



CITY OF KIRKLAND

Department of Public Works

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MEMORANDUM

To: Transportation Commission

From: Kim Scrivner, Transportation Planner
Joel Pfundt, Transportation Manager

Date: March 19, 2021

Subject: ACTIVE TRANSPORTATION PLAN UPDATE

Staff Recommendation:

It is recommended that the Transportation Commission receive a briefing and provide input on the Active Transportation Plan update.

Background:

Kirkland's first non-motorized plan was developed in 1995 and was last updated, as the Active Transportation Plan (ATP), in 2009. The 2009 update included eight primary goals, 25 objectives and 66 strategies for improving walking and bicycling in Kirkland. The 2021 update to the ATP update will address progress toward the 2009 goals and amend the goals and strategies as needed.

- Goal G1. Develop the Cross Kirkland Trail
- Goal G2. Reduce crash rates
- Goal G3. Add facilities for pedestrians
- Goal G4. Increase the number of children who use active transportation to travel to and from school.
- Goal G5. Improve safety for people crossing streets
- Goal G6. Remove physical barriers to walking
- Goal G7. Improve on-street bicycle facilities
- Goal G8. Make bicycling more convenient

The Transportation Master Plan (TMP) was adopted in 2015 where revised versions of the goals ATP and policies were included. The TMP calls for periodic updates to the ATP and supports the commitment the City has made to improving the ease and safety for people walking and bicycling in Kirkland.

- Goal T-1. Complete a safe network of sidewalks, trails and improved crossings where walking is comfortable and the first choice for many trips.
- Goal T-2 Interconnect bicycle facilities that are safe, nearby, easy to use and popular with people of all ages and abilities.

Active Transportation is also supported by the Council goal related Balanced Transportation to *reduce reliance on single occupancy vehicles and improve connectivity and multi-modal mobility in Kirkland in ways that maintain and enhance travel times, safety, health and transportation choices.*

WHAT IS ACTIVE TRANSPORTATION?

Active transportation refers to multimodal transportation solutions that connect people of all ages and abilities to where they need to go using active modes such as walking and bicycling. Walking also includes using a wheelchair or other assistive device and bicycling includes using regular pedal bikes, electric assist bicycles (e-bikes), tricycles, or adaptive bicycles.

Progress:

2019 – Staff began scoping the update which included:

- assessing progress toward implementing the 2009 ATP and the 2015 TMP actions and strategies
- assessing and when necessary, updating existing data sets (data renovation project)
- coordinating interdepartmentally with planning, Safer Routes to School Action Plan development, etc.

October 2019 – Outreach Phase 1: Staff began the first phase of outreach which included:

- Walk and Bike to School month
- Community Meeting at City Hall
- Neighborhood Meetings
- Online Safe and Active Transportation Plan survey (which ran through January 2020)

October 2019 – Consultant Services: The consultant firm, Toole, was also brought on board to begin the ATP analysis and to developing the plan document. So far, initial analysis on level of stress for bicycling and an analysis of pedestrian gaps have been assessed, a draft bike and pedestrian facility guide has been developed and a draft plan outline has been created.

Transportation Commission presentations:

- March 2019 – introduction to the project and review of proposed vision – safety, high quality networks, designing for all-ages and abilities and access to transit emphasis
- October 2019 – discussed data renovation project, scope of work and engagement plan
- February 2020 – reviewed crash data analysis, results from public survey and an introduction to the level of stress analysis from consultant

The Transportation Commission gave feedback to staff on considerations that help guide the criteria and analysis which include accommodating people of all ages and abilities, supporting access to transit and land use, equity and safety. Some additional comments from the Commission included consideration of lower cost implementation such as through 'place-making' or other demonstration projects, consideration of technology improvements and recognizing additional barriers to walking or bicycling such as construction, vegetation, parking impacts, etc.

Spring 2020 Outreach – In January, staff developed an extensive public outreach schedule aimed at meeting with every active neighborhood association in March and April to review recommendations for the ATP (and the Safer Routes to School Action Plans). The meetings would also be used to promote the Safe and Active Transportation Summit scheduled for Saturday, March 28. Ultimately, both the draft Safer Routes to School Action Plans and the public comments were to be presented to the City Council on April 21. In March, the neighborhood meetings and the Summit were cancelled as a result of COVID-19 and the ATP Update was ultimately placed on hold.

March 2021 – Staff is restarting the ATP update. Next steps include a City Council Study Session on April 20.

Next Steps:

Spring / Summer 2021 – Finalizing the plan:

- Finalize priorities and complete data analysis
- Develop and receive feedback on proposed recommendations
- Incorporate public input and prioritization measures to prioritize proposed investments
- Develop cost estimates for top priorities
- Finalize draft document

Draft Active Transportation Plan Elements:

The proposed Active Transportation Plan elements are as follows:

- Background and history of Kirkland's support for walking, bicycling and safety (such as being the first city in the region to adopt a complete streets policy, first with a pedestrian flag program, likely one of the first to adopt a walk and bike plan, etc.)
- Note the guidance from the TMP, report of existing conditions and progress made to implement the 2009 ATP and the TMP policies, actions and strategies.
- Refined goals, policies and actions as needed.
- Define existing and planned bike network and pedestrian improvements/ zones
- Identification of various 'gaps' in the system and a prioritization framework to address those gaps (safety, equity, connection to land use, etc.).
- Preliminary cost estimates for high-priority projects
- Guidelines/standards for projects in the ROW & development

Direction Sought:

Staff will give present a progress report to the Transportation Commission which will include:

- Recap on progress so far and a summary of comments already received from the Transportation Commission
- Show greater detail on the analysis conducted by the consultant on bike level of stress and gaps in the pedestrian network

- Outline of plan and priorities
- Process for next steps and getting to a draft plan document for public comment.

Feedback from the Transportation Commission will be summarized and presented to Council at their April 20th Study Session.

Attachments:

- A. Pedestrian Analysis
- B. Bicycle Network Analysis

Attachment A: Pedestrian Network Priorities – Active Transportation Plan (ATP) Update

This document outlines a proposal for identifying and prioritizing potential pedestrian investments in Kirkland. In order to identify and prioritize investments, this proposal focuses on filling sidewalk gaps on arterials and collectors as well as providing access to transit and activity centers. Additional focus could be added such as connections to the Cross Kirkland Corridor, parks, etc. based on direction from the Transportation Commission and from City Council. Criteria would then be applied to further prioritize needs and identify any additional, non-arterial/collector investments for consideration.

Pedestrian needs to be considered would include missing gaps in sidewalks, new or improved crossings or other measures to enhance the pedestrian environment such as lighting, signage, placemaking, technology, etc.

Beginning with gaps on arterials and collectors is based on policy direction and a focus on safety.

1. 2009 Active Transportation Plan Objectives:
 - G3.1: Complete sidewalk on one side of all principal and minor arterials.
 - G4.1 and G4.2: Complete sidewalk on one side of all school walk route segments of all arterials and collector streets
2. Transportation Master Plan 20-Year project table:
 - One side of arterials and collectors for school walk routes
 - Missing sidewalks on principal arterials
 - Top 2 groups on arterials and collectors for 10-min neighborhoods
3. Separating people from traffic for safety purposes as crash analysis indicates higher speed and volume roadways have more incidents of pedestrian crashes
4. Collectors and arterials still connect people to activity centers and bus routes as not all local roads interconnect
5. Many local roads are likely to be more comfortable to walk without contiguous sidewalks than collectors and arterials

Local streets and other connections are still included in assessment for pedestrian investments in Kirkland:

- All local roadways are considered for the Safer Routes to School action plans
- The Neighborhood Safety Program can apply to all types of roads
- Local streets on transit routes will be identified for addition to the ATP analysis
- Other high-priority local connections may be added for analysis on a case-by-case basis (example: connecting downtown Kirkland to the Cross Kirkland Corridor)
- An additional walk-shed analysis may identify additional needs on planned trails, local streets or crossings, planned connections, etc.

