

MEMORANDUM

Date:	January 23, 2017	TG:	16090.00
To:	Joel Pfundt, City of Kirkland		
From:	Jeanne Acutanza/TranspoGroup Paul Sharman/TranspoGroup		
cc:	Deborah Munkberg/3SquareBlocks Angela Ruggeri/City of Kirkland		
Subject:	6th Street Corridor Kirkland – Potential Solutions evaluation		

The purpose of this memorandum is to summarize the evaluation of potential solutions developed to meet the NE 6th Street/108th Avenue corridor transportation needs. This effort is being conducted in conjunction with a study of the Houghton / Everest Neighborhood Center.

In summary, this list of solutions builds on what we heard, and what we learned through stakeholder outreach to the community and public, an evaluation of data from a wide range of sources, a workshop with City staff, and reviews by the Transportation Commission and Council. The resulting solutions that we will be evaluating are provided in the list attached. The locations of these investments are shown on the figure attached. These solutions will be evaluated against values defined by the community. More details of this effort are provided below.

Stakeholder Outreach

Outreach for this effort consisted of the following:

- Key stakeholder interviews with neighborhood community organizations
- A broad public survey
- Outreach with agency stakeholders with transportation responsibilities – Metro and Bellevue
- A community workshop that defined issues and key values as well as developed ideas
- Staff workshop of initial ideas
- Review and guidance by the Transportation Commission

Data collected and analysis conducted

Working with City staff, Transpo assembled data and information from a range of public and private data sources including Kirkland, Metro, WSDOT, PSRC, INRIX, Google, and Streetlight. Transpo also conducted field studies of parking, traffic operations and queueing.

Potential Solutions

Through stakeholder outreach and understanding of data and analysis, a set of solutions was developed and is attached as **Table 1**. These investments are located throughout the corridor as shown in **Figure 1**. This list of solutions is intended to be practical and achievable and emphasizes community interest. Solutions were identified to promote use of transit as a way to increase the capacity of this corridor, better connect the community especially for pedestrians and bicyclists and improve/enhance safety through better management of access, specifically in the neighborhood center.

Evaluation and Values

Values were discussed with the public at the community workshop meeting and will be used to evaluate solutions. These values emphasize movement of people, better connection of the community and considering capacity for the future. **Table 1** provides a summary of a draft evaluation of corridor solutions with recommendations on solutions to be carried forward and for discussion with the Transportation Commission.

