

Downtown Demonstration Bikeway Assessment & Proposed Next Steps



Downtown Demonstration Bikeway Project

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Transportation Commission

March 28, 2019

Meeting Agenda

- 1. 108th Avenue NE Project Background**
- 2. 108th Avenue NE Assessment Report**
- 3. Proposed Version 2.0 Refinements**
- 4. Proposed Main Street Project**
- 5. Commission Transmittal Letter**

Meeting Purpose | Recommendations to City Council

- 1. Retain the 108th Avenue Northeast Demonstration Bikeway.**
- 2. Direct staff to implement rapid build bicycle facility refinements to the 108th Avenue Northeast Demonstration Bikeway per community feedback and staff observations.**
- 3. Direct staff to implement rapid build bicycle facilities on Main Street between 108th Avenue Northeast and Bellevue Way.**

Demo Bikeway: From Planning to Implementation



- **9/28/2017 – BDA Bike Series meeting (#1)**
- **11/30/2017 – Open House**
- **1/11/2018 – Transportation Commission recommendation to City Council**
- **2/5/2018 – City Council support for project and before-after study**
- **4/12/2018 – Transportation Commission endorses evaluation framework**
- **5/7/2018 – City Council approved \$365K construction contract**
- **7/31/2018 – Celebration event**

DEMONSTRATION BIKEWAY ASSESSMENT FRAMEWORK

SAFETY

- Collisions
- Perceptions of Safety
- Traffic Conflicts and Interactions

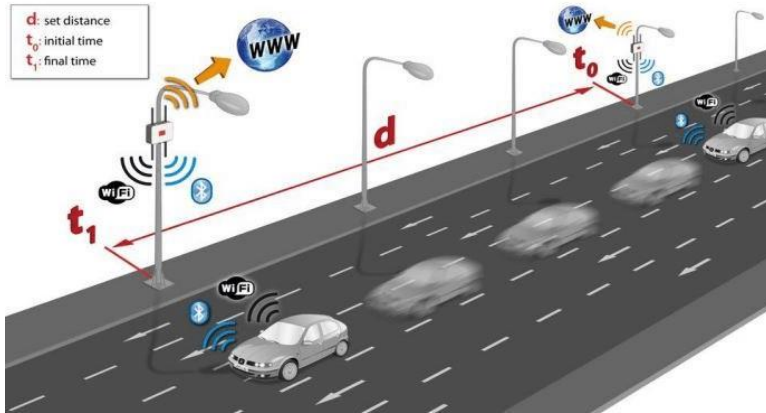
EFFICIENCY

- Motor Vehicle Travel Time
- Bus Delay
- Automobile Delay
- Network Assessment

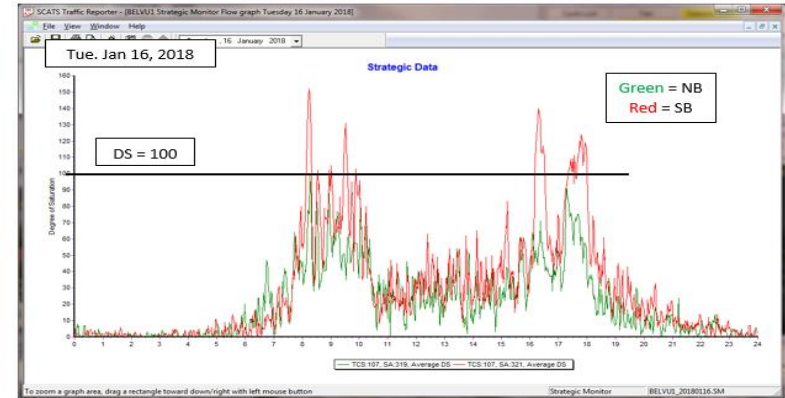
LIVABILITY

- Facility Use
- User Satisfaction
- Bicycle Level of Service
- TNC and Freight Delivery