Once staff has received feedback from the community, the Transportation Commission and from Council, the plan will seek to:

- Identify projects to be considered for further analysis and public engagement
- prioritize the proposed projects (in terms of high, medium and low based on a set of criteria)

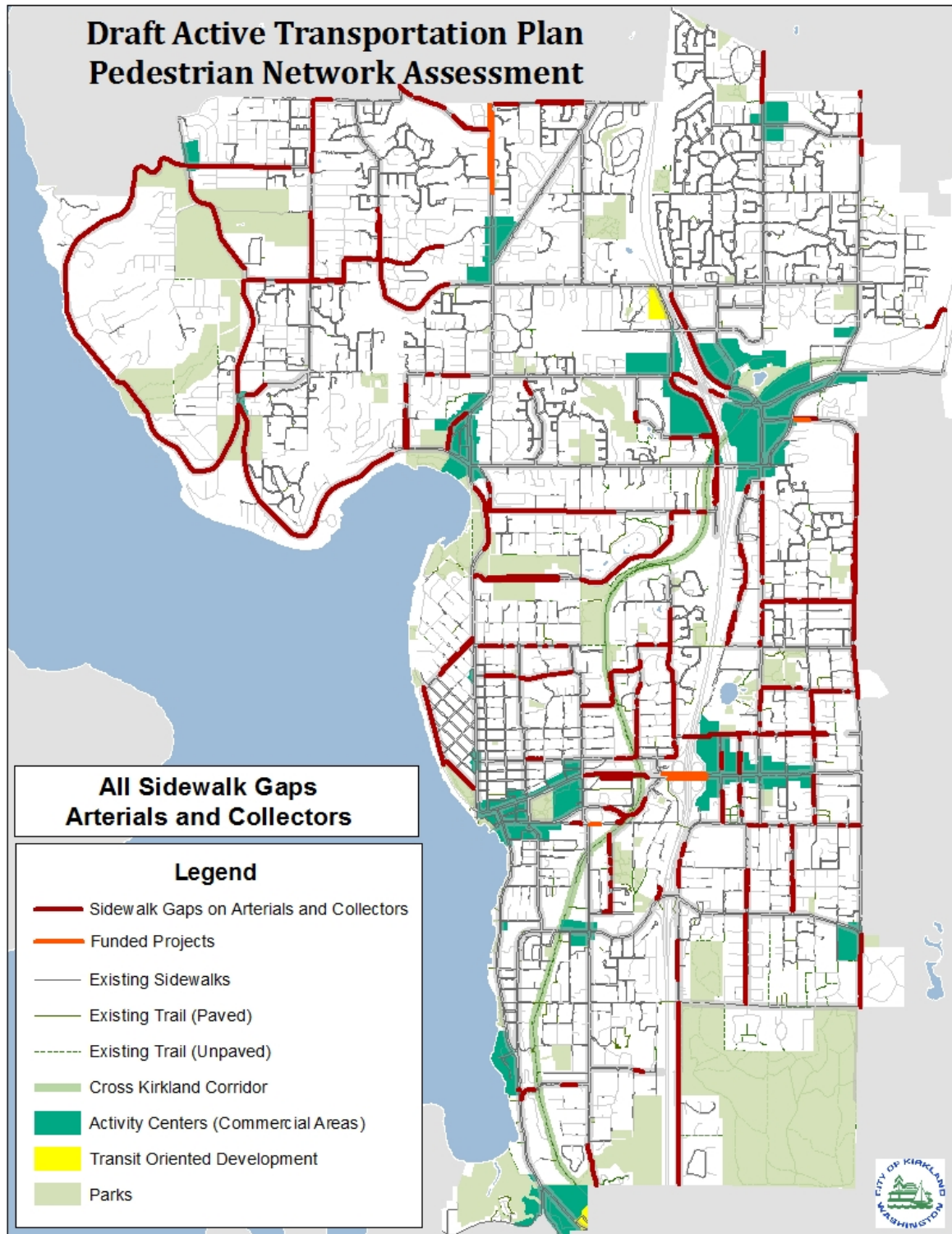
- outline which projects may be implemented in various annual programs, by development or partnerships or those that should be identified for the CIP or for future grants
- high priority projects will include a cost/benefit analysis (likely those requiring grant funds)

Table 1 - Proposed Project Prioritization

Category	Detail	Potential Scoring Method
Overarching Policy	Begin with contiguous segment on one side of arterials and collectors and other identified segments.	
Safety	Priority Corridors identified in the 2020 Local Road Safety Plan	Yes/ No or Range for Priority level 1 & 2
	Level of Stress Analysis	Range
Link to Land Use	Access to Activity Centers <ul style="list-style-type: none"> • 10-min neighborhood score • project 'leads directly into or is within' activity center 	Yes/ No or proximity score
	Access to people - an assessment of the number of parcels would benefit from an improved or new connection	Toole's Analysis. Numbered score for higher number of units per parcel that is provided access.
	Included in Safer Routes to School recommendations	Yes/ No or numbered score
	Access to the CKC	Yes/ No or numbered score
	Access to Parks	Yes/ No or numbered score
Connect to Transit	Range: <ul style="list-style-type: none"> • On a high frequency route (15 min weekdays) • On another Metro route • Direct access to high frequency route • Direct access to another Metro route • Within ¼ mile or ½ mile of high frequency or other Metro route 	range
Equity	Census track based: low-income, people of color, people with disabilities, senior population	range
	Could include access to community services, senior centers, etc.	
Community Input	Based on 'Suggest a Project', if is included in a Neighborhood Plan	Yes/ No
Overarching Policy – Next Priorities	Identify Opportunities where both sides of arterials and collectors are needed, or other additional connections based on the above criteria.	