FIGURE 1 SOLUTION LOCATIONS

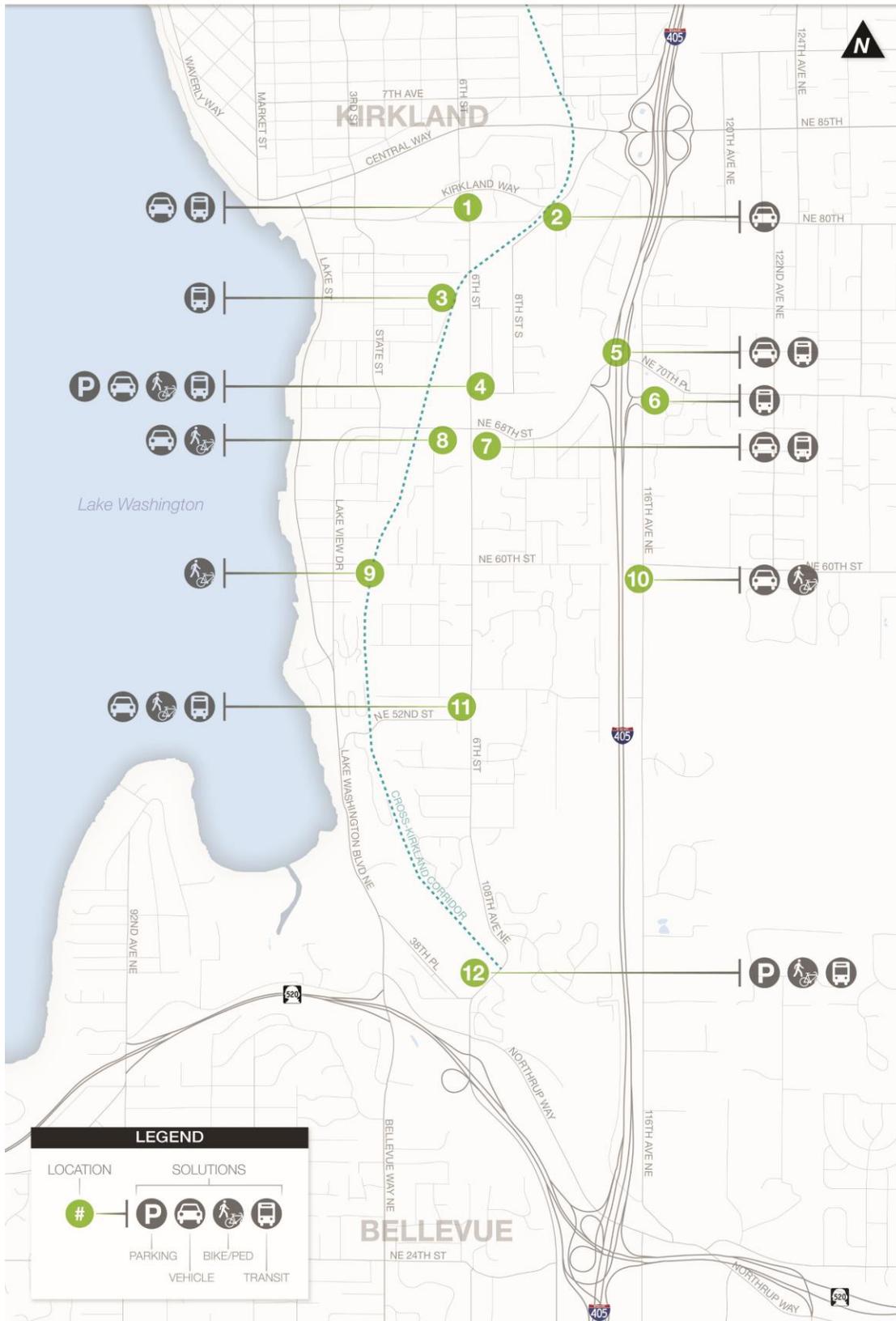


Table 1 - NE 6th Street Corridor Study Potential Solutions – January 23, 2017

Numbers	Potential Solution Ideas	Type	Description	Timeline	Cost	Movement of People	Connect Communities	Capacity for the Future	Notes	Recommended
1. 6th Street at Kirkland Way										
1A	Transit Signal Priority Northbound - Peak Hour - Left turn lead lag	Transit	The City is in the process of designing and implementing traffic signals at the intersection of 6th Street and Kirkland Way. Metro's heavily used route 255 turns northbound left at this intersection and eastbound right. Transit signal priority at this intersection for the Northbound Lefts could provide a short travel time advantage for transit.	1-5 Years	\$\$	2	2	2	Yes, will provide some benefit for transit	✓
1B	Signal Coordination along 6th Street with future increased demand	Vehicles	To better and more efficiently travel along the 6th Street corridor between Central Way and Kirkland Way. Interconnecting the signals (including the signal at 4th) could improve the efficiency, reduce stops and delays.	1-5 years	\$\$	3	1	3	Yes, will improve operations and reduce delay	✓
1C	Crosswalk improvements	Ped	To improve access across 6th Street for pedestrians, put in place RRFB crossing.	1-5 Years	\$	3	3	2	Yes, will enhance safety	✓
2. 9th and Railroad Avenue										
2A	9th and Railroad at Kirkland Way Intersection Safety - Radar Speed - Left turn lane	Vehicles	A safety concern for neighborhoods include sight distance near the existing CKC trestle over Kirkland Way at Railroad Avenue and 9th Street. Radar speed signs may help reduce speeds and improve safety for accessing Kirkland Way. There may be the opportunity to add a westbound left turn pocket at railroad Avenue to improve turning movements.	1-5 Years	\$	1	2	2	Yes, under design	✓
3. CKC for Transit										
3A	BRT on CKC bypass 108th to S Kirkland Park and Ride	Transit	To reduce transit delays incurred on 6th Street and 108th Avenue, especially northbound during PM peak periods, constructing transit lanes within the CKC, similar to the Master Plan. Transit on the CKC, especially in this segment could still connect to local neighborhoods but would dramatically increase overall transit travel times. Construction of this facility would be very expensive including structures over NE 68th Street and development of stations/stop, and take years to implement.	10 + Years	\$\$\$\$	3	3	3	Yes, consistent with the Master Plan and initial phase	✓
3B	Bus Intersection at 6th Street and the CKC	Transit	Another opportunity for transit signal priority would be at the CKC trail intersection on 6th Street. This would require a new signal, removal of on-street parking to give transit a bypass to north bound queues that can be over 200 feet long.	5-10 Years	\$\$\$	2	2	2	Yes, potential first phase of 3A	✓
4. 6th Street at 9th Avenue S										
4A	Re-Assess the installation of traffic signals at 6th Street and 9th	Vehicles / Peds / Bikes / Transit	The City is in the process of designing and constructing a new traffic signal at the intersection of 6th Street and 9th. This signal could provide a shortcut for cut through traffic and may impact the adjacent intersection at NE 68th Street and 108th Avenue. This signal could support redevelopment of adjacent land uses. Deferral and delay of this signal might be helpful as a consideration of future development and rezone consideration.	1-5 Years	\$	1	2	3	Yes, will improve access from Everest Neighborhood	✓