Data Acquisition Systems



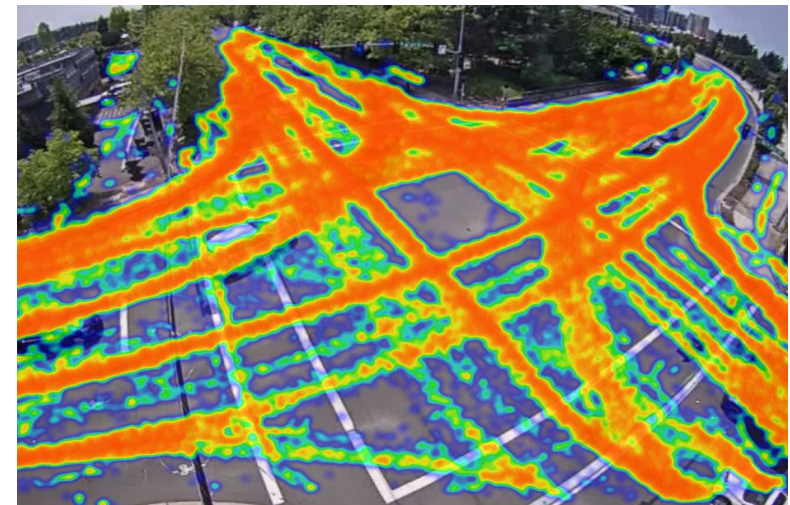
Bluetooth antennas



SCATS & loop detectors



Thermal sensors & detectors



Video analytics from 360 cameras

Safety | Takeaways

1. Collisions:

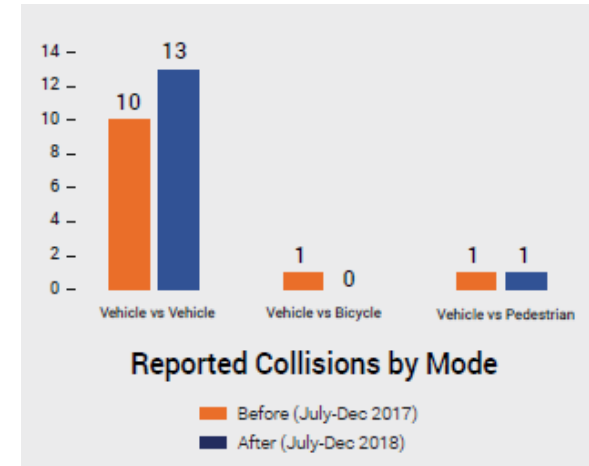
- No police reported collisions between a motor vehicle and a person riding a bicycle along the 108th Avenue NE bikeway.
- No change in trend of number of collisions per year for all modes

2. Perceptions of Safety

- 87% of bicyclists reported feeling “safer and more comfortable” compared to before conditions
- Among respondents overall: 75% feel that bike lanes should be available to make roads safer

3. Traffic Conflicts & Interactions

- Average bicycle sidewalk riding was reduced by 18% at NE 8th St and 8% at NE 4th St.
- 85% of bicyclist use the bike lanes



LANE USAGE		SIDEWALK	BIKE LANE	ROAD
NE 8th	BEFORE	28.3%	0%	71.7%
	AFTER	10.7%	85.3%	4.0%
NE 4th	BEFORE	13.5%	41.4%	45.1%
	AFTER	5.1%	85.6%	9.3%
Main St*	BEFORE	13.6%	*	86.4%
	AFTER	11.6%	*	88.4%

Bicycle Usage by Facility Type

*At Main St, bike facility does not have continuous separated facilities through the entire intersection, so bikes must mix with traffic (when sharrows are present on the roadway). Because of this, all bikes on the roadway were considered “in road”.