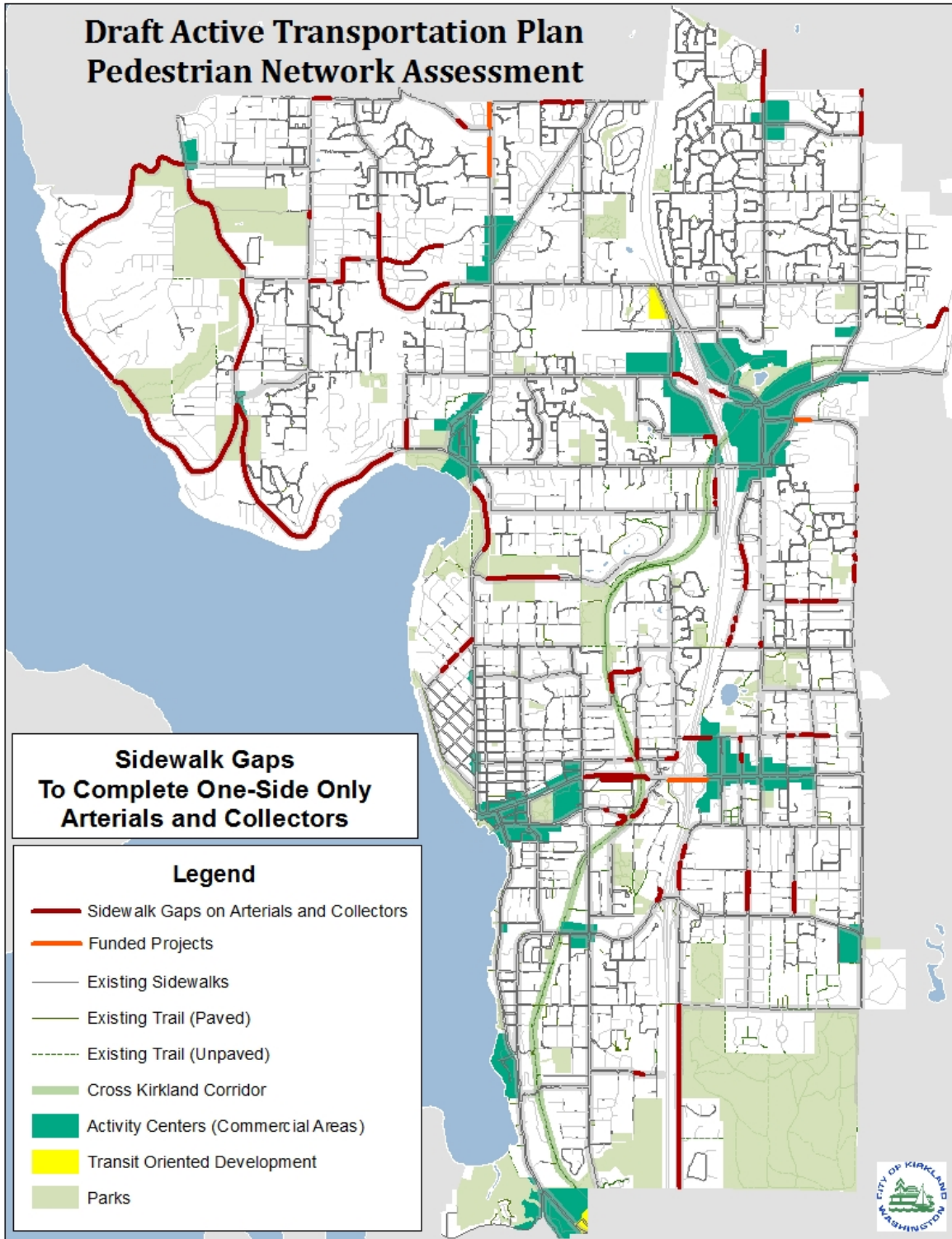
Beginning with sidewalk gaps:

Starting with the overarching policy of gaps on collectors and arterials in Kirkland, this map identifies all existing gaps on both sides of the street. NOTE: This map includes three local street segments.



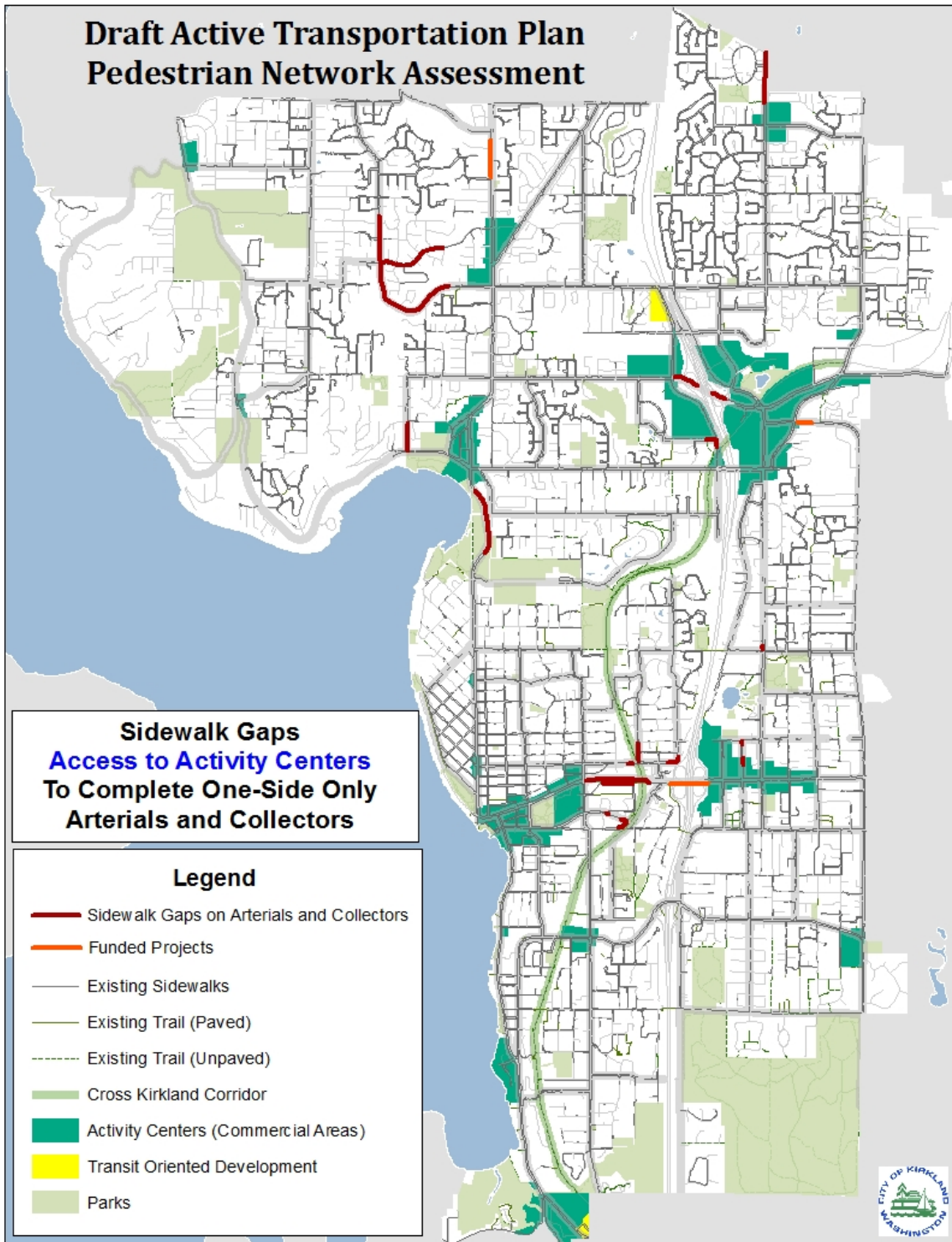
Applying Proposed Criteria - Addressing Contiguous One-Side of the Street Only:

An example for using prioritization to narrow down the number of projects is to highlight those segments that would complete gaps on one contiguous side of arterials and collectors.