Numbers	Potential Solution Ideas	Type	Description	Timeline	Cost	Movement of People	Connect Communities	Capacity for the Future	Notes	Recommended
5. 70th Street over I-405										
5A	Improve expand 70th Overpass	Vehicular	The existing NE 70th Street Corridor and structure over I-405 is curved, steep and constrained. Better organization and improvements in this corridor, could provide better and protected space for pedestrians and add space for cyclists which does not exist today. There is also a need to improve operations and access for transit and reduce delay for vehicles in the vicinity of I-405.	10+ Years	\$\$\$	3	3	2	Yes, consider as part of BRT planning	✓
5B	BRT Planning near 85th/70th and Park and Ride	Transit	Passage of ST 3 includes development of Bus Rapid Transit on I-405 and potential station development within the freeway right of way near 85th. City transit planning would support coordination and integration with the local street system to most effectively connect these new stations to the local communities and other transit sources.	5-10 Years (Proposed as 2024)	\$	3	3 (add ped connections)	2	Yes, part of a long range look at Transit	✓
6. Houghton Park and Ride										
6A	Houghton Park and Ride lease for private shuttles	Transit	Private shuttles are operating in Kirkland for large employers including Google, Microsoft Connector and most recently Facebook and Amazon. Parking for employees meeting the shuttles currently use the S Kirkland Park and ride and other leased space. With underutilization at the Houghton (7th) park and ride, this space could be leased to these private shuttle operators leaving spaces in South Kirkland Park and Ride to meet Public transit demands.	1-5 Years	\$	3	2	2	Yes, requires coordination with partners	✓
7. 108th Avenue at NE 68th Street										
7A	Transit Signal Priority and queue jump - Left turn lane Transit only - Overhead signs time of day - C-Curb driveway restrictions	Transit	Transit operating on 108th Avenue is delayed with other vehicles. Few signal controlled intersections along the corridor mean fewer opportunities for transit signal priority. An option for implementing signal priority might include utilizing the northbound left-turn lane for transit only (currently 8 buses in the peak hour) as a queue jump (roughly 1000 feet) for transit by restricting turns with C-Curb and implementing a phase for that left turn for transit. To implement this as a changeable by time of day system would require overhead signs and continue to allow driveway access for emergency vehicles. Restricting full access at driveways may be an impact along with less efficient signals for moving vehicles (however moving people may improve). Queues along 108th, which are extensive (over 1 mile long) could become longer. In the future as part of Metro Connects, transit on 108th is assumed to be Rapid/BRT style with more dispersed stops (1/2 mile instead of ¼ mile) Requires accommodations for U-Turns	5-10 years	\$\$	1	2	2	No, limited, if any, benefit for peak period transit and extends queue and restricts access	
7B	Transit Signal Priority for left turns - combines bus and lefts	Transit	A variation of 5A could be to combine left-turning vehicles with transit vehicles.	5-10 years	\$\$	2	2	2	No, limited benefit	
7C	Continue and complete bike lanes	Bikes	Complete the bike lanes along 108th Avenue NE where missing.	1-5 Years	\$	3	3	3	Yes, requires added Right of Way	✓