Efficiency | Takeaways

1. Motor Vehicle Travel Time

- Travel time changed by less than 1 minute
- Southbound 2.5 to 2.1 minutes
- Northbound 2.6 to 2.3 minutes

2. Bus Delay

- Bus dwell times remained the same or decreased
- Adding the SB to WB right turn overlap at NE 4th St reduced average bus dwell time by over 15s (30%)

3. Automobile Delay

- The LOS model was updated to reflect the final design and changes in volume
- The updated level of service and delay was consistent with the predicted values

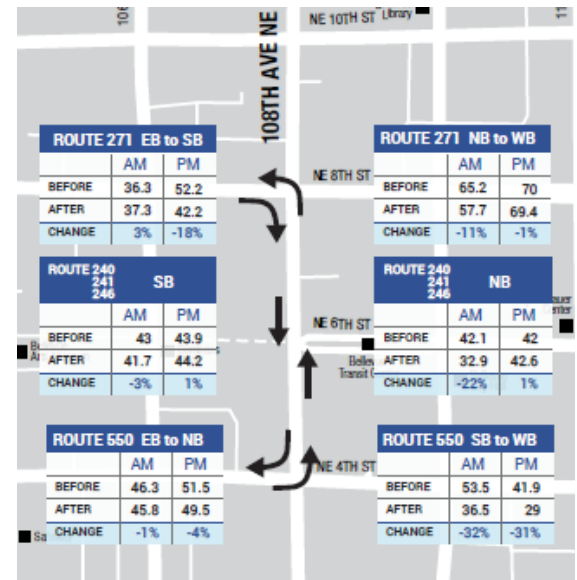
4. Network Assessment:

- Adjacent intersections on NE 4th St and NE 8th St did not show a significant increase in percent of time with a “degree of saturation over 100” (an indicator of congestion)

	AM PEAK (7am-10am)	PM PEAK (4am-7pm)	Daily Average (7am-7am)
Northbound			
BEFORE	1.9 min	3.1 min	2.6 min
AFTER	1.9 min	2.6 min	2.3 min
Southbound			
BEFORE	1.8 min	3 min	2.5 min
AFTER	1.8 min	2.4 min	2.1 min

Vehicle Travel Time

from south of NE 4th St to north of NE 8th St
(Locations 1 to 3)



Average Bus Dwell Time (seconds) for Key Transit Movements

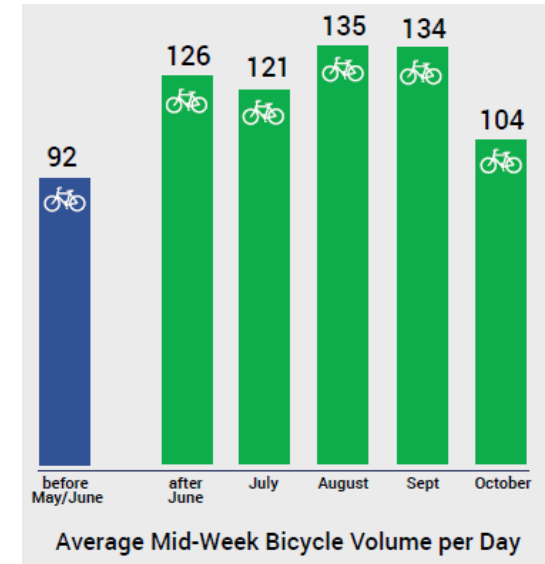
Livability | Takeaways

1. Facility Use

- Average daily bicycle ridership increased by 35%
- Vehicle volumes did not change significantly
- 108th was the most commonly used corridor in downtown by bikeshare users

2. User Satisfaction

- 75% Bicyclists (13% undecided) and 46% Overall (20% undecided) agree that “the design of 108th Avenue strikes the right balance to address the needs of all street users”
- 60% of less confident bicyclists (LTS 2 & 3) agree that more physical separation is warranted to enhance the experience