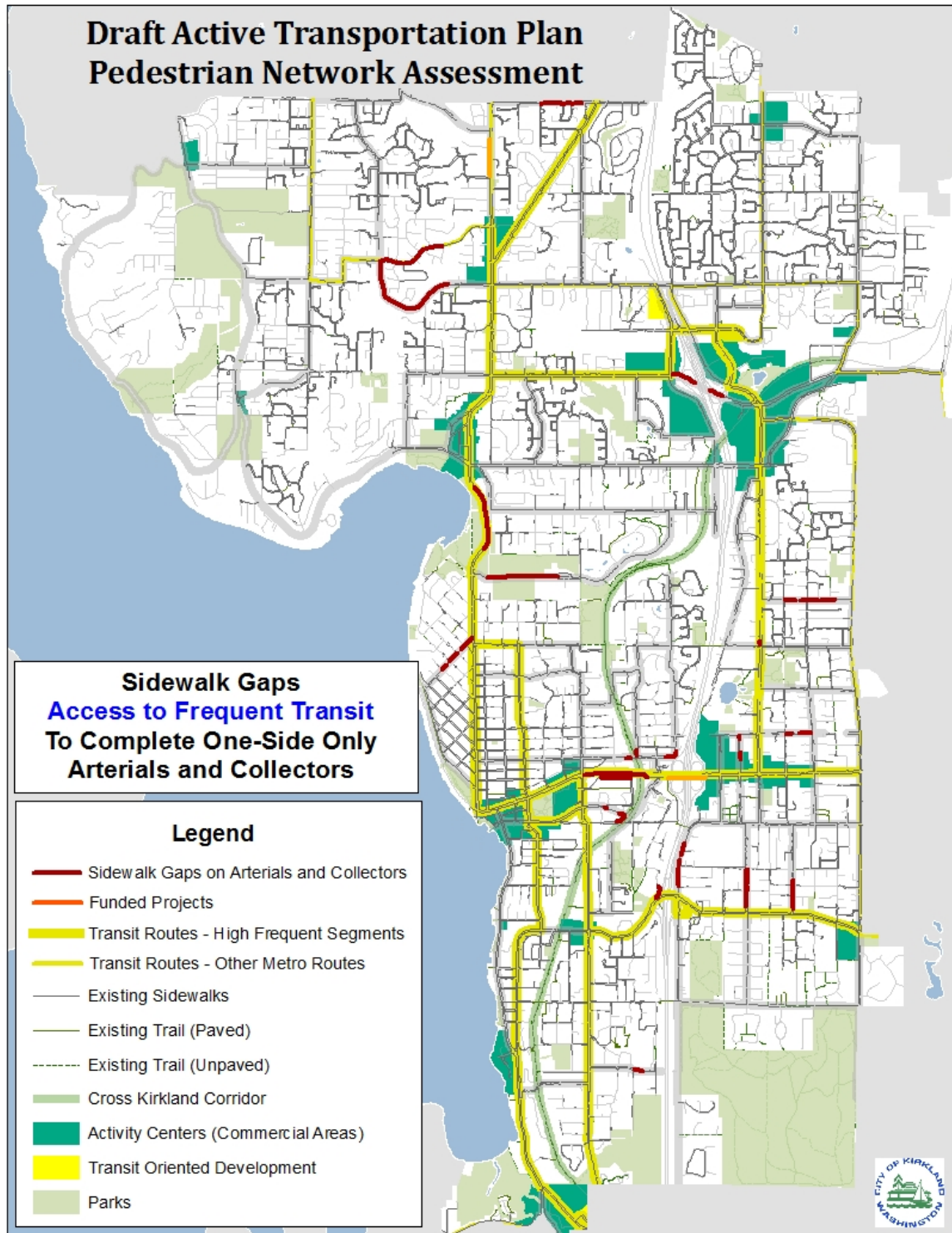
Addressing Additional Prioritization Measures – Access to Activity Centers:

Applying additional criteria can help prioritize key projects the City may focus on. The map below shows an example of projects that are within or adjacent to activity centers. One improvement to this measure will be to apply a composite score for 10-minute neighborhoods identified in Kirkland's Comprehensive Plan or to which projects connect multi-family or denser neighborhoods.



Addressing Additional Prioritization Measures – Access to Transit:

Another proposed priority measure is to prioritize access to transit. The map below shows sidewalk connections that are on or adjacent to frequent transit service (defined as existing or planned 15-minute weekday service on any given segment). Additional analysis could identify projects that access all transit routes or address both sides of the street where transit exists.



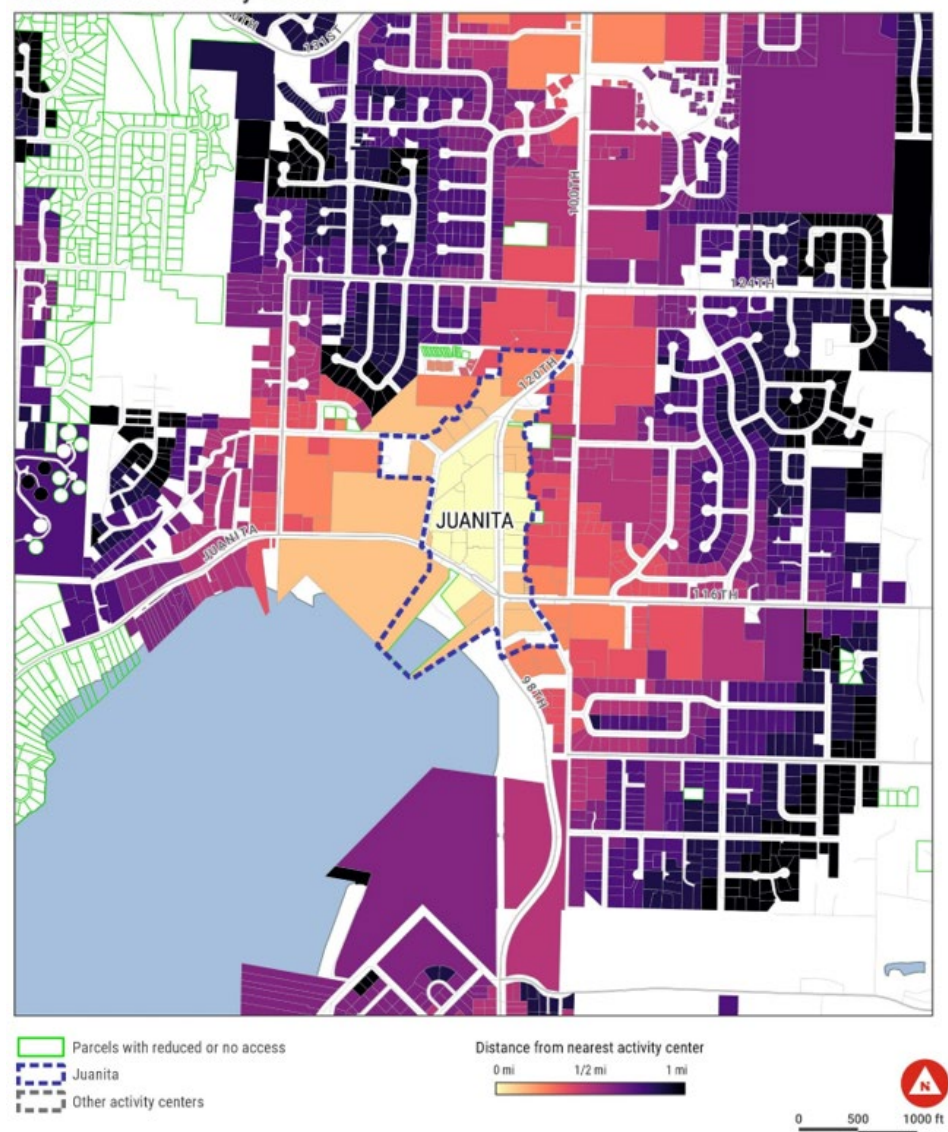
Walk Access Analysis: Toole Design conducted an analysis of access provided by the existing pedestrian network based on the typical adult's ability to safely cross and walk along a street. The analysis highlighted locations (parcels) where access was impacted by barriers such as difficult intersections or missing sidewalks. Crossing enhancement and sidewalk recommendations will be focused at locations that would expand more direct access to transit and activity centers.

The map below shows the walk access for existing conditions to an activity center using sidewalks, trails, cut-throughs, and crossings based on presence of or gaps in sidewalks, presence or absence of curb ramps and the type of control at intersections. Speed and number of lanes of the roadway segments are also a factor.

