicycle legend with arrows at the top, will be placed every few hundred feet on the pavement. There will be no other striping, signing or parking changes.

Bellevue recognizes the importance of improving bicycle safety while maintaining on-street parking in certain areas. Sharrows offer a promising way of accomplishing this at a relatively low

cost. These markings have been successfully used in other cities across the country, including Seattle, and will be evaluated here in Bellevue over the next six months.

**For more information:** Contact Kurt Latt, senior transportation engineer, at 425-452-6020 or email [klatt@bellevuewa.gov](mailto:klatt@bellevuewa.gov).

## What do sharrows mean for bicyclists and drivers?

### **Bicyclists:**

- Use the sharrow to guide where you ride within the lane – generally through the center of the sharrow when safe to do so.
- Remember not to ride too close to parked cars – watch for opening doors
- Be aware of your surroundings and follow the rules of the road

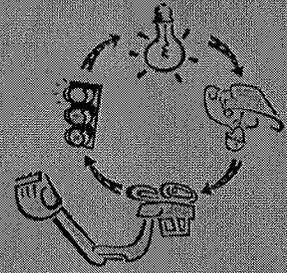
### **Drivers:**

- Expect to see bicyclists on the street
- Remember to give bicyclists space when passing
- Be aware of your surroundings and follow the rules of the road



Transportation Solutions for You

**POSTAL CUSTOMER**  
**ECRWSS**

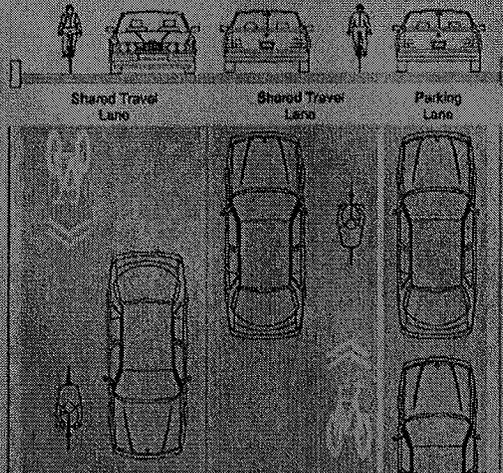


**SHARROWS**  
161st Avenue SE

City of Bellevue  
Transportation Department  
PO Box 90012  
450 110th Avenue NE  
Bellevue WA 98009-9012

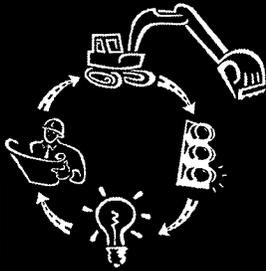
PRSR1 STD  
US Postage  
PAID  
Bellevue, WA  
Permit No. 61

**What will sharrows look like on 161<sup>st</sup> Avenue SE?**



Existing travel lanes and parking do not change  
(Heading north on 161<sup>st</sup>)

**Title VI Notice to the Public** It is the City of Bellevue's policy to assure that no person shall on the grounds of race, color, national origin or sex, as provided by Title VI of the Civil Rights Act of 1964, be excluded from participating in, be denied the benefits of, or be otherwise discriminated against under any of its federally funded programs and activities. Any person who believes his/her Title VI protection has been violated may file a complaint with the Title VI Coordinator. For Title VI complaint forms and advice, please contact the Title VI Coordinator at 425-452-4270.



CONSTRUCTION

# Here's What's Happening

SEPTEMBER 2010

## CONSTRUCTION AHEAD

### Adding Shared Lane Markings - "Sharrows" to 114th Avenue SE/NE: SE 8th Street to NE 6th Street vicinity

**Project Need:** This roadway is classified as a priority bike corridor and is part of the Lake Washington Loop Trail. There is relatively high cycling activity in this corridor while having limited accommodations by way of designated bike lanes or other features. This sharrow project, which installs shared-lane markings as depicted in the photo below, aims to better raise awareness of cyclists in the corridor and reinforce the message of sharing the roadway by all users.



**Planned Improvements:** The project limits extend along 114th Avenue SE/NE from SE 8th Street to the vicinity of the NE 6th Street trail connection. Typical bike lane symbols will be added to designated bike lanes where there is sufficient width near the south end of the project. As the pavement width of the roadway narrows, due to the

I-405 wall abutments and other constraints, sharrows will be added within the travel lane.

**Benefits:** Sharrows are intended to emphasize the shared nature of the travel way. They can be used to encourage good riding positioning by cyclists and to inform motorists that they should expect cyclists on the roadway and to give them space when passing.

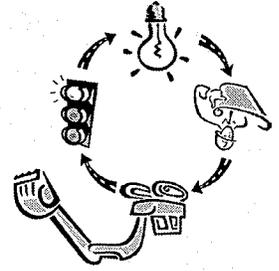
Sharrows are a relatively new tool in marking shared lanes and have shown improved safety and operations of facilities. Sharrows are being used increasingly more in cities across the country, including Portland, San Francisco and Seattle. Bellevue installed its first sharrow project on 161st Avenue SE near Eastgate Way two years ago, which has shown promising results and we will continue to evaluate their effectiveness.

**Installation Schedule:** This project is expected to begin in late September or early October, weather permitting. The work will primarily occur during off-peak commuting hours and over the course of one week. Some delays may be experienced during portions of the project due to one-lane closures.

**Questions & Comments:** Please contact Kurt Latt, P.E., Senior Transportation Engineer, 425-452-6020 or [klatt@bellevuewa.gov](mailto:klatt@bellevuewa.gov)



## Transportation Solutions for You



**CONSTRUCTION AHEAD**  
114th Ave SE/NE "Sharrows"  
SE 8th St. to NE 6th St. vicinity

**CITY OF BELLEVUE**  
Department of Transportation  
PO Box 90012  
Bellevue, WA 98009-9012



***CONSTRUCTION AHEAD***  
**Adding Shared Lane Markings - "Sharrows"**  
**to 114th Avenue SE/NE:**  
**SE 8th Street to NE 6th Street vicinity**

***Title VI Notice to the Public*** It is the City of Bellevue's policy to assure that no person shall on the grounds of race, color, national origin or sex, as provided by Title VI of the Civil Rights Act of 1964, be excluded from participating in, be denied the benefits of, or be otherwise discriminated against under any of its federally funded programs and activities. Any person who believes his/her Title VI protection has been violated may file a complaint with the Title VI Coordinator. For Title VI complaint forms and advice, please contact the Title VI Coordinator at 425-452-4270.