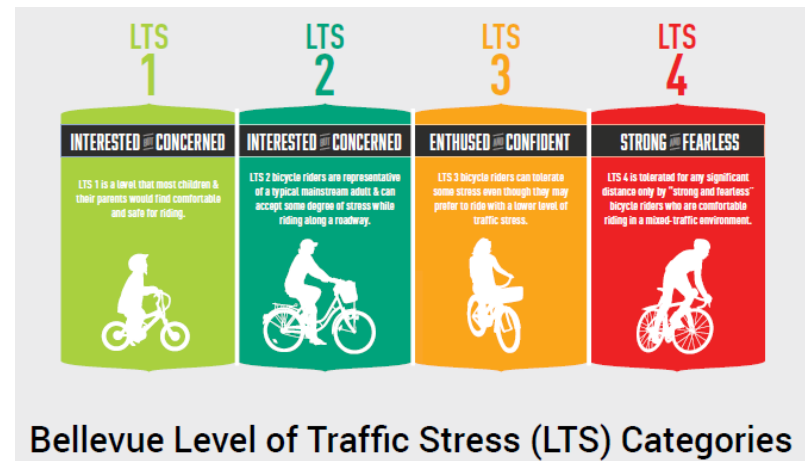


3. Bicycle Level of Service

- Before = All of the corridor at an LTS 4
- After = 75% of the corridor at an LTS 2

4. TNC and Freight Delivery

- After installing planter boxes and curbing there was a 93% reduction in vehicles blocking the bike lane for load/unload activity



108th Avenue NE | Proposed Version 2.0 Refinements

Seven Principles of Bicycle Design



Safety

The frequency and severity of crashes are minimized and conflicts with motor vehicles are limited



Comfort

Conditions do not deter bicycling due to stress, anxiety, or concerns over safety



Connectivity

All destinations can be accessed using the bicycling network and there are no gaps or missing links



Directness

Bicycling distances and trip times are minimized



Cohesion

Distances between parallel and intersecting bike routes are minimized



Attractiveness

Routes direct bicyclists through lively areas and personal safety is prioritized



Unbroken Flow

Stops, such as long waits at traffic lights, are limited and street lighting is consistent

Source: FHWA Bikeway Selection Guide (2019)



In 2019-2020, the BRIP program has funding to remove or improve the 108th Avenue NE Bikeway Project.

108th Avenue NE | Version 2.0 Refinements



position on the left side of the box)
WHEN THE LIGHT TURNS GREEN: Cyclists in the bike box proceed through the intersection first, followed by motorists.

At a bike box...

Do this!

Bicyclists should move from the bike lane into the bike box, in front of cars. Video detection will activate the green light for cyclists in the box. Cars should always stop behind the stop bar and wait for the signal to turn green and for all bicyclists to clear the bike box before proceeding through the intersection.



Not that!



Bicyclists should not line up in the bike lane, but rather move to the front position and occupy the bike box while waiting for the signal to be green.



Cars should not enter the bike box while waiting for a traffic signal to turn green, whether or not bicyclists are present.



Note: Each of these candidate refinements to the 108th Avenue Northeast Demonstration Bikeway corridor and others still under consideration allow for flexibility to adapt to Bellevue's evolving Downtown construction cycle.

Main Street | Next Logical Improvement to Network





**Karen Doherty, Vice President,
Puget Sound Area Manager of HDR**



In 2019-2020, the BRIP program has funding to implement one or more additional bikeways in Downtown.