The map highlights the reach of the pedestrian network in the vicinity of the Juanita activity center. High-access properties are yellow and low-access properties are dark purple to black. Parcels that are not considered accessible within a one-mile walk distance, either due to barriers or lack of an accessible connection, are white. In addition, any parcels where access can only occur by deviating significantly from a direct route (more than 50% deviation) are highlighted in green.

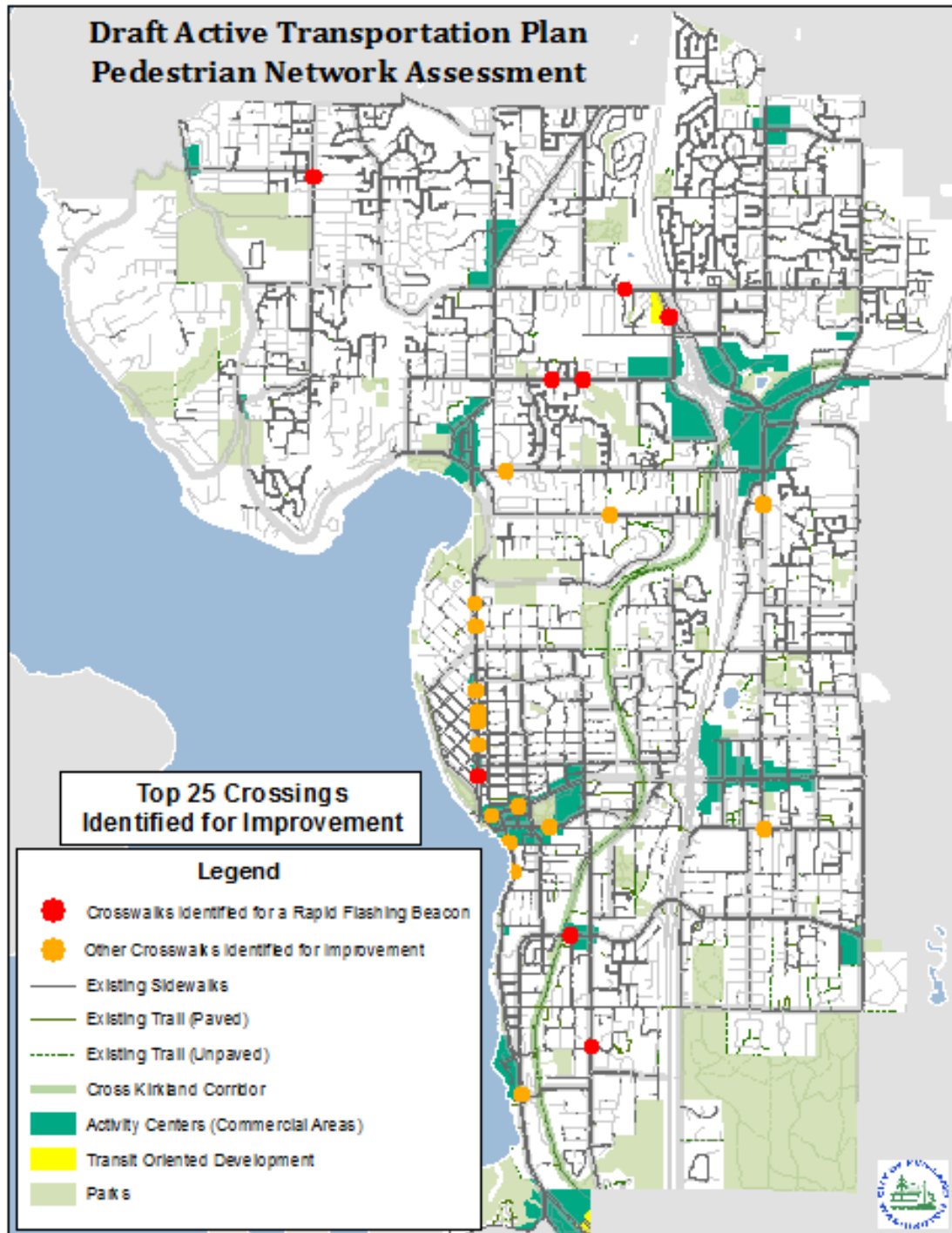
Overlaying existing infrastructure assets such as sidewalks and crossings with these maps, the project team will be able to identify pedestrian networks that improve access to transit and activity centers that may include other gaps not only on collectors and arterials.

Walk Access to Activity Centers



Improving Crosswalks: Street crossings are critical to the success of a pedestrian network. Kirkland has a history of innovation in treatments at uncontrolled crossing locations. The Transportation Master Plan calls for the best practices and research to guide decisions around crosswalk improvements.

Kirkland's engineering staff have identified the top 25 crossings that need improvement based on crash history, speed and volume of the roadway, presence and existing treatment at an additional crossing.



Next Steps:

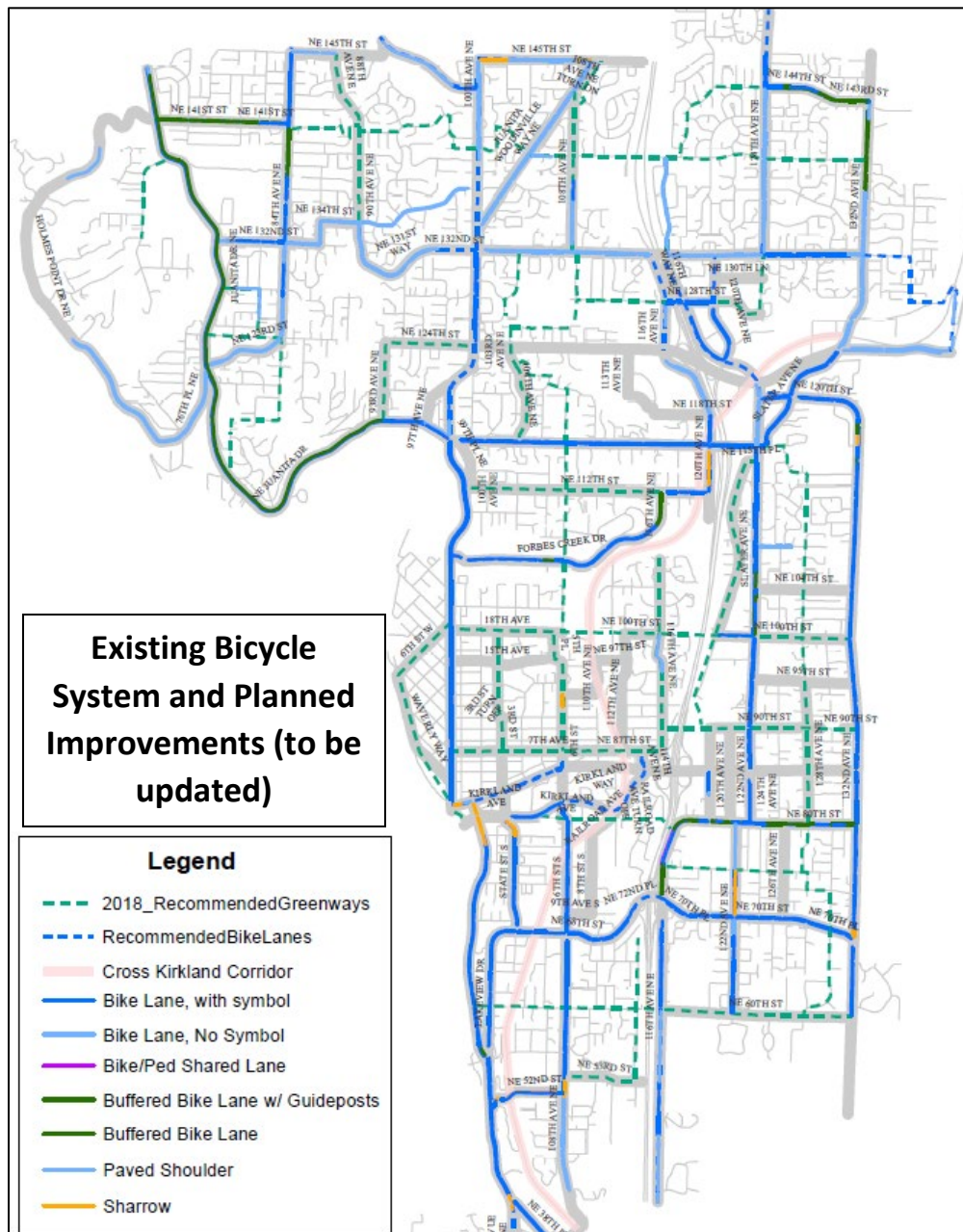
Based on Transportation Commission and Council direction, staff will:

- Identify projects to be considered for further analysis and public engagement
- prioritize the proposed projects (in terms of high, medium and low based on a set of criteria)
- outline which projects may be implemented in various annual programs, by development or partnerships or those that should be identified for the CIP or for future grants
- conduct a cost/benefit analysis on high priority projects (likely those requiring grant funds)

Attachment B: Citywide Bicycle Network Analysis – Active Transportation Plan (ATP) Update

The City of Kirkland has a network of bicycle facilities that include sharrows (painted bike pavement markings in a shared roadway lane), bicycle lanes and buffered bicycle lanes. There are currently several protected bicycle lane projects funded and the City's first neighborhood greenway is being constructed in summer of 2020.

In 2015, the City adopted a planned bicycle network as part of the Transportation Master Plan (TMP). This includes a network of neighborhood greenways and proposed bicycle lanes. Since then, Kirkland has been implementing policies also in the TMP for improving bicycle facilities by adding more buffered bicycle lanes or improving existing bicycle lanes to the system.



The purpose of reviewing the planned bicycle network is to ensure the City is still planning the best bicycle network that serves the most people and places. Since 2015, the City has grown, transit service has changed and new innovations for bicycle facilities have become more defined as best practice. This process will evaluate the current planned system and may identify additional improvements or redirect planned routes based on current data and analysis.

The citywide bicycle network analysis evaluates both **Level of Traffic Stress (LTS)** and connectivity using the **Bicycle Network Analysis (BNA)** tool to assess both existing and future conditions.

Bicycle Level of Traffic Stress (LTS)

analysis measures comfort along every segment of the transportation network in Kirkland based on:

- presence and quality of bicycle facilities
- number of lanes
- posted speed limit
- Average Daily Traffic (ADT)

Bicycle Network Analysis (BNA)

evaluates every census block to determine how well the existing and future bicycle networks connect places and people to one another.

Two census blocks are considered connected if and only if there is an unbroken low-stress connection between them that does not require a trip more than 25% longer than the shortest car trip. Even a short stretch of stressful biking negates a potential

The **Bicycle Network Analysis** is composed of four primary steps (see Figure 1).

1. The first step consists of calculating the Level of Traffic Stress (LTS) for existing and future conditions.
2. The next step involves taking the existing and future conditions LTS results and feeding those networks into the BNA tool to model existing and future bicycle access to destinations.
3. The result of the existing and future conditions BNA results highlights locations that are connected to other places and people via the low-stress bicycle network, and locations that are disconnected because they lack low-stress connections. To improve low-stress connectivity, on-street and off-street connections are identified and recommended for improvements that reduce the estimated level of stress.
4. Lastly, a final BNA is run using the newly identified recommended improvements to evaluate the how citywide low-stress bicycle connectivity is enhanced.

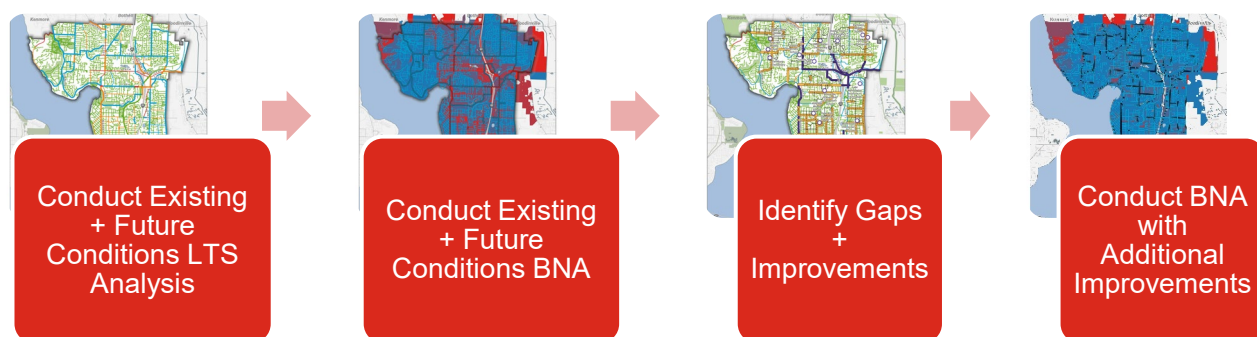


Figure 1: Bicycle Network Analysis Process

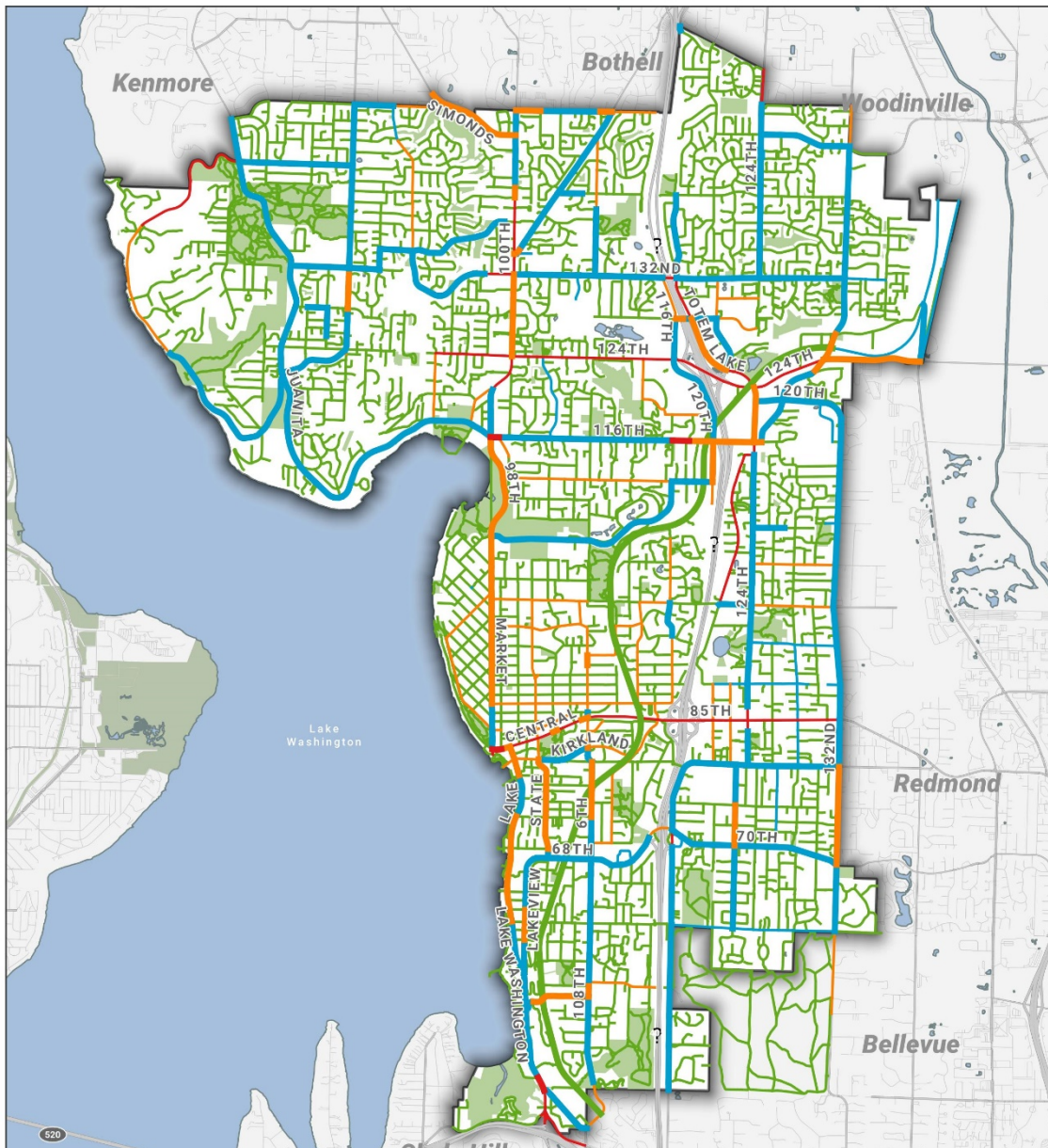
Bicycle Level of Traffic Stress Results for EXISTING Conditions