Numbers	Potential Solution Ideas	Type	Description	Timeline	Cost	Movement of People	Connect Communities	Capacity for the Future	Notes	Recommended
7D	Install "Don't Block the Box" pavement markings at Fire Station Driveway	Vehicles	Install pavement markings that keep the fire station driveway clear of vehicle queues. (Will be included in the City Annual Striping Program)	1-5 Years	\$	1	2	2	Yes, underway	✓
7E	Widen to provide curbside Northbound Transit only lanes	Transit	Widen 108th Avenue to create an extensive Northbound through lanes for transit to bypass queues. May be adjacent to a bike lane and also conflict with high volume of right turns at NE 68th Street	10+	\$\$\$\$	3	1	2	No, impacts neighborhoods	
8. NE 68th Street at 108th Avenue NE (Access)										
8A	Access Management and Multimodal Access on NE 68th Street and 108th. - Median Control - Driveway Consolidation - Wider sidewalks - remove crosswalks - on street parallel parking	Vehicles / Peds / Bikes	Closely spaced driveways and intersections, bike lanes, as well as crosswalks on NE 68th Street results in numerous conflict points between vehicles, pedestrians and bicycles. Access management strategies can include closing or consolidating driveways, using medians to separate conflicting movements and reorganizing development sites to better circulate and organize traffic off of arterial streets. An initial set of strategies could include consolidation of driveways on NE 68th Street, removal of crosswalks, medians for the left turn pocket and wider sidewalks. With redevelopment of the adjacent land uses this option includes widening sidewalks, extending bike lanes and adding on street parking.	5-10 Years	\$\$	3	3	2	Yes, as an interim solution with no development	✓
8B	Access Management and Multimodal Access on NE 68th Street and 108th - New full access signals 500' (106th) - Consolidate Driveways - Wider Sidewalls	Vehicles / Peds / Bikes	Similar to 6A and includes installation of new full access traffic signals (for example at 106th Avenue to provide fully controlled access with pedestrian crossings. This would rely on redevelopment of adjacent land uses including improved circulation on-sites (off street).	5-10 Years	\$\$\$	3	3	2	Yes, as an interim solution with no development	✓
8C	Access Management - Selectively close driveways	Vehicles / Peds / Bikes	Similar to 6A but without any redevelopment or widening, there could be some access management strategies implemented including closing or consolidating driveways and potentially removing the pedestrian crossing.	1-5 Years	\$	2	3	2	Yes, as an interim solution with no development	✓
8D	Full Bicycle Intersection at 6th/108th	Peds / Bikes	Bicycle lanes are provided on NE 68th Street and 108th Avenue and bicycle use is growing; however, these bicycle lanes do not continue through the intersection of 108th Avenue NE at NE 68th Street. One way to do this would be to create a bicycle intersection that extends bike lanes and protects bike movements. This type of intersection can also promote pedestrian safety with ped bulbs making pedestrians more visible.	5-10	\$\$	2	3	2	Yes, with full development	✓
8E	Green Bike Boxes	Bikes	Similar to 8D, Green Bike Boxes could enhance bike visibility by placing a painted green bike at the front of vehicle queues. This may require widening.	5-10 Years	\$	3	3	2	Yes, improves safety for bicycles	✓