Main Street | Next Logical Improvement to Network

LEGEND

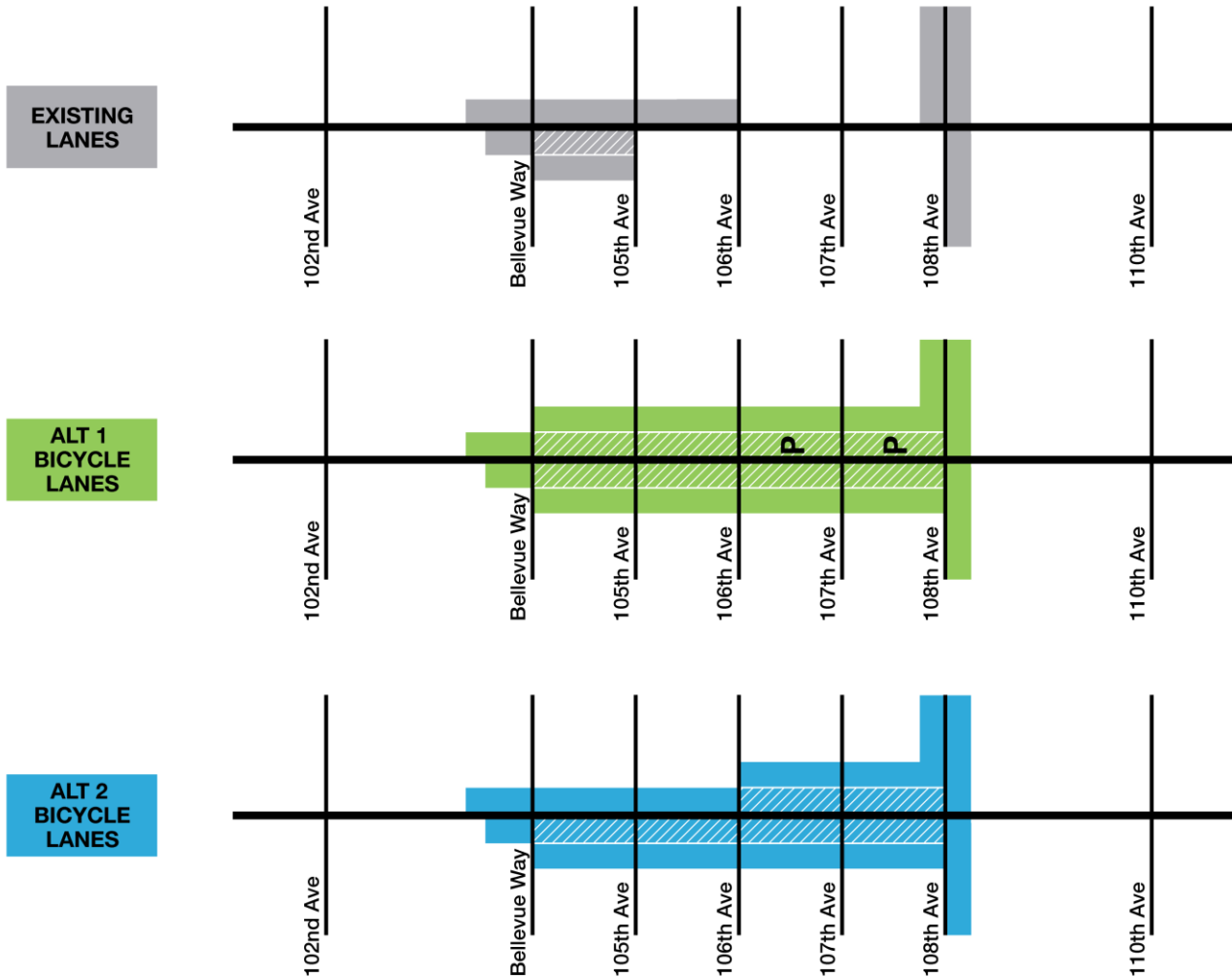
-  **Dedicated Bikeways**
Separated or Striped Bike Lanes, Offstreet Paths
-  **Shared Lane Markings**
Sharrows