This map shows the LTS for existing bike facilities which are highlighted using thicker lines as well as all other portions of the roadway network. The majority of collector and arterial roadways, many of which have an existing bicycle facility, are classified as being high stress (LTS 3 or LTS 4). When possible, this analysis considers locations where a striped bike lane is dropped at intersection. These locations can be seen at NE 116th Ave at 98th Ave NE, NE 132nd St at 100th Ave NE, and at NE 85th Ave at 124th Ave NE.

City of Kirkland Active Transportation Plan

Bicycle Level of Traffic Stress (LTS) Analysis - Existing Conditions

TOOLE
DESIGN



Existing Conditions LTS

- LTS 1 - Lowest Stress
- LTS 2
- LTS 3
- LTS 4 - Highest Stress
- Segments with a bike facility



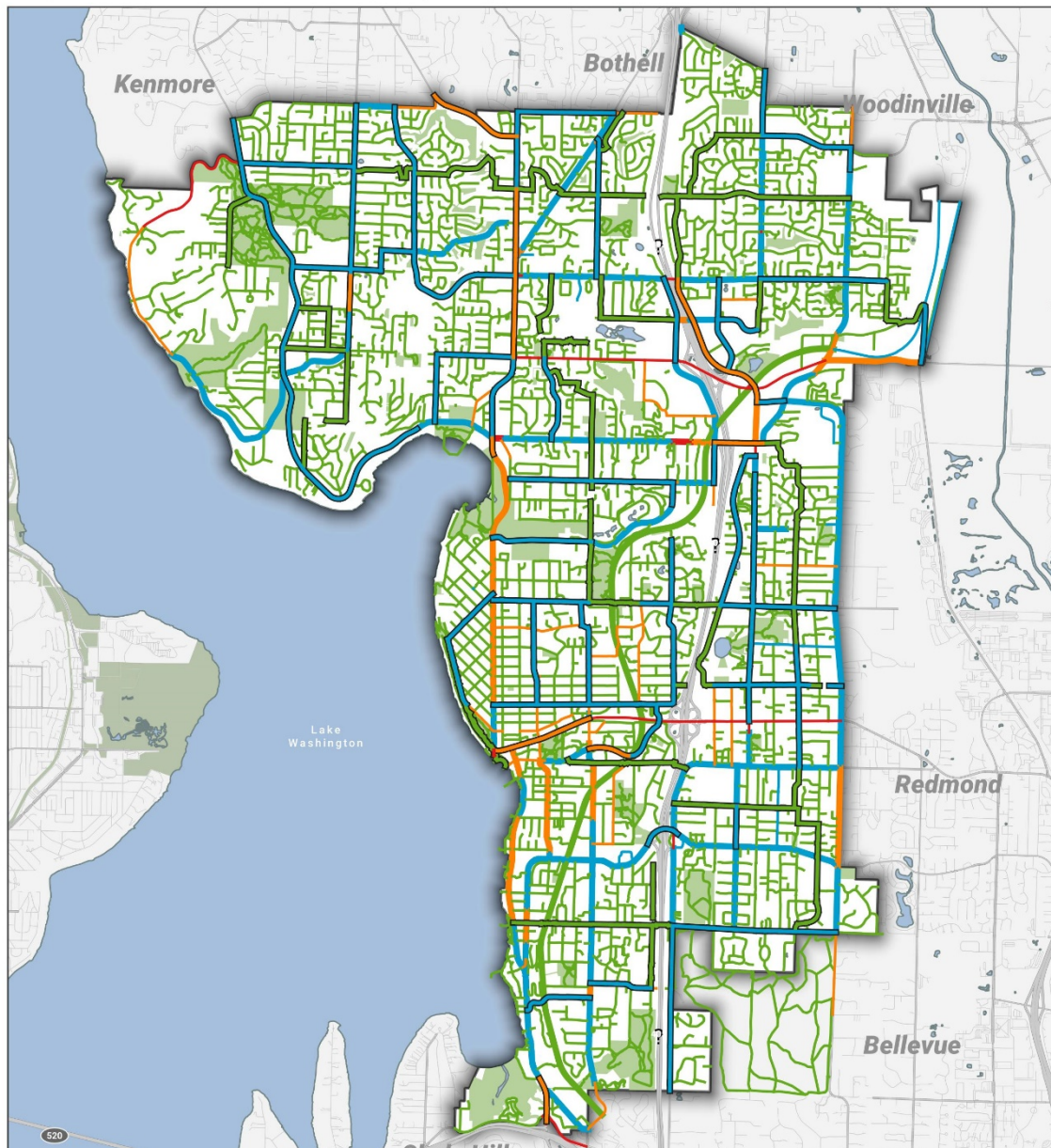
Bicycle Level of Traffic Stress Results for FUTURE Conditions:

The following map shows the LTS analysis for network segments under future conditions using the currently planned bicycle network. The key takeaway from this future conditions LTS analysis is the realization that not all planned bike facilities result in an improved sense of comfort for all types of bicyclists.