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9. CKC Connectivity										
9A	Improved trail access and connection for Bikes	Peds / Bikes	As part of the Interim Trail development of the CKC, the City has developed key connections to the local street system from the trail to neighborhoods. Continuing to enhance some of these facilities as better bike connections would be desirable, for example where the NE 60th Street Corridor connects with the CKC.	5-10 years	\$\$	3	3	3	Yes, improves trail access and encourages bike use	✓
10. NE 60th Street Connections										
10A	Enhanced ped and bike access for 60th Neighborhood Greenway	Peds / Bikes	The City of Kirkland Transportation Master Plan includes designation of a system of Neighborhood Greenways. These greenways promote safe, low volume, slow speed roadways to promote use by pedestrians and bicycles. One of these connections is NE 60th Street. This connection could be enhanced and promoted to reduce bicycle conflicts on arterial streets and promote places for less confident bike riders. NE 60th Street as a greenway can be a key connection across I-405 connecting Lake Washington Boulevard to Overlake.	5-10 Years	\$	3	3	3	Yes, consistent with Master Plan and provides safer cycling routes	✓
10B	New East West Connection across I-405 and Connecting to Lakeview	Vehicles / Transit	There is a long extent of 108th Avenue and I-405 with limited east-west vehicle connections. A logical crossing for an East West Connection would be NE 60th Street connecting across I-405 south of the Houghton Park and Ride to Lakeview Drive. This Connection would potentially require new signals at 116th Avenue NE, 108th Avenue NE and Lakeview Drive as well as a new vehicle crossing of the CKC. This may require closure of driveways, and 114th Avenue west of I-405 to accommodate grades.	10 + Years	\$\$\$\$	3	3	1	No, impacts neighborhoods	
11. Signal at NE 53rd (access to NU)										
11A	Signal at 53rd (proposed by NU) Relocate and improve bus stop. Coordinate and adjust crosswalk with Metro	Pedestrian / Transit	As part of expansion and permitting for new development at Northwest University, the University has proposed installation of a traffic signal on 108th Avenue at NE 53rd Street. Design and development of signals at this location is complicated with an offset alignment of NE 53rd and NE 52nd Streets, a protected crosswalk, and a busy transit stop serving the University, Emerson High School and the neighborhood. Installation of traffic signals would be implemented when engineering standards (per MUTCD signal warrants) are met.	1-5 years	\$\$	1	3	3	Yes, part of NU Mitigation not moving forward, but continue to monitor as a future planned project	✓
12. South Kirkland Park and Ride										
12A	Park-and Ride permitting for transit users	Transit / Parking	The South Kirkland Park and Ride is often full. Prioritize park and ride spaces for transit riders through permitting. This could be the simplest strategy to promote transit. There will be different trade-offs.	1-5 Years	\$	2	2	3	Yes, potentially part of Metro Study	✓
12B	Improve Access/Egress from Park and Ride for Buses - Speed/Radar - Pavement Marking	Transit / Parking	Improve site operations by improving egress from the Park and Ride for buses. Metro has studied this and are working with the Cities. A potential solution includes using speed radar and pavement markings to improve sight distance for exiting buses.	1-5 Years	\$	2	2	2	Yes, Metro recommendation	✓