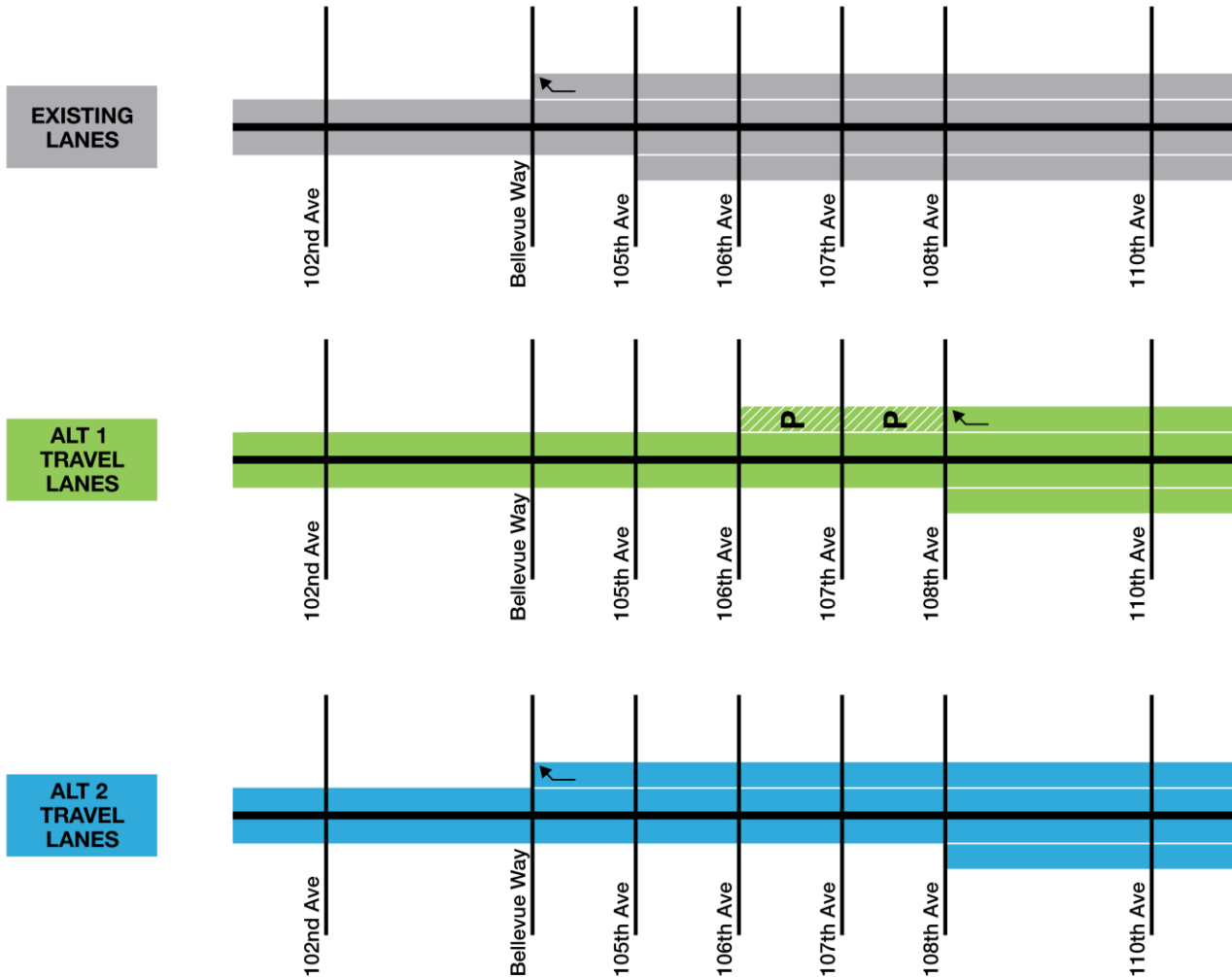
Main Street | Next Logical Improvement to Network



Main Street Concept | Bicycle Lanes



Main Street Concept | Travel Lanes



Main Street | Travel Time

Direction	Existing	Alternative 1	Alternative 2
Eastbound (Bellevue Way to 108th)	2.3 mins	2.4 mins	2.3 mins
Westbound (108th to Bellevue Way)	1.7 mins	2.6 mins	1.7 mins

Main Street | Level of Service

Intersection	Existing		Alternative 1		Alternative 2	
Bellevue Way/ Main St	54.6 secs	D	55.0 secs	D	51.8 secs	D
106th/Main St	21.7 secs	C	39.7 secs	D	21.0 secs	C
108th/Main St	17.6 secs	B	35.5 secs	D	24.5 secs	C