City of Kirkland Active Transportation Plan

Bicycle Level of Traffic Stress (LTS) Analysis - Future Conditions

TOOLE
DESIGN



Future Conditions LTS

- LTS 1 - Lowest Stress
- LTS 2
- 3
- LTS 4 - Highest Stress
- Segments with a planned bike facility
- Segments with an existing bike facility



0 0.5 1 miles

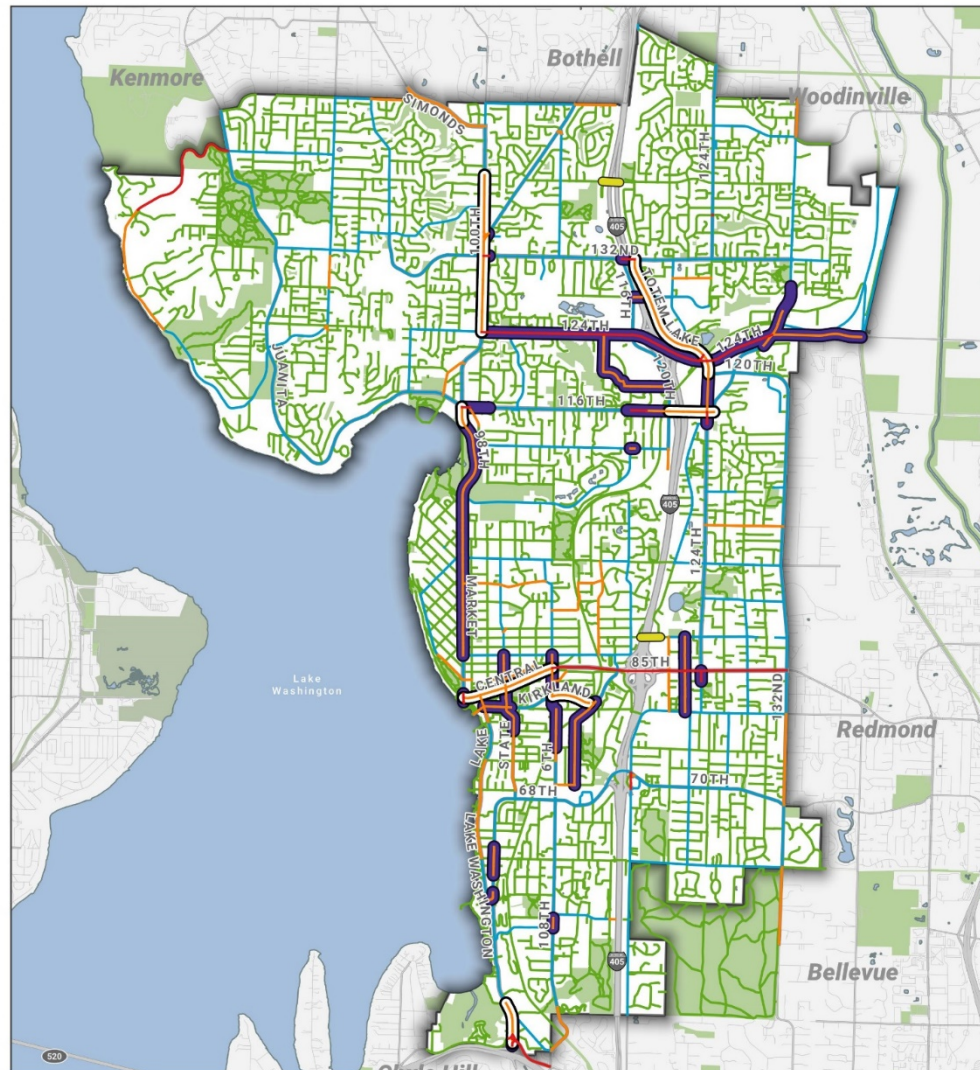
Recommended Updates to the currently planned Bicycle Network:

The following map shows how Toole's initial Bicycle Network Analysis identifies portions of the network where the planned facilities could be re-evaluated, or new bicycle accommodations can be made. Not all of the improvements noted in this map will be feasible, but it does highlight critical areas that should be addressed. Next steps include identifying solutions to some of these higher-stress areas.

City of Kirkland Active Transportation Plan (ATP)

Bicycle Network Recommendations

TOOLE
DESIGN



Future Conditions LTS
LTS 1 - Lowest Stress
LTS 2 - Low Stress
LTS 3 - High Stress
LTS 4 - Highest Stress

Recommended Improvements
New Bikeway Improvement
Enhance Planned Bikeway*

Planned Bicycle Connection
Intersection Crossing

*These segment already have planned bikeway but the planned facility does not improve the LTS score from a high-stress rating (LTS 3-4) to a low-stress rating (LTS 1-2). Further consideration is recommended to either reduce the posted speed limit, reduce vehicle volumes, or increase the physical separation between bicyclists and moving vehicles.



Creative Solutions (Market St example):

This example highlights an opportunity to address a stressful route without impacting the current conditions. Market Street is one of Kirkland's most important north/ south routes. It hosts high-frequency buses, bike lanes, sidewalks and connects downtown to Juanita and north Kirkland neighborhoods. The right-of-way is constrained by existing sidewalks, development and a signature tree-lined median. Upgrading the bike lane to a more protected facility on market would not likely be feasible due to the lack of space.

More confident bicyclists may be comfortable and prefer the existing bike lane, but this analysis focuses on identifying routes that are comfortable for people of all ages and abilities. This example highlights how local roads that have low-speeds and volumes may be an option to parallel arterials and provide a comfortable bicycle network by creating neighborhood greenways.

Analysis Results: Even though Kirkland has improved the bicycle facilities on Market (such as adding green lanes through intersections), the Bike Network Analysis noted that this does not necessarily improve the level of stress for all people.

Possible Solution: This alternate route (shown in brown) would provide a Neighborhood Greenway that offers an 'all-ages and abilities' solution for riders willing to take a more circuitous route while maintaining the Market Street bike lane for more confident riders.



Next Steps:

- Identify solutions to areas identified in the Bicycle Network Analysis as high stress or other critical barriers to the system that could be addressed
- Identify other areas of the planned network that could be improved to improve comfort (such as buffering an existing bike lane, improving pavement markings, etc.).
- Prioritize investments based on criteria
- Develop a strategy and schedule for implementation such how projects may be implemented in various annual programs, by development or partnerships or those that should be identified for the CIP or for future grants
- Develop a cost/ benefit analysis for high priority projects (likely those that will require grant funds)

Table 1 - Proposed Project Prioritization

Category	Detail	Potential Scoring Method
Overarching Policy	Implement that Transportation Master Plan Goal (T-2) to interconnect bicycle facilities that are safe, nearby, easy to use and popular with people of all ages and abilities. The focus will be to focus on connectivity, high quality facilities where people are separated from traffic as much as possible and building out the neighborhood greenways which utilizes local, residential streets and networks to create comfortable networks for all people.	
Safety	Priority Corridors identified in the 2020 Local Road Safety Plan	Yes/ No or Range for Priority level 1 & 2
	Level of Traffic Stress (LTS)	LTS 1-4
Connectivity	Bicycle Network Analysis (BNA)	Low to high BNA Score
Link to Land Use	Access to Activity Centers <ul style="list-style-type: none"> • 10-min neighborhood score • project 'leads directly into or is within' activity center 	Yes/ No or proximity score
	Access to people - an assessment of the number of parcels would benefit from an improved or new connection	Toole's Analysis. Numbered score for higher number of units per parcel that is provided access.
	Included in Safer Routes to School recommendations	Yes/ No or numbered score
	Access to the CKC	Yes/ No or numbered score
	Access to Parks	Yes/ No or numbered score
Transit	Range: <ul style="list-style-type: none"> • On a high frequency route (15 min weekdays) • On another Metro route • Direct access to high frequency route 	range

	<ul style="list-style-type: none"> • Direct access to another Metro route • Within ¼ mile or ½ mile of high frequency or other Metro route 	
Equity	Census track based: low-income, people of color, people with disabilities, senior population	range
	Could include access to community services, senior centers, etc.	
Community Input	Based on 'Suggest a Project', if is included in a Neighborhood Plan	Yes/ No