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12C	New signal control access Park and Ride Access (City of Bellevue)	Transit / Parking	As congestion increases and it becomes increasingly challenging to access the Park and Ride on 108th Avenue, traffic signals should be considered at the access. This signal would be within the jurisdiction of the City of Bellevue and would be most effective to be interconnected with the adjacent signals on 108th that are part of Bellevue's adaptive signal system. Could be annexed into City of Kirkland.	1-5 Years	\$\$	2	2	2	Yes, future Metro recommendation	✓
12D	Improve trail access to Park-and-Ride (On hold)	Transit / Bike / Peds	The Cross Kirkland Corridor (CKC) runs adjacent to the South Kirkland Park and Ride, however there is a grade change and gap that limits access for bikes and peds along the Corridor to using the sidewalks and bike lane on 108th Avenue. As this volume increases access to the adjacent park and ride structured garage would be desirable as a way to more easily access transit. With the passage of Sound Transit 3, there is a planned light rail station at South Kirkland Park and Ride that may include amenities such as bike parking and an elevator. This important connection for bikes and peds from the CKC to the park and ride is important and should be considered in the planning and development of a future rail station.	5-10 Years	\$\$	3	3	3	Future with ST 3	✓
12E	Bike Share/Bike Racks at Park and Ride	Transit / Bikes	With the close proximity of the CKC to park and ride, increased use of bikes to access transit will result in the need for bike parking/racks and the potential desire for shared use bike, especially with an improved connection (12D).	1-5 Years	\$	3	3	2	Yes, potentially incremental implementation or with ST 3	✓
12F	Park and Ride management strategies with real time information	Transit / Bikes	Advances in technology and pilot studies with Sound Transit and Metro to expand real time information on parking occupancy. There are opportunities with transit partners to look for improved management strategies. These strategies can increase efficiency of the facility for moving people through strategies such as permit parking, premium/reservation parking, improved access to Park and Rides using shared use resources such as Bike Share and Car Share or Transportation Network Companies.	1-5 Years	\$\$	3	2	2	Yes, part of Metro Access study	✓
Policies (P) and Education (E)										
P1	Residential Parking Zones to eliminate casual and long term parking (employees)	Parking	Residents have noted that retail employees park off-site and on residential streets. Policy and regulations could discourage this activity through residential parking zones or parking time regulations.	1-5 Years	\$	1	2	1	No, not recommended as parking is available	
P2	On Street parking time limits to reduce park and ride	Transit / Parking	Similar to P1 but issue driven by transit rider parking in neighborhoods.	1-5 Years	\$	1	2	1	No, not recommended as parking is available	
P3	Parking management strategies (shared parking and joint parking) to maximize use. Example: Shared parking of church for market employees.	Parking	For the issues listed in P1 and P2, look for opportunities for shared parking where parking is available for example at Seventh Day Adventist Church where parking is generally used on the weekends only.	1-5 Years	\$	1	2	1	Yes, recommend as part of potential mitigation of development	✓

Numbers	Potential Solution Ideas	Type	Description	Timeline	Cost	Movement of People	Connect Communities	Capacity for the Future	Notes	Recommended
P4	Trail Oriented Development	Land Use	Development of land use and regulatory policies that support lower parking use through access to regional trails. Including promotion and prioritization of shared use mobility strategies – Car share (car to go), bike share and Transportation Networking Companies (TNCs)	5-10 Years	\$	3	3	2	Yes, recommend as part of potential development	✓
E1	Education Campaign on the value of transit in Kirkland's Mobility Future	Transit	Develop an education campaign to help convey the value of transit in moving people in Kirkland.	1-5 Years	\$	1	3	3	Yes, consistent with City Policy	✓
E2	Monitor person movement speed/efficiency	Transit	Develop a performance monitoring system and promote the results to educate the value and benefits of transit in moving people. Develop performance measures, such as person travel times.	1-5 Years	\$	3	2	3	Yes, consistent with City Policy	✓
E3	Greenway promotion of 60th and other connections	Peds / Bikes	Education campaign to promote the use and benefits of the Greenways program including working with neighborhoods, schools, and youth organizations to promote the connectivity and benefits of Greenways using maps, brochures, school education program and other promotions	1-5 Years	\$	1	3	3	Yes, consistent with City Policy	✓

Evaluation Criteria

Cost Parameters

\$: <\$1,000,000

\$\$: \$1,000,000-\$5,000,000

\$\$\$: \$5,000,000-\$10,000,000

\$\$\$\$: >\$10,000,000

Movement of People

3. Increases throughput of people without impacting operations

2. Increases throughout of people but may impact some operations

1. Does not increase throughput of people

Connects Communities

3. Provides a new or improved connectivity for peds and/or bikes

2. Neither impacts nor improves ped/bike connections

1. Negatively impacts connectivity for peds and bikes

Capacity for the Future

3. Provides capacity and choices aligned with the Transportation Master Plan

2. Neither conflicts nor aligns with the Transportation Master Plan

1. Conflicts with the Transportation Master Plan