Recommendations to City Council

- 1. Retain the 108th Avenue Northeast Demonstration Bikeway.**
- 2. Direct staff to implement rapid build bicycle facility refinements to the 108th Avenue Northeast Demonstration Bikeway per community feedback and staff observations.**
- 3. Direct staff to implement rapid build bicycle facilities on Main Street between 108th Avenue Northeast and Bellevue Way.**

Commission Transmittal Letter



Transportation Commission

TRANSMITTAL

May 13, 2019

RE: Downtown Demonstration Bikeway Project Assessment and Proposed Next Steps

Honorable Mayor Chelminiak and City Councilmembers:

Transportation Commission members are honored by your trust and confidence in selecting us to oversee the Pedestrian and Bicycle Implementation Initiative (PBII). In this capacity, we have been guided by Council's program principles as we collaborate with staff and the community to advance the PBII scope of work.

At our March 28 meeting, the Transportation Commission voted on the following three items:

- _____ in favor of recommending that the City Council retain the 108th Avenue Northeast Demonstration Bikeway. Overall, through observation of data collection and user feedback, the installation of the demonstration bikeway had a positive impact on community outcomes in safety, efficiency, and livability and can be considered a success to date.
- _____ in favor of recommending that the City Council direct staff to implement rapid build bicycle facility refinements to the 108th Avenue Northeast Demonstration Bikeway per community feedback and staff observations. These facility refinements allow for flexibility to adapt to Bellevue's evolving Downtown construction cycle.
- _____ in favor of recommending that the City Council direct staff to implement rapid build bicycle facilities on Main Street between 108th Avenue Northeast and Bellevue Way (i.e., extending the eastbound buffered bike lane and westbound striped bike lane). Traffic model results reflect an increase to average vehicle delay in the PM Peak Hour limited to the 108th Avenue NE and Main Street intersection (an additional 6.9 seconds of delay/vehicle over existing conditions). Travel times along Main Street indicate that traffic operations are not adversely impacted by the installation of the bike lanes.

The Transportation Commission recognizes it must consider the broader context within which the transportation network evolves—how it preserves and enhances economic vitality, community character, human health, and environmental resources—in addition to serving peoples' mobility needs. The above recommendations to the City Council demonstrates:

- Progress towards Council adopted performance targets in the 2009 Pedestrian and Bicycle Transportation Plan; Policy PB-2 states: "Within 5 years implement at least one completed and connected east-west and north-south bicycle route through Downtown Bellevue." (Note: Main Street is identified as priority bicycle corridor in the 2009 Plan).
- Commitment to business interests, including REI, Microsoft, HNTB, Overlake Medical Center, SAP Concur, and others, who – throughout the Downtown Demonstration Bikeway Project consultative process – assert that more can be done to implement a well-connected and comfortable bike network in Downtown Bellevue that enhances livability, supports economic vitality, and serves the mobility needs of all people.
- Commitment to residents who approved the Neighborhood Safety, Connectivity and Congestion Levy in November 2016 that includes dedicated funding (approximately \$1M/annually) to implement bicycle facility improvements in the Bicycle Rapid Implementation Program (including Main Street; identified as Project PBC-13).

Given the above considerations, the Transportation Commission recommends the City Council endorse retention of the 108th Avenue Northeast Demonstration Bikeway and direct staff implement refinements to the corridor. Additionally, Commission recommends City Council incorporate rapid-build bicycle facilities on Main Street between 108th Avenue Northeast and Bellevue Way as the next logical element of a downtown bicycle network. Transportation Levy funds are available to implement both the 108th Avenue Northeast refinements (through Summer 2020) and Main Street bike lane project (through Fall 2019).

Sincerely,

Lei Wu
Chair, Transportation Commission

Review/refine transmittal letter for May 13 City Council meeting.

For More Information



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